Homes England

Making homes happen

Date: 11 January 2023
Our Ref: RFI3964
Tel: 0300 1234 500
Email: infogov@homesengland.gov.uk

[redacted]
By Email Only

Information Governance Team
Homes England
Windsor House – 6th Floor
50 Victoria Street
London
SW1H 0TL

Dear Sir/Madam

RE: Request for Information – RFI3964

Thank you for your request for information which was processed in accordance with the Freedom of Information Act 2000 (FOIA) and the Environmental Information Regulations 2004 (EIR).

You requested the following information:

This is a Freedom of Information (FOI) request with regards to Medway Council's Housing Infrastructure Fund (HIF) Project known as "New Routes To Good Growth".

Medway Council submitted an expression of interest to the Ministry of Housing, Communities and Local Government (MHCLG) for the HIF New Routes to Good Growth project in September 2017.

Medway Council submitted the business case for the project to MHCLG in March 2019. In November 2019, MHCLG announced a successful funding award for the Council's HIF project.

This FOI requests the following…

1. Medway Council's complete and in full expression of interest bid and supporting documentation submitted to MHCLG/Homes England in September 2017.

2. Medway Council's complete and in full business case bid and supporting documentation submitted to MHCLG/Homes England in March 2019.

And…

3. MHCLG/Homes England's meeting minutes or/and documentation of the decision and justification to successfully award taxpayers' money to Medway Council's HIF Project. This includes at the expression of interest stage (2017) and the business case stage (2019).

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Response

1. Medway Council's complete and in full expression of interest bid and supporting documentation submitted to MHCLG/Homes England in September 2017.
&
2. Medway Council's complete and in full business case bid and supporting documentation submitted to MHCLG/Homes England in March 2019.

We can confirm that we do hold the requested information.
Please find enclosed with this response, the following documents:

- Annex A – Housing Infrastructure Fund (HIF) Expression of Interest Bid
- Annex B – HIF Business Case and supporting documents (appendices)

Information contained within the HIF Expression of Interest and Business Case and appendices has been redacted and is being withheld from disclosure in accordance with Regulation 13 and 12(5)(e) of the EIR.

Regulation 13 – Personal Data
We have redacted information on the grounds that in constitutes third party personal data and therefore engages Regulation 13 of the EIR.

To disclose personal data, such as names, contact details, addresses, email addresses and personal opinions could lead to the identification of third parties and would breach one or more of the data protection principles.

Regulation 13 is an absolute exception which means that we do not need to consider the public interest in disclosure. Once it is established that the information is personal data of a third party and release would breach one or more of the data protection principles, then the exception is engaged.

The full text in the legislation can be found on the following link;
http://www.legislation.gov.uk/uksi/2004/3391/regulation/13/made

Regulation 12(5)(e) – Confidentiality of commercial or industrial information
Under regulation 12(5)(e) of the EIR, Homes England may refuse to disclose information to the extent that its disclosure would adversely affect the confidentiality of commercial or industrial information where such confidentiality is provided by law to protect a legitimate economic interest.

Four elements are required for Regulation 12(5)(e) to be engaged:

1) The information is commercial or industrial in nature.
   The Expression of Interest and Business Case contain financial and economic appraisals, costings and values that relate to an ongoing commercial operation regarding prospective/potential development and procurement activities that are ongoing/under negotiation. Therefore, it is commercial in nature as it relates to commercial activity.

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2) Confidentiality is provided by law.
The withheld information is subject to confidentiality provided by law under a common law duty of confidence. The information has a common law duty of confidence because it is not trivial and not in the public domain. The information was shared between parties who have entered into legal agreements that contain contractually binding confidentially terms. These show that the parties had the intention that a duty of confidentiality would be created between them. Homes England therefore recognises that this information was intended to be held in confidence between the parties.

3) The confidentiality is providing a legitimate economic interest.
The withheld information relates to financial and economic appraisals of a site that is subject to development proposals. If the confidentiality of this information was breached, it would harm the ability of Homes England and third parties to receive value for money for land and services at this site. There is a legitimate economic interest in protecting the ability of Homes England and third parties to negotiate current and future commercial agreements.

4) The confidentiality would be adversely affected by disclosure.
Disclosure would result in third parties gaining access to commercially valuable information. Disclosure of the confidential information would harm the ability of Homes England to achieve good value for public money.

Public Interest Test
Regulation 12(5)(e) is subject to the public interest test. Once the exception has been engaged it is then necessary to consider the balance of the public interest in maintaining the exception or disclosing the information.

Under regulation 12(2) the public authority must apply a presumption in favour of disclosure, in both engaging the exception and carrying out the public interest test. In relation to engaging the exception, this means that there must be clear evidence that disclosure would have the adverse effect listed in 12(5).

Factors in favour of disclosure
- Homes England acknowledges that there is a presumption in disclosure regarding environmental information as well as a public interest in promoting transparency in how we undertake our work and allocate public money; and
- Homes England acknowledges that there is a public interest in large scale development processes and the robustness of the applications for funding submitted to the HIF.

Factors in favour of withholding
- Releasing the information would reveal financial information of a third party which may in turn affect their commercial interests. The consequences of releasing data that is part of a wider ongoing matter could damage our relationships with partners and put other potential funding allocations at risk. This would not be in the public interest as this could put potential homes in jeopardy and affect Homes England's ability to deliver against its objectives in our strategic plan;
- The information relates to a site where a third party (the Local Authority) will be procuring/undertaking works. If this information were released it would be likely to disadvantage the third party's commercial position and have a negative impact on the third party's ability to procure works for ongoing development at this site. The Local Authority would not be able to negotiate effectively as this information could be used

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by third parties to distort or otherwise prejudice the ability of the Local Authority to secure works for market value, resulting in damage to the public purse. This would also be likely to have the same negative effect on future commercial activity and other Homes England funding. This would not be in the public interest as it would put development at risk, inflate prices and damage Homes England's reputation as a partner. This would negatively affect public money and nullify work already undertaken;

- The information is still subject to change and options contained within not yet finalised. The consequences of releasing data that is part of a wider ongoing proposal could damage our relationships with partners and put potential negotiations and planning at risk. The interests of the third parties involved would also be similarly affected by disclosure, as this would reveal financial strategies and analysis disclosed to Homes England that were not meant for release into the public domain. If released, their interests would be adversely affected as it could be used against them in negotiations for similar matters as other parties would have this prior knowledge of their business' operating models, forecasts and financial information. To release this information would undermine future bids for similar works as it would reveal what has been agreed in this instance which could be used as a basis for obtaining an unfair advantage by other third parties. This would put them at a commercial disadvantage which would not be in the public interest as it would hinder their ability to conduct business in a competitive market if their bidding and pricing strategies were revealed in this way. This could put potential homes in jeopardy and would undermine Homes England's position and ability to deliver against its objectives and targets in our Strategic Plan;
- Disclosure would result in local authorities being deterred from including commercially sensitive information in future bids for grant funding. This will mean that Homes England would have to evaluate bids that are less comprehensive than would otherwise have been the case, meaning that Homes England's ability to undertake due diligence on the bids will be impaired. This would impact the ability of Government officials to make effective, informed decisions regarding allocation of public funds, meaning the decisions will be less robust and less likely to deliver value for money; and
- Homes England has been unable to identify a wider public interest in disclosing the information requested.

Having considered the arguments for and against disclosure of the information, we have concluded that at this time, the balance of the public interest continues to favour non-disclosure.

3. MHCLG/Homes England's meeting minutes or/and documentation of the decision and justification to successfully award taxpayers' money to Medway Council's HIF Project. This includes at the expression of interest stage (2017) and the business case stage (2019).

We can confirm that we do hold information in this scope, however it is exempt from disclosure under the following exception:

Regulation 12(4)(e) – Internal Communications
Under regulation 12(4)(e) of the EIR, Homes England may refuse to disclose information to the extent the request involves the disclosure of internal communications.

In engaging the exception it is only necessary that the information fall into the defined category, not that disclosure would have an adverse effect. However, under regulation 12(1)(b), the public authority can only withhold the information if, in all the circumstances of the case, the public interest in maintaining the exception outweighs the

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public interest in disclosing the information. Furthermore, under regulation 12(2), it must apply a presumption in favour of disclosure.

Public Interest Test

Regulation 12(4)(e) is subject to the public interest test. Once the exception has been engaged it is then necessary to consider the balance of the public interest in maintaining the exception or disclosing the information.

Factors in favour of disclosure

- Homes England acknowledge that there is a presumption in disclosure regarding environmental information as well as a public interest in promoting transparency in how we undertake our work and allocate public money; and
- Homes England acknowledge that there is an interest from the public in how Homes England makes decisions and considers applications to our funding schemes, and that there is a level of transparency required from public servants making these decisions.

Factors in favour of withholding

- It is vital that Homes England have a 'safe space' to assess and deliberate decisions in relation to ongoing funding agreements with third parties. Homes England is responsible for ensuring that a significant amount of public money is allocated to partners effectively and in a way that best ensures value for money and ensures deliverability. The deliberations undertaken by Homes England in the withheld information detail internal decision making processes in relation to ongoing contractual milestones between Homes England and a third party. Disclosure would prejudice the ability of decision makers to make impartial judgements about ongoing contractual negotiations without fear of external scrutiny and undue pressure. This would not be in the public interest as it would be likely to prejudice our position in the market as the government's housing accelerator and effectively manage the public funds entrusted to us;

- The Information Tribunal has confirmed that the need for a safe space will be strongest when the information relates to a 'live' matter. In this case, the information reveals internal deliberations that would reveal ongoing contractual milestones that if not met, would constitute a fundamental default of the contract. If the information were public it would be likely that public pressure and external factors would detrimentally affect the Council's ability to achieve further approvals and measures necessary to meet their contractual obligations. This would be detrimental to the public interest as it could negate a substantial amount of public money already invested; and

- Disclosure of internal approval decisions would have a 'chilling effect' on Homes England's ability to progress with both current and future decisions and discussions regarding funding of this scheme. As previously stated, these discussions are currently ongoing and in relation to a live process. To disclose the information would result in a loss of frankness and candour in relation to continuing decisions about a large amount of public money and would damage the quality of these discussions. This would lead to poorer decision making which would directly affect spending of public money and decision making in relation to significant infrastructure works that will impact a large number of people. It is vital that the quality of these decisions is as robust as possible to ensure these decisions are made effectively and in the public interest.

Having considered the arguments for and against disclosure of the information, we have concluded that at this time, the balance of the public interest favours non-disclosure and there is not a wider public interest in disclosing the information requested.

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The full text of Regulation 12(4)(e) in the legislation can be found via the following link: The Environmental Information Regulations 2004 (legislation.gov.uk).

Right to Appeal

If you are not happy with the information that has been provided or the way in which your request has been handled, you may request an internal review. You can request an internal review by writing to Homes England via the details below, quoting the reference number at the top of this letter.

Email: infogov@homesengland.gov.uk

The Information Governance Team
Homes England – 6th Floor
Windsor House
50 Victoria Street
London
SW1H 0TL

Your request for review must be made in writing, explain why you wish to appeal, and be received within 40 working days of the date of this response. Failure to meet this criteria may lead to your request being refused.

Upon receipt, your request for review will be passed to an independent party not involved in your original request. We aim to issue a response within 20 working days.

You may also complain to the Information Commissioner's Office (ICO) however, the Information Commissioner does usually expect the internal review procedure to be exhausted in the first instance.

The Information Commissioner's details can be found via the following link:
https://ico.org.uk/

Please note that the contents of your request and this response are also subject to the Freedom of Information Act 2000. Homes England may be required to disclose your request and our response accordingly.

Yours sincerely,

The Information Governance Team
For Homes England

Housing Infrastructure Fund - enquiry

Bid details	Primary Local Authority	Medway Towns
	Project type	Forward funding
Contact details	[redacted]@medway.gov.uk	
	Lead details	
Scheme details	Scheme name	New Routes to Good Growth
	Scheme description	• Medway has a rare opportunity to realise transformational change, delivering up to 12,100 new homes through a £170m HIF bid. This enables developers, planners and place makers to meet projected growth and build an expanded community and economy. New and upgraded Sports Centres, healthcare provision, superfast broadband, Country Parks network and public realm will unify the area's communi ies, habitats and ambitions. • Our Strategic Transport Model, Interim Transport Assessment (ITA) and previous planning considerations inform Medway's ambitious proposal. Measures include four critical strategic road schemes, Grain branch line upgrade (enabling passenger use), EV car club and shuttle bus opportunities for sustainable growth. • Positive perceptions will reinforce high values, support investment and encourage business confidence. This contributes to Medway's Thames Estuary Grow h ambition to be a leading smart and sustainable waterfront university city for the 21st century.
	Physical infrastructure	Bridge, Digital infrastructure, Road/highway, Rail, Public realm works, Land assembly, Electricity / Gas connections
	Site plan(s)	Key map (file: Map.PNG)
Delivery milestones	Planning status	None
	Planning permission target date	31/07/2018
	Statutory planning permission target date	31/07/2018
	Infrastructure - dev partner iden ified	31/10/2017
	Infrastructure - dev partner appointed	31/07/2018
	Housing - dev partner identified	31/10/2017
	Housing - dev partner appointed	31/07/2018
	Start of infrastructure works	01/10/2018
	Completion of infrastructure works	31/03/2021
Financials	Funding amount	£170,000,000
	2017/2018	£10,000,000
	2018/2019	£50,000,000
	2019/2020	£50,000,000
	2020/2021	£60,000,000
	Total infrastructure costs (inc. sunk costs)	£170,000,000

	Land	£0
	Costs incurred to date (excluding land)	£0
	Costs to complete	£170,000,000
	Previous Funding Application	No
	Local Authority investment (inc. LGF funding)	Not applicable
	PWLB loan	Not applicable
	Other public sector investment	Not applicable
	CiL/S.106 contribution	Not applicable
	Private sector investment (inc debt finance)	Not applicable
	Indicative public sector investment	100 %
	Aim to recover funding	No

Development profile	Number of sites	30
	Total size of site	1,500 ha
	Area on brownfield	0 ha

Local Authority	Number of Homes
Medway	12100

	Total number of homes	12,100
	Full / Detailed	0
	Outline	0
	Planning in principle	0
	Allocated	0
	None	12,100
	Profile up to 2020	750
	Profile 2021 - 2025	5,000
	Profile 2026 - 2030	5,000
	Profile 2031 - 2035	1,350
	Profile future years	0
	Homes delivered if without funding	0
	Explanation for number delivered	N/A - the homes above will be delivered through HIF funding.
	Providing site valuations	No

Op ions appraisal	Problem being addressed	• Challenges: growth and limited connectivity pose serious challenges, such as impact on road capacity, air quality, social infrastructure and negative perceptions of growth. • Evidence: an ITA forecasts hat Medway's conges ion will increase significantly with car journey times increasing by up to 47% by 2026. 48.5% of our workforce commutes outside Medway, compounding the issue. • Barriers to growth: limited road infrastructure capacity presents a barrier to realising sustainable growth. Piecemeal developments will not create the critical mass to deliver the required infrastructure. • Buy in: Consultations show that communities are concerned that large-scale developments do not deliver required physical and social infrastructure. • Environment: The Hoo benefits from valued biodiverse landscapes. The HIF bid pump primes investment in an accessible country park network, linking communities with habitats. Four Elms Hill is to

		become an Air Quality Management Area (AQMA).
	Options considered	• An appended options appraisal has led to a package of measures for Good Growth and wider policy outcomes. Our Strategic Infrastructure Task Force reviewed a wide range of proposals. • The recent Local Plan consulta ion presented four development scenarios. Scenario 4 provides a considered foundation for this proposal. Higher urban centre densities, waterfront sites and healthy urban extensions remain an ambition of the Council outside of this HIF application to ensure affordability and deliverability across the area. • O her options were explored (Chatham Docks, Strood flood defences, Cuxton bypass, addi ional river crossings), but not progressed due to weak strategic fit, deliverability and/or value for money. • The 'do nothing' op ion risks Medway stagnating relative to the rest of the South East, impac ing on quality of life, employability and health.
	If funding not secured	• Key infrastructure is needed to support viable housing development, access to jobs and foster demand for housing. Current plans and brownfield sites carry uncertainty and risk considering the range and scale of development need. • The Council and government share an ambi ion to deliver long lasting sustainable transport projects. Lesser investment would not allow the delivery of the blended model required to deliver our package of solutions. • An 'invest once and invest well' model delivering strategically informed infrastructure, gives communities and developers confidence and clarity with a imely coordinated delivery. Piecemeal s106 contributions cannot achieve this and would critically impact on viability and timing. • Without funding, smaller, less viable sites across Medway, including marginal land will be considered. These areas will either need significant infrastructure investment hemselves, which may not be viable or achieve planning permission within desired timescales.
Strategic approach	Demonstrate strong local leadership	• The Council Leader, Portfolio Holder for Strategic Regenera ion and Portfolio Holder for Front Line Services, in particular, fully support the proposal. Officers have fully engaged with other portfolio holders within the Medway Council Cabinet. Our MPs and Members endorse the scheme and are engaged in its on-going development • The Council, working wi h partners and government agencies has a strong track record of bringing land forward for development e.g. SELEP, LGF and GPF funded projects totalling £47m at Rochester Riverside, Innovation Park Medway, Strood Waterfront, Temple Waterfront, St Mary's Island, the Universi ies and Gillingham waterfront areas. Network rail investment includes £30million investment across Medway including a new train station at Rochester. • Medway Council's Regeneration, Planning Policy and Integrated Transport teams are working together to seek and deliver the key infrastructure needed to achieve housing targets for the Local Plan and HIF by 2035 and 2042 respectively. We have a Strategic Infrastructure Task Force and will establish a Design Review Panel. We developed a Grow h Infrastructure Framework (GIF) with Kent County Council. • There is substantial private sector leadership from landowners and developers subject to greater infrastructure. Hyde, Redrow, Countryside and Berkeley Group are developing homes at

	flagship regeneration sites including Modern Methods of Construction (MMC). • Property prices on the Hoo reveals a price differential to he rest of Medway/North Kent, with larger four bedroom properties available for buyers. The average asking price on Hoo Peninsula is £322,861 compared to £232,000 for Medway. Further analysis, as part of our business case may highlight price variations and opportunities for high land value uplift, supporting executive housing, high GVA jobs, and increased S106 developer contribu ions. Average house prices have risen by 51.7% in Medway since 2013, demonstrating strong market demand.
Demonstrate unlocking new & better homes	• The GIF provides a strategic assessment of future infrastructure needs and has assisted in prioritising investment from different sources. • Better road, rail and river routes will connect Hoo communities to high GVA jobs and sustainable living e.g. Innovation Park Medway, Universities at Medway, historic Rochester and Crea ive Quarter; and wider Thames Estuary Growth Corridor opportunities. This will create a stronger economic hub, reducing loss of talent and pressure on transport caused by commuting. • The Grain branch line will adapt freight rail to enable passenger use. Modal shift will underpin sustainability. •Transport of construction materials by road, rail and river will enable housing mix. Scale will justify a local modular construction factory. • Added value funding includes the ESFA to build a £25m school and an HLF Landscape Partnership bid to invest in culture and heritage. • Our scheme prepares to unlock waterfront development at Medway City Estate beyond 2035.
Demonstrate diversifying housebuilding market	• The Council has supported a key modular development by La is Homes (envisaged via the Housing White Paper). This flagship eco-community is delivering 267 homes. Our learning will inform new MMC schemes. We are exploring a modular, off-site construction factory to streamline supply chains and provide new jobs for local people. • We have used joint working models and new ways of working e.g. One Public Estate • We are engaging with developers to explore alternative delivery models. • We recognise that a range of housing types and delivery methods is desirable in place making and meeting local demand for housing mix. A shortage of execu ive homes may be a barrier to inward investment and relocation. • Smaller plots allocated for development are attrac ive to new market entrants, SME builders and self-builds. Smaller plots, previously overlooked due to poor infrastructure, can now be identified. • Areas near new sta ions can support higher housing densities in line with SHMA.
Local MP(s)	Yes Letter of support from Medway's MPs (file: MP letter of support 28 Sep 17.pdf)
Local community	Not applicable
Local Enterprise Partnership(s)	Yes South East LEP endorsement (file: HIF Endorsement Medway (2).pdf) Kent and Medway Economic Partnership endorsement (sub-LEP board) (file: KMEP letter - HIF Endorsement - Medway - 27.09.17.pdf)

	All supporting Local Authorities	Yes Gravesham Borough Council support (file: Gravesham BC.pdf) GLA support(to be refreshed post-bid) (file: davies2709.pdf) Kent County Council letter of support (file: Letter - HIF FF Endorsement - Medway - KCC - 27.09.17.pdf)
	Dev partner(s) (Infrastructure)	Yes Network Rail endorsement (file: Network Rail pdf) Peel Ports London-Medway support (file: Peel.pdf) SWECO note (file: Sweco - Strategic Transport Assessment.pdf)
	Dev partner(s) (Housing)	No We are working posi ively wi h a broad number of housing partners to enable a diverse housing mix using a number of traditional and alterna ive delivery models. Some of the housing partners are named within our Outline Delivery Plan and other areas of the Enquiry Form.
Plan status	Plan adopted or submitted	No
	How funding will help	• The on-going development of the new Local Plan, of which the emerging concepts are reflected and reinforced in this bid, will comprise a preferred development strategy and associated site allocations. • Subject to outcomes of an independent examination, it is an icipated that the new Local Plan will be adopted in 2019. This timescale could be hindered if the transport evidence base is not robust. Highways England and Kent Highways will only support the new Local Plan if the evidence base and mitigation requirements are established. • Mi igation requirements will include the loca ion, design, phasing, costs and funding sources. • A lack of infrastructure funding would compromise the viability and deliverability of the new Local Plan.
Approach to delivery		
	Outline delivery plan	Outline Delivery Plan (file: Outline Delivery Plan.pdf)
	Plans to deliver infrastructure	• Integrated Transport will produce a brief for civil engineers to complete road infrastructure works. The STA will provide a robust evidence base for our business case. The Planning Department has explored Duty to Cooperate processes with Gravesham Borough Council and Kent County Council. • Ongoing collabora ion with Network Rail will support the Grain branch line upgrade, which would be delivered in phases, prioritising a new station at Hoo and passing loops for freight. Network Rail is undertaking capacity analysis and has provided a cost for a 'pre-GRIP' to commence he eight standard sequential steps to delivery. • Regeneration Delivery is liaising with landowners and developers to assemble and release land, including through alternative delivery models and supported an emerging masterplan for 800 hectares on the Hoo Peninsula. The team will additionally support the masterplan for other sites as they come forward.
	Link between infrastructure and homes	• Our SLAA identified potential development sites in preparation for responding to the need for more homes. An Interim STA demonstrated that congestion will increase significantly by 2026, based on increased developments across Medway. • Mitiga ing negative impacts on the road network by providing infrastructure reduces the risk of future planning applications being rejected. The Council's authoritative

		Strategic Transport Model will fur her assess the cumulative impact of site alloca ion on the transport network during the iterative development of our Local Plan. • HIF investment will reduce the burden of developer contributions on housebuilders. Reducing the cost of construc ion at scale will make sites viable and support accelerated construction. • Rail investment, quality infrastructure and public realm could increase house prices in he area, increasing revenue opportunities for housebuilders. This in turn makes construction more viable, wi h a focus on quality housing delivery
	Delivery partners working together	• As an upper tier, unitary authority, our Regeneration Delivery function brings together Integrated Transport, Highways, Planning Policy, Housing, Greenspaces, Waste, Public Heal h and o her Council teams to develop our vision for ambitious, sustainable new development. • We have successfully engaged with a diverse range of key stakeholders including: Network Rail (30 year delivery vision), Arriva (engaged) Gravesham Borough Council (duty to cooperate), Kent County Council (duty to cooperate and Kent and Medway Economic Partnership), South East Local Enterprise Partnership (endorsement), local MPs including Parliamentary Under Secretary for Sport and Civil Society (endorsement), landowner consortium (engaged) and housebuilders; HCA (Lodge Hill and accelerated construction), Southern Water (Water Delivery Plan), ESFA (£25m secondary school investment), Peel Ports (opportunities at London Medway), and Lower Thames Crossing (via Transport for the South East).

Supporting documents

File	Description
Map.PNG	Map of proposed infrastructure investment
Options Appraisal.pdf	Op ions Appraisal
Local Plan Evidence Base Links.pdf	Supporting evidence base
MP Presenta ion.pdf	MP presentation
Costings.PNG	Outline costings

History	Submitted date	28/09/2017


London Gateway
Thames Haven
Canvey Island Beach
River Thames
Allhallows
St Mary Hoo
Northwood Nature Reserve
Cooling
High Halstow
Lower Stoke
Isle of Grain
Middle Stoke
Upper Stoke
Cliffe Woods
Deangate Ridge Golf Course
Kingsnorth Industrial Estate
Hoo St Werburgh
Chattenden
Higham
Lower Upnor
Wainscott
Upnor
Strood
Offserve Industrial Estate
Rochester
Brompton
Gillingham
Eastcourt Meadows Country Park
Ranscombe Farm Country Park
Diggerland
Great Lines
Chatham
Gillingham Golf Course
Riverside Country Park
River Medway
Upchurch
Lower Halstow
Upchurch River Valley Golf Course
Cuxton
Luton Millennium Green
Rainham
mapquest

Housing Infrastructure Fund

Outline Delivery Plan – Forward Funding

This template document is for your Outline Delivery Plan, which is to be submitted with your online submission form to provide further information on the delivery of your proposal.

Your Outline Delivery Plan should be no more than 10 pages of A4.

If you require any assistance or have any queries, please email us at HIF@hca.gsi.gov.uk

Local Authority: Medway Council

Scheme Name: New Routes to Good Growth

Homes & Communities Agency

Medway Council

Serving You

1. Scheme – plan and progress to date

New Routes to Good Growth: The Housing Infrastructure Fund (HIF) presents a rare opportunity to pump prime transformational change, unlocking up to **12,100** new homes. Medway's proposal has emerged from high-level conceptual work. This would reinforce the infrastructure needs in the new Local Plan, which will provide the overall development strategy for Medway. Medway's ambitious proposal includes an upgrade to the Grain branch train line as a new passenger transport corridor, along with critical road improvements and sustainable travel initiatives. This will achieve development viability and deliver the new Local Plan (to be confirmed through the Strategic Transport Assessment). Collaborative working with Network Rail has established the rail concept.

Good Growth will relieve road congestion and address air pollution. It will enhance connectivity and bring about a step-change in sustainable travel behaviour. The project contributes to exemplary approaches to design, green infrastructure and public health. Wider contributions include Lower Thames Crossing, London Resort and Peel Ports as part of the Thames Estuary growth corridor. Positive perceptions reinforce high values, support investment and encourage business confidence. Good Growth creates a higher value offer and contributes to an aspiring brand for Medway as a leading **smart and sustainable waterfront university city**.

What we will deliver: The HIF will allow Medway Council to increase travel capacity and capability, reducing pressure on the A228 through mixed measures including modal shift.

A new **relief road** will provide alternative access to the Hoo Peninsula from the A289, reducing pressure on the current A228. We propose a new road to unlock real estate including Council owned Deangate, with supporting road infrastructure to improve access and relieve the potential for congestion. **Road widening** along the A228 will increase the capacity for key junctions and ensure smoother journeys and a positive impact on air quality. New **priority lanes** for buses, shuttle buses and electric vehicles will encourage modal shift towards alternate, sustainable forms of transport. Mindful of the increased population, SME development needs and need for school places, a **road spur** will be added to the A228 to facilitate access to a new school building (funded by ESFA) and enable small land parcels for SME accelerated development.

A **rail connection** utilising the existing Grain freight line will create a passenger service from the Hoo Peninsula to Gravesend HS1. Network Rail endorses this exciting initiative. The Hundred of Hoo Line will connect Gravesend main line train station to the Hoo Peninsula, including a passing loop and a new station spurring from the Grain freight line in the heart of Deangate. This is an ideal, Council-owned site, within walking distance of the majority of residents, supporting a modal shift towards rail for a number of journeys including commuting. The Network Rail Kent Route study consultation and their 30-year delivery vision have noted the proposed line.

The proposed rail line then extends passenger services eastwards to employment sites at a new modern employment park at Kingsnorth, London-Medway Peel Ports, and the Isle of Grain. There is additional interest from a waste recycling/ energy conversion unit. Rail facilitates the expansion of Kingsnorth, which can unlock the long-term redevelopment of the Medway City Estate from an industrial site into prime residential real estate at the heart of Medway's urban regeneration. Medway City Estate Vision 2010 produced indicative plans for up to 12,000 homes (beyond Local Plan 2035).

Shuttle-bus and **electric vehicle car club** projects will serve to transport residents living and/or working on the Peninsula to Medway town centres and services, including Universities at Medway. These opportunities offer a sustainable, low emission solution. These measures will alleviate air quality concerns for the Four Elms AQMA in particular. They mitigate against poorer

average journey times. They support modal shift and a sustainable transport mode to access the new rail line.

The Good Growth vision evolves from concepts inspired by **Farrells, 2008**, which demonstrated an ambitious yet sustainable proposal for growth on the Hoo Peninsula. Our vision aligns with the growth ambitions of our upcoming Local Plan, to be submitted for examination in 2018. “Good growth” specifically builds on scenario 4 of our spatial options. Medway Council has dedicated resources to develop our plans for the area, including development options, strategic transport assessment and Infrastructure Position Statement/Infrastructure Delivery Plan. A cross-departmental Strategic Infrastructure Task Force has developed an appraisal of the transport infrastructure needed to unlock significant housing development, supported by an options appraisal with less optimal alternatives outlined. SWECO is developing a **Technical Note** to support our concepts.

Departmental engagement: Medway Council has a track record of positively engaging with governmental departments such as the HCA and DCLG.

Significant housing and employment land can be unlocked between Kingsnorth and Isle of Grain through the proposed application. Medway Council has engaged with the **Department for International Trade** to discuss the value, quantity and quality of the land that can be unlocked. Social infrastructure in the form of a new secondary school would increase current provision for the larger population. Medway Council is in talks with the **Department for Education** via ESFA to build a new school, prospectively within the new developments, with a £25 million capital investment. To support health, sport and leisure, a prospective £3 million **Sport England** Parklife bid will develop the Peninsula’s sport offer and serve the projected increased population demand.

Medway Council has engaged extensively with the **Environmental Agency and Natural England** regarding a number of issues and opportunities on the Hoo Peninsula. The Peninsula has Ramsar and SSSI land designations. Protecting local and European nesting sites is equally important to the economic and social development of the area.
Due to the unique character of the area, together we are exploring how to make a sustainable landscape whilst enabling economic growth. We have worked positively with Natural England regarding the England Coastal Path and Public Rights of Way. Our Sustainable Access Management Monitoring Scheme - **SAMMS project** - for North Kent will contribute up to £2.7million to the scheme through a developer contribution to mitigate wintering bird disturbance.

2. Delivery team

2.1 Local Authority team

Project team: The Regeneration Delivery Team of Medway Council will lead programme management. The team has a proven track record of delivering flagship regeneration schemes. We have co-ordinated the development of Rochester Riverside in partnership with the HCA. In April 2017, we appointed Countryside as our development partner to unlock a £400 million development in the heart of historic Rochester. The site will begin delivering homes from October 2017, with 1300 units, including a school and health centre, across the 75-acre site by 2028. Council services including Planning Policy, Integrated Transport, Category Management and Capital Projects in particular, will support the Regeneration Delivery team to make this project successful.

Team experience: We will use our proven Regeneration Delivery structure to lead project implementation including a Programme Manager and a Project Officer for each of two main work streams: Transport and Sustainability. The proposal has extensive support from the Director of

RCET and his Senior Management team. We will recruit directly for project roles with bespoke job descriptions appropriate for the “Good Growth” programme.

Current team members with the relevant project management skills and experience include **Tomasz Kozlowski**, Assistant Director for Physical and Cultural Regeneration. Portfolio includes Regeneration, Housing, Planning and Leisure. **Sunny Ee**, Head of Regeneration Delivery, regeneration project management experience including delivery of £4 million Local Growth Fund Chatham Place making project. **Deborah Rolfe**, Regeneration Programme Manager is currently working with a consortium of landowners on Hoo Peninsula to unlock private development. Deborah leads the Rochester Riverside project to unlock 1300 homes in partnership with the HCA. **Janet Elliot,** Regeneration Programme Manager leads waterfront development at Strood Riverside including a mix of Council owned and private land, with additional complexity of flood defences, LGF targets and environmental protection. **Martin Hall**, Programme Manager, has a wealth of experience managing green infrastructure, place making initiatives and the skills agenda on behalf of the Council. Martin delivered a £22million Parklands scheme funded by HCA. **Andrew Bull** is a key member of the Planning Policy team leading on the strategic infrastructure needs, opportunities and solutions for the Medway Local Plan and beyond. **Andy Wilde** is a Principal Transport Engineer who has worked on numerous transport schemes across Medway. Additional skills across the Council with experience of delivering this type of scheme include the Category Management Place Team, Capital Projects Team, Housing, Environmental Health, Waste Services, Public Health, Finance and Legal.

2.2 Private sector partners

Consultancy: Council leaders and officers informed our proposal, supported by expert consultants. **Fore Consulting** has supported the development of our Strategic Transport Model and modelling runs. Planning Policy team appointed **SWECO** to develop our Strategic Transport Assessment for our Local Plan, including a comprehensive assessment of the Hoo Peninsula. SWECO is producing a Strategic Transport Technical Assessment to support our concepts. **Mott Macdonald** has worked with us to provide technical drawings for proposed highways schemes including the next phase of A289 connections.

Housebuilders: Our Regeneration team and Planning Service currently engage with a **wide range of housebuilders to promote innovative** solutions and a diversified housing mix. We work with SME developers to enable fast pace delivery on smaller parcels of land (Countryside on St Mary’s Island and Chartway in Gillingham). We work with larger housebuilders to unlock large urban regeneration sites including Berkeley Homes, Barratt Developments, and Redrow. We work with developers who engage with innovative housing solutions including Latis Homes who are using modular construction to bring forward development in Chatham. We regularly work with Housing Associations and their partners to develop new sites, increased densities and affordable accommodation including MHS Homes, L&Q, Hyde, West Kent and our own HRA development via a Medway Council Housing Company. Medway Council is liaising with landowners to unlock significant housing development sites on the Hoo Peninsula. A diversified mix of developers will enable a more viable market offer and through broad capacity and capability, bringing forward an increased pace of development on the Hoo Peninsula.

Infrastructure: Medway Council works with a number of infrastructure organisations to achieve transport, housing and planning delivery and objectives. We worked with and discussed significant infrastructure requirements with a multitude of agencies through our Local Plan consultation. This has informed our Infrastructure Position Statement and **Infrastructure Delivery Plan**. We have specifically worked with Network Rail, Volker Highways, Mott Macdonald and SWECO. Network Rail has included the Grain branch line in their 30-year vision document

and they will develop a business case. We have engaged with utility providers who have infrastructure requirements because of growth including British Gas, National Grid and BT. Southern Water has published its Water Management Plan, which outlines its medium term approach to providing sufficient clean drinking water to a growing south east population.

Other partners: We have initially engaged with **Arriva,** a key public transport contractor in Medway, who are supportive of our developing proposals. Medway Council officers have engaged with **Medway Commercial Group** who delivers smart technology services. We will draw upon their expertise as the programme develops. We continue to engage regularly with partners through the Medway Cultural Partnership, Hoo Landscape Partnership, Medway Innovation Board and Universities at Medway to consider new ways of working and collaboration across projects.

2.3 Other resources

Key stakeholders:

- The establishment of a rail connection will be developed as a dedicated project, including a detailed **Network Rail-led business case** and engineering assessments; this proposal can only advance at Stage 2 of the Forward Funding process. Network Rail will require funds for a 'pre-GRIP' to commence the eight standard sequential steps to delivery.

- Medway Council needs to invest resources to prepare the Good Growth **business case** for submission by spring 2018, in line with HIF timescales. The Planning Policy team is developing an Infrastructure Delivery Plan in late 2017 as the next steps to the Infrastructure Position Statement 2017. This work supports Local Plan development and will contribute to the Housing Infrastructure Fund Business Plan.

- Complementary to the Business Plan work stream, the Regeneration Delivery team is working with landowners who will prepare **development options** and an **outline planning application** for a significant housing development during 2018. This will make the initial five-year HIF targets achievable and enable us to hit the ground running. Full planning permission is subject to the Strategic Transport Assessment by SWECO and infrastructure recommendations through the HIF.

Medway Council envisages a fast-tracked consultation based planning process for much of the road infrastructure because the bulk will be within Council-owned land. Outline and full planning applications for place making initiatives and public realm creation will be subject to master planning, negotiation and collaborative urban design with developers.

A Good Growth Design Review Panel will be established to review and challenge all aspects and stages of the HIF scheme – seeking good design solutions for place making and sustainable development.

We have engaged positively and consulted with agencies and communities regarding the Local Plan. Section 106 **developer contributions** will facilitate large, connected green-spaces that ensure superb wildlife habitats and areas for outdoor leisure. The spaces will strategically fit with Medway's existing eight Green Flag designated areas and be maintained to facilitate additional Green flag designations for Hoo.

Medway Council has considered the resources required to deliver this significant programme of investments. The final preparation of the emerging **Local Plan** is timely because it provides the opportunity for communities, landowners and developers to consider the scenario that forms the foundation of this bid. Preparation for the Local Plan also means that we have developed a robust evidence base for development and are independently resourcing further evidence base

reports. Regulation 19 publication of the draft Local Plan is due in early 2018. It is envisaged that Local Plan preparation will be fully funded through the Medway Council Planning Policy budget. Local Plan adoption is due for examination in early 2019. All major timelines are recorded on our indicative, evolving Project Plan Gannt.

The **Strategic Transport Assessment** (late 2017) builds on an Initial Transport Assessment, Strategic Transport Model, and traffic data analysis, census data, Local Transport Plan and consultation material to identify site-specific mitigations. Indicative costs are proposed. Resources will be required to develop detailed road improvement plans.

3. Project management and monitoring arrangements

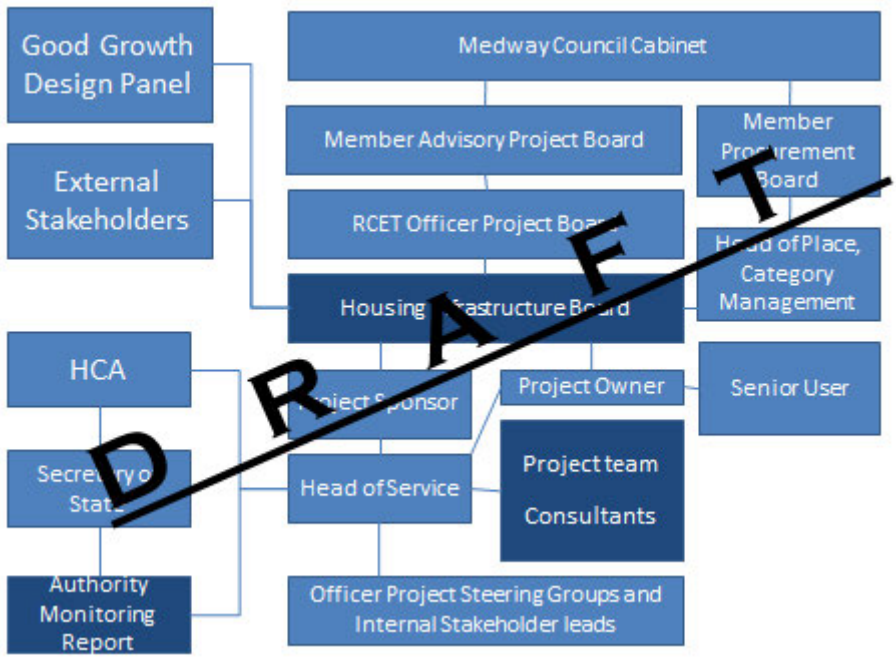
3.1 Management arrangements

Existing Management:

- Medway Council formed an **External Investment Working Group** in 2015, which brings together different council departments to consider better ways of working and innovative proposals for funding. The group ensured cross-disciplinary input into our HIF concepts.
- The Director of RCET initiated the establishment of a **Strategic Infrastructure Task Force** to consider Medway's infrastructure needs over the forthcoming decades.
- This group championed a strategic review of transport and social infrastructure, with high-level recommendations for major infrastructure works including the Grain branch line. These recommendations form the foundation of the bid.
- Members of the group met with key officers from the HCA to discuss our initial proposals, establish common goals, and provide feedback to refine our offer.
- Medway Council has established a cross-council **Smart Cities Working Group**, which will feed into development plans and concepts to add value to HIF delivery.
- Medway Council's **project management** processes follow the principles of Prince2 methodology. This is demonstrated by the roles linked to project delivery. All service delivery is assessed against the outcomes outlined in the Council Plan and recorded using Covalent.
- This group will continue to champion the Good Growth project and support it through the business case stage of development.

Proposed management:

- We will form the core of the proposed management structure and approach during the business case stage and develop it into a robust model by the time we begin operational delivery.
- An established, shared vision from the outset will remain at the forefront of collaborative working between development partners through to completion.
- A Housing Infrastructure Fund Board of key members, officers, partners and stakeholders will monitor delivery and impact, including the



identification of significant issues and ongoing risk management. The team will present regular monitoring reports to leaders, partners and stakeholders.

A dedicated HIF Programme Management team will deliver the Good Growth programme. The Head of Regeneration Delivery is the key interface between the **project team**, the **project owner** (Director, RCET, **project sponsor** (Council Leader), **Officer steering groups** and the **HCA**. External stakeholders and partners such as Network Rail will feed into the Housing Infrastructure Board through communication, reports and representation. The Head of Service will take responsibility for informing the Authority Monitoring Report (AMR) led by the Planning Service.

- Engagement with the HCA and AMR will inform the Secretary of State.

The Head of Service will line manage a team of officers and external consultants to realise delivery of the next phase and subsequent delivery. Key skills required include transport planning, transport engineering, rail engineering, project management, and commissioning and contract management. A cross-disciplinary Good Growth Design Review Panel will support the Head of Service.

Governance:
The Council Leader, Portfolio Holder for Strategic Regeneration and Portfolio Holder for Front Line Services, in particular, fully support the proposal. Officers have fully engaged with other portfolio holders within the Medway Council Cabinet.

Our governance organogram illustrates our governance model for externally funded projects. Local Growth Fund projects successfully tested this model with £47m delivered on time and on budget. We will develop the core of this governance model during the business case stage. We can adapt this model in a flexible way to fit with the requirements of the Housing Infrastructure Fund.

3.2 Monitoring arrangements

Existing monitoring: Section 35 of the Planning and Compulsory Purchase Act 2004 requires every Planning Authority to produce an annual **Authority Monitoring Report**. This creates a comprehensive statistical evidence base for monitoring the Local Plan. The report will include detailed information relating to the Hoo Peninsula. We will use datasets to provide an annual report to the HCA specifically relating to the HIF programme.

Housing delivery Milestones and key performance indicators using the Authority Monitoring Report can include: completions on previously developed land, small site completions, windfall completions by property type and number of bedrooms, permissions and number of dwellings on new sites, permitted development, annual completions by ward, average net density of full permissions and residential land available.

Additional arrangements: Useful indicators to identify **risk triggers** include completion projections by property type based on planning permission approvals, housing planning consents excluded or expired, residential land availability, residential pipeline sites and sites by approval/refusals

Planning permissions will represent key milestones. There will be ongoing work until completion, including the consideration of reserved matters, the discharge of conditions and the processing of supplementary financial contributions. Robust administrative processes will require significant resourcing, possibly through a **Planning Performance Agreement.**

It is important to identify **transport objectives and outcomes** from the start. Measures will need to be in place in order to manage demand. An area-wide Travel Plan/Transport Strategy may provide a mechanism for monitoring arrangements. We will use existing measures and tools to record broader progress and impact including drawing upon waste plans, air quality action plan, population and employment statistics. We will monitor, record and **report on quality** through our Good Growth Design Panel.

The Head of Service will additionally prepare **quarterly** qualitative and quantitative reports for the Directorate Management Team, outlining how actions contribute to the Council Plan. This is submitted using Covalent software and analysed by the Corporate Performance and Intelligence Hub. The Directorate Management Team led by Richard Hicks, Director of Regeneration, Culture, Environment and Transformation, with additional scrutiny from a Finance Business Partner, will review quarterly reports.

The Head of Service will prepare a **monthly** operational report, scrutinised by the Portfolio Holder for Strategic Regeneration, the Portfolio Holder for Frontline Services, Programme Steering Group and Project Officer Board. We use monthly updates for internal scrutiny and support. They identify key risks and can deploy resources and expertise to unblock issues.

4. Local housing market and housing delivery

4.1 Local Housing Market

Medway Council commissioned GVA to develop a Strategic Housing Market Analysis (SHMA), Housing Market Needs Survey and Analysis Report in 2015. Semi-detached houses or bungalows comprise 40 per cent of the Peninsula ward's housing stock, while terraced homes comprise 20 per cent. This compares to 30 per cent and 40 percent cross Medway respectively (Census 2011, Table KS401EW). The SHMA "suggests potential rural specific considerations for the Council, such as delivering more terraced and flatted stock to offer more stock variation and affordable choice, and focussing more on delivering smaller stock (1-3 bedrooms)".

Official projections from the ONS 2012-based SNPP anticipates the population of Medway will increase by 58,600 people, to 326,800 by 2037. This suggests significant **demand for housing** during the Local Plan period up to 2035.

Medway average house **prices rose by 231%** since 2000, compared to 230%, 226% and 204% in Dartford, Gravesham and Swale respectively (SHMA, 2015, and latest house price data from ONS, 2017).

Of the households who currently want to move, 54.7% are a result of wanting to **change property size**. This supports the argument to promote a diverse housing mix including flats and detached housing in particular. Medway has a significantly lower proportion of detached housing stock, at 14% compared to 28% for the South East (SHMA, 2015). HIF activities will enable internal movements within the Medway property market.

31% of people wanting to move house, want to do so to live closer to employment. If we support quality developments with **good access to key employment land** and fast transport links, we could reduce the impact of out-migration.

Medway Property Price Report 2017 explores house prices at town level and so does not provide detail for Hoo Peninsula. We have used the same methodology to develop a report for Hoo Peninsula (August 2017). The report uses a data sample of 173 houses listed from January-July 2017 to establish an average **asking price of £332,861** with an average of 2.95 bedrooms per

house. This is above the Medway house price average of £232,000, suggesting a strong land value uplift and stronger BCR for HIF. **Medway house prices have risen by an average of 51.7% since 2013, demonstrating price signals and strong market demand.**

The housebuilding market is active across the Peninsula with 87 completions in 2015/16 (out of 553 completions across Medway). Enabling transport infrastructure, with diverse methods and approaches to construction including sustainability, will unlock significant development on the Hoo Peninsula to meet local demand. We will engage with agencies such as Savills to establish our economic case at stage two of the HIF.

A substantial increase of housing in this location would require a revised approach to housing density, for example in close proximity to the new rail station, which need to be in keeping with the character of the existing village. The principles set out by MJP Architects (sponsored by the HCA) in 'Sustainable Suburbia: A Walkable Garden Suburb' may provide a blueprint for the expansion of Hoo. This study demonstrates how it is possible to retain key elements of the existing context with reduced car dependency and increased housing density.

4.2 Alternative delivery models

We propose **a varied housing mix** enabled by HIF. Our analysis of demand suggests that over half of people wanting to move house is from a desire to have a different house size. A lack of detached housing stock in Medway exacerbates this. We will encourage and support **quality development** through our planning service, in line with our Local Plan consultation feedback. Our **Good Growth Design** Panel will challenge approaches and champion an ambition for Good Growth. We will encourage energy efficient housing units with superfast broadband that facilitate working from home and **local entrepreneurship**.

We are engaging with **consortium developments** supported by larger traditional housebuilders. This approach has the potential to bring forward thousands of housing units in a coherent community, with staged development, supported by other accelerated developments.

Medway Council is in conversation with developers who promote and use **modular construction** such as Latis Homes. This approach has successfully brought forward development in Chatham. It is likely to be a feature of a diversified approach to construction in the future, including a **modular construction factory**, particularly if materials are transported by **road, rail and river**.

Self-developers and SME's bring innovation and diversity to type of housing stock and appearance of sites. SMEs are more driven to accelerate pace of construction due to their own cash flow needs and business models. Spur roads with utilities, enable SME development, complemented and incentivised using government facilities such as the existing Home Builders Fund.

Medway Council recognises the need to support social housing development including through new models of delivery. Last year we led an award winning development of 57 bungalows for social housing. Following this success, we are developing a **Medway Council Housing Company** to progress our own sites. This may be a delivery model alongside the other measures proposed. This can support pace of development, housing mix and support Council Plan objectives to build new homes and reduce homelessness.

5. Other supporting information

Strategic Vision: Medway Council has a clear vision for the direction and delivery of services. Our Council Plan 2015/16 – 2020/21 outlines our priorities, supported by Medway 2035 vision document and Local Plan. Our Good Growth proposal contributes to all of the Council Plan priorities and outcomes.

We want Medway to be a place to be proud of, with a clean and green environment. We want to make it easier to get around Medway using existing and new transport solutions. We also want to put Medway on the map with a clear identity as a smart and sustainable waterfront city. We want to maximise **regeneration and economic growth** potential within Medway, as an area at the heart of the **Thames Estuary Growth Corridor** and the supporting principles of Farrell's, 2008, vision for the Hoo Peninsula. We want to support residents to realise their full potential.

Strategic Location: Medway roads, high speed rail and water connections are strategically positioned within the Thames Growth Corridor to access trade and employment opportunities in London, the South East and mainland Europe. Our strategic location makes investing in Medway a smart decision for Housing Infrastructure Fund investment to support "Good Growth" and the wider benefits of economic development.

Lower Thames Crossing: Greater connectivity between Kent and Essex will unlock growth and jobs across the region. Investment in Lower Thames Crossing may lead to greater enhancements to the A226 and connections to the A289 and the new developments and employment sites beyond. Investment in the Lower Thames Crossing complements our Good Growth proposal, particularly as we review road connection compatibility with the A226.

Economic Growth: There are significant international trade and economic development opportunities on the Isle of Grain and Kingsnorth. They have the potential to develop into a prime commercial site and manufacturing hub respectively. Peel Ports London Medway is a deep-water port on the Isle of Grain and represents a significant trade opportunity for exporters in a **post-Brexit trade** paradigm. Medway's Industrial Pipeline of employment land includes 230,000 sq ft at Kingsnorth and 314,000 sq ft at Grain Road (North Kent SHENA, 2015). In the longer term, economic growth on the Peninsula will attract industrial and commercial tenants away from Medway City Estate, enabling a significant waterfront development of up to 12,000 homes.

Universities at Medway (Travel to Learn) are close to the Hoo Peninsula, and accessibility will improve following HIF investment. The four universities, with different specialisms, offer residents world-class higher education options, presenting an opportunity for skills for the future, higher **workforce productivity**, and sustainable economic growth.

Land value uplift: There is high average property prices on the Hoo Peninsula compared to the rest of Medway, but lower prices compared to other parts of the South East. Lower average prices will support demand for housing and affordability for local residents looking to change house size, which in turn will free up housing in the rest of Medway to accommodate population growth. Rail links to London support land value uplift, which is critical to development viability.

Modern Methods of Construction: Development at scale and transportation of materials by road, rail and river enable the viability of modern methods of construction. Pre-construction economies of scale will enable modular construction (Latis Homes) and a potential modular construction factory. Innovative methods of construction will support product differentiation, affordable housing and pace of development.

SWECO

MEMO

PROJECT	PROJECT MANAGER	DATE
Medway Strategic Transport Assessment	[redacted]	18 September 2017
AUTHOR [redacted]		REVIEWED [redacted]

Housing and Infrastructure Fund – Strategic Transport Assessment Technical Note

Medway's local plan will cover the period up to 2035 and ensure that Medway grows sustainably, to provide land for housing, employment, infrastructure and services, whilst protecting the area's environment and heritage. The plan includes significant development growth including nearly 30,000 new homes.

Medway Council's Housing Infrastructure Fund bid includes running rail passenger services on the existing Grain branch line, reopening a disused rail line to the north of Gillingham as a new transport corridor coupled with other road enhancements and other initiatives. The proposals aim to reduce road congestion and encourage modal shift to help deliver the local plan.

Sweco and our partners Fore Consulting and AEA Ricardo were commissioned by Medway Council in August 2017 to undertake a Strategic Transport Assessment (STA) of Medway's Local Plan and a complementary air quality assessment. The STA work has now commenced. It will be important in providing a detailed understanding of the impact on the transport network of the future development growth as well as appropriate mitigation measures and sustainable transport initiatives to accommodate that growth. The STA builds on work previously undertaken in the Interim Transport Assessment.

The work we are undertaking will provide a robust transport evidence base for the local plan through using the Medway Strategic Transport Model (STM) which will be run at both a macroscopic and microscopic level. The STM base model has already been successfully calibrated and validated against observed data. The first step will entail producing future year reference case scenarios which includes all committed land use and transport developments for three forecasts years (2021, 2026 and 2035).

Following this, a macro assessment of alternative development strategies including a micro assessment with site specific mitigation will be undertaken in order to formulate a preferred development strategy. The STM will capture future network stress on the road network in terms of junction delays, flows and traffic density in order to identify future congestion hotspots as well as forecasting modal shift as a result of public transport and other sustainable transport initiatives. The STA will be informed by consultation with key stakeholders such as Highways England, Kent Highways and Medway Council. The STA is due for final submission at the end of 2018.

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27 September 2017

Department for Communities and Local Government
Fry Building
2 Marsham Street
LONDON
SW1P 4DF

Housing Infrastructure Fund, Forward Fund Application: New paths to good growth scheme

Dear Sirs,

I am pleased to confirm that the South East Local Enterprise Partnership (SELEP) fully supports Medway Council's application to the Housing Infrastructure Fund (Forward Funding) relating to its new paths to good growth scheme.

Our goal for the LEP is to promote steady, sustained economic growth and within this, accelerating housing delivery is a key ambition set out in our Strategic Economic Plan.

As such, the SELEP recognises the important role that realising the housing potential associated with this scheme, which incorporates an upgrade to the Grain branch line and the reopening of a disused line as a new transport corridor, along with critical road improvements and other initiatives to deliver the new Local Plan.

The South East LEP believes that the proposed project put forward by Medway Council demonstrates real value with measurable benefits in terms of housing and makes a positive contribution to the economic growth within the region.

We look forward to a favourable announcement regarding this application to the Housing Infrastructure Fund.

Yours sincerely,

Managing Director
South East Local Enterprise Partnership

KMEP Kent & Medway Economic Partnership

A partnership between the business community and local government
& a federated arm of the South East Local Enterprise Partnership

The Rt. Hon. Sajid Javid, MP
Secretary of State for Communities and Local Government
Department for Communities and Local Government
2 Marsham St,
Westminster, London
SW1P 4DF

27 September 2017

Dear Secretary of State

Support for Medway Council's Forward Fund Bid – New Routes to Good Growth

I am writing on behalf of the Kent and Medway Economic Partnership (KMEP) to express our support for the Housing Infrastructure Fund bid by Medway Council for the New Routes to Good Growth project.

This bid is one of several across Kent and Medway that has been developed to contribute to the significant growth pressures we face over coming years. In fact, as set out in the Kent and Medway Growth and Infrastructure Framework, this part of the country is expected to deliver upwards of 160,000 new homes to 2031 – a significant 20% growth in a relatively short period of time. This project would directly contribute to helping Kent and Medway to unlock and accelerate that planned housing growth, and ultimately to enabling the Government's wider growth agenda.

This project has the potential to unlock 12,100 homes through the delivery of a suite of critical road improvements, an upgrade to the Grain branch line (increasing passenger and commercial use) alongside complementary initiatives delivering sustainable growth, community support and the Local Plan. The project will facilitate the delivery of new and upgraded Sports Centres, healthcare provision, superfast broadband, public realm station quarter and a network of Country Parks and public realm to unify the area's communities, habitats and ambitions.

We look forward to working with the Government to deliver on this and the other ambitious bids that Kent and Medway are putting forward to the Housing Infrastructure Fund.

Yours sincerely

[redacted]

Chairman of the Kent & Medway Economic Partnership
Vice-Chairman of the South East Local Enterprise Partnership
Chairman of the Kent & Medway Business Advisory Board

Kent County Council
kent.gov.uk

The Rt. Hon. Sajid Javid, MP
Secretary of State for Communities and Local Government
Department for Communities and Local Government
2 Marsham St,
Westminster, London
SW1P 4DF

Sessions House
County Hall
Maidstone
ME14 1XQ

27 September 2017

Dear Secretary of State

Support for Medway's Forward Fund HIF Bid – New Routes to Good Growth

I am writing on behalf of Kent County Council to express our support for the Housing Infrastructure Fund (HIF) bid by Medway Council. The Forward Fund bid for £170m unlocks 12,100 new homes by providing transport improvements to road, rail and social infrastructure on the Hoo Peninsula.

This project will deliver four strategic road schemes, the upgrading of the Grain branch line and social infrastructure, including sports centres and public realm. This scheme is critical to Medway's delivery of its growth ambitions and the emerging over-arching Local Plan.

This bid is one of several HIF bids across Kent and Medway that has been developed to contribute to the significant growth pressures we face over coming years. In fact, as set out in the Kent and Medway Growth and Infrastructure Framework, this part of the country is expected to deliver upwards of 160,000 new homes to 2031 – a significant 20% growth in a relatively short period of time. This project would directly contribute to helping Kent and Medway to unlock and accelerate that planned housing growth, and ultimately to enabling the Government's wider growth agenda.

We look forward to working with the Government to deliver on this and the other ambitious bids that Kent and Medway are putting forward to the HIF.

Yours sincerely

[redacted]

Cabinet Member for Planning, Highways, Transport and Waste

Medway Council
Serving You

Please contact: 01634 306000
Your ref:
Our ref:
Date: 28 September 2017

The Rt. Hon. Sajid Javid, MP
Department for Communities and
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Regeneration, Culture, Environment and Transformation
Gun Wharf
Dock Road
Chatham
Kent ME4 4TR

Telephone: 01634 306000
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Dear Secretary of State

Re: High Level "Support in Principle" for Medway Council's Expression of Interest in the Housing Infrastructure Fund.

On 22 September 2017, Medway Council presented their intention to submit an Expression of Interest, titled: "New Routes to Good Growth in Medway".

Their ambitious strategy to unlock growth, utilising £170m of HIF funding, clearly acknowledges the following:

- a strong evidence base to support the requirement for new infrastructure to facilitate the delivery of c. 12,100 new homes, as part of Medway's emerging Local Plan;
- an early commitment to engaging with key partners and stakeholders to develop Medway Council's plans for a new approach to growth.

We, the undersigned, offer our support for Medway Council's proposed response to the Housing Infrastructure Fund and welcome ongoing engagement.

Yours Sincerely

[redacted]

Rehman Chishti MP **Tracey Crouch MP** **Kelly Tolhurst MP**

Medway
rich heritage great future

INVESTORS IN PEOPLE | Gold

[redacted]

From: [redacted]
Sent: 06 September 2017 17:30
To: [redacted]
Subject: RE: Grain Freight Line

Hi [redacted]

We are happy to endorse the concept of reintroducing passenger services on the Grain Branch and undertake some pre-GRIP development if funded to do so. You are right to highlight that this will potentially be a big ticket item.

The key issues that would need to be addressed during the development phase are:

- Maintaining existing freight track access rights and additional infrastructure needed to support this
- Station design, size, etc
- Upgrade to signalling system for passenger trains
- What train services would service the line (e.g. extension of Gravesend terminating services?)
- Would route need 3rd rail electrification & what safety upgrades would be needed to support this
- Does the business case show that the route would generate cash, and not need ongoing subsidy to cover the operational cost and maintenance of the new assets

I hope this helps. [redacted] mentioned a news report that the MoD have pulled out of a housing project in Lodge Hill.

Kind regards

[redacted]

From: [redacted]@medway.gov.uk]
Sent: 06 September 2017 10:29
[redacted]
Subject: RE: Grain Freight Line

Hi both

Thanks again for the update below.

We're finalising the details of our bid this week – we're having to work to a very tight timeframe. We need to secure endorsement from partners – the Homes and Communities Agency have stressed the importance of our engagement with Network Rail, given that the rail connection is our big ticket item as part of the £100m-£125m bid.

For the purposes of our expression of interest bid – the full business case would be prepared next Spring – can you please say if Network Rail will be able to issue a letter of endorsement? This would add significant weight to our bid.

Many thanks
[redacted]

From: [redacted]
Sent: 01 September 2017 07:21

To: [redacted]
Subject: RE: Grain Freight Line

Hi [redacted]

Thanks very much for this.

We understand that this would be subject to a detailed business case, etc., but at this stage we only need to submit our expression of interest bid by 28 September. Successful bids will have access to funding to prepare a business case. As part of the process, we need to provide evidence of support; the Homes and Communities Agency have stressed the importance of early engagement with Network Rail. So our bid for upfront funding would be much stronger if you can provide a letter of support in principle, subject to operational and engineering assessments, etc. I have a meeting with our Director this afternoon – it would be great if I can indicate whether or not you will be able to provide this? We will also be seeking support in principle from the South East LEP, Kent and Medway Economic Partnership, Kent County Council and Gravesham Borough Council.

So it sounds like – subject to timetabling – an existing service starting from Gravesend could start from Hoo (Deangate) instead? I'm sure that would be preferable to a Hoo to Gravesend shuttle service.

I haven't seen the new stations guidance documents, but I've noted what you're saying about the platforms, etc. as opposed to a halt. I've also noted the issues about third rail electrification.

Re the disused Chatham Dockyard branch, we've only identified this as an opportunity for sustainable travel. It would link a new urban quarter at Chatham Docks (possibly with an extended riverside route from St Mary's Island, Chatham Maritime) with Gillingham town centre, more likely as a levelled cycle / walking route or a guided bus. We haven't spoken to Peel Ports for some time about this.

Kind regards
[redacted]

[redacted]
Regeneration, Culture, Environment & Transformation
Medway Council
Gun Wharf, Dock Road, Chatham, Kent ME4 4TR
Tel: [redacted]
Email: [redacted]@medway.gov.uk

From: [redacted]
Sent: 31 August 2017 16:08
To: [redacted]; [redacted]
Subject: RE: Grain Freight Line

[redacted]

I'm waiting to see our timetabling guru but I'm thinking it may be worth looking to extend two trains an hour from London – Gravesend to Hoo (Deangate), this will help identify what is needed from an infrastructure point of view.

Extension of an existing service would, however, require a 12-car platform for trains to turn back in, which is calculated like this:

- 10m zone between buffer stop and train
- Length of the longest train (in this case Class 465+Class 465+Class 466+Class 466) which is 247m
- 10m stand back from platform-end signal (15m if the signal is the opposite side of the train to the driver)
- There will also be a buffer stop overrun exclusion zone in which there can be no buildings.

I would recommend a centre platform with tracks on either side to allow for future expansion and robust operation with central footbridge access rather than a buffer stop-end concourse, purely because this will spread the load of passengers throughout the train rather than all at one end. I think [redacted] sent you the new stations guidance documents, they should also be available from www.networkrail.co.uk

We had a discussion with the ORR about third rail electrification extensions this morning and we're still trying to digest all of the information but the easiest way would be for a segregated alignment, in other words, the track must be fenced off to prevent staff, passengers or even trespassers from straying onto the third rail! We will be working with our Infrastructure Projects team and other on how to take this forward for Marshlink and, potentially, this scheme.

For example, this would mean removing or modifying the level crossings so that, when open to road traffic, pedestrians cannot stray on to the track. It was made clear that the current system of providing cattle grids either side of the road section would be insufficient. A novel new way of protecting the track from trespassers would have to be identified and installed. There are many other challenges but I do not think they are unsurmountable.

This would be easier to manage on a new build line, such as a spur from Higham for the extension of the Medway Valley Line service, for example.

We do not build 'halt' stations any more so the station would have to be properly constructed, however, a developer could construct the station if it is away from Network Rail infrastructure, i.e. in a 'High Street environment', otherwise it would require a line closure or construction by Network Rail approved contractors. In fact, a well-designed station could be part of a High Street, even in a small town, integrating shops and public facilities.

Please don't let this put you off, there are alternatives to be explored, I just want you to understand that 3rd rail electrification is no longer as easy as it used to be, due to the 1989 Electricity at Work Regulations and any proposals would have to include all modes (overhead electrification, bi-mode (battery/diesel) and non-electrified) to show that we have considered all options.

Looking at the map, it should be noted that the Chatham Dockyard branch may be truncated just after crossing Pier Road by the new Asda store. Whether the bridge could be connected to a light rail scheme or used as a green cycleway/footpath corridor, I'm not sure. The line is owned by the Port Authority to just before the former connection at the main line end at Gillingham.

As soon as our timetable guru has looked at the initial options for the Grain Branch I will get back to you.

Many thanks,

[redacted]

[redacted] Strategic Planner – South East (Sussex) | [redacted]
Network Rail | Floor 2 | Cottons Centre | Tooley Street | London | SE1 2QG

System Operator *Planning a better network for you*

I am now working four days a week. Typically, I will be off on Wednesdays.

Have you read the Kent Route Study?
Click on these links for the documents: Kent Route Study (interactive version or print version), Technical Appendix and Summary Document

From: [redacted]@medway.gov.uk]
Sent: 29 August 2017 11:48
To: [redacted]
Subject: RE: Grain Freight Line

Hi [redacted]

Please find attached brief document ('Hoo Rail Connection') – I hope this helps to define the proposal.

I've included a table and a map showing road and rail bridges. It sounds like this might be consistent with your email below re existing areas of population?

This forms part of a wider package of interventions, including road improvements (please see attached 'HIF_KeyDiagram' for reference).

Look forward to hearing from you.

Thanks
[redacted]

From: [redacted]
Sent: 25 August 2017 16:10
To: [redacted]
Subject: RE: Grain Freight Line

Hi [redacted]

Many thanks for the update.

I've developed the concept more since our meeting last week. I am now proposing a new spur (less than one mile) to Deangate. Crucially, the council owns this site, which would be in a prime location to serve the existing settlement and its expansion.

I've just come out of a meeting with the Homes and Communities Agency (HCA). They have strongly encouraged us to develop our proposal, with the rail connection as the big ticket item.

I'll share all of this with you on Tuesday, but I wanted to meet the HCA first.

Best wishes for the long weekend
[redacted]

From: [redacted]
Sent: 25 August 2017 13:58
To: [redacted]; [redacted]
Subject: RE: Grain Freight Line

Hi [redacted]

Just to give you a quick up date, my colleague [redacted] is doing some research to understand more about the capability of the route.

We were wondering whether light rail would be an option. If planned & integrated from the start a dedicated system serving the actual areas of population rather than tied to the existing rail route could have some benefits.

We should have more information next week.

Kind regards

[redacted]

Sent from my Windows Phone

From: [redacted]
Sent: 01/08/2017 15:55
To: [redacted]
Subject: RE: Grain Freight Line

Hi [redacted]

The Homes and Communities Agency, Medway Council Members, the Leader and our Director fully support our outline proposals (please find attached for your information only) following a meeting last week.

This provides a foundation for our Housing and Infrastructure Fund bid. I wonder if you could please review the rail connection element and provide any comments?

There is a lot of work to do before the expression of interest bid by the end of September. We need to engage with development partners to demonstrate support; an official statement of support in principle from Network Rail would add a lot of weight to our bid. I wonder if this is something that you could help to arrange?

Many thanks
[redacted]

[redacted]
Regeneration, Culture, Environment & Transformation
Medway Council
Gun Wharf, Dock Road, Chatham, Kent ME4 4TR
Tel: [redacted]
Email: [redacted]@medway.gov.uk

From: [redacted]
Sent: 26 July 2017 08:51
To: [redacted]
Subject: RE: Grain Freight Line

Hi [redacted]

Just to keep you updated …

I've prepared a briefing note ahead of a meeting on Friday between Members, our Director and the Homes and Communities Agency re the Housing Infrastructure Fund. The briefing note focuses on a rail connection with complementary road improvements and wider initiatives.

As a concept, the rail connection would comprise a new station at Hoo and secondary stations serving employment centres. The service would run to Gravesend via Hoo Junction (which may provide stabling to allow off-peak freight), possibly taking advantage of new trains capable of switching between diesel and electric supply. The briefing note draws on analysis of migration estimates and commuting flows, providing a crude demand forecast based on

existing, suppressed and future demand. Wider benefits have been identified, including opportunities to allocate smaller plots to encourage new entrants or SME builders, and to link in with a Green Infrastructure Framework.

I would like to share the briefing note with you, subject to feedback following the meeting on Friday.

Unfortunately, this did not form part of our response to the South East Rail Franchise consultation; we've previously understood that an upgrade to the Grain freight line would be unfeasible.

Kind regards
[redacted]

From: [redacted]
Sent: 20 July 2017 16:14
To: [redacted]
Subject: RE: Grain Freight Line

Hi [redacted]

Thanks again – we're struggling with the estimated costs, but we can use this as a guide.

Key criteria for bids is that the scheme cannot happen without the financial support of the Housing and Infrastructure Fund and requires upfront commitment. If this could be built-in from the start (by 2020/21) then it is likely to more successful in achieving modal shift. I think it's fair to say that there are no current plans to upgrade the line for passenger services – I think your discussions mentioned below with [redacted] from DB Cargo relate to increased freight capacity only? This would provide justification to proceed with our bid.

I'll have a draft Briefing Note tomorrow and I could share it with you for information, but it would be great if you could provide any comments. This would form the basis of discussions with members and the Homes and Communities Agency ahead of our Housing and Infrastructure Fund bid.

Thanks
[redacted]

From: [redacted]
Sent: 20 July 2017 12:58
To: bull, andrew
[redacted]
Subject: RE: Grain Freight Line

Hi [redacted]

It is worth looking through the attached (you may have seen it already), which provide some useful examples of other projects around the country. I think the best comparator is probably the Portishead re-opening near Bristol.

Kind regards

[redacted]

From: [redacted]@medway.gov.uk]
Sent: 20 July 2017 08:28
T [redacted]
Subject: RE: Grain Freight Line

Hi [redacted]

Thanks very much for your helpful response. It's really encouraging that you could note the potential in the final Route Study document.

We've since developed this further based on our analysis of commuting flows and I'm preparing a Briefing Note for my director today – this will inform discussions with the Homes and Communities Agency next week. The Briefing Note will include high level options, including an alternative option for a service using a diesel engine to Gravesend. I would like to share this with you as well.

If this gains member support, with support in principle from the HCA and Network Rail, officers will be preparing a Housing Infrastructure Fund bid (expression of interest) by the end of September. If this is successful, I understand we would have access to expert assistance in Spring 2018. Perhaps this could enable a proper considered view with engineering assessments, etc.

I believe the Chatham Docks to Gillingham station line is owned by Peel Ports.

Kind regards
[redacted]

[redacted]
Regeneration, Culture, Environment & Transformation
Medway Council
Gun Wharf, Dock Road, Chatham, Kent ME4 4TR
Tel: [redacted]
Email [redacted]@medway.gov.uk

From: [redacted]
Sent: 19 July 2017 16:47
To: [redacted]
Subject: RE: Grain Freight Line

Hi [redacted]

Apologies for the delay. I've been trying to do some research on this. With regard to the Chatham Docks to Gillingham station, I have been trying to confirm whether the line is still in our ownership; potentially it is no longer part of the network.

I spoke to [redacted] today regarding the economic analysis. It is on our list, but we have limited resource to look at this in detail and there are a few workstreams that we are in the process of completing for publication the Route Study.

We had a Route Study Working Group, which freight colleagues attend and it was suggested we undertake a capacity study on the Grain Branch. I need to review the scope and timescales for this and again, what can be achieved. [redacted]

Although we can give a high level view, (I expect that a scheme would be very expensive) the amount of work needed to give a proper considered view will fall outside the Route Study timescales for publication. If we needed to get engineering assessments or an estimate we would need to get contractor to undertake the work and require funding for that.

In summary we can note the potential in the final Route Study document and will aim to have a high level look by the time of publication of the document, but I imagine the amount of work needed to form evidence for a bid will be far in excess of that and therefore we would need a specific project to address this, should you wish to take it forward.

Kind regards

[redacted]

From: [redacted]@medway.gov.uk]
Sent: 13 July 2017 13:23
[redacted]
Subject: Grain Freight Line

Hi [redacted]

I wonder if you've had a chance to consider the high-low growth scenarios for the Hoo Peninsula (see email below)?

Our response to the Kent Route Study (attached) provided a little more detail about the potential role of the Grain Freight Line. There may be a similar opportunity to make use of the disused rail line from Chatham Docks to Gillingham station.

It would be very useful to know what you think now that we're considering a wide range of potential infrastructure schemes to form a bid in response to the Housing Infrastructure Fund.

Kind regards
[redacted]

[redacted]
Regeneration, Culture, Environment & Transformation
Medway Council
Gun Wharf, Dock Road, Chatham, Kent ME4 4TR
Tel: [redacted]
Email: [redacted]@medway.gov.uk

From: [redacted]
Sent: 02 June 2017 11:12
[redacted]
Subject: RE: Kent Route Study Regional Working Group - Draft minutes & presention

Hi [redacted]

Thanks for updating the minutes.

Please find attached high/low growth scenarios for the Hoo Peninsula.

We need to understand what scale of growth would be required for an upgrade to the existing Hoo Junction to Grain line for passenger services. Please note that the 'low growth scenario' is very low, while there is more high growth emphasis in our emerging Local Plan (Development Options document).

Please let me know if I can provide anything else.

Kind regards
[redacted]

[redacted]

[redacted]
Medway Council
Gun Wharf
Dock Road
Chatham
Kent
ME4 4TR

12 September 2017

Dear [redacted]

Re: HIF Bid – Redundant Railway Line, Gillingham

I refer to the proposals to submit a HIF bid to provide more sustainable transport linkages between Gillingham Town Centre to the Medway Riverside developments such as Gillingham Pier, Chatham Waters and St Marys Island that could accommodate an additional 5,000 residential units over the next two decades.

We have provided a very indicative plan showing how this corridor could include significant improvements via pedestrian and cycle linkages from these areas to Gillingham Town Centre with the utilisation of a former railway line that has been redundant for over 10 years and is owned by Peel. Given the huge investment required in creating and infilling this potential corridor it is necessary for grant assistance to be secured for the scheme to be financially viable.

Peel supports the HIF application to forward fund and utilise this corridor for sustainable transport modes that will not only provide better linkages to existing housing estates in Gillingham but will encourage further housing development along the river that will be in keeping with the latest proposals under consideration in the Local Plan.

Yours sincerely

[redacted]
Peel Land & Property Group Development Director

Peel Land and Property Limited
Peel Dome
intu Trafford Centre
TRAFFORDCITY
Manchester
M17 8PL

t: 0161 629 8200
w: www.peel.co.uk

Housing Infrastructure Fund

Business Case - HIF/FF/000019/BC/01 - New Routes to Good Growth

Bid Details

Lead Authority

Medway Towns

Is it a joint bid with other Local Authorities?

No

Contact Details

First name	[redacted]
Last name	[redacted]
Email Address	[redacted]
Telephone number	[redacted]

Are you an agent making this submission on behalf of one or multiple Local Authorities?

Yes

Organisation Name

[redacted]

Are the contact details provided above for the lead responsible officer for the project at the local authority?

No

Contact name of lead officer

Sunny Ee

Email address of lead officer

sunny.ee@medway.gov.uk

Telephone number of lead officer

01634 331030

Project Summary

What is the name of the scheme

New Routes to Good Growth

Please provide an Executive Summary for your proposal

This bid seeks £170 million in Housing Infrastructure Fund (HIF) Forward Funding to unlock development of 10,600 homes on 283.5 hectares in a new rural town at Hoo St Werburgh and in a wider network of villages.

Medway's housing needs assessment indicates a requirement for 28,033 homes between 2018 and 2035. The ability to house this growth in established urban and suburban areas without excessive strain on existing infrastructure is heavily restricted. Medway Council's preferred approach, identified in the emerging Local Plan process, focusses growth in a new rural town in the Hoo Peninsula, alongside urban regeneration and sustainable settlement expansion.
With HIF infrastructure, 10,600 houses will be complete by 2035, meeting 38% of Medway's housing need. [redacted]

With a farming base, the wider Hoo economy has centred on port-related activity and energy generation. Localised degraded landscapes are part of their legacy, negatively affecting perceptions and house prices. Poor connections to Medway, Kent and elsewhere, limited infrastructure capacity, and extensive environmental designations mean that housing development has been incremental and restricted. While development is limited to 2,000 units without key transport infrastructure, environmental 'capacity' effectively restricts housing development at Hoo to 940 units. The cost and scale of the required infrastructure undermines development viability. While S106 contributions would be attracted, they will be insufficient for the infrastructure needed to unlock the 10,600 homes. Moreover, related funds will be received incrementally over a long period, severely delaying infrastructure and housing delivery.

HIF will fund £63.94m in rail infrastructure including: a station at Sharnal Street, partial double tracking for continuing freight services; and a new 'Chord' at Higham. This will reintroduce passenger services from the area to and from London and other parts of Kent, alleviating pressure on the road network and, with the potential for additional services, adding future resilience and development capacity; £85.70m in road infrastructure including: improvements to the A228, a new Woodfield Way A228 Relief Road; a wider package of highway improvements providing capacity and to enable development resilience at Four Elms junction , presently the main access for the Hoo Peninsula; and £14.35m on a Strategic Environmental Management Scheme including 150ha of wetlands and other measures to manage the effects of development in a high value environment. £6.01m is needed to resource project delivery.

This bid is prepared by Medway Council. It is supported by the South East LEP and backed by the Hoo Consortium, a group of ownership and development interests including the Church Commissioners for England, Taylor Wimpey, Dean Lewis Estates and Gladman Developments. [redacted]

A signed Statement of Common Ground confirms Medway Council and Hoo Consortium agreement to collaborative working, strategic phasing and accelerated development linked to infrastructure delivery to support an expanded rural settlement. The parties are committed to a plan-led approach, working jointly behind phased development to an agreed masterplan & implementation plan including a bespoke infrastructure programme, reinforcing HIF with developer contributions to education, health, community, leisure and social infrastructure and environmental works to protect the Hoo Peninsula's landscape and biodiversity. [redacted]. Planning performance agreements will be developed for these sites.
A New Routes to Good Growth Board will be established, chaired by Medway Council. It will include the Hoo Consortium. (Post GDA comment added by MH 25/8/20 – please see update note supporting this statement). It will continue post-2023 to ensure masterplan delivery.

By 2035, it is estimated that HIF- supported development on the Hoo Peninsula will:

• Deliver 10,600 homes, meeting 38% of Medway's future housing need
• Create a new rural town
[redacted]

Without HIF support, infrastructure to unlock housing development in the Hoo Peninsula will not be delivered. Medway will not be able to meet its future housing need, reducing economic growth and intensifying affordability issues.

HIF infrastructure is vital for the creation of a new rural town to underpin Medway's future sustainable growth.

Please provide an overview of the project, including your project scope for the infrastructure and for the wider project

The Medway New Routes to Good Growth project aims to unlock development of a new rural settlement at Hoo St Werburgh and expansion in neighbouring villages.

Development on the Hoo Peninsula is constrained by poor connections to Medway, Kent and elsewhere, limited infrastructure capacity, and extensive environmental designations: the A228 is its single main road access route, and further limited by capacity at the Four Elms junction; the Grain Freight Line is currently used for freight purposes only; RAMSAR, SSSI and/or SPA designations cover 6,508 h.a of the Peninsula. Housing development is limited to a transport deadweight of 2,000 homes until these constraints are addressed.

With HIF, 10,600 houses will be complete by 2035, meeting 38% of Medway's housing need.

HIF funding (£170m) will support road, rail and strategic environmental projects.

Road improvements (£85.70m) include: new slip roads, junctions & interchanges on the A228 and A289; the Woodfield Way A228 Relief Road i.e. a second road access to the peninsula; and wider highway improvements including road reconfiguration to maximise use of existing infrastructure and give capacity for future Hoo growth. Road design will address significant gradients to Chattendon. Sites to accommodate 6,000 homes will be opened up.

These improvements, like any other proposals in Kent & the South East, may impact the strategic network - the A2/M2. Highways England will continue to be involved in project discussions. Possible future delivery of the Lower Thames Crossing will be factored in.

Rail infrastructure (£63.94m) includes: a station at Sharnal Street, partial double tracking for continuing freight services; and a new 'Chord' at Higham. Passenger services to and from London (2 per hour at peak) and other Medway towns (2 per hour off peak) will be reintroduced. This will alleviate pressure on the road network. With the potential for further services, it will promote modal shift above the 8.7% assumed in the initial service and add future resilience and development capacity. This will enable a further 2,600 homes.

Environmental designations include SSSIs at Chattenden Woods and Ramsar and Special Protection Area covering the Medway Estuary & Marshes SSSI. HIF will resource the ability to ensure biodiversity and landscape effects are effectively managed to avoid, mitigate or compensate growth's direct and indirect impacts. Evidenced lead strategic environmental improvements (£14.35m) will be delivered to enable developments while managing wider public recreational access alongside the planting of 5,000 trees, 10ha woodland and 10km of hedging in landscape and habitat improvements; development of 150ha of wetlands and enhanced management of 365ha of nationally important habitats.

Medway Council has also included £6.01m to resource project delivery.
This bid is prepared by Medway Council. It is supported by the South East LEP and backed by the Hoo Consortium, a group of ownership and development interests including the Church Commissioners for England, Taylor Wimpey, Dean Lewis Estates and

Gladman Developments. [redacted]

A Statement of Common Ground has been signed confirming Medway Council and [redacted] agreement to collaborative working, strategic phasing and accelerated development to support a new rural town behind an agreed masterplan. Planning performance agreements will be developed for the balance of development. Developer contributions will fund education, social and other infrastructure.

A New Routes to Good Growth Board (NRGGB) chaired by Medway Council and including the Hoo Consortium will oversee infrastructure delivery and ensure accelerated housing development. (Post GDA comment added by MH 25/8/20 – please see update note supporting this statement).

Site Details

How many housing sites will the funding bring forward?

34

Please provide a list of the housing sites that the funding will bring forward, including the amount of units to be delivered on each site, the lower tier or unitary authority the site is in and the current land ownership

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
Chattenden Barracks	500	Medway	Public	Allocated	
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
North of Peninsula Way and Main Road, Four Elms Hill, Chattenden	131	Medway	Private	Outline	MC/16/4229
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
Land to east of Chattenden Lane	562	Medway	Private	None	
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
Site 1 Land North of the Ratcliffe Highway	118	Medway	Private	Allocated	
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
Deangate Ridge	573	Medway	Public	Allocated	
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
North of Ratcliffe Highway	25	Medway	Private	Allocated	
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
Deangate Cottage, Dux Court Rd	68	Medway	Private	Allocated	
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
North of Ratcliffe Highway 2	25	Medway	Private	Allocated	
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
Land at Elm Avenue, Chattenden	63	Medway	Private	Outline, Allocated	MC/18/0620
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
South of Main Road, Hoo	1577	Medway	Private	Allocated	
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
3 Broad Street Cottages, Main Road, Hoo	12	Medway	Private	None	
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
R/O 250 Main Road, Hoo	5	Medway	Private	None	
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
218 Main Road, Hoo	16	Medway	Private	None	
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
Land west of Hoo	598	Medway	Private	None	
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
South Ratcliffe Highway, west Vidgeon Avenue, Hoo	314	Medway	Private	None	
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
Potential Expansion Area 3	300	Medway	Private	Allocated	
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
South of Ratcliffe Highway, Former Sports Ground, Bells Lane, Hoo	232	Medway	Private	Full / Detailed, Allocated	MC/17/1884
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
Land west of Ropers Lane, Hoo	1400	Medway	Private	None	
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
Street Farm, Stoke Road, Hoo	50	Medway	Private	Outline	MC/15/0098
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
East of Whitehouse Farm, Hoo	65	Medway	Private	Outline	MC/18/0247
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
Parcel 2 North of Stoke Road	74	Medway	Private	None	
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
Parcel 3 South of Stoke Road	91	Medway	Private	None	
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
Land South of Stoke Road, Hoo 1	200	Medway	Private	Outline	MC/17/4424
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
Land South of Stoke Road, Hoo 2	127	Medway	Private	Outline	MC/16/2837
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
Potential Expansion Area 1	2039	Medway	Private	None	
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
Adj 35 Cooling Road, High Halstow	6	Medway	Private	Outline	MC/18/0096
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
Walnut Tree Farm, r/o Longfield Ave, High Halstow	66	Medway	Private	Full / Detailed	MC/17/4408
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
Land North of Christmas Lane, High Halstow	750	Medway	Private	None	
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
Land north of Christmas Lane, High Halstow 2	59	Medway	Private	None	
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
Site 2 Land to South of Baytree Farm	48	Medway	Private	None	
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
Land West of Allhallows	389	Medway	Private	None	
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
Golf Course adj to Kingsmead Park	55	Medway	Private	Allocated	
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
Site 4 Land to north of Binney Farm	53	Medway	Private	Allocated	
[redacted]					
[redacted]					

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
Binney Farm, Binney Road, Allhallows	9	Medway	Private	None	
[redacted]					
[redacted]					

[redacted]

[redacted]

Please attach scheme plan(s) for your proposal - these should include plans of housing sites and infrastructure

Filename	Description
A02. Scheme and Infrastructure Plans.pdf	Scheme and Infrastructure Plans

What is the total size of the development (in hectares)?

522.64 ha

Of the total development size, what is the total housing area (in hectares)?

283.55 ha

How much of the total housing area is on:

Brownfield land

16.24 ha

Public sector land

[redacted]

Infrastructure Requirements

Please provide further details on the HIF infrastructure requirements and their link to the delivery of housing

Infrastructure Type	Road / highway - other	**Description**	A Relief Road linking the A289 west to the Peninsula. Capacity improvements at three junctions on the Peninsula that would service the new developments and link to the Relief Road. Improvements to the A289, including enhancements at three roundabouts to improve traffic capacity.
HIF Funding	£85,698,383	**Link to housing**	All road-based trips generated by new housing on the peninsula will need to utilise the A228 and pass through the Four Elms roundabout to access the strategic road network. Junctions on A289, including Four Elms Roundabout and Anthony's Way, and the A228 Main Road junction, have been shown through modelling to be at breaking point with trip growth from up to 2,000 homes. The proposed network upgrades involve capacity improvements and link upgrades to 4 junctions on the A289 and 3 junctions on the A228. They include new slip roads and an A228 Relief Road, with a grade-separated link to and from A289. The upgrades will provide a workable arterial road for the new community on Hoo Peninsula.
Sites benefitting	Chattenden Barracks, North of Peninsula Way and Main Road, Four Elms Hill, Chattenden, Land to east of Chattenden Lane, Site 1 Land North of the Ratcliffe Highway, Deangate Ridge, North of Ratcliffe Highway, Deangate Cottage, Dux Court Rd, North of Ratcliffe Highway 2, Land at Elm Avenue, Chattenden, South of Main Road, Hoo, 3 Broad Street Cottages, Main Road, Hoo, R/O 250 Main Road, Hoo, 218 Main Road, Hoo, Land west of Hoo, South Ratcliffe Highway, west Vidgeon Avenue, Hoo, Potential Expansion Area 3, South of Ratcliffe Highway, Former Sports Ground, Bells Lane, Hoo, Land west of Ropers Lane, Hoo, Street Farm, Stoke Road, Hoo, East of Whitehouse Farm, Hoo, Parcel 2 North of Stoke Road, Parcel 3 South of Stoke Road, Land South of Stoke Road, Hoo 1, Land South of Stoke Road, Hoo 2, Potential Expansion Area 1, Adj 35 Cooling Road, High Halstow, Walnut Tree Farm, r/o Longfield Ave, High Halstow, Land North of Christmas Lane, High Halstow, Land north of Christmas Lane, High Halstow 2, Site 2 Land to South of Baytree Farm, Land West of Allhallows, Golf Course adj to Kingsmead Park, Site 4 Land to north of Binney Farm, Binney Farm, Binney Road, Allhallows		

Infrastructure Type	Rail	**Description**	A new railway Station (Sharnal Street Station); Improvements to the existing Grain railway line; A new Medway Chord and mainline connection; and Re-signalling of the existing line.
HIF Funding	£63,941,482	**Link to housing**	If the full highway scheme and passenger rail proposals are implemented, modelling has demonstrated that: The transportation proposals that include highway interventions alone would release sufficient network capacity to accommodate 8,000 homes. With a passenger rail service provided from a new Sharnal Street rail station, a further 2,600 homes could be accommodated on the network, a direct result of mode shift from car to rail.
Sites benefitting	Chattenden Barracks, North of Peninsula Way and Main Road, Four Elms Hill, Chattenden, Land to east of Chattenden Lane, Site 1 Land North of the Ratcliffe Highway, Deangate Ridge, North of Ratcliffe Highway, Deangate Cottage, Dux Court Rd, North of Ratcliffe Highway 2, Land at Elm Avenue, Chattenden, South of Main Road, Hoo, 3 Broad Street Cottages, Main Road, Hoo, R/O 250 Main Road, Hoo, 218 Main Road, Hoo, Land west of Hoo, South Ratcliffe Highway, west Vidgeon Avenue, Hoo, Potential Expansion Area 3, South of Ratcliffe Highway, Former Sports Ground, Bells Lane, Hoo, Land west of Ropers Lane, Hoo, Street Farm, Stoke Road, Hoo, East of Whitehouse Farm, Hoo, Parcel 2 North of Stoke Road, Parcel 3 South of Stoke Road, Land South of Stoke Road, Hoo 1, Land South of Stoke Road, Hoo 2, Potential Expansion Area 1, Adj 35 Cooling Road, High Halstow, Walnut Tree Farm, r/o Longfield Ave, High Halstow, Land North of Christmas Lane, High Halstow, Land north of Christmas Lane, High Halstow 2, Site 2 Land to South of Baytree Farm, Land West of Allhallows, Golf Course adj to Kingsmead Park, Site 4 Land to north of Binney Farm, Binney Farm, Binney Road, Allhallows		

Infrastructure Type	Green infrastructure	**Description**	Strategic Environmental Management Scheme (SEMS) Establishment of blue & green networks protecting landscape & ecology designations, providing active travel links, & maintaining settlement boundaries 4 SEMS zones across the Hoo Peninsula will deliver: • 10,000m of hedging (habitat, shelter & movement routes) • 4000 hedgerow trees • 1000 parkland trees • 10ha of native woodland/ community orchard • 150ha of wetlands • 365ha of nationally important habitat protected from residential/ recreational pressures and disturbance • Interpretation facilities
HIF Funding	£14,350,000	**Link to housing**	Environmental designations and other constraints provide a ceiling on residential development of 940 homes. Medway Council is resisting new applications unless provision for strategic environmental enhancement is incorporated to avoid: impacts on key bird habitats of international significance; minimise light pollution, and manage visitor/user impacts. This mitigation needs to be in place and functional before housing development can proceed.
Sites benefitting	Chattenden Barracks, North of Peninsula Way and Main Road, Four Elms Hill, Chattenden, Land to east of Chattenden Lane, Site 1 Land North of the Ratcliffe Highway, Deangate Ridge, North of Ratcliffe Highway, Deangate Cottage, Dux Court Rd, North of Ratcliffe Highway 2, Land at Elm Avenue, Chattenden, South of Main Road, Hoo, 3 Broad Street Cottages, Main Road, Hoo, R/O 250 Main Road, Hoo, 218 Main Road, Hoo, Land west of Hoo, South Ratcliffe Highway, west Vidgeon Avenue, Hoo, Potential Expansion Area 3, South of Ratcliffe Highway, Former Sports Ground, Bells Lane, Hoo, Land west of Ropers Lane, Hoo, Street Farm, Stoke Road, Hoo, East of Whitehouse Farm, Hoo, Parcel 2 North of Stoke Road, Parcel 3 South of Stoke Road, Land South of Stoke Road, Hoo 1, Land South of Stoke Road, Hoo 2, Potential Expansion Area 1, Adj 35 Cooling Road, High Halstow, Walnut Tree Farm, r/o Longfield Ave, High Halstow, Land North of Christmas Lane, High Halstow, Land north of Christmas Lane, High Halstow 2, Site 2 Land to South of Baytree Farm, Land West of Allhallows, Golf Course adj to Kingsmead Park, Site 4 Land to north of Binney Farm, Binney Farm, Binney Road, Allhallows		

Infrastructure Type	Other (Project Delivery Resource)	**Description**	Project Delivery Resource Staff resources for project delivery and partnership coordination (infrastructure & housing development) Council infrastructure financing costs
HIF Funding	£6,010,135	**Link to housing**	Housing delivery across the Hoo Peninsula will require: - Coordination of infrastructure components - Ongoing partnership work with the Hoo Consortium and other developers Delivery of £170 million HIF infrastructure alongside 10,600 homes will require additional resources over and above existing staffing complements i.e. it will not be able to be managed within existing people resources. Financing costs will otherwise require to be met from core budgets, potentially affecting service delivery
Sites benefitting	Chattenden Barracks, North of Peninsula Way and Main Road, Four Elms Hill, Chattenden, Land to east of Chattenden Lane, Site 1 Land North of the Ratcliffe Highway, Deangate Ridge, North of Ratcliffe Highway, Deangate Cottage, Dux Court Rd, North of Ratcliffe Highway 2, Land at Elm Avenue, Chattenden, South of Main Road, Hoo, 3 Broad Street Cottages, Main Road, Hoo, R/O 250 Main Road, Hoo, 218 Main Road, Hoo, Land west of Hoo, South Ratcliffe Highway, west Vidgeon Avenue, Hoo, Potential Expansion Area 3, South of Ratcliffe Highway, Former Sports Ground, Bells Lane, Hoo, Land west of Ropers Lane, Hoo, Street Farm, Stoke Road, Hoo, East of Whitehouse Farm, Hoo, Parcel 2 North of Stoke Road, Parcel 3 South of Stoke Road, Land South of Stoke Road, Hoo 1, Land South of Stoke Road, Hoo 2, Potential Expansion Area 1, Adj 35 Cooling Road, High Halstow, Walnut Tree Farm, r/o Longfield Ave, High Halstow, Land North of Christmas Lane, High Halstow, Land north of Christmas Lane, High Halstow 2, Site 2 Land to South of Baytree Farm, Land West of Allhallows, Golf Course adj to Kingsmead Park, Site 4 Land to north of Binney Farm, Binney Farm, Binney Road, Allhallows		

Please outline, in further detail, the direct link between the infrastructure scheme(s) and how this unlocks the homes

The emerging Local Plan identifies the Hoo Peninsula as a preferred strategic growth area, subject to investment in infrastructure. [redacted] Without investment in strategic road and rail infrastructure residential development in the area is limited to sites with capacity for 2,000 homes.

Transport constraints are compounded by strategic environmental and drainage considerations. In the absence of HIF funding for strategic mitigation, the scale of potential housing on the Hoo Peninsula is further reduced to a threshold of 940 units.

The combined infrastructure interventions will enable development of some 10,600 homes, providing additional highway and rail passenger capacity, promoting modal choice. The relief road will also provide further network resilience, removing existing constraints which presently see frequent closure of the Four Elms roundabout in inclement weather, and addressing poor air quality on Four Elms Hill. Road & rail interventions will enable a respective 8,000 and 2,600 homes to be developed on the Hoo Peninsula [redacted] and the HIF supported relief road effectively underpin the Council's ability to meet its forecast housing needs (calculated using the Standard Method in preparing the emerging Local Plan).

Furthermore, environmental constraints – SSI's and other designations currently limit development to a maximum of 940 homes. The recent experience of major planning applications serves to underline these constraints and their constraining effect on development.

In August 2016 an application for 225 houses and supporting facilities (MC/16/3669) was submitted. It was refused by Medway Council on 5 May 2017, citing its potential effects on the road network and noting that , "the development if permitted, would have an adverse effect on the character and visual amenity of the local area, contrary to paragraph17 of the National Planning Policy Framework and Policy BNE25 (i) of the Medway Local Plan 23 its failure to contribute to the Council's sustainable development

objectives.

The decision was appealed, and a Public Inquiry held in November and December 2017. While the Inspector recommended the appeal be allowed i.e. that outline planning permission be granted subject to conditions, the Secretary of State disagreed with the recommendation and decided to dismiss the appeal (Appendix 3). The Secretary of State's consideration was that the contribution made by the proposal to addressing shortfalls in housing supply failed to outweigh the harms generated by its development. In particular, the letter noted that, "in the Secretary of State's judgement, the proposed development does not limit the need to travel or offer a genuine choice of transport modes and is therefore in conflict."

An outline planning application (MC/17/2324) was submitted to Medway Council in July 2017 for "erection of up to 530 dwellings with public open space, land for a new primary school and community use, an A1 retail unit (up to 200sqm), a public house, landscaping, attenuation pond and vehicular access point from Chattenden Lane and the existing roundabout off Peninsula Way."

The officer's recommendation for refusal to the Council's August 2018 Planning Committee referenced: the significant rise in traffic movements on the local road network generated by the proposed development; the safety implications of the proposed access point; and the failure to contribute to wider sustainable development of the village of Chattenden and the wider Hoo Peninsula. The officers' recommendations were accepted by the Planning Committee.

The application was subject to appeal (APP/A2280/W/18/3206614) following non-determination. The council's Statement of Case acknowledged that the principle of the land being developed as part of a wider strategic expansion project is acceptable. The emerging Local Plan has identified the Hoo Peninsula as a preferred strategic location for growth, subject to investment in infrastructure. The council's HIF proposal represents the infrastructure required as part of a wider strategic expansion project. It acknowledged that provision of market and affordable housing and a larger primary school were benefits to be weighed in the planning balance. However, the Council demonstrated that as a stand-alone development the appeal scheme would result in significant adverse impacts on the wider area and would not be sustainable. Its Statement of Case noted the application as proposed would: have a detrimental and unacceptable impact on highway safety; result in a severe, adverse cumulative impact on the local road network as a result of it having been developed in isolation of the strategic framework being produced by the Council: would fail to contribute to the wider sustainability of the area; would give rise to a strong dependency on unsustainable modes of transport; had failed to demonstrate that impacts on the SSSI/SPA could be effectively mitigated; and would result in significant adverse impacts in landscape and visual terms. The Statement of Case concluded the proposal was contrary to the Development Plan. The adverse impacts of the scheme significantly outweigh its benefits, and with no justification for departing from the development plan, the Council invited the Inspector to dismiss the appeal.

The Public Inquiry was scheduled for June 2019; however, in January 2019, the applicant formally withdrew the application and the Public Inquiry was cancelled. The applicant adhered to the Hoo Consortium's work promoting a strategic allocation in the emerging Local Plan. The site in question [redacted] has a strategic role in realising the scale of growth sought on the Hoo Peninsula through the HIF proposals by accommodating the eastern link of the proposed relief road.

Wider Development Impacts

Please provide a summary of what impact the scheme will have on the Transport Network

A strategic model has been developed to establish transport impacts including the potential impact of trip generation from the Hoo Peninsula. It demonstrates limited capacity at Four Elms roundabout, and that the A289 south towards Medway tunnel would struggle with predicted growth.

Presently, the A289 and A228 approaches to Four Elms experience high peak time queuing. A289 improvements alone would not be sufficient to accommodate forecast growth on the Peninsula.
Local junctions, notably the Main Road junction, would see significant growth from side road arms, which new housing would be accessed from. This would conflict with an increased flow on the A228 corridor. Delays would increase at the existing Main Road roundabout, with a conflict between higher side road traffic and increased main road flows.
The Relief Road will reduce flow to and from the Peninsula through an alternate route for traffic accessing the A2/M20 via the A289. It removes trips from the congested Four Elms roundabout, dividing them between two access routes. It will also afford network resilience: when the A228 has problems, the Peninsula is presently isolated without route options.

The proposed capacity improvements include expansion of roundabouts at Ropers Lane and Bells Lane, and conversion of the Main Road roundabout to a signalised junction. This will accommodate conflicting flows from new housing zones and the A228.
A289 corridor improvements will add capacity for trips from Hoo to and from the Medway Tunnel. New and improved roundabout slip roads will be developed, with junction widening to increase capacity. Links between the roundabouts will be upgraded to accommodate these changes and provide facilities for vulnerable users.
The proposed highway package relies on all elements being in place to accommodate the growth needed i.e. A289 improvements of themselves would be insufficient without the capacity afforded by the Relief Road, the A228 improvements and Main Road roundabout signalisation. Highway improvements, therefore, deliver an integrated package of improvements to release up to 8,000 homes. These will be complemented by passenger rail which will reduce trip generation, enabling 2,600 further homes. [redacted] Traffic generated disperses onto the wider network and adds to congestion at network hotspots, most of which are a significant distance away. As this will occur under any growth scenario, even were the Peninsula not identified as a local growth area, Medway will work closely with Highways England and neighbouring authorities to address such problem areas. Highways England has plans in place to improve the A2 corridor and deliver a new Lower Thames Crossing. [redacted] but could deliver significant benefits.
Importantly, the HIF scheme achieves its core objective i.e. to enable predicted trips from up to 10,600 homes to move to and from the Peninsula without creating traffic gridlock on local roads.
The new station is critical to further development on the Hoo Peninsula. Development to the north of the railway will place the station at the heart of the new rural community with sustainable transport links to Kent and South East London. It meets key Government priorities for modal change. Reintroduction of passenger services has been popular across the UK, often exceeding patronage expectations. A hub station on the Hoo Peninsula with Park & Ride-style facilities and local bus links will reduce traffic on the A228 to the Medway Towns or via the A2 to Ebbsfleet International. Existing residents will benefit from the new station before many of the new homes are built – the first trains will be running in the next five years.
The new Medway Chord and commercial development east of the rural town will also encourage rail freight across wider Kent, with operators targeting parcel post and feed distribution centres, such as Amazon, Kingsnorth.

The new station and passenger access will undoubtedly draw the attention of Londoners attracted by lower housing costs, lower living costs and a high-quality environment. Reduced journey times to London and the Medway Towns through direct trains or interchanges will further build the area's appeal. With Sharnal St station close to Abbey Wood, an extension of Crossrail/Elizabeth Line services could provide direct services to Central London, Heathrow and Reading.
Service, industry and commercial developments will also benefit from easier commuting to and from the Peninsula.

Network Rail and the DfT are considering the impact of freight growth on the passenger service, finding that, via the Rail Network Enhancements Pipeline, doubling the line between Hoo Junction and the new station may be needed sooner than originally envisaged. This will have benefits for this scheme as it could be developed in parallel, reducing costs and the need for future disruption.

Does the new housing development generate a need for new school places and how this will be accommodated

An analysis of the need for new school places generated by the housing development can be found in Appendix 4.

Using the MORI 2005/06 Pupil Product Ratios which Medway use for calculating education needs in the Borough and the expected tenure mix, Medway Council anticipates that the housing development will generate a need for:

996 nursery places;
2,480 primary school places;
1,738 secondary school places; and
466 sixth form places.

The forecasted primary school places imply the need for 12 forms of entry (FE). The forecast secondary school places imply the need for 8 FE. It is projected that there will need to be an expansion of 9 FE of primary schools (2 new schools providing 5 FE and 4 expansions of 1 FE each) and a new 8 FE secondary school. The remaining 3 FE can be accommodated within the existing school capacity on the Peninsula.

School expansions will take place in 2020 (Hundred of Hoo), 2021 (Chattenden), 2024 (Allhallows), 2025 (High Halstow). Allhallows Primary School and Hundred of Hoo Primary School will be expanded by 1 FE, while Chattenden and High Halstow Primary Schools will be relocated to new sites and rebuilt and expanded by 1 FE to support 2FE.

In addition, Medway Council anticipates that 3 new schools will be developed. A new secondary school, equivalent to 8FE will be accommodated at Hoo St. Werburgh, with construction expected to begin in 2020. This will be co-located on a new site with a new 2-3 FE Primary School, with construction anticipated to begin in 2024 as outlined above. Separate to these will be another 2 FE primary school in place by 2028.

No attachments

How have you assessed that no new utility infrastructure (electricity capacity, water, waste water, gas and telecoms) will be required for this scheme and future housing delivery, or, how additional utility infrastructure will be delivered without HIF funding?

Electricity

Strood primary (132/11kV) substation is the nearest major substation and has a current capacity of 30MW. Capacity will be reserved at the earliest opportunity to ensure the security of supply for the development by first applying to UKPN for a formal offer of connection and accepting their offer of connection. On acceptance, UKPN is legally obliged to reserve the agreed network capacity. However, UKPN will expect that connection and energisation works are undertaken within 12 months or they may rescind the offer and the capacity will be released back on to the UKPN network.

Gas
Southern Gas Networks forecasts a reduction in annual gas demand of 8.26 % in the period between 2017 and 2026 in the South East region (SGN LTDS 2017, Network Capacity October 2017, P.27).

Water
Hoo Peninsula is in the Kent Medway Water Resource Zone. Southern Water's Water Resource Management Plan (WRMP) 2010-2035 forecasts a water supply deficit ranging from 5.26Ml/d to -12.30Ml/d (WRMP, Page 10-65, Table 10.21) by 2035. It identifies improvements to address this including Waste Water Recycling at Aylesford, raising capacity at Bewl Water reservoir, leakage reduction and licence variation for S271 groundwater source (WRMP, Page 10-72, Figure 10.42)

Waste Water
The nearest wastewater treatment works in the Hoo Peninsula is Whitewall Creek WWTW, which has limited growth capacity. Southern Water's Asset Resilience and Development Team has confirmed in discussion that once the Local Plan is adopted, including

the Hoo allocation, provision will be made in future AMPs to ensure capacity at Whitewall Creek
Under the Water Industry Act 1991, Southern Water has a statutory obligation to provide capacity to serve new residential developments.
Any required reinforcement or upgrade works to provide capacity within the sewer network would be undertaken and wholly funded by Southern Water via the infrastructure charge as authorised by Section 146 (2) of the Water Industry Act 1991.

Filename	Description
A05 SGN Network Capacity.pdf	Gas Network Capacity
A06 Southern Water Water Resource Management Plan.pdf	Southern Water Water Resource Management Plan
A07a SPN Regional Development Plan.pdf	SPN Regional Development Plan
A07b Wastewater Growth Business Case.pdf	WW Growth Business Case
A08 Assessment of Additional Utility Provision.pdf	Assessment of Additional Utility Provision
A08a Utilities Map.jpg	Utilities Map

What consideration have you given to ensuring that the health and care services locally will align with the additional homes to be built?

There are three medical facilities and a dental practice located in Hoo St Werburgh including; 3 GP practices: the Elms Medical Centre; St Werburgh Medical Practice; and St Mary's Island Surgery; and one dentist, Hoo Dental Care.

Health services are under significant pressure and there are restrictions on new patient registration.

The Hoo Development Framework notes the potential for a new Health Centre to serve the extended settlement and the existing village.
Medway Council has secured £80,000 from One Public Estate (OPE) to examine the feasibility of a Healthy Living Centre (HLC) on the Hoo Peninsula. This will be jointly developed by Medway Clinical Commission Group (CCG) and Medway Council and consider viability in the context of public land assets with NHS England capital funding as the next step.

The Kent & Medway Sustainability and Transformation Plan aims to deliver improved services, out-of-hospital and closer to home 'Local Care' services. The Medway Model is based on delivery of a range of out-of-hospital services in six areas with populations of c.50,000 in line with NHS England guidance. These services would be based from a new HLC in each area. While the Hoo Peninsula is part of the Strood locality, HIF growth would create a need for a seventh area, supported by its own HLC.

Growth will increase healthcare needs and demand. HIF Forward Funding will pump prime and accelerate growth, which the CCG and NHS will plan for. Medway Council will require further OPE support to develop service provision and appropriate facilities on the Hoo Peninsula to cater for this population growth. The specification will inform the nature of the facility and area required

Potential sites controlled by Medway OPE partners include: sites owned by Kent Fire & Rescue Service in Hoo St Werburg; Deangate Ridge; Hoo Swimming Pool; Hoo Library; and Stoke Road Car Park.

Have you engaged with your Sustainability and Transformation Partnership?

Medway Council has engaged extensively with Medway Clinical Commissioning Group, a member of the Kent and Medway Sustainability and Transformation Partnership. Through the Hoo Peninsula, both organisations recognise the increasing role of outpatient care and the potential need for a Hoo Healthy Living Centre (HLC) to better serve local needs. One Public Estate affords an opportunity to explore the feasibility of the HLC and potential sites. We will complete this work by mid-2019 in partnership with the CCG, aligning with STP principles and potentially capital funding for the scheme during or after the HIF period.

If you have any further information to support your project overview, which has not already been captured in the above, please include this here

Appendix 9 shows Kent's freight markets. The Grain Branch has seen considerable growth in the last year with the introduction of aviation fuel trains from Grain to Heathrow Airport which now operates thrice daily.

Cliffe and Grain have aggregates terminals where sea-dredged sand is transferred to trains for distribution to the construction industry. These run regularly and are increased when construction industry requirements demand. Cliffe may be a potential location for the construction of tunnel segments for the Lower Thames Crossing. While segments will be transported by barge, the raw materials for their manufacture are likely to arrive by rail.

Thamesport is competing for the shipping container market which is a key staple at most ports around the UK. Opening up access to the rest of the Kent network via the Medway Chord could enable containers to be moved by rail to distribution sites closer to markets, reducing road haulage costs and traffic.

Spoil from HS2 construction is also expected to be transported to Cliffe or Grain for cleaning and recycling. This would then be transported by rail to support projects across the country requiring top soil etc.
Growth in freight traffic, in addition to the proposed passenger service, will require additional enhancements to the Grain Branch, beyond those outlined in this bid. Network Rail and the Department for Transport have identified line doubling between Hoo Junction and the new Sharnal Street station as the first phase of 'additional' improvements to this line. The project is included in the new Rail Network Enhancements Pipeline, Appendix 10 details the RNEP process. Control Periods are 5-year funding and business planning periods in rail, to give suppliers and programmes certainty.

The HIF rail scheme has been designed to be future proofed, enabling complementary future phases led by Network Rail to be delivered without removing HIF infrastructure. Network Rail will progress such 'additional' upgrades through the GRIP stages throughout the HIF delivery period

This is a further advantage of the hybrid development approach: maintenance engineers involved in the design of both projects will be able to influence site access, equipment location etc. to make the future operation of the line safer and easier to maintain.
Future Medway, the new Local Plan will cover the period to 2035. Issues & options, development options and the Development Strategy have been prepared. The third stage consultation positioned a rural town focused around Hoo St Werburgh in the development strategy. The consultation ended in June 2018, finding support for regeneration to bring investment into town centres and the urban waterfront. However, there were mixed views on the ability to concentrate growth on regeneration sites, due to concerns with viability, delivery of infrastructure, transport provision and impacts the natural and historic environments.

A number of issues were raised around the delivery of infrastructure to support proposed growth in the Hoo Peninsula. Many responses emphasised the need to deliver infrastructure ahead of new developments, with the sentiment that additional pressure and congestion would otherwise be unacceptable. HIF support would address these concerns.
Specific issues were raised over the provision of health and educational facilities, the need to promote sustainable transport and support the development of active travel networks. These will be addressed as the rural town develops with facilities provided in tandem with population growth.

It was recognised that the sites and locations emerging from the technical assessments as the most sustainable locations provide a diverse offer that can meet wide-ranging housing need. The proposed strategic allocation around Hoo St Werburgh provides the greatest opportunity to secure investment in critical infrastructure.
The development of a rural town on the Hoo Peninsula was assessed to provide a core component of the strategy. This would complement the urban regeneration dimension, providing for a wider range of development. It was also recognised that the rural town can enhance the sustainability of the Hoo Peninsula, through a strengthened economic and social offer, and investments in the wider environment.

The Regulation 18 Local Plan consultation reports contain draft policies affirming the integral nature of proposals for Hoo and the rationale for HIF.

The new Local Plan's vision and strategic objectives will be reinforced by a strategic policy to support the development of a rural town based around Hoo St Werburgh, supported by policy safeguarding land for rail infrastructure.

The Local Plan 2012-35 Regulation 18 consultation report contains draft policies affirming the proposals for the Hoo Peninsula and the rationale for HIF, including:

DS2: Spatial Development Strategy
"…the council will support the development of a small rural town based around Hoo St Werburgh that is designed to the highest standards and sensitivity to respect its countryside setting and supported by significant infrastructure investments. The development will be in accordance with a masterplan, to secure the balance of land uses, attractive and effective green infrastructure, phasing to reflect the delivery of improvements required to a range of services and infrastructure."

Policy H1: Housing Delivery
Development of a strategic allocation for a rural town on the Hoo Peninsula will be in accordance with the council's development framework for Hoo."

Policy T3: Hoo Peninsula rail connection
"The council intends to safeguard land for new rail infrastructure, including a station, route alignment and buffer stop zone. Proposals which compromise this policy will be resisted.
"Proposals which demonstrate consistency with the Hoo Development Framework and any subsequent masterplans will be encouraged.
"The council will work with strategic transport bodies and wider partners to seek investment in providing new passenger rail services on the Hoo Peninsula."

A range of policies have been developed to ensure sustainable placemaking principles drive delivery. These policies will be integral to the successful delivery of the proposed new rural town as part of a balanced spatial strategy in Medway.

Filename	**Description**
A11 TRACKmaps scan of the Grain Branch with Medway Chord and Sharnal Street.pdf	TRACKmaps scan of the Grain Branch with Medway Chord and Sharnal Street
A12 Train operators.pdf	Train Operators
A13 Medway Passenger Figures.pdf	Medway Passenger Figures
A14 Hybrid project development and delivery.pdf	Hybrid Project Development and Delivery
A15 Rail Chart.pdf	Rail Chart
A09 Freight flows and terminals.pdf	Freight flows and terminals
A10 Network Rail Enhancement Funding & RNEP.pptx	Network Rail Enhancement Funding & RNEP

Strategic Case

Strategic Approach

How will this scheme support your long term housing and economic growth ambitions? Please refer to any development plans and / or associated planning guidance policies

Medway aims to lead growth in the sub-region, building on its urban regeneration programme to bring new opportunities to residents and secure investment in jobs, homes and infrastructure.

Medway Council is preparing a new Local Plan which will replace the 2003 Medway Local Plan and cover the period to 2035. Its ambition is one in common with that of 'Medway 2035', the Council's Regeneration Strategy. Both are driven by a vision for Medway in 2035 as a leading university waterfront city of 322,000 people, noted for its revitalised urban centres, its natural and historic assets and its countryside.
The new Local Plan aims to ensure Medway grows sustainably, allocating land for the homes, jobs, infrastructure and services needed while protecting and enhancing the area's environment and heritage. Its development strategy prioritises urban regeneration as the foundation for Medway's growth, with the potential to make the best use of land and extend opportunities for all.

However, while encouraging growth in the most sustainable locations, the new Local Plan evidence base (including the 'land supply pipeline' identified in our Annual Monitoring Report and our Strategic Land Availability Assessment) shows a wider land supply and other locations are required for the full range of development needed. Infrastructure capacity is a major constraint to Medway's growth. The emerging plan seeks investment in strategic infrastructure to secure upgrades to transport, education, health and wider services to enable new housing. Some 28,030 new houses will be required to 2035 if Medway's assessed housing need is to be met. Hoo Peninsula has been identified as a preferred strategic location for growth, subject to investment in infrastructure. Much of this growth will be concentrated around the village of Hoo St Werburgh. A new rural town will be established, meeting 38% of Medway's Local Housing Need to 2035.
The HIF scheme is fundamental to the development of a rural town on the Hoo Peninsula, a core component of Medway Council's spatial strategy. It addresses major barriers to growth, and provides a new market offer in Medway, diversifying and strengthening its housing offer.
The South East Local Economic Partnership also supports this bid for HIF to unlock housing growth in Medway. A letter of support is attached at Appendix 16. The scheme clearly fits with the SE LEP Growth Deal and Strategic Economic Plan. The Hoo Peninsula is within the Thames Gateway growth corridor and is an area where the potential for housing growth has been unfulfilled, largely due to infrastructure constraints. The SE LEP Growth Deal and Strategic Economic Plan (2014, 1.22) emphasises the importance of housing growth in supporting broader economic ambitions and acknowledges the detrimental effects of restricted housing affordability on the ability of employers across the region to recruit appropriate staff.

The Strategic Economic Plan identifies 'Building more homes' as one of its five key priorities. The Kent and Medway Growth Deal, which is part of it, clearly identifies the need for transport infrastructure investment and housing growth to support the growth of the Kent economy, with the Thames Gateway growth corridor in particular need of infrastructure funding to unlock development.

The 2018 review of the LEP's Strategic Economic Plan is now underway. It recognises that housing and connectivity challenges continue to restrain growth in the region. Promotion of the Hoo Peninsula as a preferred location for strategic housing growth and the HIF investment in strategic enabling infrastructure sought in this submission respond to these continuing challenges. Infrastructure improvements to open up this sustainable strategic housing location will help address skills shortages and related productivi ty challenges in the region.

Additional and accelerated housing development enabled by strategic infrastructure investment is also wholly consistent with the Thames Estuary 2050 Growth Commission Vision and Objectives (Appendix 17). Formed in 2016, the 2050 Vision was launched in June 2018. It is ambitious, seeking to at least double existing levels of housing, employment and wealth creation. By 2050 vision implementation targets 1.3 million new jobs, and an additional £190 billion GVA. Over 1 million new homes will be needed to deliver this level of growth.
Its 6 objectives are:

- Productive Places: strengthened economies building on existing strengths, including the areas Ports and freight sectors. An improved Grain Branch will help deliver this;

- Connected Places: improved infrastructure to support productivity and other improvements. The scheme's road and rail infrastructure will attract new residents and business activity;

- Thriving places: the Hoo rural town will be built to a high-quality design ensuring sustainable and viable local communities;

- Affordable Places: meeting nearly 40% of assessed housing need, Hoo's development radically expand Medway's housing supply, including affordable housing;

- Adaptable Places: the maintenance and creation of new habitats at Hoo is wholly consistent, providing blue-green infrastructure to support sustainable growth and build a sustainable place; and

- Deliverable Places: with HIF infrastructure, the private sector is committed to the investment needed to drive residential growth of the scale sought across the Hoo Peninsula.

Medway is part of the North Kent Foreshore, one of the Commissions 5 Productive Places. Here. Growth in key sectors such as health will be balanced with new jobs and homes, a renewed skills focus, and high-quality centres set around world class heritage and natural assets. With HIF support, the Hoo Peninsula is well positioned to drive the residential, environmental and place parts of this. With road and rail infrastructure it will provide key connections between housing, businesses and opportunities in Kent and further afield. The Hoo Peninsula is identified among the Commissions Priorities and Areas of Change in the North Kent Foreshore (p.25).

The report also notes Commission support for initiatives to deliver improved rail connections and services, minimising conflict between goods and people to increase passenger and other services and road capacity. Medway Council's HIF proposal exemplifies the Commission's vision for the North Kent Foreshore.

The HIF presents a rare opportunity for transformational change. Medway's ambitious HIF proposals will ensure that the new Local Plan is deliverable while providing for an enduring strategy for good growth beyond the plan period. The scheme will not only relieve road congestion; it will enhance connectivity and bring about a step-change in travel behaviour. Moreover, it will underpin wider policies in conjunction with exemplary approaches to design, green infrastructure and public health. Negative perceptions reinforce low values, discourage investment and erode business confidence. This scheme will enable a higher value offer to come forward, helping the development of Medway as a leading waterfront University City.

What is your assessment of local housing requirements in your area and how will this scheme address these needs? Please refer to any data and evidence sources you have, including local housing need

In accordance with the National Planning Policy Framework, Medway Council has used the Government's Standard Method for assessing Local Housing Need (NPPF, 2019, para 60) in preparing the new Local Plan. This indicates a requirement for 1,649 homes per annum or 28,033 between 2018-2035. The Council anticipates that the plan will be examined in 2020, so the relevant 10-year period is 2020-30. The assessment is set out as follows:

Household growth 2020-30 = 13,029
Local affordability ratio = 8.25
Adjustment factor = (((8.25-4)/4) *0.25) + 1) = 1.266
Annual target = (13,029/10) * 1.266 = 1,649
Plan target 2018-35 = 28,033

In common with many areas across Kent and the wider South East, this method resulted in a significantly higher assessment of housing need in Medway than previous methods despite the area being relatively more affordable than many other parts of the South East. The Council has explicitly considered how it can meet this higher requirement over the plan period, consistent with the strategic objectives of the plan and sustainable development principles

Gravesham Borough Council has a shared housing market area with Medway. In its representations, the consultation on Medway's Local Plan, it has sought flexibility for Medway to help meet the wider housing market area's needs should excess residential land be identified during Medway's plan preparation process.

Gravesham Borough Council has identified a need for additional sites to accommodate some 2,000 dwellings to 2028. If Gravesham's housing needs are to be met fully within the borough, it would necessitate the release of Green Belt land. Under the Duty to Cooperate, Medway Council will consider whether and how much of Gravesham's unmet housing requirement can be met in Medway.

Strategic Housing Market Assessment

The Local Housing Need assessment produced using the standard Government methodology is complemented by a depth of research on local housing need and demand in the 2015 Strategic Housing Market Assessment (SHMA) (Appendix 18).

The SHMA demonstrated that while house prices experienced significant inflation between 2000 and 2013, median house prices in Medway remain the lowest in what is a high-value sub-region in UK terms. This analysis is supported by Medway Council monitoring data (Appendix 19).

The SHMA demonstrated how rising house prices and slow wage growth has been reducing the affordability of housing in Medway. Yet, in comparison to other parts of Kent, Medway was more still more affordable. The Annual Monitoring Review (2018) demonstrates how these trends continue. Housing affordability in 2012-2017 worsened nationally, including in Medway. The average cost of a property in Medway is now over eight times the average annual local salary, and the lower quartile income/housing cost ratio is over nine times the average annual local salary. However, Medway remains comparatively more affordable for housing costs than across wider Kent.

Medway's relative affordability, its accessibility, and the underlying health of its property market indicate its suitability for programmed housing-led regeneration – a key focus of previous and future Local Plans for Medway. There is a clear need for more housing to support economic growth by growing the labour force and tackling affordability issues through increasing housing supply. However, funding is required for the strategic infrastructure needed to unlock major housing development that will make a real difference in achieving this.

The SHMA's purchase price data indicates that Hoo commands lower values than other parts of Medway and the region. Compared with rural Gravesham (near Higham), house prices in Hoo are low, reflecting poor accessibility, the area's limited service base (arguably linked to its accessibility) and negative perceptions of the area. HIF supported infrastructure presents an opportunity to reshape the housing market in Hoo as a key part of Medway's wider place-focused regeneration. This would realise the potential of what is an undervalued area of the sub-regional housing market. A new rural town at Hoo, unlocked through significant infrastructure provision, will provide 10,600 new homes. The new rural town will include an appropriate mix of market and affordable housing, making a significant contribution to meeting housing need while supporting the wider economic growth of Medway and the sub-region in line with Medway's aspirations for economic transformation and growth.

The SHMA (2015) also assessed the requirement for affordable housing. Under what has become a widely used measure where a household spending more than 35 % of its net income on housing costs is considered to be 'unaffordable', 34% of Medway's population will not be able to afford to purchase market housing (at the area's lowest quartile average house price of £122,500). Despite house prices being relatively low in the context of wider Kent and the South East, house prices are still very high compared with the incomes of a significant proportion of local people. Identifying areas such as Hoo, with the scope to provide a broad range of housing (in terms of lower initial land values with potential for growth) and housing tenures to suit the sub-regional market is critical in providing a broad response which can meet the needs of a wide range of those in housing need. This focus - on shaping the market by providing a greater range of tenures and house types, including smaller homes – is consistent with the recommendations of the recent Letwin Review (2018).

There are also urban-rural property market differences to consider. The SHMA identified local rural households as a specialist group where affordability is not as great an issue compared with urban households, but where there is still a need to improve the range of stock type and size distribution to ensure access across all housing types and tenures. It supported a greater supply of 1-3 bed

properties in rural areas. The new rural town on the Hoo Peninsula can address this. In terms of urban housing, it presents an opportunity for larger family sized homes that may be unaffordable elsewhere in the sub-region. This mixed approach may attract households from more urban areas, and meet new population growth while helping the development of an affordable sustainable mixed community in the long-term.

In terms of providing enough housing where it is needed most, Medway has struggled to meet its housing targets as a result of the effects of the recession in 2008 which affected housing development into the early 2010s. While the market has now improved there is pent-up demand in the sub-region. Increasing supply will have a beneficial impact on diversity and choice of housing stock. The SHMA's (2015) consultation with local agents found that demand (in sale and rental markets) was outstripping supply. Three-bed family houses are the most popular type of housing stock and Hoo is relatively competitive with locations elsewhere in the Borough and wider sub-region. The Hoo rural town is a market-facing proposition where new homes will be delivered at a scale and rate that would otherwise not be possible. The provision of new transport infrastructure will reshape the housing market in Medway, unlocking growth and meaning more homes will be built where they are needed most. In doing this, Hoo rural town responds to housing need and demand which the market cannot presentlymeet.

Filename	Description
A18 North Kent SHMA.pdf	North Kent SHMA
A19 Medway Council Audit Monitoring Report.pdf	Medway Council Audit Monitoring Report.
A16 Letter of Support South East Local Enterprise Partnership.pdf	LEP Support
A17 Thames Estuary 2050 Vision.pdf	TE 2050 Vision

Local Support

How will this scheme demonstrate effective joint working? E.g. with neighbouring local authorities and other local partners, Private sector organisations, Local Enterprise Partnerships etc.

In developing the Local Plan and proposals for the Hoo Peninsula, the Council commissioned a Development Framework for Hoo St Werburgh. Its preparation included stakeholder engagement workshops during summer and autumn of 2018 which, amongst other inputs, explored the implications of the HIF proposals.

The main partners in developing an expanded Hoo St Werburgh are the Hoo Consortium, a group of private landowner and developer interests. The Hoo Consortium comprises the Church Commissioners, Gladman Land, Dean Lewis Estates and Taylor Wimpey. This group wholly or partially controls sites [redacted] Other key holdings include the major land interest at Chattenden held by Homes England and Council-owned land notably at Deangate. The Council has held regular and detailed meetings with the [redacted] to discuss the HIF proposals and related development implications. That process is securing close alignment between the Council's emerging masterplan, and the plans developed by the Consortium. Their support for the proposals and commitment to joint working is articulated in section 2.2.3 and in the Statement of Common Ground (Appendix 20).[redacted]

[redacted]

A New Routes to Good Growth Board will be established, chaired by Medway Council. It will include the Hoo Consortium. It will

continue post-2023 to ensure masterplan delivery.

South East Local Economic Partnership
The SELEP has confirmed its wholehearted support for the development of Hoo St Werbergh and the HIF infrastructure which will enable it. The SLEP promote steady, sustained economic growth; with an emphasis on accelerating housing delivery as set out in the SELEP Economic Strategic Statement. The letter of support confirms that the SELEP consider the bid for HIF funding demonstrates real value with measurable benefits in terms of housing and will make a positive contribution to the economic growth within the area. This is attached at Appendix 16.

Please demonstrate local support for your scheme (for example in Local Plans and policies)

Future Medway, the new Local Plan will cover the period to 2035. Issues & options, development options and the Development Strategy have been prepared. The third stage consultation positioned a rural town focused around Hoo St Werburgh in the development strategy. The consultation ended in June 2018, finding support for regeneration to bring investment into town centres and the urban waterfront. However, there were mixed views on the ability to concentrate growth on regeneration sites, due to concerns with viability, delivery of infrastructure, transport provision and impacts the natural and historic environments.

A number of issues were raised around the delivery of infrastructure to support proposed growth in the Hoo Peninsula. Many responses emphasised the need to deliver infrastructure ahead of new developments, with the sentiment that additional pressure and congestion would otherwise be unacceptable. HIF support would address these concerns.

Specific issues were raised over the provision of health and educational facilities, the need to promote sustainable transport and support the development of active travel networks. These will be addressed as the rural town develops with facilities provided in tandem with population growth.

It was recognised that the sites and locations emerging from the technical assessments as the most sustainable locations provide a diverse offer that can meet wide-ranging housing need. The proposed strategic allocation around Hoo St Werburgh provides the greatest opportunity to secure investment in critical infrastructure.

The development of a rural town on the Hoo Peninsula was assessed to provide a core component of the strategy. This would complement the urban regeneration dimension, providing for a wider range of development. It was also recognised that the rural town can enhance the sustainability of the Hoo Peninsula, through a strengthened economic and social offer, and investments in the wider environment.
The Regulation 18 Local Plan consultation report contains draft policies affirming the integral nature of proposals for Hoo and the rationale for HIF.
The new Local Plan's vision and strategic objectives will be reinforced by a strategic policy to support the development of a rural town based around Hoo St Werburgh, supported by policy safeguarding land for rail infrastructure.
The Local Plan 2012-35 Regulation 18 consultation report contains draft policies affirming the proposals for the Hoo Peninsula and the rationale for HIF, including:

DS2: Spatial Development Strategy
"…the council will support the development of a small rural town based around Hoo St Werburgh that is designed to the highest standards and sensitivity to respect its countryside setting and supported by significant infrastructure investments. The development will be in accordance with a masterplan, to secure the balance of land uses, attractive and effective green infrastructure, phasing to reflect the delivery of improvements required to a range of services and infrastructure."

Policy H1: Housing Delivery
Development of a strategic allocation for a rural town on the Hoo Peninsula will be in accordance with the council's development framework for Hoo."

Policy T3: Hoo Peninsula rail connection
"The council intends to safeguard land for new rail infrastructure, including a station, route alignment and buffer stop zone.

Proposals which compromise this policy will be resisted.
“Proposals which demonstrate consistency with the Hoo Development Framework and any subsequent masterplans will be encouraged.
“The council will work with strategic transport bodies and wider partners to seek investment in providing new passenger rail services on the Hoo Peninsula.”

A range of policies have been developed to ensure sustainable placemaking principles drive delivery. These policies will be integral to the successful delivery of the proposed new rural town as part of a balanced spatial strategy in Medway.

Can you provide evidence of support for your proposal from the following:

	Support	**Further Details**
Local MP(s)	Awaiting response	Medway Council has had a positive engagement with its three MPs since submitting our EOI in 2017. Kelly Tolhurst, MP, is Minister for Small Business, Consumers and Corporate Responsibility. The Hoo Peninsula is in her constituency. Tracey Crouch, MP and Rehman Chishti, MP, who raised the bid in the House of Commons on the 5th March 2019, have also been supportive. Their support is noted in the letters of support for our EOI. We are seeking updated letters of support during the clarification stage.
No attachments		

	Support	**Further Details**
Local community	Awaiting response	Medway Council has positively engaged with Local Parishes on the Hoo Peninsula throughout the emerging Local Plan process. Further engagement is planned as the NRGG scheme is refined.
No attachments		

	Support	**Further Details**
Local Enterprise Partnership(s)	Yes	“The project put forward by Medway Council demonstrates real value with measurable benefits in terms of housing and will make a positive contribution to the economic growth within the area. We look forward to a favourable announcement regarding this application to the Housing Infrastructure Fund.” [redacted]

Filename	**Description**
A16 Letter of Support South East Local Enterprise Partnership.pdf	LEP Support

	Support	**Further Details**
Supporting upper tier local authorities	No	Medway Council is a unitary authority.
No attachments		

	Support	Further Details
Supporting lower tier local authorities	No	Medway Council is a unitary authority.
No attachments		

	Support	Further Details
Any other key stakeholders	Yes	Medway Council has had constructive meetings with the DfT since 2017 to discuss the need for, and role of, the proposed HIF-funded link road. HIF proposals are Local Plan-led, DfT compliant and evidence-based. Medway Council had a productive meeting with the Ministry of Defence in February 2019, in their position as a landowner. [redacted] Medway Council is additionally working with the Construction Industry Training Board to seek additional venues and resources to deliver training in other locations. We are seeking a letter of support from the MOD, which should be confirmed during the clarification period.

Filename	Description
A22 Letter of Support Southeastern.pdf	Letter of support Southeastern
A23 Letter of Support - Royal Society for the Protection of Birds.pdf	RSPB Letter of support
A24 Letter of Support - Medway Development Company.pdf	MDC Letter of support
A21a Letter of Support Network Rail.pdf	Freight support letter
A21b Network Rail Strategic Planning Letter of Support.pdf	Strategic Planning support
A21c Letter of Support - Highways England.pdf	A21c Letter of Support - Highways England
A20 Statement of Common Ground.pdf	SoCG

Meeting housing policy objectives

How will your scheme support the Government's ambitions for housing, as set out in the Housing White Paper?

Housing enabled by HIF will directly respond to the Housing White Paper's main aim: 'to build more homes, of the type people want to live in, in the places they want to live.'

The White Paper seeks to address issues which are prevalent in Medway. Medway, like other parts of England, faces issues with a lack of affordable housing which is holding back growth and pricing local households out of the housing market. The scheme's purpose is to support an accelerated level of housing delivery to meet anticipated levels of housing demand across Medway (28,033 homes by 2035) in the most sustainable location and form possible.

The HIF scheme addresses these issues by effective and sustainable delivery of mixed tenure housing supported by strategic road & rail infrastructure and supporting services. Garden settlement planning principles are embedded in the indicative masterplanning for a new rural town at Hoo St Werburgh. Development enabled by HIF infrastructure will provide infrastructure resilience for further growth beyond 2026, including residential, commercial, and employment opportunities around the new rail station.

Driving the proposal is the delivery of quality of public realm including multi-purpose green infrastructure, accessible public open

space and country parks, sensitive to the local landscape and designated wildlife sites and habitats. Provision for active travel modes lie at the centre of the scheme design principles.

The proposal will deliver 10,600 homes by 2035: development at the scale of a new Garden Town supporting a self-sufficient mixed use settlement. Strategically it fits the housing needs of the housing market area. [redacted]

[redacted]

The scale of development and provision of a range of types of housing supports the economic ambitions of Medway and the wider South East LEP. It is locally-led and is to be progressed through the local plan process, with the support of neighbouring authorities and the LEP already established.

The quality of the development and its integration with the existing community through effective physical and digital connectivity will be an exemplar for new development in the area.
It will speed up the delivery of homes in a sustainable location with construction of homes to begin by 2022, with an increased rate of delivery following operation of Sharnal Street Station and rail passenger services. In terms of delivery times scales and accelerating delivery transport dependency, testing has shown that 8600 homes in Medway would be entirely dependent on the infrastructure interventions in this bid: the bid unlocks much needed housing development.

In line with garden settlement principles, the location has tremendous scope for sustainable future proofing in the form of a major district heating network. Nearby Damhead Creek Power Station (gas-fired) on the Isle of Grain has consent for significant expansion in generating capacity. This would complement a self-sufficient settlement connected with sustainable transport modes.
Overall, in terms of its scale, strategic fit, locally-led process, its range of garden community qualities, and demonstrable deliverability and viability the proposal fits the criteria of a new garden community and crucially responds to the main aim of the Housing White Paper building more homes where they are needed most.

Diversifying the housing market through Small and Medium Sized Enterprises (SMEs), Modern Methods of Construction (MMCs), or Self-Build
The Housing and Planning Act 2016 requires authorities to enable opportunities for new forms of housing construction, including self-build and custom housebuilding in their area. Policy encourages landowners and developers to offer plots to self and custom builders on sites of different scale. This will support the local economy, providing opportunities for local tradespeople and small and medium sized builders.
Medway Council has identified [redacted] sites enabled by HIF infrastructure. They vary in potential capacity from 25 units to 2,000 units (Appendix 31) providing broad opportunity to introduce diverse construction and development approaches. The emerging Local Plan Delivery Strategy proposes that 5% of plots over 400 dwellings should be available for self/custom build. For Hoo this would apply to 10 sites, equating to some 470 self/custom build homes.
Modular housing is already being delivered at Kitchener Barracks in Chatham, demonstrating Medway Council's commitment to innovation in housing delivery. Medway Council is actively seeking to attract at least one modular housing manufacturing facility on the Hoo Peninsula.
Diversification may be further encouraged by the potential involvement of Medway Development Company (MDC) in delivery, particularly on public sector sites. MDC is an independent wholly-Council owned housing developer set up to create high quality affordable, social and market homes. Further detail on MDC is contained in the Management Case.

Unlocking public sector and local authority land & Making effective use of brownfield sites
Most of the potential site allocations are privately-owned greenfield sites, though some have been previously used for non-agricultural purposes. Deangate Ridge Golf Course owned by Medway Council is under-used and financially unviable. Initial

indications of capacity suggest potential for up to 600 homes on this site. The Council also owns 2 smaller brownfield sites which will accommodate new housing.
HIF will also enable 500 homes on Homes England land at Chattenden Barracks. There are concerns over the potential risk from development to the nearby SSSI and ancient woodland. The Strategic Environmental Management in this HIF bid will further mitigate this.

Scheme Objectives

What are the overaching objectives of the scheme? Objectives should be SMART - specific, measurable, achievable, relevant and time constrained

- Objective 1. Meeting forecast housing need & demand through a step change in the volume and rate of house building Specific: Forecasts indicate a need for 28,033 new homes in Medway by 2035, equivalent to 1,649 homes per annum. Measurable: Project contribution towards the delivery of 28,033 homes by 2035. Project contribution to average annual delivery linked to forecasting. Attainable: Attainable through: - Investment in strategic infrastructure to improve site viability & accessibility; - Enabling sites in different ownership to minimise the risk of delivery delay. - Supporting SME's and self-build opportunities to diversify housing tenure and construction methods. Relevant: Strategic alignment with HIF & Government objectives to increase and accelerate housing delivery. Make more land available for housing in high demand areas, to enable additional homes that otherwise would not be built. Support population and economic growth by extending local and regional housing supply. Time-bound: Delivery of core HIF related housing by 2035 Identification of specific housing (by 2035) & infrastructure (by 2023/24) delivery milestones. Clarity over responsibility for delivery HIF infrastructure spending completed by. Full build-out by 2035.
- Objective 2. Build accessible communities in strategic locations Specific: Communities linked to each other and strategic networks by integrated, accessible transport. Maximise use of existing networks New & expanded communities with appropriate provision of services, facilities and local employment opportunities Provision of public transport infrastructure. Measurable: Provision of community-based facilities. Increased use of public transport modes Attainble: Identification of deliverable, sustainable future settlement pattern Alignment of new housebuilding and infrastructure provision to ensure community growth Building at a scale to warrant/support further public transport services Evidenced through Local Plan and supporting documentation. Relevant: Aligned to local & national policy. Unlock strategic access constraints limiting development. Time-bound: Access infrastructure delivery by 2023/24.
- Objective 3. Development of sustainable communities to support growth Specific: Enabling community development of scale in location(s) that can sustainably support population & economic growth. Enabling community development while effectively managing environmental impacts. Measurable: Measurable by modal shift achieved. Impact on environmental designations: landscape, & biodiversity. Employment land accessibility. Attainable: Development of expanded & new communities with transport and social infrastructure for sustainable growth Enable growth responding to the needs of the local economy employers. Proximity and good connectivity to places of employment (in & outside Medway) Evidenced through Local Plan and supporting documentation. Relevant: Identification of private and public land to facilitate housing growth. Identification of public and private resources to enable sustainable community development. Time-bound: Sites enabled by 2035
- Objective 4. Support the commercial viability and sustainability of housing (including affordable housing) across the region. Specific: Maximise the delivery mix of types of housing with a focus on affordable housing. Use of public land with potential to deliver affordable housing and to allow SME builders and self-build to diversify the market Development of country parks and green spaces. Measurable: Number of affordable housing units developed. Changes in the affordability ratio Attainable: Commitment to high-quality homes and a high-quality environment. Creation of legacy model. Evidenced through Local Plan and supporting documentation. Relevant: Based on the identified need/demand for housing in the area Meets the purpose of the HIF Fund. Time-bound: More balanced range of tenure and housing types achieved by 2035

Please list the criteria (critical success factors - CSFs) against which you will assess the successful delivery of the project and the evaluation of options

- Strategic Fit and Need The proposal: • Meets local and contributes towards national housing need, both for market and affordable housing • Fits with the wider regional and national strategic vision and interventions e.g. Housing, Regeneration, Economic Development and Transport • Maximises scale and acceleration of development
- Value for Money: The proposal: • Maximises the return on spending in terms of economic, efficiency and effectiveness from the

Council and national perspective • Minimises associated risks

- Potential achievability: The proposal: • Delivers in line with policy and meets the desired objectives • Builds in resilience and flexibility to deliver outcomes whilst assimilating, adapting and responding to changes in the project • Matches the level of available skills and support which are required for successful delivery
- Supply-side capacity and capability: The proposal: • Matches the ability of providers to deliver the required level of services and business with processes focused on a clear goal • Commercially attractive to developers and builders
- Potential Affordability: The proposal: • Demonstrates the availability/reliability of funding sources • Meets the sourcing policy of the local authority

Rationale for intervention

What is the market failure being addressed? Please provide a detailed account of why the existing arrangements, both financial and delivery, are not sufficient to deliver the scheme and the rationale for government intervention (HIF funding)

Identifying Market Failure

The principles of non-excludability and non-rival consumption dictate that public-sector intervention is required to forward fund the cost of enabling infrastructure on the Hoo Peninsula. The scale of infrastructure required to enable accelerated delivery of housing is too large even for a collective of developers to forward fund. The graph at Appendix 25 illustrates it would take 10.5 years to accumulate sufficient S106 payments to fund the infrastructure required to support the desired phasing of homes (an average of 624 units per annum)

The Options Appraisal describe the counterfactual position, indicating a further 2,000 homes might be built on the Hoo Peninsula before the limit of strategic transport infrastructure - the A288, A289 and Four Elms roundabout - is reached. However, strategic environmental constraints linked to habitat protection and other factors further restrict the counterfactual position to 940 units. Unless these are addressed, Medway Council will cap residential development on the Hoo Peninsula to those sites which presently have planning permission. These sites have a capacity for 940 units.

Under the counterfactual Option, infrastructure development would either be delayed pending sufficient receipts (or alternative funding) or incremental. Without HIF funding it is likely that residential development would be more piecemeal and more slowly delivered than required. HIF support will ensure infrastructure delivery before 2023/24 to support early development of the rural community growth and benefit to existing residents.

In summary, two key market failures are identified:

1. Existing strategic transport and social infrastructure cannot support Medway's anticipated demand for housing. The forward investment needed to address these constraints cannot be viably absorbed by developers of individual sites on the Hoo Peninsula and is unviable even for a collective of private developers. Housing delivery consistent with the levels needed to meet established need is thereby put at risk.

2. While transport, environmental and social infrastructure provision benefits all sites on the Hoo Provision, it will be physically located in specific ownerships. This will limit the remaining area of developable land for that owner. While the benefits of infrastructure provision are shared (and under a collective binding agreement, its costs) the return from site investment is not. In the absence of an agreement i.e. under market conditions, those with sites which are not affected by infrastructure construction stand to benefit disproportionately. Those with sites affected by infrastructure construction are unlikely to accept the burden of its cost without sharing in the values increased across the whole of the area supported by the infrastructure.

3. Even were development values such that infrastructure and other improvements could be funded via S106 agreements, the development triggers for key components would not be reached until much later stages. This would adversely impact residents of earlier development phases living with a lack of local amenities, slow down build-out rates and potentially undermine the delivery timetable because statutory objections (e.g. from Highways England) and public health (air quality) considerations may stall development.

Intervention Rationale

The HIF intervention will provide the necessary infrastructure improvements up-front to unlock and accelerate housing delivery by

removing transport and environmental barriers and enabling sustainable development to garden settlement principles.
The A289 Four Elms Hill and Main Road roundabout on the A228 is the chief constraint to significant development on the Hoo Peninsula. Four Elms roundabout is the point at which major traffic flows converge: from the Peninsula east to central Medway (including Gillingham via the Medway Tunnel and Medway City Estate or west towards the A2/M2 for London- or coast-bound routes, from the Medway City Estate via Anthony's Way and the A289; and to and from Strood via the A228.

The area suffers severe peak time congestion with adverse consequences for economic productivity, the environment and health. Transport assessments carried out for the Local Plan confirmed severe impacts on the highways network arising from potential growth if mitigations are not in place. Four Elms is also designated an Air Quality Management Area (AQMA). This limits increased car-based travel without effective mitigation.

Rail capacity (including signalling) on the Grain branch presently prevents the introduction of passenger service as well as restricting the expansion of freight services. NRGG will provide a passing loop at the new station to enable freight traffic to pass passenger trains and significantly increase timetable capacity on the branch. There will be a far shorter single-line section at the Grain-terminus, which will have upgraded control.

Evidence
The Commercial Case market analysis shows the demand and needs for housing development in Medway, including the following:
1. House prices have risen by an average of 51.7% in Medway since 2013 (50.5% in Kent, 42.6% South East) (Land Registry, 2018).
2. New home sales doubled between October 2016 and October 2017 from 203 units sold in 2016 to 402 units in 2017 (Land Registry, 2018).
3. Medway Council is refusing development permissions on the Hoo Peninsula on the grounds of transport infrastructure capacity (See 1.3.2). This approach is being supported at appeal clearly acknowledging the critical correlation between transport infrastructure capacity and large-scale housing development inMedway.
Informing project interventions.

The HIF proposals are designed to overcome the constraints faced by Medway. The infrastructure proposed through the scheme will support behavioural shifts towards public transport-based travel solutions and accelerate the delivery of an exemplar development and integrated infrastructure approach to catalyse transformation across Medway's conurbation.

Reintroduction of passenger services on the Grain branch, combined with provision of a direct heavy rail connection between Grain and the principal Medway Towns via the proposed Medway Chord will unlock new housing growth and economic potential at Hoo St Werbergh and elsewhere on the Peninsula, while helping to deliver other benefits and modal switch of passenger and freight traffic from road to rail.
Supporting housing growth at Hoo St Werburgh by reinstatement of passenger services on the Grain Branch will provide immediate benefits for existing residents and reduced traffic in the Medway Towns as commuting habits change in repose to direct services to London (2 per hour) and access to local and High-Speed services at Rochester and Chatham.
Freight services will also benefit as the Medway Chord will remove the need for reversing manoeuvres at Tonbridge while reducing journeys by 20 miles.

No attachments

Additional Information

If you have any further information to support your strategic case, which has not already been captured in the above, please include this here

The section should be read in conjunction with the Executive Summary (A00a) and List of Appendices (A00)

Filename	Description
A20 Statement of Common Ground.pdf	Statement of Common Ground between the Hoo Consortium and Medway Council.
A01. Hoo Peninsula Highways Business Case.pdf	Highways Business Case
A03 Secretary of State Decision Letter.pdf	SoS Decision Letter
A04 School Place Analysis.xlsx	School Place Analysis
A00 List of Appendices.pdf	A00 List of Appendices
A00a Executive Summary.pdf	A00a Executive Summary

Options Appraisal

Outline of options

Please provide a summary of all options considered during co-development related to the extent of HIF funding required. Please set out the rationale for why these options were discounted in favour of the preferred option

Strategic Development Overview

The scale of growth projected for Medway (as evidenced in the Strategic Case) indicates that the Council needs to look at both beyond the pipeline of sites generated by incremental growth to larger planned settlements that can deliver a mixed development of homes, services, infrastructure, green spaces, shops and jobs.

As Medway's population grows and ages, it is important that development meets the needs of different groups in society, providing the appropriate range of market, affordable, intermediate and social rented homes, as well as specialist housing types or homes that can be adapted. Growth also needs to be environmentally sustainable, as well as providing access to services and facilities that underpin a good quality of life. Bringing forward Medway's emerging Local Plan through Regulation 18 consultations has allowed the Council to robustly assess the needs of the area and refine the strategy for sustainable growth. The process has resulted in the co-development of three housing delivery scenarios presented in the Development Strategy Reg 18 Consultation (Pages 22-27), as the first stage of statutory consultation. These three scenarios form the basis for the options appraisal.

Maximum Urban Regeneration

This option seeks to establish major transformation in the existing urban centres, particularly around Chatham and Strood, extending regeneration to the periphery of town centres. The Council considered the redevelopment of Medway City Estate, Chatham Docks and employment land on the River Medway, involving up to 200 landowners.

The complexity of multiple ownerships and the requirement to reallocate employment land for residential uses creates difficulty for Medway Council in meeting the required housing within the plan period. This is primarily because of the need for compulsory land acquisition to bring forward the land necessary to support such a level of residential development, as well as the costs of relocation of businesses to as yet unidentified land elsewhere or outside Medway.

To meet the housing need, this Option includes building at higher densities in appropriate locations to bring forward mixed development at scale. Land would be used more intensively, with higher density bringing a new character to Medway's town centres, the impact of which would need to be balanced with the Medway towns' historic setting.

The higher density will drive the population of Medway's town centres and to support a more sustainable local economy. Increased demand for services from residents has the potential to address viability challenges currently faced by Medway's town centres. However, the higher densities in this Option will create additional challenges for the town centres, particularly in terms of transport infrastructure. Higher densities will require significant upgrades to existing urban infrastructure to support concentrated population growth. Critically it is anticipated that the Medway Tunnel would require costly expansion to support the residential settlement at Medway City Estate.

Such an approach would deliver much of the housing in flats which would not meet the needs of all the different sectors of Medway's future population. So, there would still be a need to consider suburban and rural areas as potential locations for development to achieve a balanced residential development strategy.

The Council anticipate that this Option would generate a poor Value for Money. Given the scale of investment needed to complete the Medway Tunnel expansion, including the higher land price to support such infrastructure, the Council anticipate that the costs are likely to outweigh the benefits of such concentrated development.

In summary, the Council acknowledges that there are a number of risks in such an approach, including the ability to deliver within the plan period, potential loss of overall employment land supply, viability of building at height across the town centres, difficulties in providing the full range of housing types that the market requires and securing infrastructure and services to support growth at this scale.

Maximum Suburban Regeneration

The Council recognises that the success of Medway depends on a revitalised and strengthened urban core, providing the community, cultural and commercial energy and focus to raise the performance and perceptions of Medway. However, greater consideration is given to the potential of the suburban areas to meet the shortfall between housing needs and the currently identified pipeline of sites. Recognising the need to revitalise Medway's urban core, this Option retains a core component of urban regeneration as part of a balanced development strategy. The Council has considered development of sustainable urban extensions around Rainham, Capstone and Strood to complement urban regeneration taking place elsewhere in Medway. As with the Maximising Urban Regeneration Option, development required over the period of the Local Plan needs to be of scale to deliver mixed-use development,

with housing supported by new services, infrastructure, employment land, green spaces and linkages.
In support of this scale of development, the Strategic Land Availability Assessment has identified that much of the land on the edge of Medway's urban area, including several villages across suburban Medway is available for development. However, many of these sites are environmentally constrained or lack the infrastructure and access to services that would be required for sustainable development.

The Metropolitan Green Belt covers land in the Medway Valley and to the west of Strood. However, to meet the identified housing need through the Maximising Suburban Regeneration Option, it would require development on the Green Belt and result in coalescence between Strood and Gravesend, thus reducing access open space for residents.
In terms of the infrastructure implications, initial assessment carried out by the Council has highlighted stress in the highways network at a number of key junctions linking to Medway's suburban areas. In particular, access routes that would need to be addressed in order to accommodate growth via maximisation of suburban regeneration.
In summary, the Council acknowledges that there are a number of risks in such an approach, primarily arising from the combined environmental impacts of increased development, loss of open space and increased coalescence and the disparate nature of infrastructure improvements that would be needed to mitigate impacts.
New Settlement Max (Hoo Peninsula Focus)
The Hoo Peninsula is considered as a potential location for growth to support Medway's housing need. A key strand of this scenario is the expansion of the large village of Hoo St Werburgh into a rural town.
As a large village in a rural area, both Hoo St Werburgh and the wider Hoo Peninsula have limited services in comparison with the Medway towns. The focus is on developing a sustainable rural town and concentrating development around larger villages to avoid sprawl into the wider countryside.
Such scale of growth would inevitably have an impact on the environment and the countryside character of the existing villages. Development needs to be planned so that it respects the key landscape features, retains separation between urban and rural Medway, and establishes a character that is distinctive and in keeping with the rural location. A fundamental consideration in this scenario is the capacity of infrastructure to support potential levels of growth, particularly the road network. There is a limited network on the Hoo Peninsula and, to access it, the majority of traffic passes through the Four Elms roundabout which currently acts a constraint on development.
Without HIF support, infrastructure to unlock housing development in the Hoo Peninsula will not be delivered. Medway will not be able to meet its housing need, reducing economic growth and intensifying affordability issues.

Please summarise shortlisted options considered and how these meet the required objectives of the scheme detailed earlier in the business case.

	With requested HIF funding	With a reduced amount of HIF funding	Do nothing (no HIF funding)
HIF Funding Required	£170,000,000	£105,564,151	£0
[redacted]	[redacted]	[redacted]	[redacted]
Housing units delivered	10600	8000	2000
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
Amount of LA funding (inc. LGF)	£0	£0	£0
Amount of other Central Govt. funding	£0	£0	£0
[redacted]	[redacted]	[redacted]	[redacted]
Amount of other public sector funding	£0	£0	£0

1. With requested HIF funding

Cost: £170,000,000
Homes: 10,600
Dependent development testing has indicated that a maximum of 10,600 homes can be delivered around Hoo St Werburgh under Option 1. It is expected that development would be spread over 17 years (2019-2035). The option includes three main elements:
Road improvements to provide capacity improvements and link upgrades to 3 junctions on the A289 and 4 junctions on the A228. It includes new slip roads and an A228 Relief Road, with a grade-separated link with A289. Specifically:
? A relief road to relieve capacity at the Four Elms roundabout, enabling westbound traffic to/from the M2 to bypass the roundabout, reduce pressure and increase capacity.
? Capacity improvements to 3 roundabouts to serve new developments.
? New and improved facilities for active travel, including pedestrian and cycle links within, and to and from, the Peninsula.
? Improvements to the A289, including enhancements at Four Elms, Sans Pareil and Antony's Way roundabouts to improve capacity.
The upgrades will provide a workable arterial road for the new community on Hoo Peninsula.
Rail improvements to reinstate passenger trains on the Grain line and provide a new station for existing and new residents with direct service to London in the peak and to Medway and Maidstone in the off-peak i.e. shorter journey times to the Medway Towns by public transport. The expected passenger rail services will be:
? Peak: 2 trains/hour to London Victoria
? Off Peak: 2 trains/hour to the Medway Valley
Strategic environmental management scheme (SEMS) to address the cumulative impacts of increased housing and population on the ecological interests of the area's designated sites. This will provide nature recovery areas for key species, provide alternative open space for future population without detriment to key species, protect wooded areas, increase connectivity with new green corridors, complement SAMMS, deliver ecological net gain and contribute to AQMA.

What strategic risks do the shortlisted options carry?

Description	Likelihood	Impact
Failure to secure upfront capital infrastructure funding through the HIF means that development is not viable. Medway have engaged with Homes England through co-development to reduce this risk, as well as with key stakeholders including Network Rail to ensure that the HIF package is deliverable.	MediumLow	MediumHigh
[redacted] extensive early consultation has taken place on emerging Local Plan to reduce scope for later delays in programme	[redacted]	
Insufficient utilities capacity to support development means that delivery of housing is slower than phasing. Dialogue is now underway with key providers so that infrastructure is provided in line with development.	Low	Low
Delays in securing planning approvals for housing development through either late applications or delays in the determination process. SoCG in place between the Council and key landowners to manage this risk.	MediumLow	High
Air quality and noise pollution associated with infrastructure and development not adequately mitigated. Risk managed by different modes of transport being provided through scheme, including transfer of existing and future freight traffic from road onto rail to reduce emissions.	Low	Low

What are the constraints related to this shortlisted option?

- The Hoo Peninsula separates the estuaries of the rivers Thames and Medway. The Peninsula is surrounded by an extensive area of SSSIs (Appendix 26). There is one road in and out of the Peninsula and a freight line that currently doesn't support passenger services.
  [redacted] The scale of development requires the cooperation of landowners, Council services, external agencies and developers.

  However, Option 1 allows the Council to support multiple site owners not in the consortium to deliver affordable housing and to allow SME builders and self-build to diversify the housing market.
  Multiple land ownership. [redacted]
  Planning constraints. The site is not allocated in the development plan. With full political support, officers have been careful to ensure that the Option progresses through the planning system in an appropriate manner which involves full community involvement e.g. Option development under the Regulation 18 consultation.
  Rail freight movements along the Grain Line constrain the timetabling of passenger services. Work is underway to establish the benefits of double tracking the line to support 4 trains/hour to London in the future. This is likely to stimulate housing growth above the 10,600 enabled by this HIF funding.

Please provide details of any inter-dependencies related to this shortlisted option

- Infrastructure delivery interdependency:
  There are various landowners, agency, and utility provider interdependencies. There is a particular interdependency on Network Rail regarding the sign off on construction works to the Grain Line. The Strategic Case has demonstrated how these have been brought together at an earliest possible stage.
- Landownership interdependency:
  For such an extensive area, ownership is relatively uncomplicated and there are no ransom strips which would constrain delivery. The Council have obtained land acquisition strategy advice from [redacted] (See Appendix 27).
- Governance and Delivery interdependency:

A robust governance and delivery strategy for the infrastructure and homes is set out in the Commercial and Management cases.

- Private Sector interdependency:
  The main landowners are the Hoo Consortium. Medway Council has developed a SoCG with the Consortium that will support the delivery of housing beyond delivery of the HIF infrastructure.

Please provide details of the exit strategy for the shortlisted options

- Medway Council has developed a New Routes to Good Growth (NRGG) board to oversee the project's implementation. This maximises the degree and consistency of oversight and maximises borrowing powers during the delivery phase.
  As the settlement will take around 17 years to deliver, the Delivery Board will have to evolve to respond to differing scenarios that will face the construction sector over time.
  The key functions of the NRGGB will be to:
  • Establish the direction for the whole project and to approve key performance indicators against which the delivery of each thematic project will be measured
  • Approve the Project Initiation Documents for each infrastructure theme
  • Identify and ensure the appropriate resources required by the infrastructure projects within the overall project are made available in accordance with the latest agreed version of the Project Plan as it relates to each theme
  • Make decisions as necessary throughout the life of the project
  • Delegate day-to-day responsibility for leading the projects to the relevant Project Managers, under the guidance of their respective Project Owners and the Steering and Delivery Group
  • Appoint suitably skilled individuals into the project assurance roles
  The NRGG provides the appropriate governance structure to ensure the delivery of housing on the Hoo Peninsula. This body will be responsible and accountable for spending HIF funding and procuring infrastructure works, and for the receipt and distribution of S106.

2. With a reduced amount of HIF funding

Cost: £105,564,151
Homes: 8,000
With a reduced level of HIF Funding, Option 2 would deliver road infrastructure and the SEMS only. The inability for Medway Council (or other public sector bodies) to forward fund the reintroduction of a passenger rail service on the Grain Line would limit the volume homes that could be accommodated on the Hoo Peninsula. The road infrastructure described in Option 1 would be delivered through this Option.
Due to the SSSI's surrounding the A288 //A289, the ability to expand road infrastructure (e.g. through dedicated bus lanes) is constrained. Therefore, Medway Council is limited in its ability to provide supporting infrastructure for an alternative, more sustainable means of transport on and off the Peninsula.
As a result, dependent development testing has indicated that a maximum of 8,000 homes can be delivered around Hoo St Werburgh under Option 2. It is expected that the development would be spread over 12 years (2019-2030).

What strategic risks do the shortlisted options carry?

Description	Likelihood	Impact
Medway's Local Plan cannot provide PINS with sufficient comfort that medium-term housing supply (6-15 years) will become deliverable and developable resulting in need for early/immediate review of Local Plan if found sound. Places Council at risk of less sustainable development being secured through 'planning by appeal' if no demonstrable five-year housing land supply.	MediumHigh	High
Medway underdelivering on housing against annual targets and failing the NPPF's Housing Delivery Test so subject to either Action Plan or automatic 20% buffer, increasing risk of planning by appeal in less desirable locations without the strategic infrastructure required and creating lower quality places.	MediumHigh	MediumHigh
No 'step-change' infrastructure in the form of a new passenger rail line which would support the accelerated and higher levels of housing delivery	High	MediumHigh
No strategic approach to environmental management which means that impacts of development would be addressed in a piecemeal way and therefore applications more likely to be subject to objection from statutory consultees on issues related to impact on designated natural assets	Low	Low
Insufficient utilities capacity to support development means that delivery of housing is slower than phasing. Dialogue is now underway with key providers so that infrastructure is provided in line with development but no formal future structures for engagement in place under Option 2 so less certainty that risk would be managed.	MediumLow	MediumHigh

What are the constraints related to this shortlisted option?

- Most of the constraints in Option 1 apply to Option 2. However, there is a greater likelihood that constraints faced in Option 2, such as the inability to offer alternative public transport, will be irresolvable or will at least create problems which have the potential to delay the delivery of the required housing.

  Multiple land Ownerships: Although – in Option [redacted] The scale of development requires the co-operation of landowners, Council services, external agencies and developers.
  In this Option, the Council is significantly constrained by the residential delivery rates of the Hoo Consortium.
  AQMA: Despite the infrastructure interventions in this Option being designed to minimise the impact of the highways on the environment, the Option is constrained by the AQMA covering Four Elms Roundabout.

Please provide details of any inter-dependencies related to this shortlisted option

- All interdependencies above apply to varying degrees. Actions, as described above, are less likely to be successful.
- Infrastructure delivery interdependency:
  There are various landowners, agency, and utility provider interdependencies. The Strategic Case has demonstrated how these have been brought together at an earliest possible stage.
- Governance and Delivery interdependency:
  A robust governance and delivery strategy for the infrastructure and homes is set out in the Commercial and Management Cases.
- Private Sector interdependency:
  There is a greater interdependency of the Hoo Consortium to deliver homes under Option 2 than under Option 1.

Please provide details of the exit strategy for the shortlisted options

- The same exit strategy applies for Option 2 as for Option 1. However, as detailed in previous parts of the Options appraisal, the viability of the development at 8,000 units in more marginal. This undermines the ideal exit strategy and decreases the

likelihood of the settlement becoming self-funding.

Please summarise any economic appraisal conducted for this shortlisted option, relative to the do nothing (no HIF funding) option

- Option 2 was subject to a full economic appraisal in line with the methodology outlined in the Economic Case. [redacted]

3. Donothing (no HIF funding)

In the absence of intervention, it is expected that residential sites on the Hoo Peninsula would remain developable but not deliverable. The Hoo Peninsula is constrained by having a single A class access road linking existing communities to the strategic road network. All road-based trips generated by new housing on the Peninsula will need to use this corridor where the existing highway network is close to, and in some areas, at capacity. There is severe congestion on the A289 and A228 during peak times. There are no further routing options or local road permeability that could accommodate trip growth.
There would be no change to the current passenger rail service other than trains from Strood and Rochester being busier and fewer car parking spaces being available at stations. The current level of freight traffic would continue on the Grain line. Network Rail have indicated that they and DfT would look at providing a passing loop somewhere on the Grain line to cater for future freight growth.
Dependent development testing has indicated that the current transport infrastructure can theoretically support a maximum of 2,000 homes across the Hoo Peninsula. However, the Council would be minded not to grant planning permission above the 940 homes that currently have planning permission on the Peninsula. The Council recognises that this would be forgoing the opportunity for an additional 1,060 homes on the Peninsula. However, the Council believe that any further development without upgrading the existing social and transport infrastructure, including the SEMS, would create a significant dis-benefit to existing users.
Following business case guidance and for the purposes of the economic analysis, the theoretical deadweight will remain at 2,000 homes on the Hoo Peninsula. The Council believes that this provides a robust approach to the analysis presented in the Economic Case. It is expected that the development would be spread over 5 years (2019-2024).

What strategic risks do the shortlisted options carry?

Description	Likelihood	Impact
Medway's Local Plan cannot demonstrate deliverable and developable housing supply and is found unsound at examination leaving the authority without an up-to-date development plan and at risk of less sustainable development secured through 'planning by appeal'.	High	High
Medway at risk of intervention by MHCLG for failing to bring forward a plan.	MediumLow	MediumHigh
Lower delivery of housing in Medway reduces scope for economically active workforce to find homes and work within the borough. Greater in-commuting to service businesses would place greater pressure on the already strained transport network and risk that businesses would not choose to locate in Medway or would leave Medway if lack of local workforce to sway their location decision making. Detrimental in the longer-term to Medway's wider economic ambitions.	MediumLow	MediumHigh
Development on the Hoo Peninsula remains reliant on road-based access and lower future population reduces chance of future upgrade to freight line to allow passenger travel.	High	High
Residential development on the Hoo Peninsula does not form part of a joined-up strategy and remains under-served in terms of facilities (schools, health, alternative sustainable transport links etc.).	MediumHigh	MediumHigh
Continued air quality and pollution issues as a result of the lack of co-ordinated approach to managing the impact of development, particularly if much is coming forward in a way that is not plan-led.	MediumHigh	MediumHigh

What are the constraints related to this shortlisted option?

- No more than 2,000 units could be delivered on the Hoo Peninsula without significant upfront funding to resolve transport infrastructure constraints.

  S106: Developer contributions would be collected for 2,000 dwellings as per standard planning permissions. However, the economies of scale associated with Option 1 would not be achievable and it would only secure piecemeal infrastructure upgrades.

  Local plan constraints: There is no clear alternative location in Medway that could deliver the scale and mix of sustainable development that could be delivered through the HIF supported scheme. The preferred development strategy includes allocations in suburban locations in line with infrastructure capacity and the feasibility of delivering upgrades. The emerging Local Plan evidence base indicates that these areas could not accommodate the scale of growth needed to meet development needs.
  The Council will look at the potential to achieve more growth through re-development of urban sites. This could involve land not currently available, which would add cost and time to the process, and delay the delivery of new housing.

  There is the potential that under this Option, the Council could expect to see increased development coming forward via appeal, as the Council would not have a tenuous five-year housing land supply leaving it vulnerable.

Please provide details of any inter-dependencies related to this shortlisted option

- Interdependencies of Option 3 relate to the dependency of urban and suburban areas of Medway to support the growth in residential demand which cannot be supported on the Hoo Peninsula.
- Infrastructure delivery interdependency:
  Accommodating strategic growth outside of the Hoo Peninsula is likely to cause further detriment to the limited capacity of

the Medway Tunnel and M2 Junctions 2, 3 and 4.

- Private Sector interdependency:
  Without HIF funding, Medway Council will be forced to go to Local Plan examination stage without funding identified to support residential development across the borough. This would mean that the Council could not show a deliverable and developable land supply beyond the very short term and puts the emerging Local Plan at risk of being found unsound and not adopted. Subsequently, Medway Council would have less control over residential development. This would likely result in the Council having to accept development across Medway, either voluntarily or at appeal, that could conflict with the sustainability agenda of the emerging Local Plan in order to satisfy housing demand.

Please provide details of the exit strategy for the shortlisted options

- There is no exit strategy for this option as it would involve landowners and developers taking an incremental approach to the development with little or no local authority involvement and no HIF Funding.

Please summarise any economic appraisal conducted for this shortlisted option, relative to the do nothing (no HIF funding) option

- Option 3 represents the deadweight and was also assessed according to the methodology outlined in the economic case. [redacted]

Options Summary

Please summarise why the preferred option, with the requested HIF funding, has been chosen and why the other shortlisted options have been discounted - this should make reference to advantages and disadvantages of the options in relation to scheme objectives and CSFs

Option 1 (10,600 homes with full HIF funding)
Full HIF forward funding to deliver Option 1 supports the Council's ambitions to step up their plans for growth and make a meaningful difference to overall regional housing supply. As established above, Option 1 has demonstrably shown that it meets all the objectives set out in the Strategic Case.

Strategic Fit and Need

Option 1 is strongly aligned to meet the 'Strategic Fit and Need' (CSF1). Option 1 significantly contributes towards meeting the Council's housing need (38% by 2035) by providing the maximum amount of housing in a strategic location that makes the most efficient use of existing infrastructure. The sites enabled by the HIF funding are in a position that can provide support to the wider region's economy, while allowing the Council to effectively manage the environmental impact of residential development across the borough.

The sustainability and resilience that Option 1 enables through the delivery of strategic road and rail infrastructure, creates the basis for future development of the Peninsula beyond the homes presented in this scheme. The quantity of development enabled will provide homes to support not just local, but wider regional economic growth. The reintroduction of rail passenger services will allow direct access to London, making the Hoo Peninsula a highly accessible and marketable destination.

Value for money
Option 1 presents the greatest opportunity to achieve value for money relative to the other Options. Viewed in isolation, the Council recognise that the integration of rail passenger services on the Grain Line does little to stimulate a positive cash return. However, its ability to stimulate housing development and enable resilient, sustainable communities over the long term, far outweighs the marginal cost of delivering it.
The additional which HIF is being sought for requires £2,842 more spend per dwelling than Option 2. However, on average Option 1 delivers 153 more homes per annum than Option 2, enabling a greater acceleration of both homes and economic benefit for Medway and the wider region.
Potential Achievability
Option 1 has been selected on the basis that it presents the most achievable Option available to Medway Council for the successful delivery of housing need, based on a robust analysis of site availability (Hoo Peninsula), willingness of the private sector to deliver

housing (Hoo Consortium) and funding streams available (HIF). The illustrative masterplan provides the vision for the project and engagement with developers to date solidifies the ability to achieve that vision. Option 1 has been developed such that it is well placed to respond to social, economic and policy changes in the short, medium, and long term.

Supply-side capacity and capability

The proxy for supply-side capability and capacity is based on the Council refusing planning permission for an additional 225 homes on the Hoo Peninsula above the 940 with permission, on the basis of a lack of transport infrastructure. This was later reinforced by the Secretary of State's decision to overturn the Planning Inspectors decision to grant permission, again based on the lack of supporting transport infrastructure to support sustainable development.

Additional indication of capacity and capability is given by the Hoo Consortium, who have indicated a willingness to begin construction at the earliest possibility. Concurrently, the Council will use their landholdings on the Peninsula to encourage and support the supply of housing where possible.

Potential affordability

Option 1 requires upfront funding to deliver a step-change in the provision of new housing in a place where new housing is needed most. [redacted] This will contribute to the recovery of HIF funding and go towards Strategic Transport that will support additional delivery of housing across Medway.

Option 2 (less HIF and 8,000 dwellings)

Option 2 fails to achieve the scheme objectives to the same degree as Option 1. Crucially, the option will deliver fewer homes than Option 1. Delivery of road only interventions will fail to create sustainable and accessible communities, as a lack of supporting public transport infrastructure will limit the connectivity of new development to other communities and employment opportunities across the region. Similarly, the development of road-only infrastructure will fail to encourage a modal shift to more sustainable forms of transport. This creates additional environmental pressures when considering the development of strategic housing in Medway.

Strategic Fit and Need

A lower contribution to meeting Medway's housing need means Option 2 fails to meet the 'Strategic Fit and Need'. Option 2 enables the contribution of 9.5% less homes towards meeting Medway Councils housing needs than Option 1.

Value for money

Option 2 does not perform as well as Option 1 in terms of 'Value for Money' because it reduces development viability through reducing the marketability of homes on the Peninsula relative to those gained than Option 1.

Potential achievability

Option 2 presents a greater risk to Potential Achievability because of the lack of supporting public transport infrastructure.

Supply-side capacity and capability

Option 2 scores less well than Option 1 because it does less to appeal to the supply side capacity of the housebuilding industry and the wider labour market in the sub-region.

Potential Affordability

Although Option 2 presents a more affordable delivery mechanism, it scores less well than Option 1 because of the ability to recover HIF funding. [redacted]

Option 3 (counterfactual with no HIF)

The summarised effects of Option 3 (counterfactual) are a clear failure to meet the criteria of the Scheme Objectives and the CSFs. This is because there is no prospect of the infrastructure constraints being lifted on the site. This leaves the prospect of Medway Council being unlikely to justify a means to support a reasonable supply of residential land in the emerging Local Plan. Small-scale incremental development could take place, but this would not meet the Scheme Objectives or the CSFs.

Please provide a summary of the impact should funding not be received

The impact of not receiving HIF funding has been broken down into three categories of, Strategic, Sustainability and Economic.

Strategic

The Hoo Peninsula scheme presents a significant opportunity for the Council to enable the delivery of 10,600 homes by 2035. If funding was not received, housing on the Hoo Peninsula would be developable but not deliverable. Development would be restricted

to a theoretical build out of 2,000 homes, but in reality, the Council is likely to refuse planning permission over and above the 940 homes currently with permission.

There is no clear alternative location in Medway that could deliver the scale and mix of sustainable development that could be delivered through the HIF supported scheme. Not achieving HIF funding would have a significant detrimental impact on the delivery of housing in Medway and the wider SHMA. The knock-on effect would be a significant impact on the delivery of affordable housing across Medway.

The preferred development strategy (excluding the Hoo Peninsula) includes allocations in suburban locations in line with infrastructure capacity and the feasibility of delivering upgrades i.e. the remaining 62% of homes in the Local Plan. The emerging Local Plan evidence base indicates that these areas could not accommodate the required scale of growth, especially if the Hoo Peninsula scheme was not delivered.

Without HIF funding, the Council will look at the potential to achieve more growth through re-development of urban sites, including the reallocation of employment land for residential use (i.e. Medway Estates). This could involve land not currently available, which would add cost and time to the process, and delay the delivery of new housing.

Therefore, the Council would have to consider the potential for securing alternative funding sources to deliver development on the Hoo Peninsula. This would be likely to delay development and could impact on delivery rates in the absence of upfront infrastructure or reduce the area's capacity to accommodate growth.

The Council has held Duty to Cooperate meetings with neighbouring local planning authorities from the outset of the preparation of the Local Plan. These discussions have confirmed significant constraints on the delivery of housing across north and mid-Kent. These include Metropolitan Green Belt designations, Kent Downs Area of Outstanding Natural Beauty, national and international nature conservation designations, severe infrastructure pressures and a lack of capacity in the strategic and local road networks.

Without HIF funding, the Council would have to strategically consider, along with neighbouring authorities, how to overcome constraints such as Green Belt designations to support the need and demand for housing.

Sustainability

The Hoo Peninsula scheme offers the opportunity to deliver homes at a strategic scale – something which other options fail to sustainably do.

The introduction of rail public transport makes a significant contribution to enhancing the sustainability of the Hoo Peninsula. Without this investment, the location will not perform as strongly in the Sustainability Appraisal on the emerging Local Plan. It will also fail to satisfy national planning and transport policy.

Economic

There would be a negative economic impact if the Hoo Peninsula scheme was not received. Not only will the construction of 10,600 homes across the Peninsula support up to 6,183 construction jobs (Person-Years of Employment), [redacted]

Finding the allocations elsewhere will put pressure on existing infrastructure, this will create additional economic costs by adding to existing traffic congestion and put further pressure on existing services and utilities. Government spending to alleviate these problems would most likely be required at a later point in time but would deliver less relative benefit than the HIF scheme. Achieving HIF funding now presents the most effective and efficient way to make more land available for housing in an area of high demand, resulting in new additional homes that otherwise would not be built.

Not receiving funding undermines the competitiveness of the region's economy and particularly undermines the ability to support growth across Medway and Kent.

If you have any further information to support your options appraisal, which has not already been captured in the above, please include these here

Additional information contained in appendices.

The section should be read in conjunction with the Executive Summary (A00a) and List of Appendices (A00)

Filename	Description
A26 SSSI Map.png	SSSI Map
A27 Property Cost Estimate and Acquisition Strategy.pdf	Land Acquisition Strategy
A28 Shortlisted Options Analysis.pdf	Shortlisted Options Analysis
A25 Indicative S106 Payments vs. Funding Requirements.pdf	Illustrative S106 Graph
A00 List of Appendices.pdf	A00 List of Appendices
A00a Executive Summary.pdf	A00a Executive Summary

Economic Case

[redacted]

1. **Displacement:** the degree to which an increase in housing delivery promoted by government policy is offset by reductions in housing delivery elsewhere; and,

2. **Deadweight:** the benefits of the scheme that would have happened anyway.

Relevant Study Areas

Displacement concerns potential benefits across the wider market area that would no longer come forward under the Preferred Option. This submission has therefore assessed the impacts of HIF funding across the North Kent Housing Market Area (HMA) as defined in Medway Council's 2015 Strategic Housing Market Assessment (SHMA). This document is appended as **Appendix 18**. Supplementary tables are appended at **Appendix 29**.

The HMA includes the local authority areas of Medway; Gravesham; Swale; Tonbridge and Malling; and Maidstone.

Deadweight refers to the housing benefits (the number of homes, increases in housing land value etc.) under the preferred development strategy that it is considered would come forward in the delivery period anyway. For this analysis, its effects are limited to the 34 sites supported by Forward Funding on the Hoo Peninsula.

Displacement

Displacement has been accounted for by adjusting the land value uplift for areas with new development by a low factor of 15%. The analysis below surveys local housing need; the proportion of forecast completions on windfall sites; demand evidenced by rising prices; affordable housing provision and affordability.

The primary determinant of market displacement is the gap between supply and demand. Where these market forces are in equilibrium, displacement is likely to be higher. In the context of housing, this refers to the gap between housing demand or need, and supply.

Calculated using the Government's standard method, the HMA has an annual local housing target of 5, homes. Over the period 2018-35 this represents a need for 88,672 homes across the HMA (see Table 4.1).

Table 4.1: Housing Need across the HMA

	Gravesham	Maidstone	Medway	Swale	Tonbridge	**North Kent HMA**
Annual local plan target (if adopted within five years)	363	883	776	-	-	-
Household growth 2020-30:	5,084	8,471	13,029	7,897	6,021	40,502
Local affordability ratio	9.3	10.1	8.25	9.2	11.8	-
Adjustment factor	1.33	1.38	1.27	1.32	1.49	-
Capped?	Yes – max. 40% increase from adopted target	No	No	No	Yes – max. 40% increase from household projection	-
Annual requirement	508	1,170	1,649	1,046	843	5,216
Requirement 2018-35	8,636	19,890	28,033	17,782	14,331	88,672

Question 2.1.2 identifies how Medway Council has assessed local housing requirements across Medway in line with the HMA. This identified a need for 28,033 homes by 2035 and is consistent with the emerging Local Plan evidence base.

The NRGG scheme will contribute 12% to HMA housing requirements and 38% to Medway Council's housing requirements.

The emerging Local Plan evidence base indicates there is no clear alternative to the Hoo Peninsula which could make the same contribution to Medway's housing objectives in terms of the scale and range of housing the HIF supported scheme can deliver. As indicated in the options appraisal, the preferred development strategy includes allocations in suburban locations in line with infrastructure capacity and the feasibility of delivering upgrades. Displacement on the Hoo Peninsula itself will be minimal due to transport and environmental constraints.

Housing delivery across the wider HMA is also constrained by other factors including metropolitan Green Belt designations; the Kent Downs Area of Outstanding Natural Beauty; national and international nature conservation designations; and a lack of capacity in the strategic and local road networks. These constraints have been confirmed in Duty to Cooperate meetings with neighbouring local authorities from the start of Local Plan preparation. Gravesham BC has made a formal request to Medway to consider how it might help meet its unmet housing need. Tonbridge and Malling BC has recently submitted its plan for Examination, and Maidstone and Swale are in the early stages of plan review.

With infrastructure funded by HIF, the emerging local plan will facilitate housing delivery by 2035.

Concentration of Development on Windfall Sites

While housing need and supply are mediated by the statutory planning system, housing on allocated sites will be brought forward by a combination of private developers, RSLs, and other interests.

Market displacement will be experienced primarily on windfall sites outside existing allocations. A significant proportion of these opportunities may be displaced due to the potential effects of HIF funded infrastructure. The SHMA analysis indicates these sites make a minimal contribution to the housing land supply.

HMA local authority estimates indicate just 3.8% of projected completions will come forward on windfall sites (see Table 4.2).

References:

Kent County Council Housing Information Audit (appended at **A30**)

Medway Council's latest Authority Monitoring Report (appended at **A19**)

Table 4.2: HMA Completions 2018/19 – 2022/23

Area	2018/19	2019/20	2020/21	2021/22	2022/23	Total
Gravesham	468	468	468	468	0	1,87
Maidstone	1,316	1,598	1,517	1,311	1,032	6,77
Medway	893	1,534	2,076	1,481	1,726	7,71
Swale	387	584	1,373	1,749	1,196	5,28
Tonbridge and Malling	947	672	424	454	311	2,80
North Kent HMA	**4,011**	**4,856**	**5,858**	**5,463**	**4,265**	**24,45**

Table 4.3: HMA Projected Completions on Windfall Sites

Area	2018/19	2019/20	2020/21	2021/22	2022/23	Total	% of Total Supply
Gravesham	0	0	0	0	0	0	0.0%
Maidstone	0	0	0	0	0	0	0.0%
Medway	0	0	198	198	198	594	7.7%
Swale	0	0	0	0	110	110	2.1%
Tonbridge and Malling	44	44	44	44	44	220	7.8%
North Kent HMA	**44**	**44**	**242**	**242**	**352**	**924**	**3.8%**

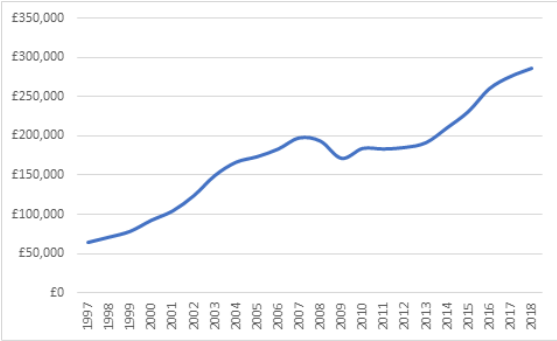
Medway Council estimate that 7.7% of projected housing completions will come from windfall sites. With limited supply in Gravesham (seeking Medway's assistance to meet unmet need) and Medway, displacement is likely to account for fewer than 5% of completions to 2022/23. After this point, allocations will be managed through the emerging Local Plan which will have taken account of the NRGG scheme.

Market Analysis

Where market displacement will take place, it will be minimised due to the strong demand in the area, evidenced by growth in house prices.

HMA house prices have risen consistently by an average of 7.4% per year over the period 1997-2018. Consistent with national trends, prices fell and then stagnated following the 2007/8 financial crisis, only to rise significantly again (see Figure 1). Average house prices increased 35.9% from 2013-16.

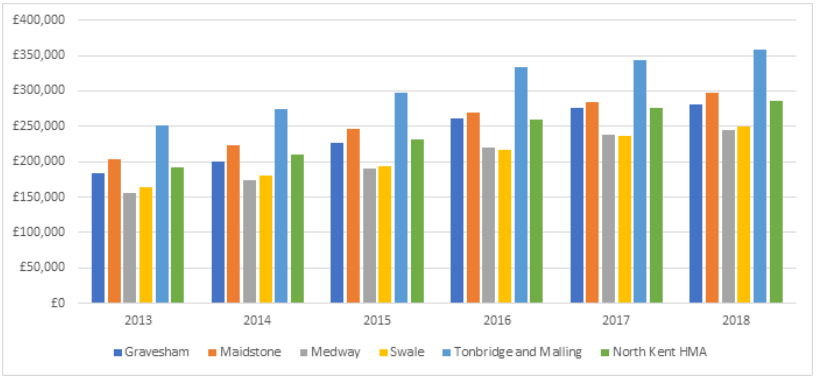
Figure 1: North Kent HMA Average House Prices



Source: (HM Land Register, 2019).

Medway has long been characterised by lower house prices relative to other parts of the HMA (see Figure 2) and were 14.3% lower in Medway than the HMA average in 2018. Starting from a low price base, house prices in Medway increased 57.8% between 2013 and 2018, indicating improving demand in the area relative to the HMA average (49.5%).

Figure 2: HMA House Prices by Local Authority



Source: (HM Land Register, 2019).

Consultation with local agents as part of the SHMA highlighted the attractiveness of parts of Medway, particularly Rochester and Strood, which benefitted from an 'increase in buyers relocating outside London, driven by high prices in the capital and improved transport links in north Kent'. First-time Buyers paid on average £240,403 for a home in the HMA in 2018. Prices for this group have increased consistently since 2012, with the average first-time sale being 55% higher in 2018 than 2012 (£155,558).

Affordable Housing Provision

Affordable housing is less likely to give rise to market displacement as the market is less likely to provide this tenure in the absence of policy and permission provisions. The Project will provide 3,180 affordable units by 2035, representing 30% of the total enabled by Forward Funding.

The need for affordable housing is evidenced by the local affordability ratio of the HMA. Median house prices are 9.72 times the median gross annual wage in the HMA, indicating poor affordability relative to England as a whole (7.91). Real gross annual workplace earnings have grown 4.7% since 2013. This significantly lags real house price growth of 41.0% suggesting growing unaffordability. Since 1997, nominal gross annual workplace earnings have grown on average 2.0% per year. Over the same period, house prices have increased by 7.4% each year on average.

Summary and Conclusions

Following the assessment, land values have been adjusted by **15%** to account for displacement:

- The HMA has a concentration of strategic and allocated development locations. Only 3.8% of projected completions across 2018/19-22/23 are on windfall sites;
- The HMA has a housing need of 88,672 to 2035, of which the Project will contribute 12%;
- The area exhibits strong demand, evidenced by rising prices across all property-types; and,
- The project will deliver 3,180 affordable units for sale and rent to an area exhibiting poor affordability.

Deadweight

Following guidance from Homes England's consultants [redacted] the housing benefits of the scheme have been assessed against the position used in the WebTAG appraisal of the transport network.

The existing transport network limits housing delivery on the Peninsula. All road-based trips generated by housing on the Peninsula need to utilise the A228 and pass through the Four Elms roundabout to access the strategic road network.

Dependency Testing

Dependency testing has been completed to determine the maximum capacity of the road network. Relevant parts of the **Appendix 1** are summarised here.

The Do-Nothing transport model was coded with incremental traffic trip rate growth and outputs concentrated on the impact of each growth scenario on local junctions in terms of the growth in average vehicle delay experienced across four critical junctions on the network:

1. A228 Main Road, Hoo;
2. A289 Four Elms roundabout;
3. A289 Sans Pareil roundabout; and,
4. A289 Anthony's Way roundabout.

An acceptable Level of Service (LOS) assumption of an average delay per vehicle of 65 seconds was applied. This is as an average of the minimum LOS for signalised (80 seconds) and non-signalised junctions (50 seconds). An average was applied across the network to simplify the network analysis process.

Table 4.4 below provides the results per junction in the AM and PM scenarios. It illustrates where individual junctions exceed the threshold of acceptable performance (shown in red). Each junction was modelled at housing growth (trip rate) levels that were within the overall threshold, with further trips being applied until the point at which they exceeded the threshold. Once the network exceeded the threshold, no further modelling was undertaken.

Table 4.4: Junction Delay Comparison

Homes Delivered	Combined Flow (pcu)	Weighted Average Delay (s/pcu)				
		Four Elms	Sans Pareil	Anthony's Way	Main Road	Combined
AM Peak						
0	18,798	87	29	70	25	54
1,000	19,251	81	27	71	39	56
2,000	19,667	76	38	72	63	64
3,000	20,026	82	32	75	89	72
PM Peak						
0	8,100	32	43	13	12	26
1,000	8,303	45	52	16	21	35
2,000	8,467	60	63	19	63	52
3,000	8,532	70	68	23	141	78

Source: (Project Centre, 2019. p.55)

The AM peak hour is clearly shown to be the critical peak. AM results have therefore driven conclusions and decision making regarding deadweight and housing growth potential.

It should be noted that the modelling indicated that junctions that exceed the thresholds show an exponential increase in delay as further trip growth is predicted, which indicates that the threshold applied is appropriate as an indicator of “network exhaustion”.

The AM peak scenario exceeds the threshold at 2,000 vehicles in the do-nothing scenario, with problems experienced at all but the Sans Pareil roundabout. Based on the AM and PM peak results, a deadweight of 2,000 homes has been assumed.

Site-by-Site Deadweight

The transport infrastructure constraints on the A228 and the Four Elms roundabout impact all sites. The road is the only access route to the Hoo Peninsula. As such, delivery on all sites is dependent on the relief road and highway improvements. This is illustrated by the AM peak results of the dependency testing in the Do-Something and Do-Less models prepared (see Table 4.5).

Table 4.5: AM Peak Hour Junction Delay Comparison: Do-Something and Do-Less

Homes Delivered	Combined Flow (pcu)	Weighted Average Delay (s/pcu)				
		Four Elms	Sans Pareil	Anthony's Way	Main Road	Combined
Do-Something (Option 1: Road and Rail)						
0	15,704	13	5	64	12	24
8,000	18,669	30	6	61	34	34
9,000	19,167	48	6	62	56	47
10,000	19,669	55	6	61	84	60
11,000	19,843	60	6	64	126	79
Do-Less (Option 2: Road Only)						
0	16,254	32	5	68	12	31
8,000	19,431	100	6	67	65	64
9,000	20,022	159	6	68	92	89
10,000	20,301	191	6	70	129	112

Source: (Project Centre, 2019. p.55)

The models used represent the following 2028 scenarios, corresponding respectively to Options 1 and 2:

- Do-Something: includes all housing growth with the new relief road in place and highway improvements on the A289 and at junctions on the Peninsula and the passenger rail service in place; and,
- Do-Less: includes incremental housing growth, with all planned highway improvements but without the passenger rail service in place.

Table 4.5 shows that the highway improvements are capable of expanding the capacity of the network to 8,000 homes. Rail improvements increase this further to 10,600 homes.

This limitation suggests that, in theory, any of the 34 sites enabled through Forward Funding could be brought forward until the 2,000 homes limit has been reached and planning permission would no longer be granted. Instead, sites with extant planning permissions granted by Medway Council are assumed to be brought forward and hence represent deadweight. This accounts for 940 homes across 9 sites (see Table 4.6).

Table 4.6: Sites with Extant Planning Permission

Site Name	Number of Homes	Planning Reference
North of Peninsula Way and Main Road, Four Elms Hill, Chattenden	131	MC/16/422
Land at Elm Avenue, Chattenden	63	MC/18/062
South of Ratcliffe Highway, Former Sports Ground, Bells Lane, Hoo	232	MC/17/188
Street Farm, Stoke Road, Hoo	50	MC/15/009
East of Whitehouse Farm, Hoo	65	MC/18/024
Land South of Stoke Road, Hoo	200	MC/17/442
Land South of Stoke Road, Hoo	127	MC/16/283
Adjacent to 35 Cooling Road, High Halstow	6	MC/18/009
Walnut Tree Farm, r/o Longfield Ave, High Halstow	66	MC/17/440
Total	**940**	

The remaining 1,060 homes are spread over a further eight sites, representing the most deliverable sites on the Hoo Peninsula at present (see Table 4.6).

Table 4.7: Deadweight Sites without Planning Permission

Site Name	New homes
Land to east of Chattenden Lane	562
North of Ratcliffe Highway	12
3 Broad Street Cottages, Main Road, Hoo	12
R/O 250 Main Road, Hoo	5
218 Main Road, Hoo	16
Land West of Allhallows	389
Golf Course adjacent to Kingsmead Park	55
Binney Farm, Binney Road, Allhallows	9
Total	**1,060**

Medway Council senior planning Officers prepared a housing development phasing schedule reflecting potential delivery on these sites where no strategic improvements are implemented. This is appended at **A31** [redacted]. This reference case, and the analysis of intervention options, has been appraised using a consistent methodology to estimate related housing benefits (see Section 4.1.6).

[redacted]

It should be noted that this represents the maximum capacity that could be accommodated by the road network. This is not strictly a planning related figure, but instead demonstrates the quantum of housing that can be provided on the Peninsula. There are currently 940 properties with extant planning permission on the Hoo Peninsula (see Table 4.6).

A recent planning application for 530 new homes (MC/17/2324) was turned down in July 2017 by the planning authority on environmental and traffic impact grounds:

"The proposed development will result in a significant rise in traffic movements on the wider local road network, resulting in an unacceptable increase in journey travel times and queueing times. The residual cumulative impacts of the proposed development on the road network are considered to be 'severe' and are contrary to Policy T1 of the Medway Local Plan 2003 and the principles set out in Paragraph 109 of the National Planning Policy Framework 2018."

Without the transport and environmental and social infrastructure funded through the HIF, it is unlikely that planning permission will be granted to any further schemes to the 940 homes. The 9 sites listed in Table 4.5 are considered to represent a *transport with environment deadweight* i.e. what is likely to be brought forward in the absence of intervention under current policy constraints. This would increase the additionality of the scheme to 75%. This deadweight scenario has been assessed as a sensitivity and a comparison of results is attached at **Appendix 36a**. The 2,000 homes deadweight resulting from the WebTAG appraisal has been used throughout the bid.

Total Additionality

[redacted] This suggests that 37% of the benefits of the scheme would happen in the absence of intervention. In other words, the housing benefits of the scheme are 63% additional.

[redacted]

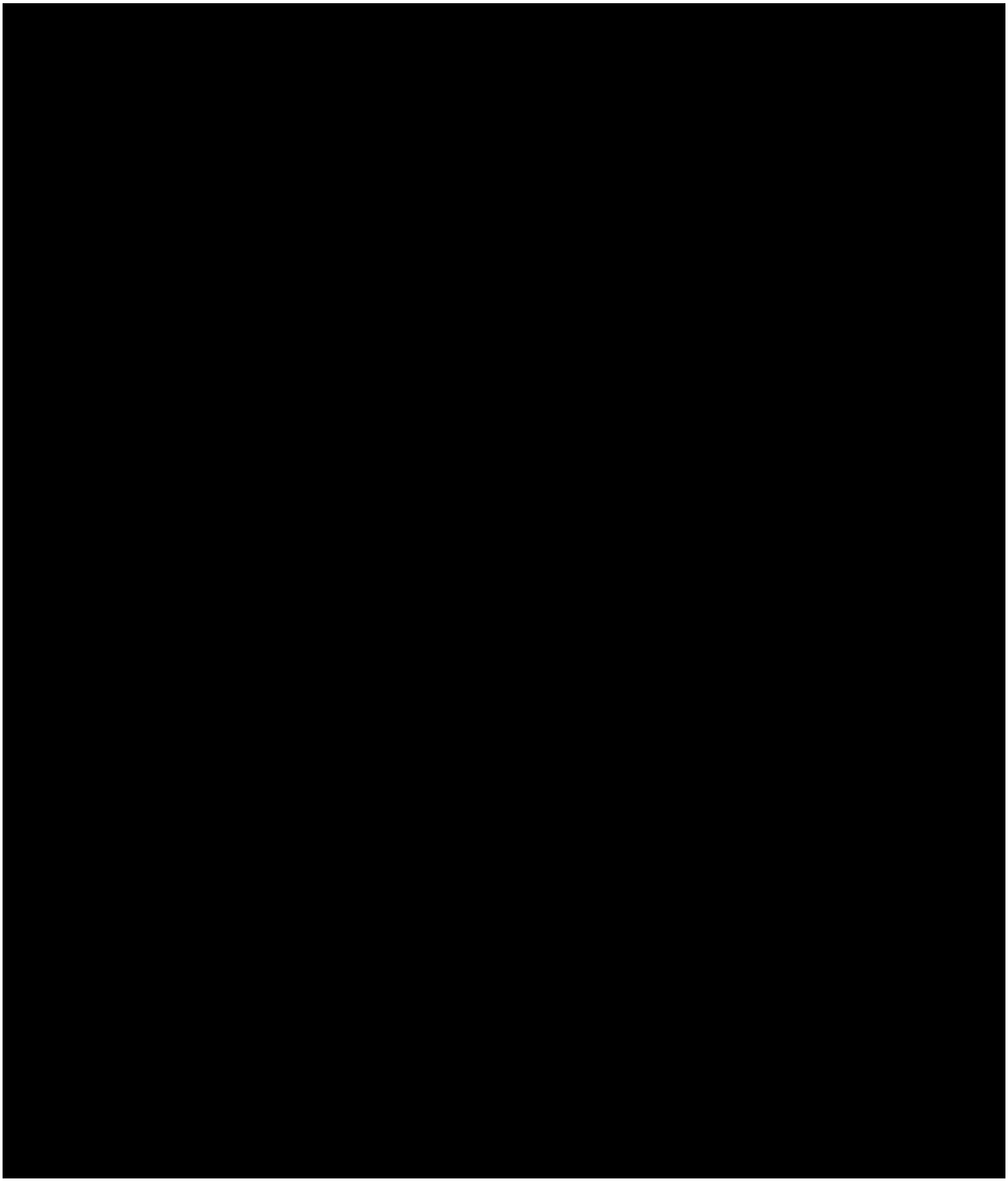
[redacted]

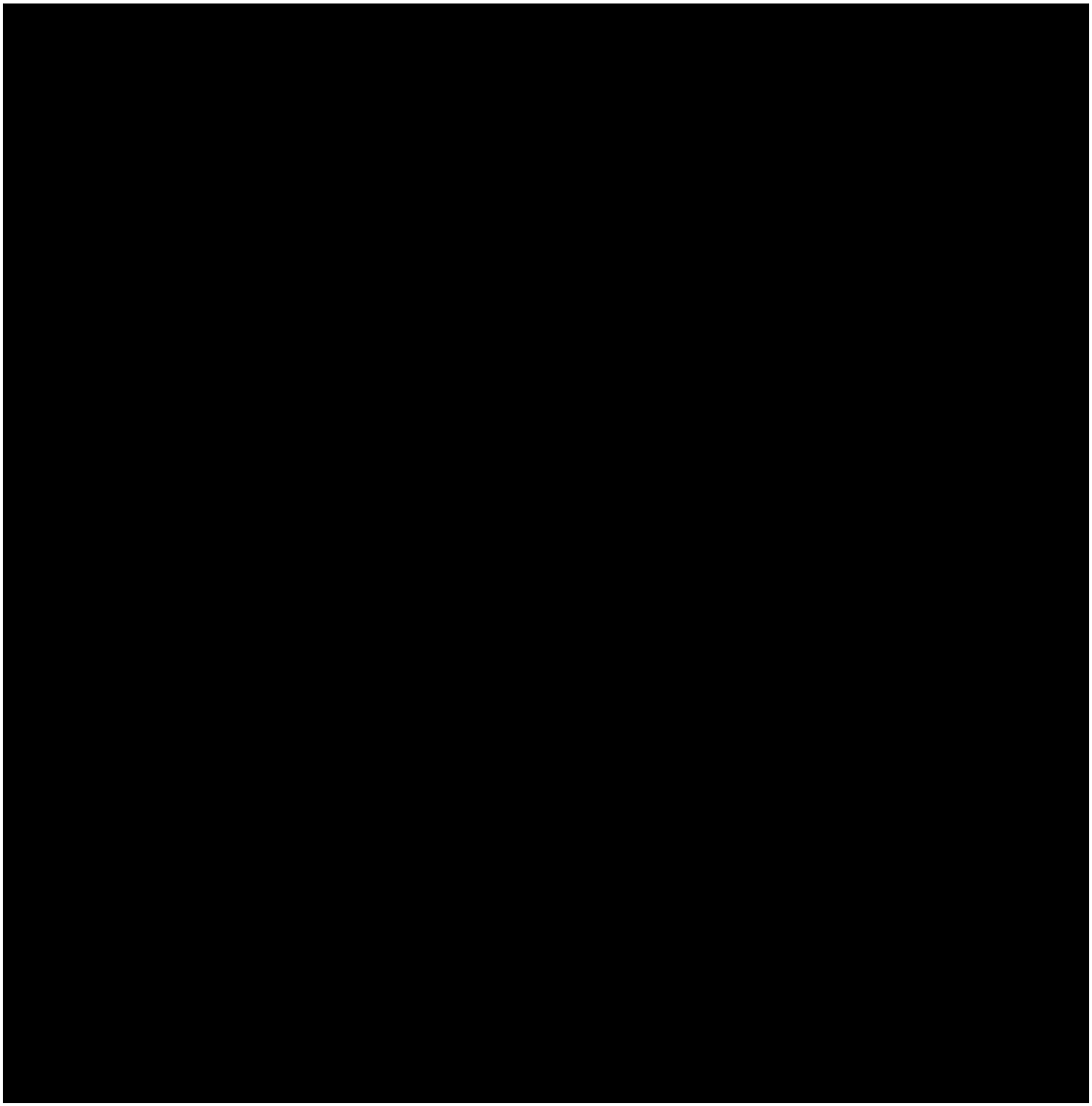
[redacted]

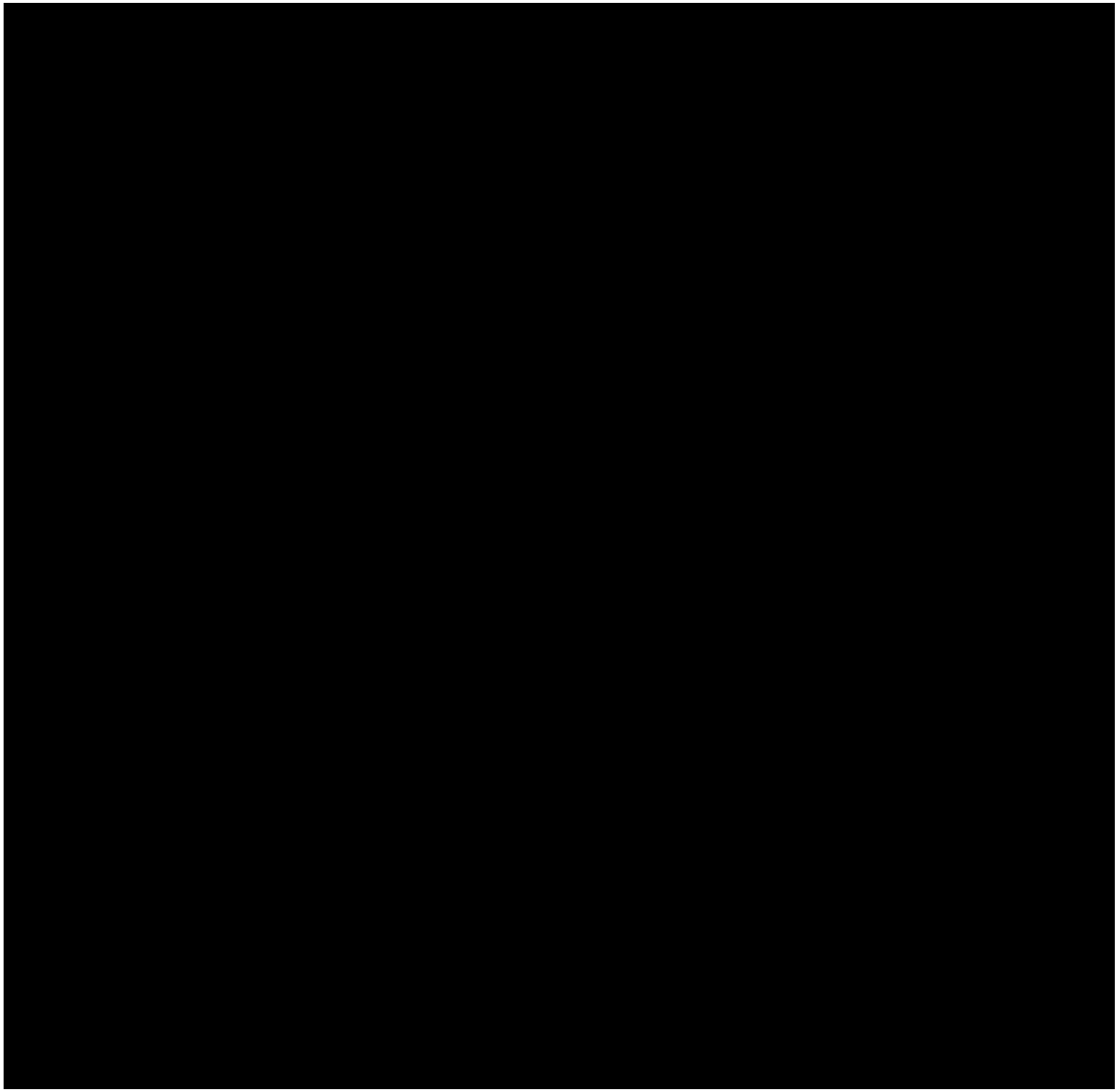
[redacted]

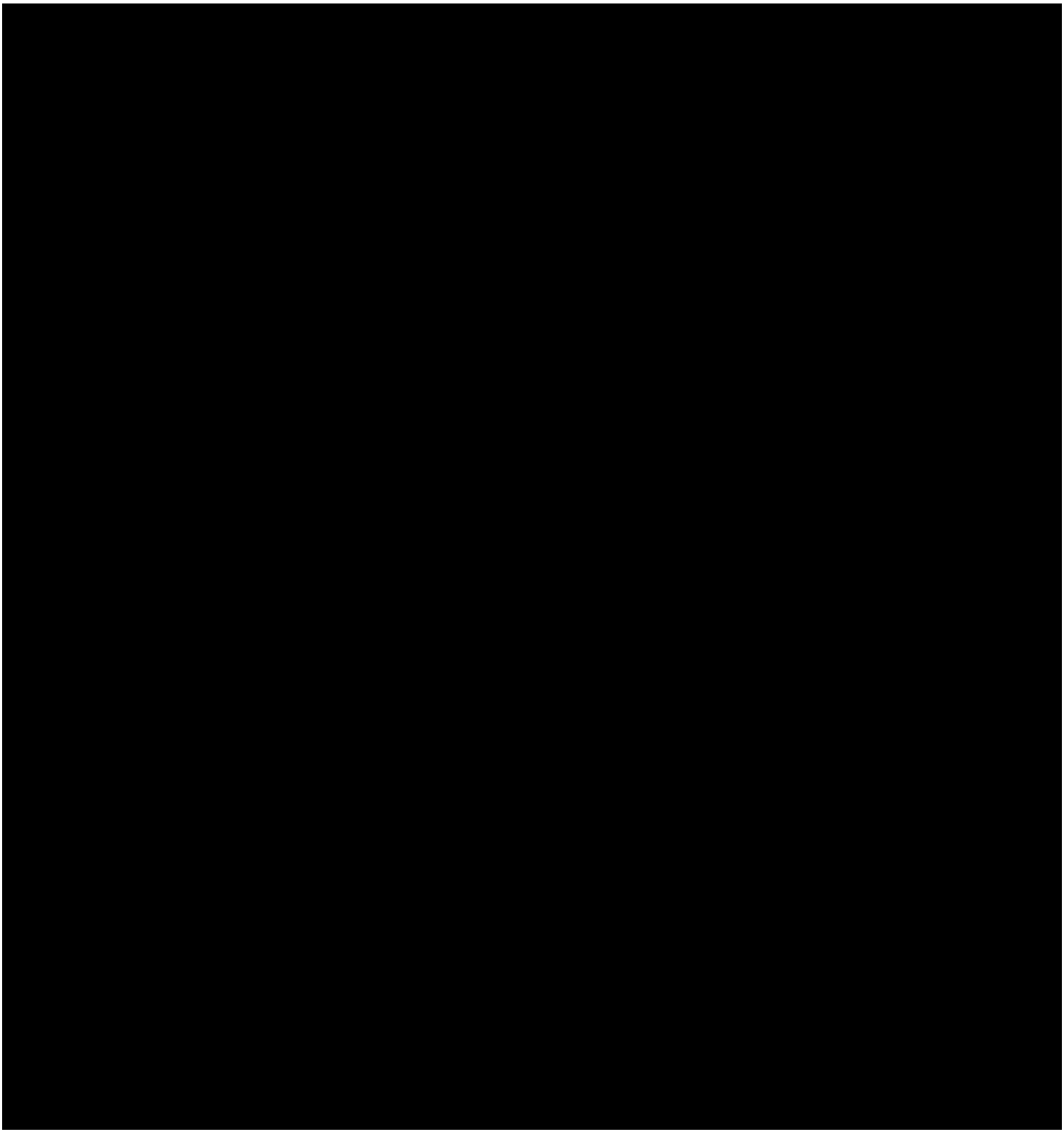
[redacted]

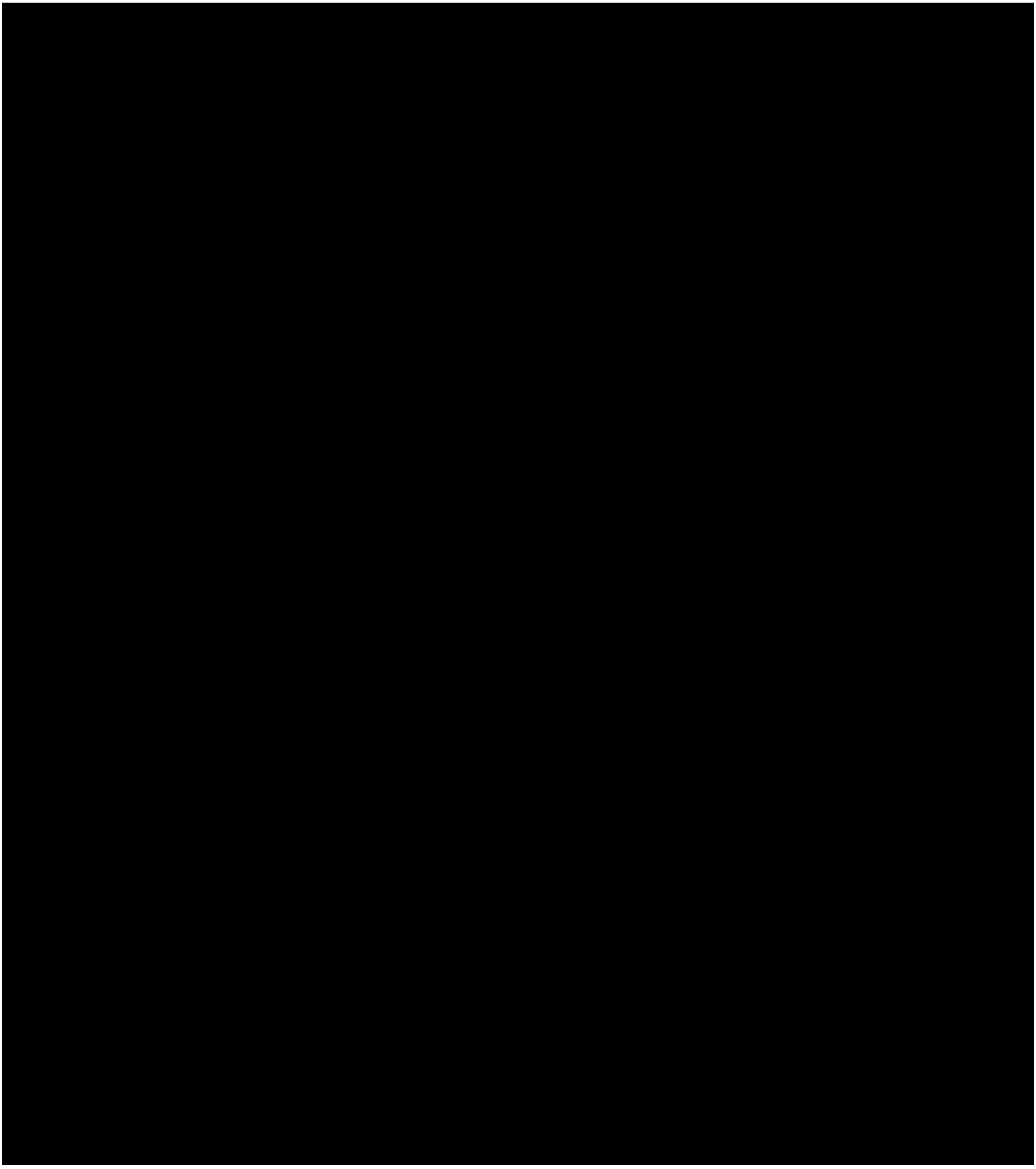
[redacted]

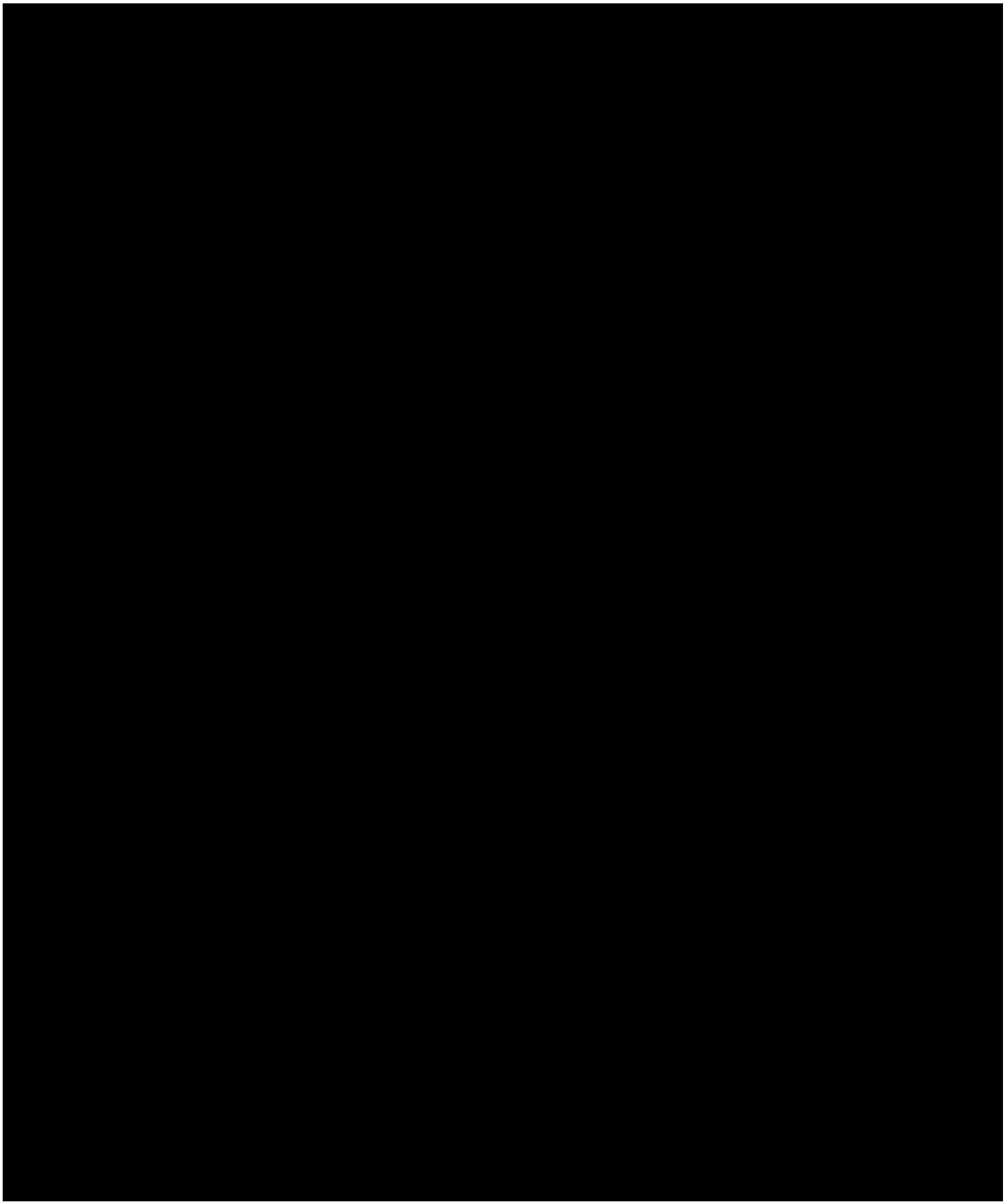


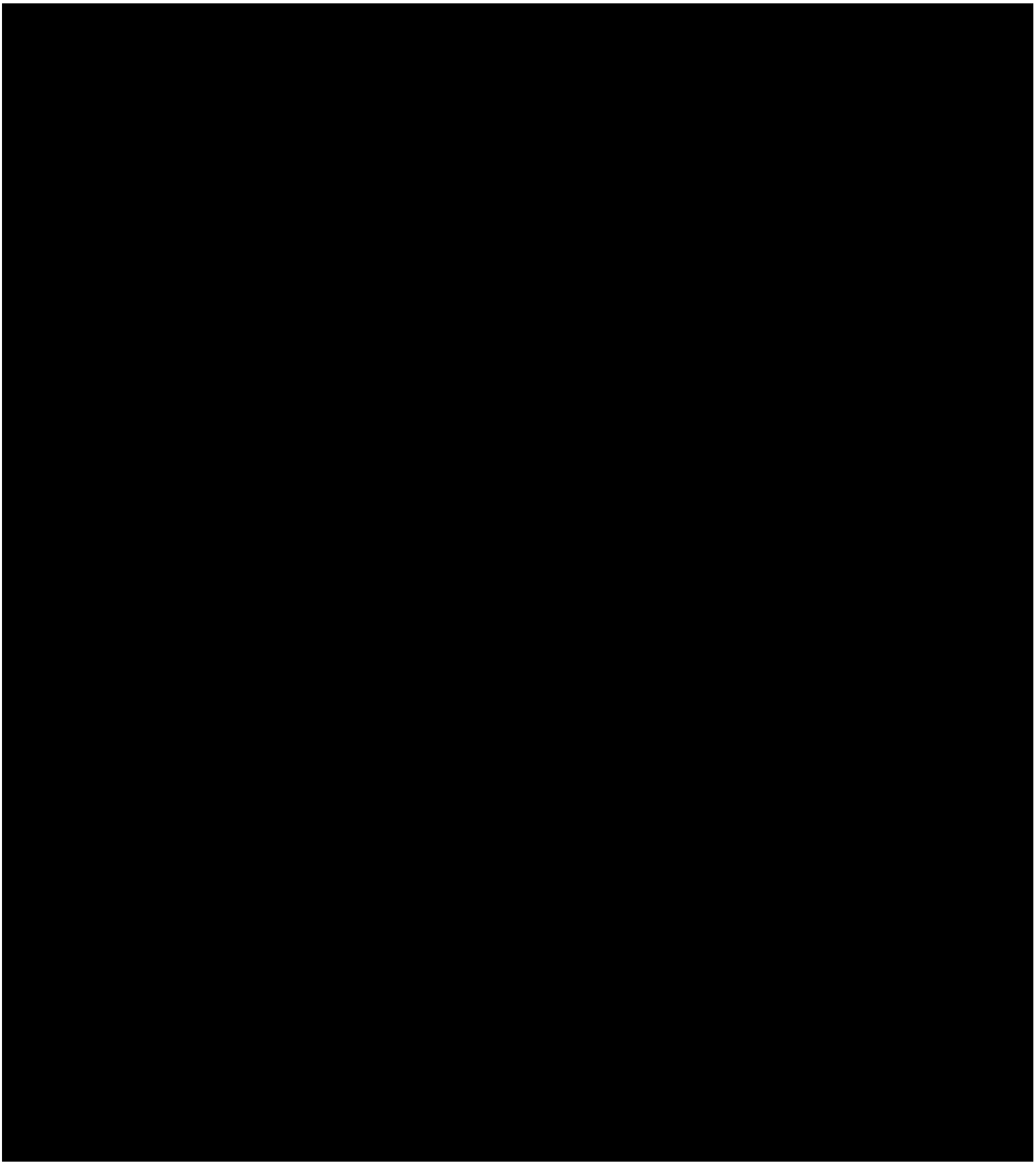


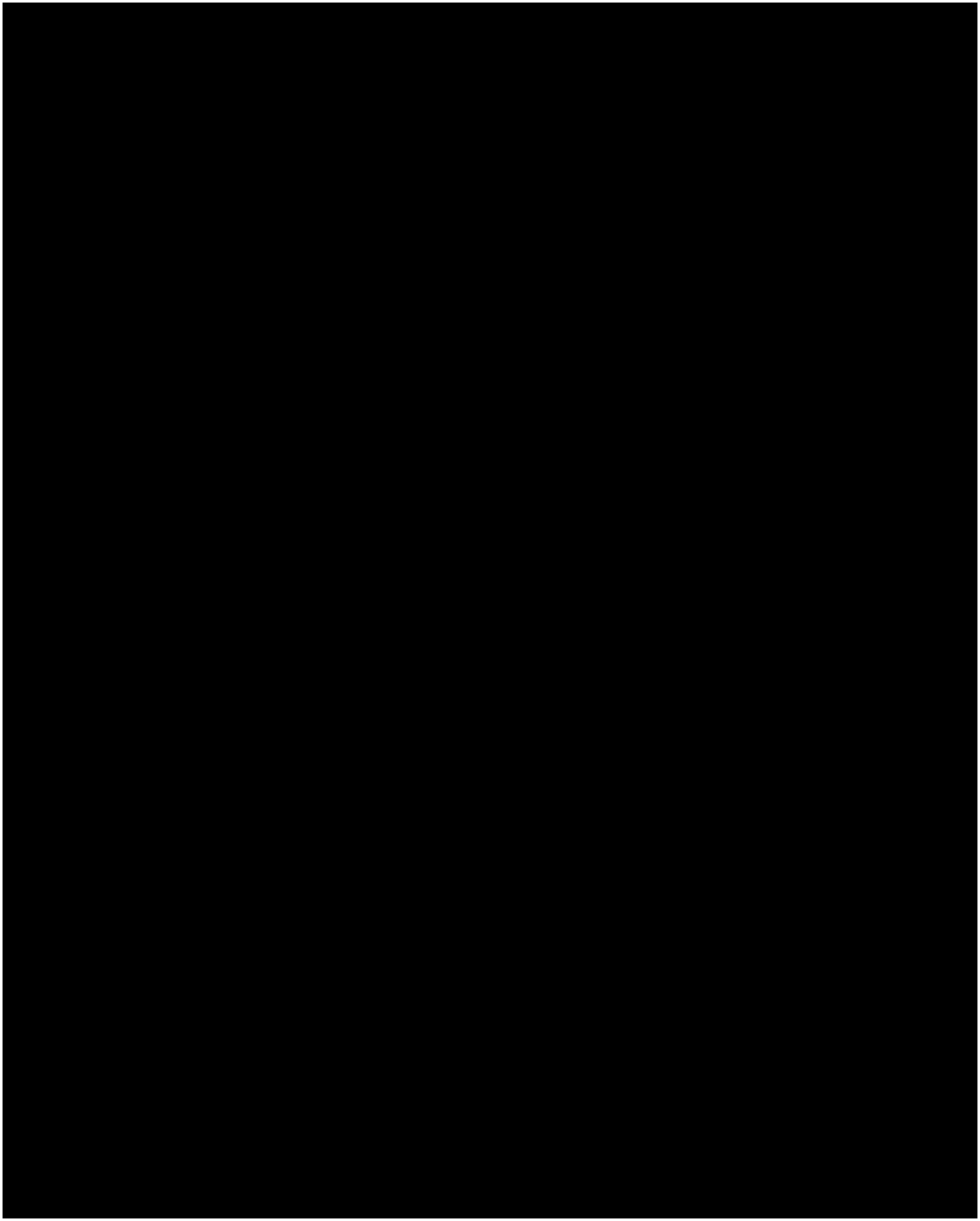












Please provide a detailed explanation of the method and assumptions underlying these estimates, as outlined in the Economic Case guidance (incl annex A)

Due to a multi-modal model not being available, transport appraisals of the two interventions were done separately, albeit sharing several common assumptions. The highways appraisal applied the local Aimsun model to assess impacts and demand generated on the road network by 10,600 new homes and the rail intervention. The rail appraisal focussed specifically on the rail network and therefore any disbenefits/external costs focus exclusively on crowding elements on the rest of the network. Local road impacts from increased rail travel are captured in the highways modelling.

Highways Intervention

The method and assumptions underlying the **highways** economic analysis, appraisal and model are set out in **Appendix 1** and summarised here.

Outputs are, in line with the WebTAG guidance, presented in 2010 prices and discounted to 2010 price base. The WebTAG databook (November 2018) has been

referred to, applying the appropriate deflator and discounting values. These values have been converted to 2018/19 prices using the GDP deflator at market prices before being included in the table in section 4.3.1.

The appraisal methodology follows WebTAG guidelines in assessing the direct scheme impact and dependent development impact separately. Table 1 within TAG Unit A2.2 identifies the relevant scenarios.

	Without Dependent Development	**With Dependent Development**
Without Transport Scheme	P	Q
With Transport Scheme	S	R

There are three broad categories of benefits to be considered;

i. S vs. P (where S = DL or DS, P = DM). The direct Transport Benefits from the scheme to existing users.

ii. R vs. S (where R = DL or DS, S = DM). The Transport External Costs (Disbenefits) from the congestion impact of additional housing.

iii. R vs. P (where R = DL or DS, P = DM). The Environmental and Social Impacts including local air quality, CO2 and accidents.

The first two elements are captured through TUBA analysis. The direct scheme Transport Benefits are based on model runs with and without the scheme without the dependent development. The Transport External Costs compare the change in travel costs with the scheme but without or with the dependent development, considering how this change in cost impacts on the existing users (non-dependent demand).

The third element is captured through applying marginal external costs to the change in vehicle kilometres, plus TUBA based CO2 outputs. It compares the social and environmental cost (disbenefit) impact with the dependent development and with the scheme, against the without dependent development and without the scheme scenario.

Appraisal Methodology – Inputs

The key outputs from the economic appraisal are the origin to destination matrices ('skims') for the alternative time periods and scenarios. For input into TUBA, these are the demand, time and distance matrices.

TUBA

TUBA software (V.1.9.12) was used to monetise the direct cost impacts on highway users, with respect to changes in time and distance. Standard TUBA values of times and vehicle operating costs parameters have been maintained.

The Aimsun model reflects a central peak hour for the AM, Inter-Peak and PM peak periods. Previous work with the model has identified model hour to peak period multipliers to approximate the daily benefits/disbenefits, these ratios are.

- AM, 1.99;
- ***Inter***-Peak, 7.00; and
- PM, 1.91

Marginal External Costs (MECs)

The CO2 impact is estimated through TUBA. For noise, local air quality and accidents a marginal external cost approach has been used.

The parameter values have been taken from the current WebTAG databook (November 2018) Table A5.4.2. In the absence of specific LGV and HGV values, these values have been applied to all vehicles. The Aimsun model links have COBA classifications, which have been used to allocate them to the corresponding link types in Table A5.4.2.

The final modelled year reported vehicle kilometres have been carried forward for subsequent years.

Do Something Analysis

The 'Do-Something' scheme is the same as the 'Do-Less' scenario. However, in addition there is a new rail station, which induces a modal shift. The derivation of this modal shift is discussed in the *Hoo Peninsula HIF Bid – Highways Business Case*.

Appraisal Methodology

Rather than considering the rail and road impacts purely in isolation, the highway traffic model has been run with the impacts of the modal shift and additional dependent development in place.

Assumptions – Highways Economic Appraisal

The assumptions applied in the highways appraisal are set out in detail in *Table 6.19: Assumptions,* of the *Highways Business Case*. This includes assumptions on, for example, the model, appraisal and development.

Rail Intervention

The methodology and assumptions of the **Rail** appraisal are summarised here and set out in detail in Network Rail's *Sharnal Street Station Economic Appraisal* attached in **Appendix 33** and the *Sharnal Street Station Demand Forecasting* report included in **Appendix 34**. The initial analysis carried out by Network Rail's Economic Analysis Team was based on one train per hour (tph) assumption which was later changed to 2tph to London in the Peak and 2tph to the Medway Valley Line off-peak as the development work continued, this is a result of the fast-paced development of the HIF bid. The economic analysis takes time and was underway before this change could be reflected in the report. Such improvements to the rail offer can only strengthen the case so Medway Council and Network Rail will continue to refine the business case as the scheme develops.

Appraisal Methodology

The methodological approach adopted is a uni-modal rail appraisal to assess the rail transport benefits and associated wider economic impacts from dependent development.

The appraisal feeds into a wider multi-modal appraisal that also considers the impacts of the highway scheme and the full level of dependent development. As a result, the transport external costs are calculated exclusively as the crowding impact on the rest of the network. Local road effects from increased rail travel are calculated through bespoke road modelling, and not included in the rail appraisal.

This socio-economic appraisal was carried out in accordance with the DfT's appraisal guidance, in particular the web-based transport analysis guidance or WebTAG, available at gov.uk. Impacts were assessed over a 60-year appraisal period.

Rail services to and from Sharnal Street station are assumed to begin in 2024. The appraisal has been conducted as a 60-year appraisal, commencing from 2024.

This appraisal considers the effect of enabling 2,600 homes. The following combination of scenarios from WebTAG Unit A2-2 (Induced Investment) applies.

	Without Dependent Development	**With Dependent Development**
Without Transport Scheme	P	Q
With Transport Scheme	S	R

For the purposes of this uni-modal rail appraisal, the ‘deadweight’ housing also includes the quantum of enabled homes that allocated to the road portion of the scheme.

Two separate model runs are technically required:

- Valuing the Transport Scheme (S – P); and
- Valuing Dependent Development (R – S, + Land Value Uplift).

The table below shows the types of impacts included in the appraisal.

Appraisal Impact	Deadweight and road-induced housing (8,000)	Rail-induced housing (2,600)
Rail user journey time improvements	ü	
Rail user crowding impacts	ü	ü
Non-user impacts	ü	ü
Revenue	ü	ü
Land value uplift (wider economic impacts) - sensitivity		ü

Highways modelling tested the weighted average delay in the AM rush hour on the A228 corridor in 2028. This modelling concludes that:

- 2,000 homes can be built without the scheme (deadweight);
- 6,000 homes can be built with the road alone (on top of the deadweight); and
- 2,600 homes can be built with the rail scheme (on top of the road scheme and deadweight)

to build a total of 10,600 homes.

Therefore:

- 24.5% of all the planned homes are dependent upon the rail scheme (including deadweight).

The following adjustments are made to simplify the model calculations.

Appraised Impact	Adjustment	Rationale
Rail user journey time improvement	Reduced by 24.5%	Effects of the dependent development cannot consider a scenario where the transport scheme did not exist. Therefore, no user benefits are applicable for demand associated with the development
Land value uplift	Only value relating to 2,600 homes included in benefits.	Land value uplift is only applicable to the homes that are dependent upon the rail scheme.

Option scenarios - As per transport modelling standard, this appraisal considers the difference between a ‘Do Minimum’ scenario and a ‘Do Something’ scenario.

Category	Do minimum	Do something
Homes developed	10,600	10,600
Primary stations assumed to access rail network	Strood, Higham	Sharnal Street
Capital expenditure		ü
Operational Expenditure		ü

Growth rate for Hoo St Werburgh

The growth rate for the town is detailed in the accompanying demand forecasting report (**Appendix 34**).

Background growth rate for rest of network

Demand has been forecast for a 20-year period to 2038 in accordance with WebTAG.

Beyond 2038, benefits have been increased in line with the ONS Great Britain population forecast, in line with WebTAG guidance.

Benefits and revenue from Sharnal Street users

In terms of methodology used, revenue is calculated by multiplying the number of net new passengers by an average yield.

Non-user benefits are estimated by calculating net additional passenger rail miles, the number of car vehicle miles diverted, and applying a marginal external cost of motoring saved.

User benefits are derived by calculating the reduction in generalised journey time for station access, with the full benefit applied to existing rail users and the ‘rule of a half’ applied to new rail users.

The following key assumptions are used to calculate user and non-user benefits. Distances are calculated from Sharnal Street. Average yield is calculated by the yields from Higham.

Flow	Distance (miles)	Yield		
		Full (£/pax)	Reduced (£/Pax)	Season (£/pax)
Sharnal Street - Central London	35.6	12.83	8.25	10.73
Sharnal Street - Dartford	17.1	4.34	2.67	3.11
Sharnal Street - Gravesend	10.3	3.38	2.48	3.55
Sharnal Street - Strood	5.4	3.38	2.48	3.55
Sharnal Street - Medway	12.4	3.38	2.48	3.55

Key assumptions for user benefits

The assumptions for calculating GJT to Sharnal Street and Strood stations are listed below. London is used as a proxy for calculating generalised journey time for

all flows, as it attracts the majority of rail demand. For journeys outside of the congested peak, it is likely that the GJT to London via Sharnal Street does not offer a GJT reduction compared to via Strood, owing to slower rail services, lower frequencies, and a lower choice of London termini; user benefits have therefore been factored down.

Assumption	Value	Notes
Proportion of rail demand assumed to use Sharnal Street	75%	Agreed with project team
Yield data	Flows to/from Higham MOIRA2 Year to March 2018	
Road GJT access multiplier	1.95	Average of 1.3 (Park and Ride) and 2.6 (Kiss and Ride) from PDFH v6.
Proportion of GJT saving attributable by journey purpose	Business: 50% Commute: 75% Leisure: 25%	High-level estimates to reflect time offset from the busiest 0800-0900 period.
Base rail GJT to London (proxy for all modes)	Sharnal Street: 132.0 minutes Strood: 103.7 minutes	Calculated from MOIRA2.
Access time from Hoo St Werburgh to station	Sharnal Street: 7 minutes Strood: 35 minutes	Journey time to Strood based upon road modelling indicating a journey time of 25 minutes to leave Hoo St Werburgh in the AM peak, and a further 10 minutes to access Strood station based on Google Maps
Modelled years	2024; 2038	Interpolation used to calculate benefits to intermediate years

Crowding Impact

Development on the Isle of Grain would create significant amounts of new demand at Sharnal Street Station. However, additional users on the line also create crowding impacts on other flows on the same trains, which include:

- decreased revenue from other passengers crowded off;
- non-user disbenefits from increased car journeys; and
- user disbenefits from a greater number of passengers standing for longer proportions of the journey, and at a greater standing density.

MOIRA2.2 – a rail industry standard model – was used to calculate these benefits.

Demand uplifts were entered into MOIRA2 between Sharnal Street and the following stations, for a base scenario without station, and an option scenario with the station:

- Central London
- Dartford;
- Gravesend;
- Strood; and
- Chatham (representing Medway Towns).

The demand uplift figures are considered in the accompanying *Sharnal Street: Rail Demand Forecast* report.

A separate quality-assured model was used to calculate the valuation of time-based upon the number of Generalised Journey Time minutes saved or wasted.

Key assumptions – demand from Sharnal Street

The following demand was entered into the MOIRA2 software on top of the conventional revenue journey matrix. This represents growth in housing at Sharnal Street. The 'Do Minimum' scenario represents demand growth from alternative stations from additional housing in the Hoo Peninsula. Demand to London is coded as via any route, which includes both High Speed and conventional routes.

Forecast rail demand per year by ticket type from the Hoo Peninsula for '**Do Minimum'** scenario

Flow	2018			2038		
	Full	Reduced	Season	Full	Reduced	Season
Sharnal Street - Central London	21,701	47,582	103,438	59,236	129,880	282,347
Sharnal Street - Dartford	329	721	1,567	898	1,968	4,278
Sharnal Street - Gravesend	117	256	556	318	698	1,517
Sharnal Street - Strood	251	551	1,197	685	1,503	3,267
Sharnal Street - Medway	373	818	1,778	1,018	2,233	4,854
Total	**22,771**	**49,927**	**108,536**	**62,156**	**136,282**	**296,263**

Forecast rail demand per year by ticket type from the Hoo Peninsula for '**Do Something'** scenario

Flow	2018			2038		
	Full	Reduced	Season	Full	Reduced	Season
Sharnal Street - Central London	35,843	78,588	170,844	97,837	214,517	466,339
Sharnal Street - Dartford	1,345	2,950	6,412	3,672	8,051	17,502
Sharnal Street - Gravesend	383	839	1,824	1,044	2,290	4,978
Sharnal Street - Strood	6,278	13,764	29,923	17,136	37,572	81,677
Sharnal Street - Medway	2,870	6,292	13,679	7,834	17,176	37,338
Total	**46,718**	**102,434**	**222,681**	**127,523**	**279,605**	**607,836**

The parameters used in the MOIRA2.2 run are shown in the tables below.

MOIRA2.2 parameters

Assumption	Value
MOIRA2.2 Version	Release 2
Timetable	Summer 2018
Zone structure	NR South East Zone Structure
Demand Revenue Matrix	Year to March 2018
Crowding penalty	PDFH5
Displacement time penalty	PDFH5
Interchange penalty	PDFH5
Time elasticities	PDFH5.1
Routed fares	!National Data – Analysed 2009
Study parameters	!Study Parameters – Small Capacity Change

Rolling stock formations and capacities.

The following unit formations were used in crowding network modelling. These assumptions were developed by the project team following discussions with Network Rail.

To model crowding under optimistic circumstances, trains on are assumed to run using these formations, all day. Both ‘Do Minimum’ and ‘Do Something’ services assume the same train capacities.

Seated and standing capacities of units modelled.

Formation	Line served	Seated capacity	Standing capacity
Class 376x10 (2014/5)	Sharnal Street – Victoria	448	833
Class 375x3 (2012)	Sharnal Street – Paddock Wood/Tonbridge	164	102

Other lines use the default MOIRA2 assumptions for the Summer 2018 timetable. This has been sense-checked and has the correct quantum of capacity into London terminals in the peak hours.

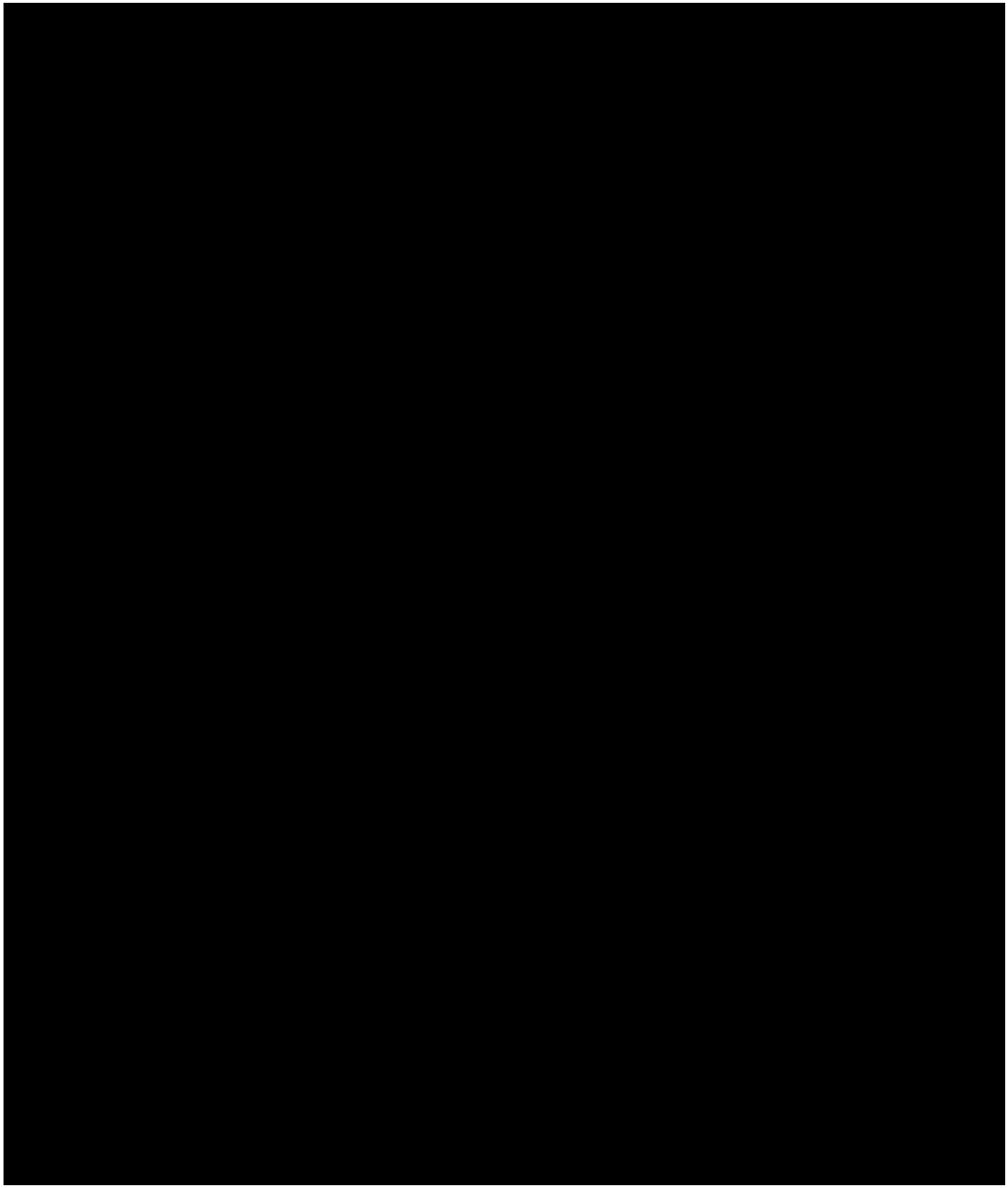
Timetable

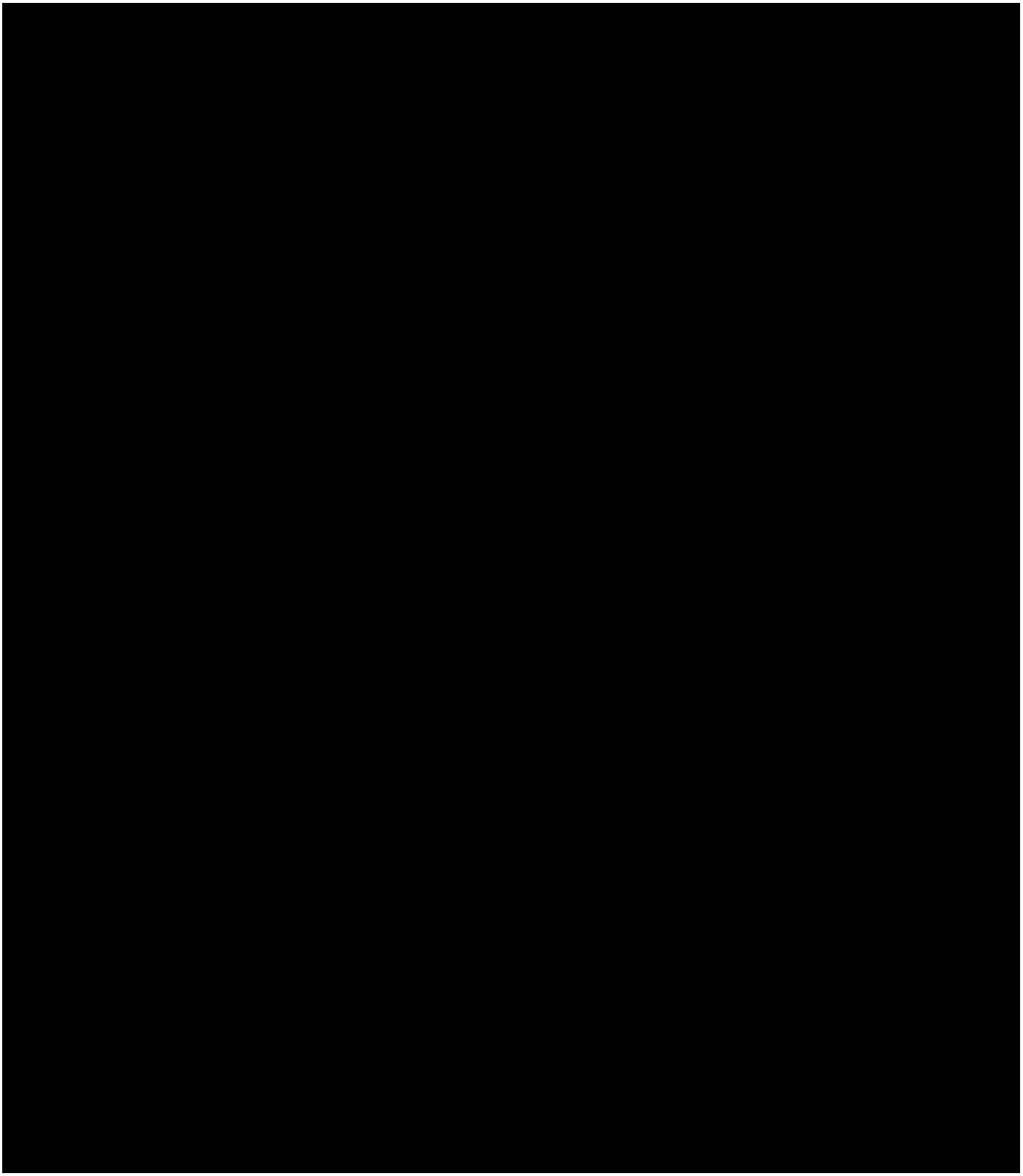
Examples of the timetable are shown in the *Sharnal Street Station Economic Appraisal*, section 2.5.2.

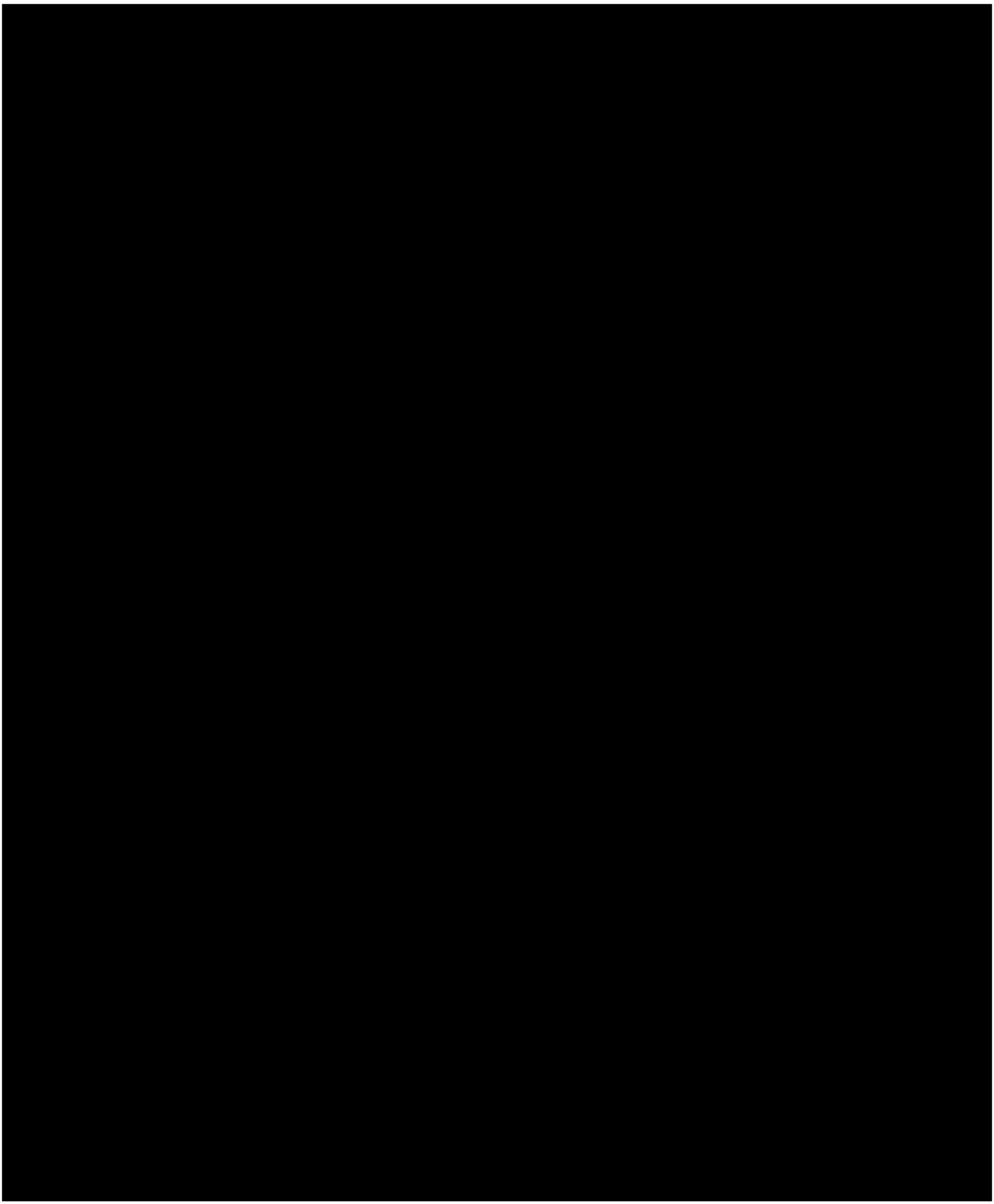
Further Appraisal Assumptions

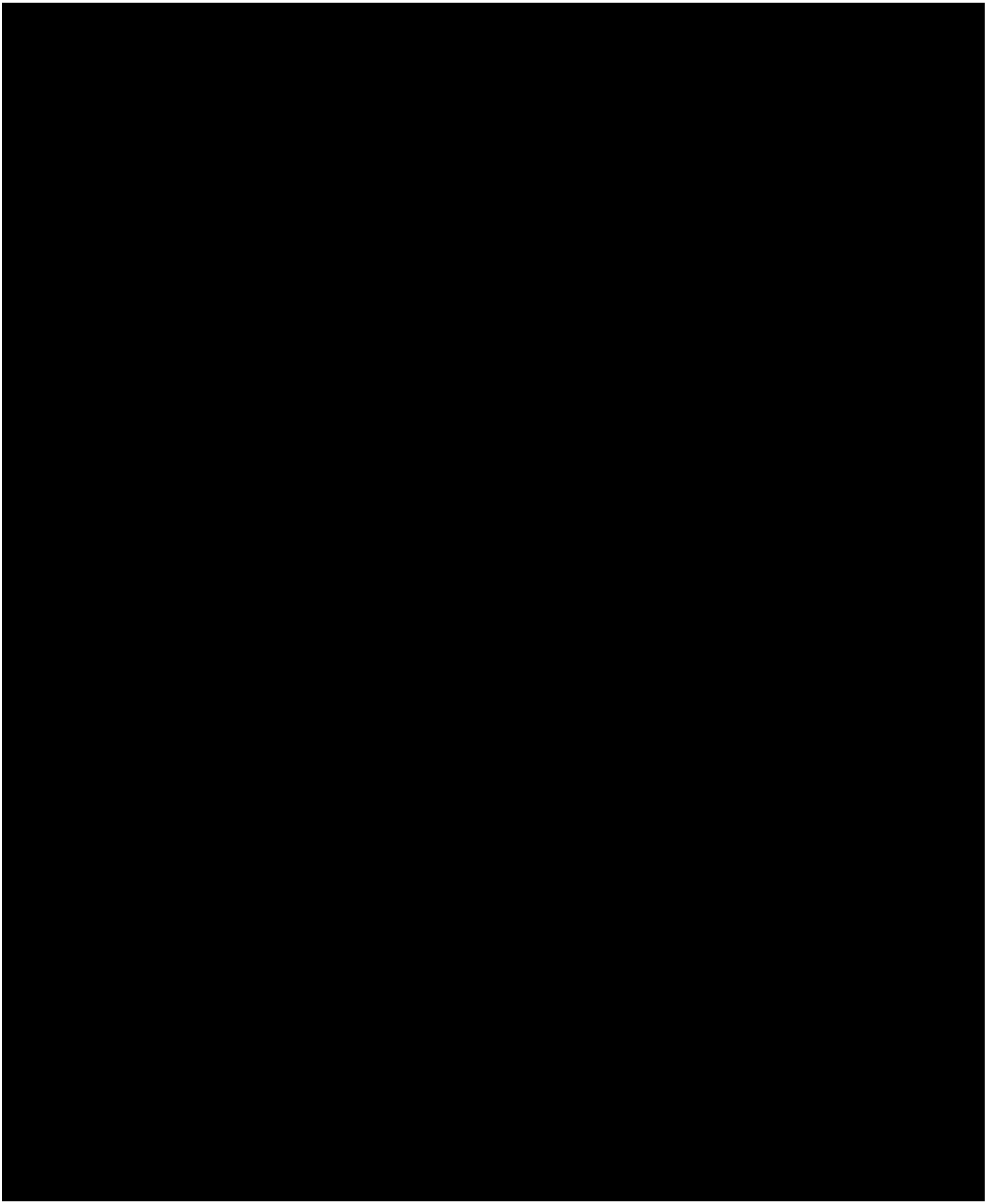
Further appraisal assumptions are set out in detail in Table 6.5 of the *Sharnal Street Station Economic Appraisal*.

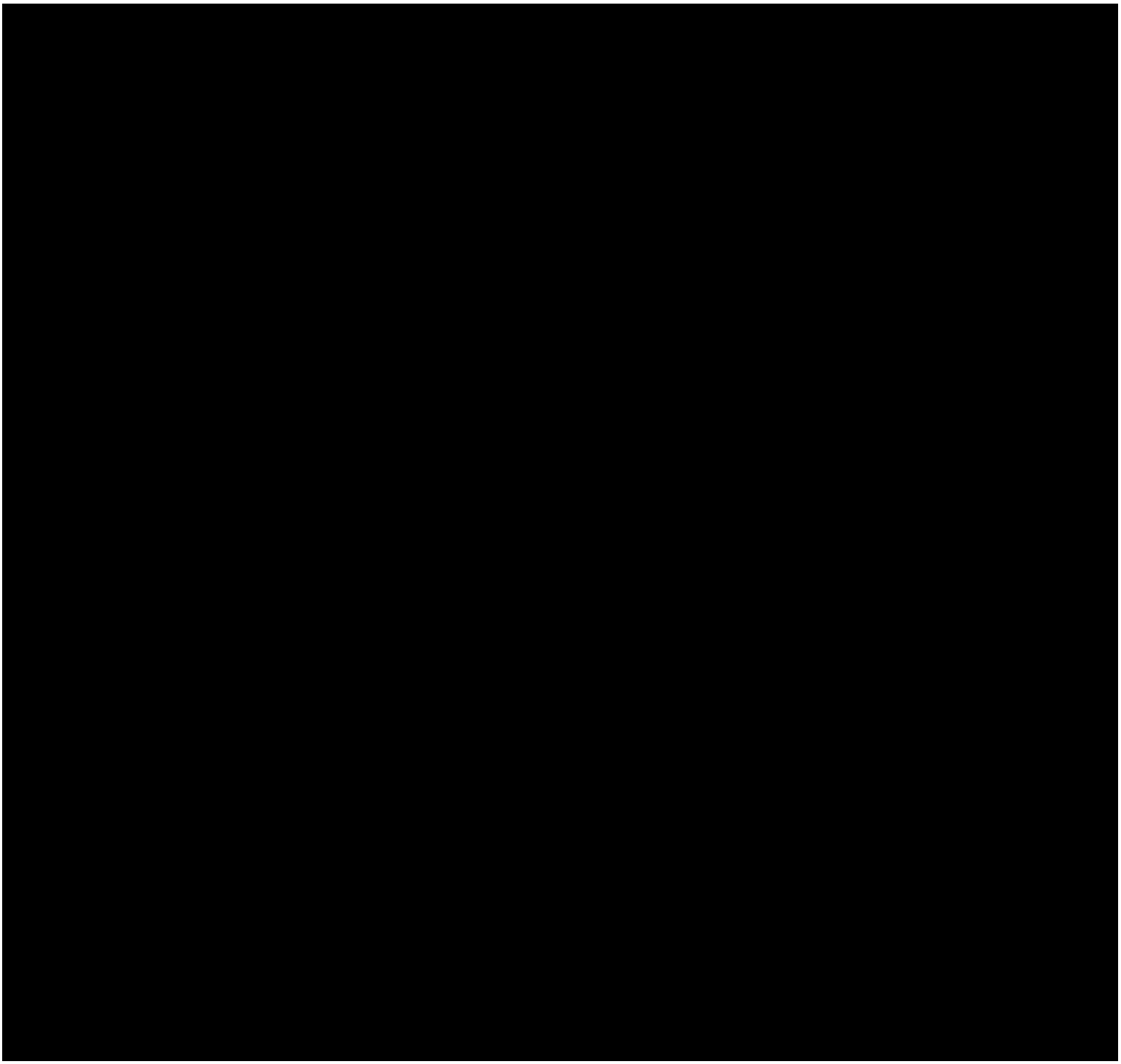
Filename	Description
A01. Hoo Peninsula Highways Business Case.pdf	Road infrastructure business case
A33 Sharnal Street Economic Appraisal.pdf	Sharnal Street Station Economic Appraisal
A34 Sharnal Street Demand Forecast.pdf	Sharnal Street Station Demand Forecasting

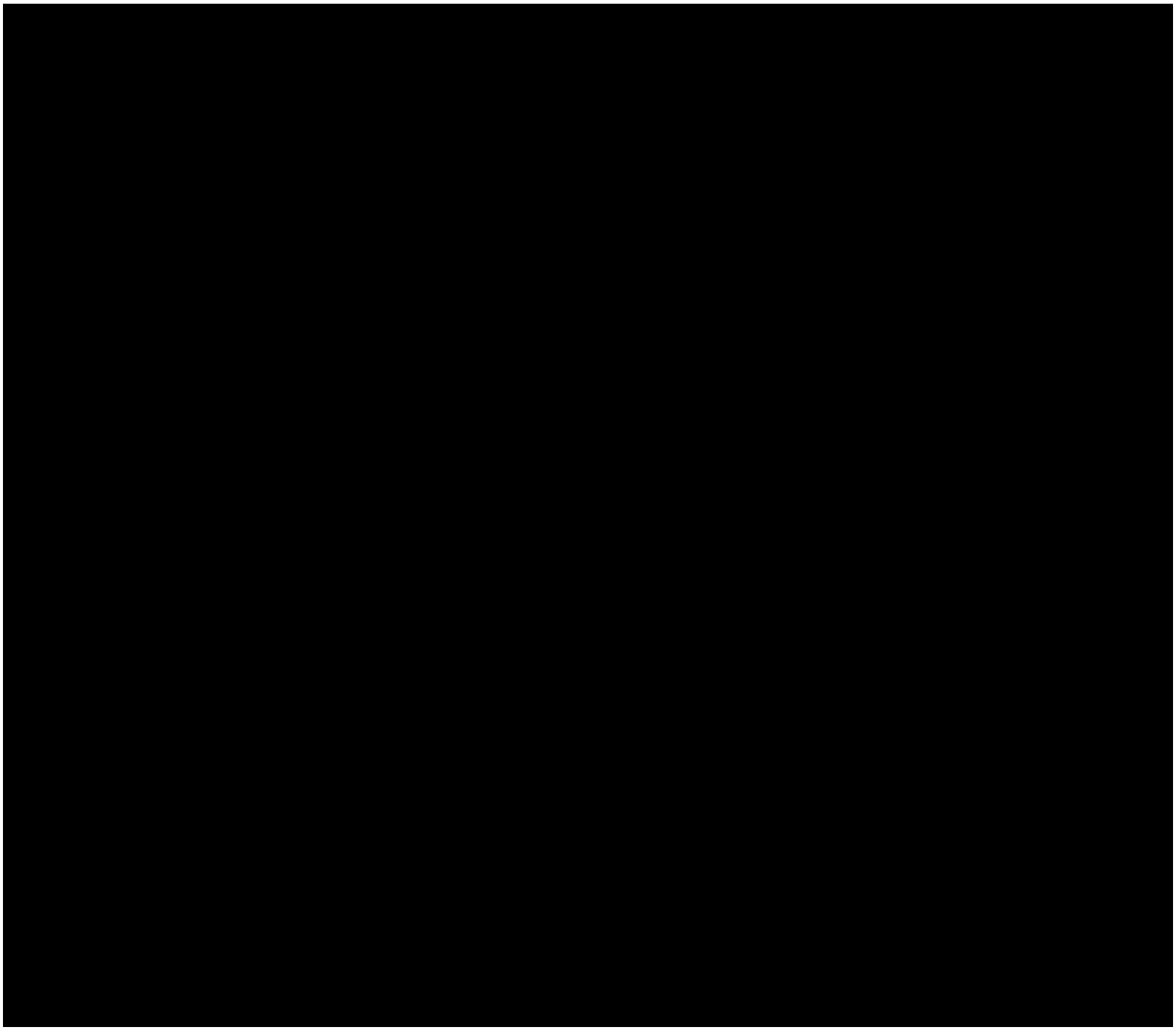


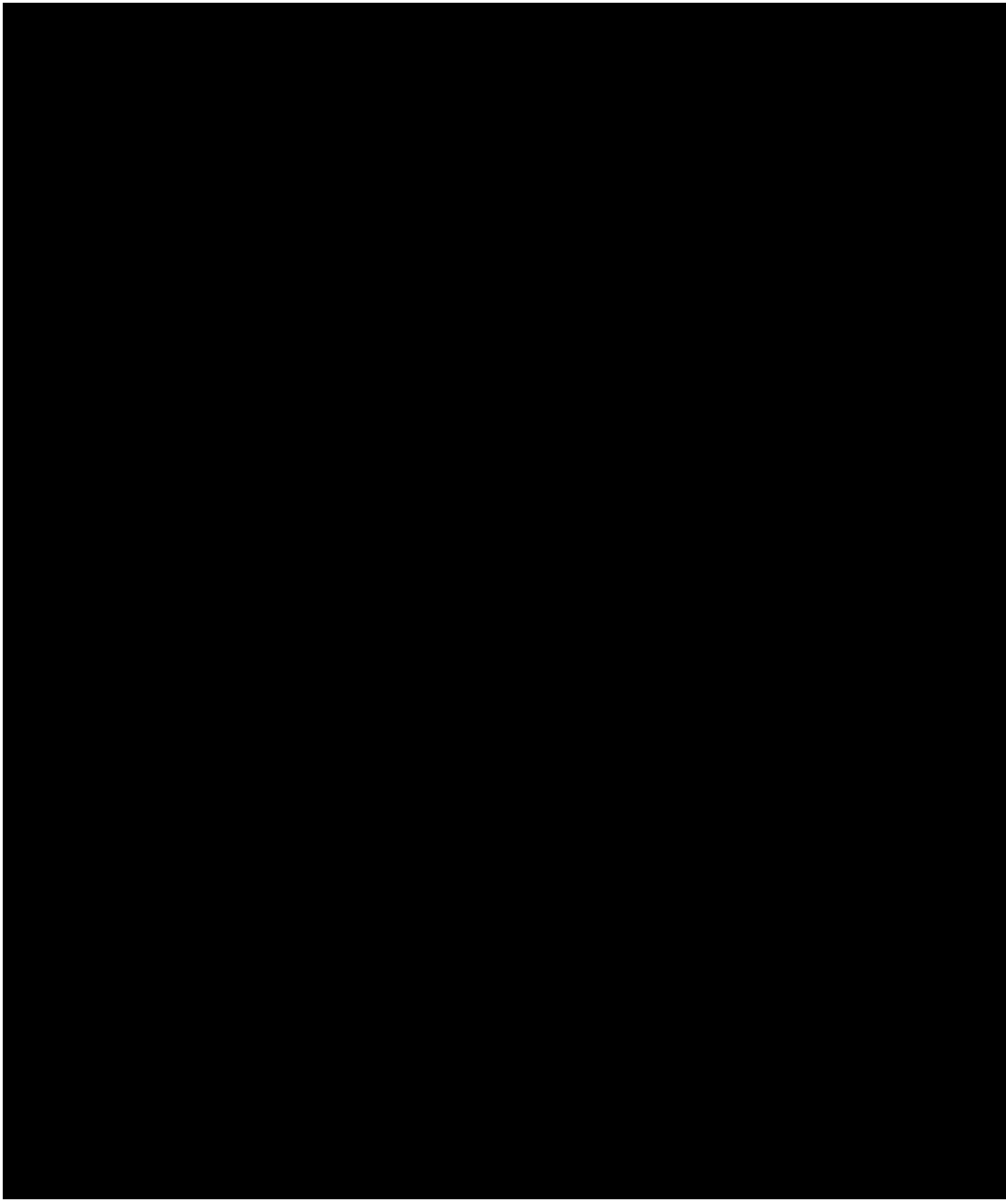


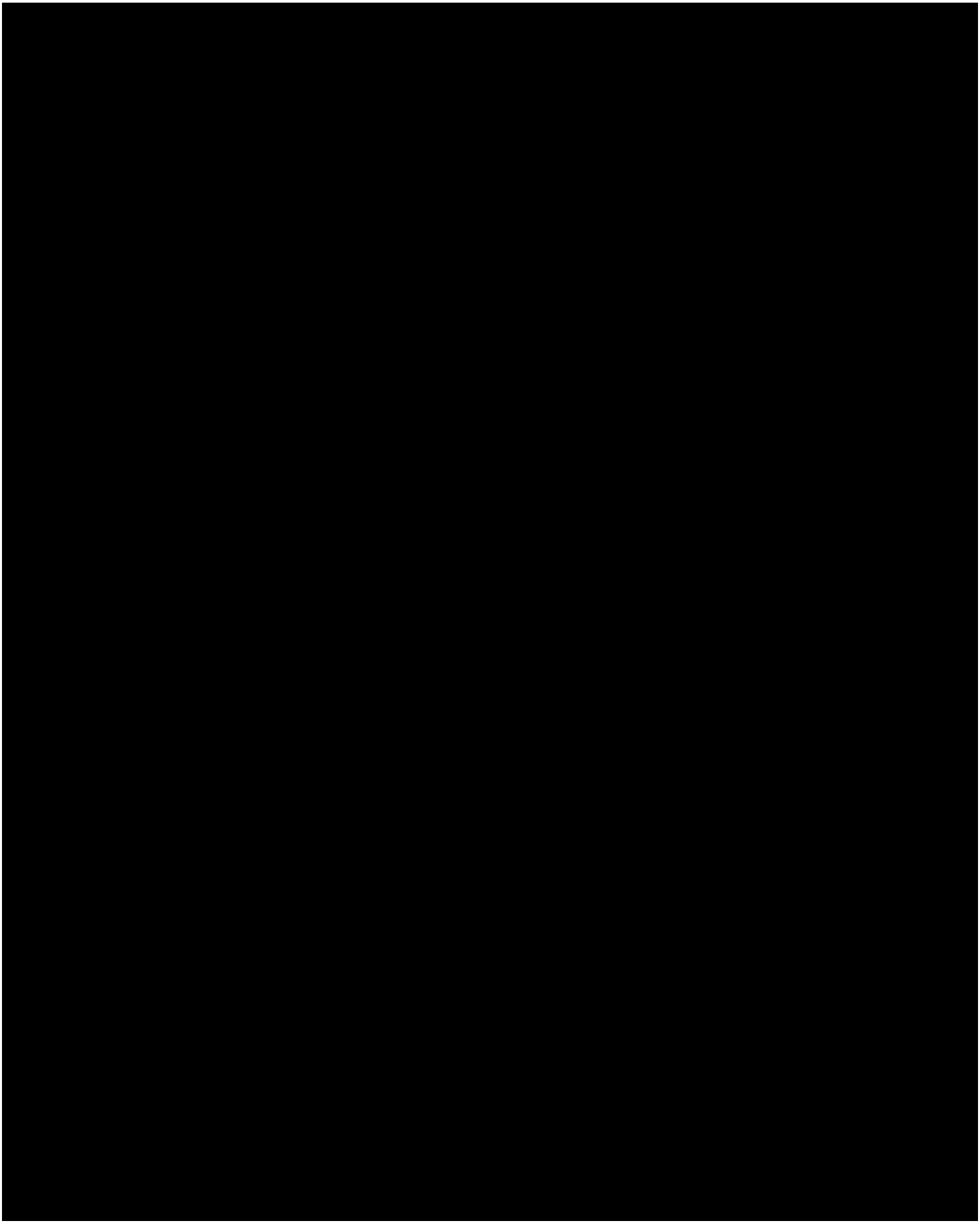












Non-monetised impacts

Are there any impacts it is not feasible or proportionate to monetise?

Yes

Details, including an indicative scale of impact and why these have not been monetised

The range of potential environmental and social impacts associated with the HIF scheme on the Hoo Peninsula which have not been monetised at this stage are presented below. This includes appraisal of positive and negative impacts of the rural town on natural capital and ecosystem services.

The 'Green Book Guidance' screening questions have been used to consider the impacts on natural capital and scope the assessment. This section outlines the method used, sets out an indicative scale of impact, and explains steps which would be taken in the future to further mitigate impacts associated with the proposed scheme.

Monetised environmental impacts, such as amenity benefits, ecology, air quality, noise and carbon emissions, are included at Section 4.3.

Study Area Summary

An understanding of environmental factors and associated potential impacts has been established through site visits and desktop studies. The majority of the HIF enabled area is large expanses of open farmed land and arable farmland. The former Deansgate Ridge Golf Course covers land north of the A228, and a series of former military sites owned by Homes England occupy the north-west of the study area. The former military sites are a mixture of woodland, scattered trees, grassland, and hardstanding. Based on the current agricultural land uses, it is likely that the study area comprises moderate to poor-quality land. While the majority of the area is within Flood Zone 1, a small area in the south-east of the site lies in Flood Zones 2 and 3. The study area is also bounded on the northern, western and southern boundaries by national and international ecological designations (including Ramsar, Special Protection Areas and SSSIs).

The strategic masterplanning process has sought to respond to the environmental opportunities and constraints associated with the study area. The process has been shaped through consultation with various stakeholders, including community consultation in October 2018, to explore emerging Development Framework principles.

Feasibility

As a meaningful monetisation of environmental impacts would require detailed technical assessment and more detailed design, it has not been feasible to monetise these impacts at this stage.

Initial appraisals have found that the proposed scheme on the Hoo Peninsula is not considered to have major physical environmental risks, with the notable exception of potential risks to ecological designations surrounding the study area. A Strategic Environmental Management Scheme (SEMS) has been developed to mitigate the cumulative ecological impacts of development.

Available information indicates the study area is unlikely to contain environmental risks that would not typically be designed and mitigated for within the development design and construction. Rather the proposed development is likely to result in enhancements through the incorporation of garden village principles and high-quality blue and green infrastructure.

In addition, an Environmental Impact Assessment (EIA) will be required to support the outline planning application and this will require consideration and mitigation of environmental impacts associated with construction and operation.

Assessment Methods and Supporting Evidence

The potential methodologies referenced in the Green Book and MHCLG Appraisal Guide were considered to determine an appropriate assessment method for non-monetised impacts generated at the stage development has been completed i.e 2035.

Green Book and MHCLG Guidance

The Green Book advises the use of tools including Defra's Environmental Valuation Look-up (EVL) Tool, which produces monetary values, and the Outdoor Recreation Value (ORVal) Tool. It was considered that these tools would not be sufficient to capture a comprehensive analysis to suit the scale of the proposed development, the level of detail currently available, and the range of existing and proposed uses. Defra's EVL tool and the ORVal tool both require detailed information on the use of the existing site; such as visitation estimates, to assess impact.

The MCHLG Guidance advises using multi-criteria analysis for dealing with non-monetised impacts. The Natural Capital Planning Tool (NCPT) provides a multi-criterion tool, consistent with MHCLG guidance, to assess the existing site and the proposed development.

Natural Capital Planning Tool

The NCPT tool weights different ecosystem services and scores a development based on existing and proposed uses. The outputs of the NCPT are included at Appendix 35. The Technical Note sets out the methodology of the NCPT, the data used, and assumptions made.

The output of the NCPT, the Development Impact Score (DIS), is an aggregated score indicating the impact of the proposed development, averaged over 25 years post-development, on a range of ecosystem services.

Results

Overall the development achieves a positive impact score: the NCPT produced an aggregate score of +123.7, or +0.20 per hectare. This indicates that the site has the potential to provide additional ecosystem services based on the assumptions that have been made.

A summary of the scores and context for each ecosystem service per hectare is provided below:

• Harvested products = -2.27 The loss of harvested products is unavoidable because the site mostly consists of grassland and arable cultivated/disturbed land. Opportunities to grow food will be incorporated, and it is anticipated that the may improve as the design evolves.

• Biodiversity = -0.02 A SEMS would be part of the Hoo Peninsula development. The SEMS will include an additional provision of native hedging, hedgerow trees, parkland trees, native woodland, wetlands, and nationally important habitat, which are not currently factored into the NCPT. It is expected that the biodiversity score would be positive if improvements were factored in.

• Aesthetic values = 1.80 The development will include high-quality, well designed buildings, open green space and infrastructure in keeping with the local landscape context.

• Recreation = 1.08 Provision of recreational space is fundamental within Garden City principles and this is reflected in the high positive score for recreation.

• Water quality regulation = 0.16 The NCPT does not assess positive impacts from SuDS, which will be incorporated at the proposed development, and therefore it is anticipated that this score would improve.

• Flood risk regulation = 0.01 This score could improve as a more detailed masterplan reflects blue and green infrastructure provision.

• Air quality regulation = -0.01 Air quality regulation has the potential to improve as the other indicators improve and more detail is incorporated, such as specific knowledge of incorporation of land-use types that have air quality regulation qualities.

• Local and global climate regulation = -0.29 and -0.27 respectively. Local and global climate regulation have the potential to be improved significantly through improvements in other indicators as the masterplan develops further.

• Soil contamination = 0 Soil contamination was not considered as part of the NCPT because the data required for this indicator is not readily available.

Qualitative Environmental Assessment

Specific key environmental topics and an indicative qualitative scale of impact is summarised below. The topics have been scoped in response to the 'Green Book Guidance' screening questions. These consider whether the proposed development is likely to affect,

land, water bodies, the atmosphere (including; air quality, GHG emissions, noise levels and tranquillity), wildlife and biodiversity, and opportunities for recreation in the natural environment. The initial qualitative assessment draws on the following evidence:

• Hoo Development Framework Report

• Extended Phase 1 Habitat Map – aerial classification

Air Quality and Noise

Monetised impacts associated with transport infrastructure are included in the “NPV of Infrastructure Impacts” section.

Baseline Environment

The nearest Air Quality Management Area (AQMA) is located along stretches of the Four Elms Roundabout on Four Elms Hill directly to the west. This area suffers severe peak journey congestion which has adverse consequences for air quality and noise, and health. Potential sources of noise and air pollution include the A228 which runs through the centre of the study area, and Main Road Hoo, which runs through the southern part of the study area. The railway line towards the west of the study area is also a potential source of noise and air pollution.

Potential impacts of development, including embedded mitigation

Masterplanning will need to factor in appropriate buffers and there will need to be a nominal standoff distance from the roads and railways to reduce the impact of noise and air pollution on sensitive receptors. Central to this bid is a package of highway improvements to provide capacity and resilience at Four Elms junction, and these highway improvements will mitigate and reduce air quality and noise impacts within the study area and within the Four Elms Hill AQMA., In light of the movement towards electric vehicles and reduction in private car use, it is also anticipated that the levels of pollution generated from the scheme is likely to be reduced in the long term. It is considered that provided appropriate mitigation measures are incorporated (a role a number of the potential SEMS could have) it is likely that the impacts associated with noise and air quality would be minor to moderate.

Land Use and Landscape/Townscape

Baseline Environment

As detailed in the Hoo Development Framework Report, the study area comprises a complex landform of hills and valleys, extending east and north-east, from elevated land to the west of Chattenden village. This includes; Cockham Farm ridge line at 45m AOD, the Deangate Ridge at 70m AOD and the Chattenden Ridge at 70m AOD.

The western part of the study area is part of a valley system, enclosed by these ridgelines. The combination of these elevated ridgelines and existing woodland visually screen the lower parts of the western part of the study area from the wider landscape, with only the more elevated parts of the study area, including the Deangate Ridge golf course being visible from the south of the River Medway.

The eastern and south-eastern parcels of the study area, are primarily flat or gently sloping landform, falling to flats and marshes.

Potential impacts of development, including embedded mitigation

The proposed scheme will have a negative impact in terms of loss of agricultural land, however, this is not likely to consist of high quality land and is unlikely to have a significant impact beyond the local level. To confirm the quality of the land, a detailed agriculture and soils study should be conducted.

Furthermore, the proposed scheme could give rise to negative effects on landscape and townscape character and views due to the current absence of permanent buildings on the majority of the study area. As such, the topography of the study area should be carefully considered at the detailed masterplanning stage. In line with the Garden Village Principles, parcels of the study area should be maintained as open space and the proposed scheme should utilise appropriate green infrastructure networks and buffers to integrate the scheme with the wider landscape.

Based on the available information and a high-level assessment it is considered that provided appropriate mitigation measures are incorporated, impacts associated with landscape and townscape character changes and loss of land uses are likely to be minor to moderate.

Historic Environment

Baseline Environment

There are several designated and built heritage assets in the vicinity of the study area. A number of listed buildings are situated within the residential areas of Hoo St Werburgh south of the study area, including; Church of St Werburgh (Grade I), Ivy House (Grade II), Meadow House (Grade II), The Chequer’s Public House (Grade II) and Hoo St Werburgh Wat Memorial (Grade II) and there are several Grade II listed buildings to the north of the study area close to Deansgate Wood. The majority of listed buildings exist in an already residential area or military land use and are screened from the study area by existing built up areas, and/or vegetation.

At this stage, the likelihood of notable archaeological features on site is considered low. Further desk-based studies will confirm this

and whether site investigations would be needed as part of the EIA.

Potential impacts of development, including embedded mitigation

The Hoo Peninsula and the surrounding area support a diverse spectrum of cultural assets. The masterplan should respect and conserve the role, function and extent of the cultural designations in the village. Further consideration of potential below ground archaeology would be undertaken at the planning stage. It is considered that provided appropriate mitigation measures are incorporated, it is likely potential effects of the proposed scheme would be minor.

Water

Baseline Environment

There are no primary water courses in the study area. The majority of the study area around Hoo St Werburgh is within Flood Zone 1, thus is considered low risk and most suitable for residential development. However, a relatively small area in the south east is located in Flood Zones 2 and 3 and considered to be at risk of surface water flooding.

Potential impacts of development, including embedded mitigation

Surface water management should be carefully considered. A sustainable urban drainage system to manage run-off rates could be located outside the floodplain area which could provide protection to the study area and surrounding area. There is also scope for parts of the study area located in Flood Zones 2 or 3 to accommodate open space and ecological enhancements. With appropriate mitigation, the proposed scheme has the potential to have a positive impact on flood risk.

Biodiversity

Monetised impacts associated with biodiversity are included in the “NPV of Infrastructure Impacts” section.

Baseline Environment

The study area is situated around a diverse range of highly-valued habitats which presents a significant constraint for the proposed scheme. Ecological designations of national and international importance are situated to the north, west and southern boundaries of the study area, most significantly within the Medway estuary and marshes to the south of the site.

Chattenden Woods and Lodge Hill Site of Special Scientific Interest (SSSI) covers the area to the north and west of Chattenden. It includes the area to the north of A228 Four Elms Hill and areas around Upchat Road and Woodfield Way. Pockets of ancient woodland are also located to the north and west of the study area. Tower Hill to Cockham Wood SSSI (to the south of the site) and Medway Estuary and Marshes SSSI (to the south east of the site) are located along the north side of the River Medway, with the latter bordering the southern edge of Hoo Marina Park and to the north of Lower Upnor. A large proportion of the estuary and marshes are also designated as Ramsar and SPA sites, with the closest located to Cockham Farm (south of the study area). Eastern parts of the study area are set within areas of SSSI functional land and associated impact risk zones which are likely to support habitats for a variety of protected species and/or an area of land where protected species depend upon for feeding. Any development would result in the need for the provision of a Suitable Alternative Natural Greenspace (SANG).

Potential impacts of development, including embedded mitigation

The SEMs highlights key strategic proposed measures which are included in this bid and are central to the delivery of a Green Infrastructure Strategy. The proposed scheme should have the highest regard for Ramsar, SPA and SSSI designations, their significance internationally and the ecological, botanical and zoological assemblages that they support. The development and implementation of a Green Infrastructure Strategy, including the opportunity to create a new country park in the southern part of the site, in addition to the area of green infrastructure to the south of Deangate Wood, could increase net biodiversity value. Masterplanning will need to factor in appropriate buffers from the SSSIs, based on agreements with Natural England, and ensure housing densities should be 35 dwellings per hectare in sensitive areas adjacent to SSSIs.

Geo-environment

Baseline Environment

No information on the concentration of potential contaminants or hazardous ground gases in the soils and groundwaters across the site is currently available. However, based on the historic use of parts of the study area (e.g. agricultural land, farm buildings and former military sites) there is potential for localised pockets of contamination.

Potential impacts of development, including embedded mitigation

Detailed ground investigation would determine any sources of contaminants and pollution on the site. The construction process would appropriately mitigate the risks of potential contamination, and where necessary, include measures to remediate contaminated land. The development has the potential to have a minor positive impact on geo-environmental conditions, through the remediation of any contamination on site.

Greenhouse Gases and Energy Efficiency

Carbon emissions have been monetised and are included in the “NPV of Infrastructure Impacts” section.

Baseline Environment

The study area is currently undeveloped or unused land with pockets of existing buildings, including ‘Street Farm Shop’ in the south east, however development is limited across the study area therefore the associated energy demand and greenhouse gas emissions are limited.

Potential impacts of development, including embedded mitigation

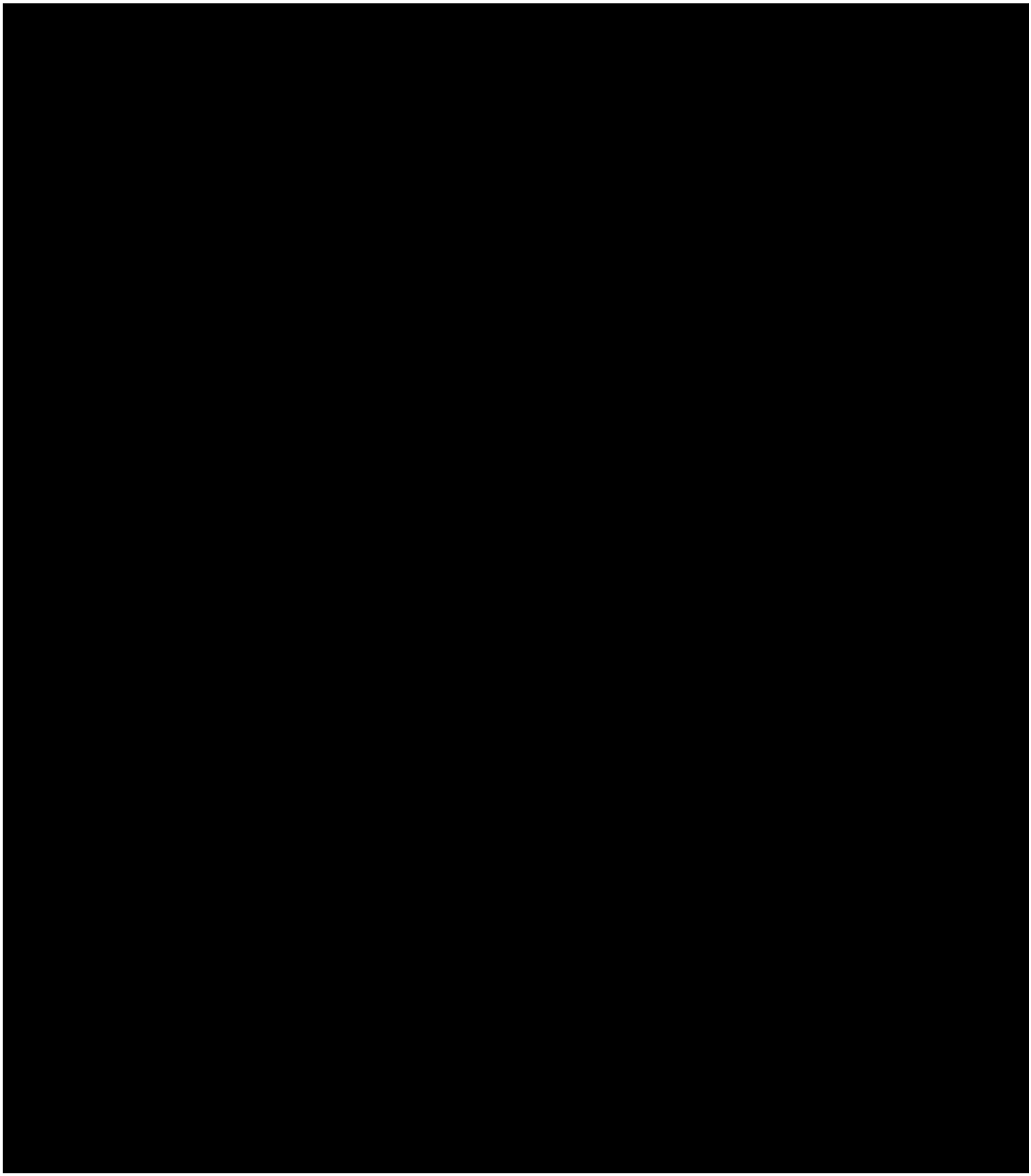
The proposed development will be delivered in accordance with the energy hierarchy. Design codes will be developed to ensure that specific targets or requirements in relation to energy efficiency and carbon emissions are delivered. This could include, fabric energy efficiency standards and the provision of renewable technologies, where appropriate. It is considered that the development has the potential to have a minor positive impact in relation to carbon emissions and the reduction of those in fuel poverty.

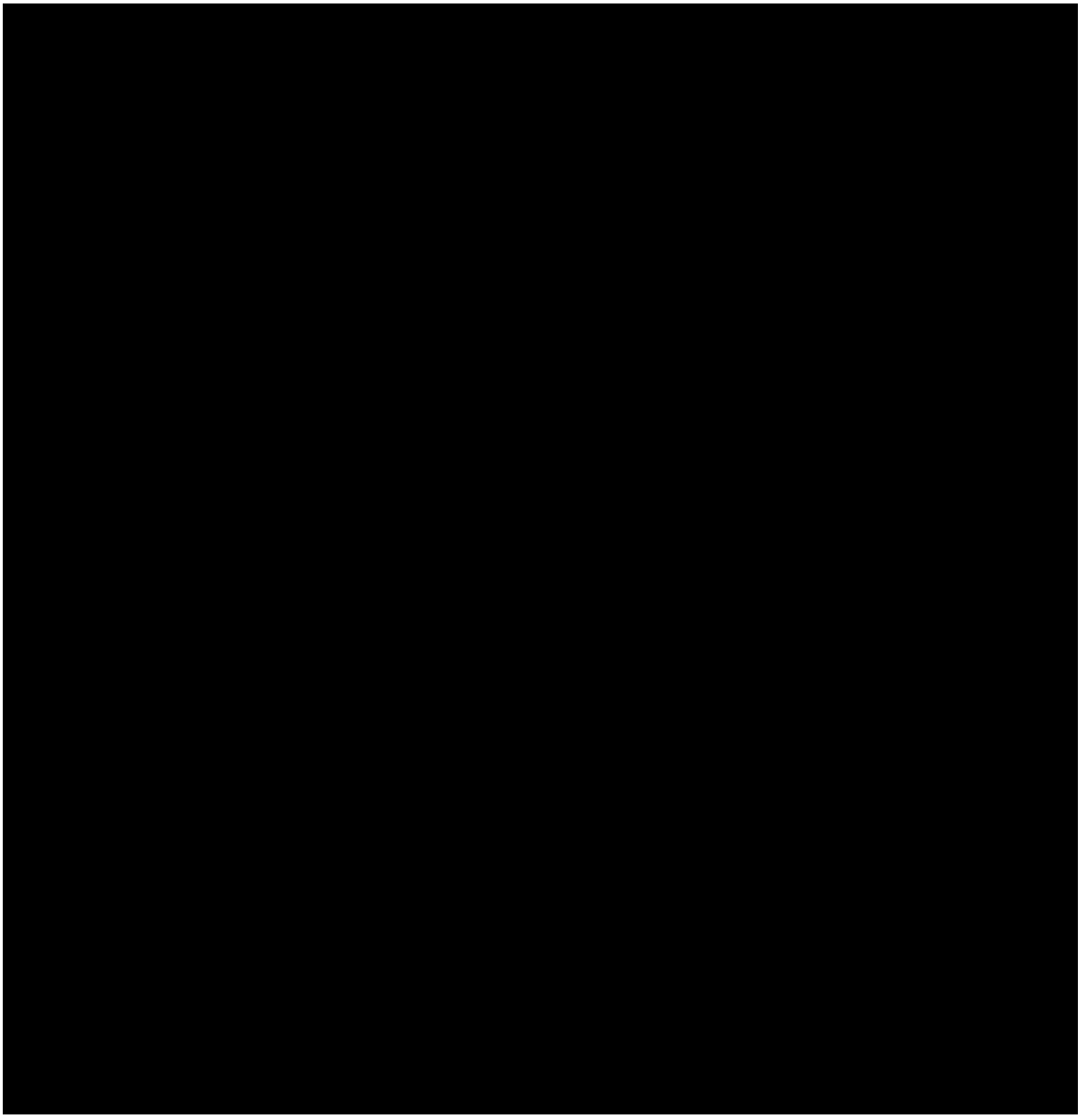
Summary and Next Steps

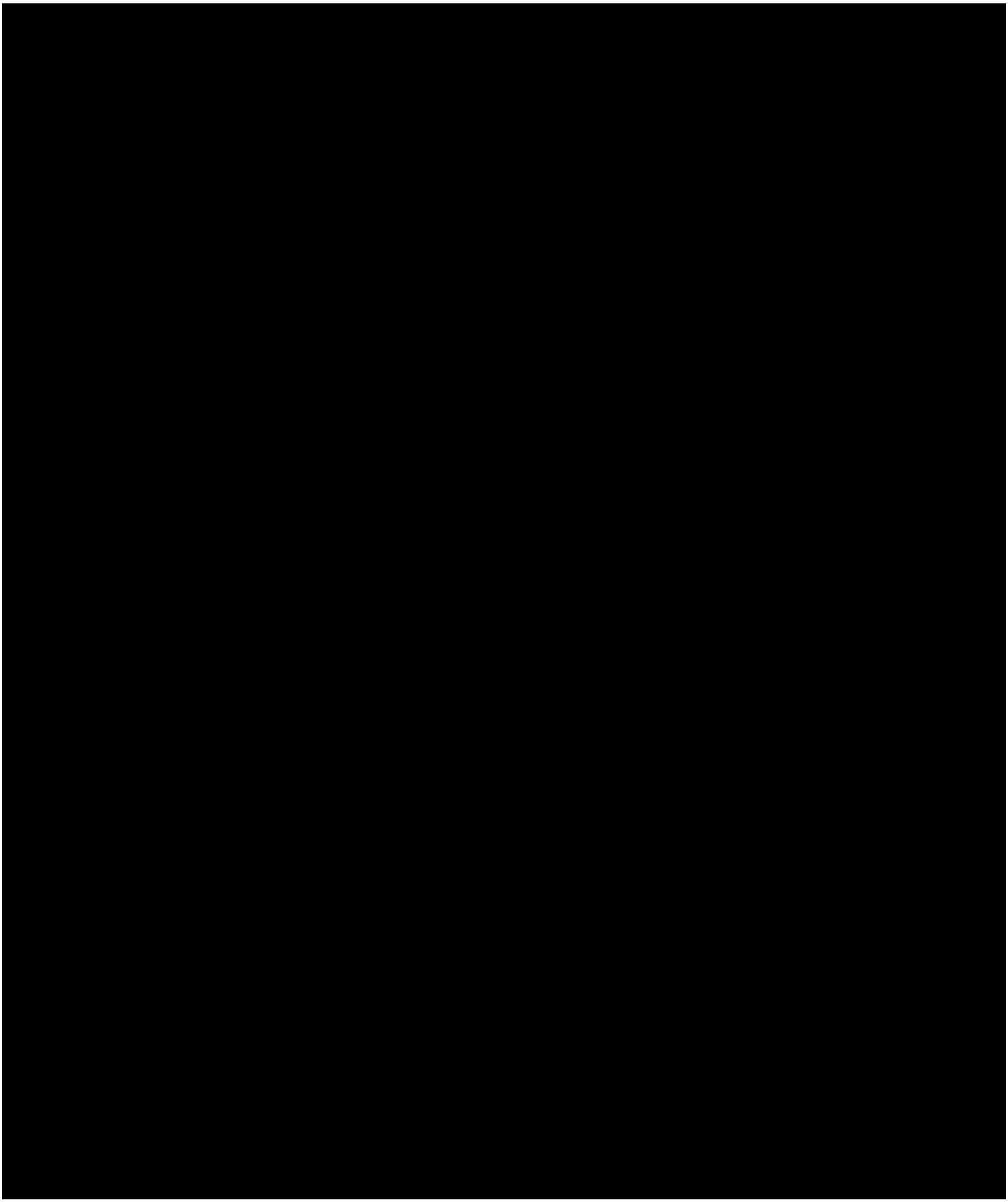
The available information indicates the study area is unlikely to contain environmental risks that would not typically be designed and mitigated for within the development design and construction.

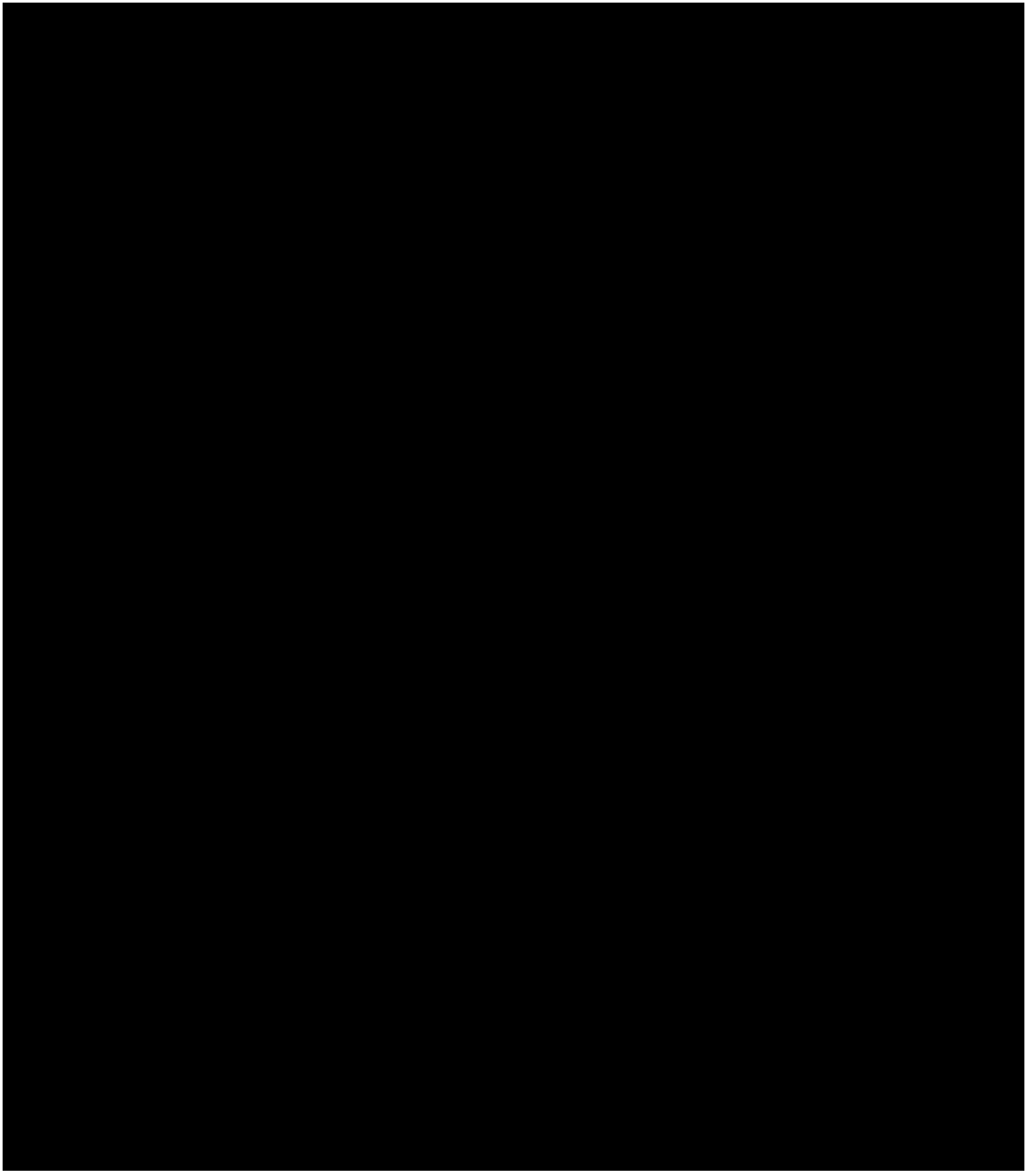
Early consultation and consideration of risks relating to natural capital, the environment and sustainable development of the Hoo Peninsula has been progressed and would continue as the design evolves. Further consideration of other factors such as health and wellbeing, natural resource management, use and efficiency, and the delivery of garden village principles would also take place.

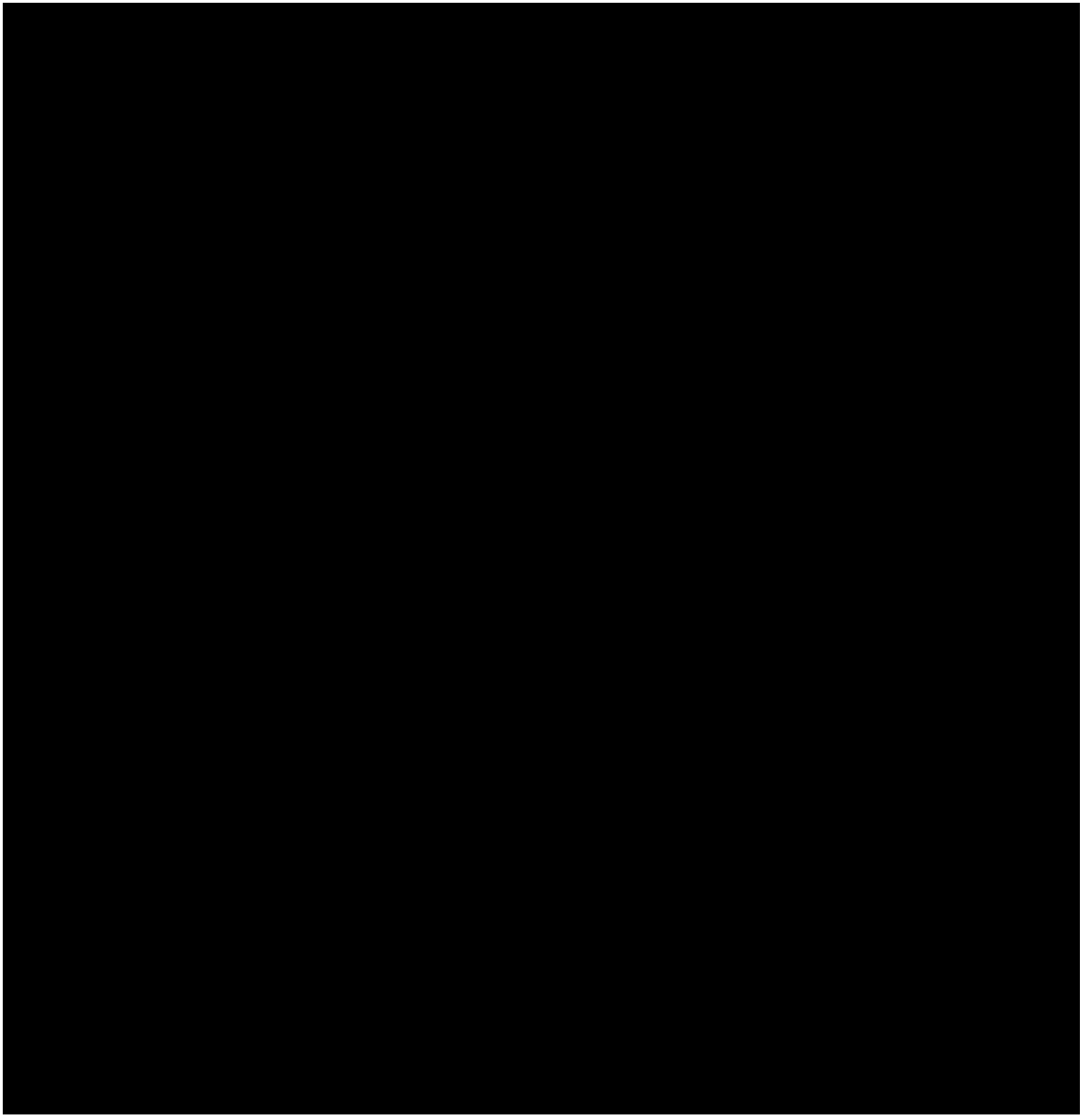
Given the scale of the proposed scheme, an EIA will be undertaken. The EIA will be embedded in the design process and design codes would be developed to ensure that construction and development would conform to the overall masterplans and that high-quality, sustainable design principles are achieved.

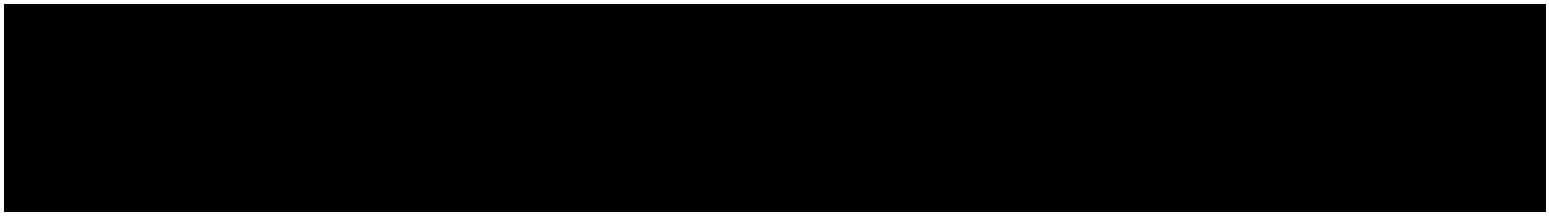


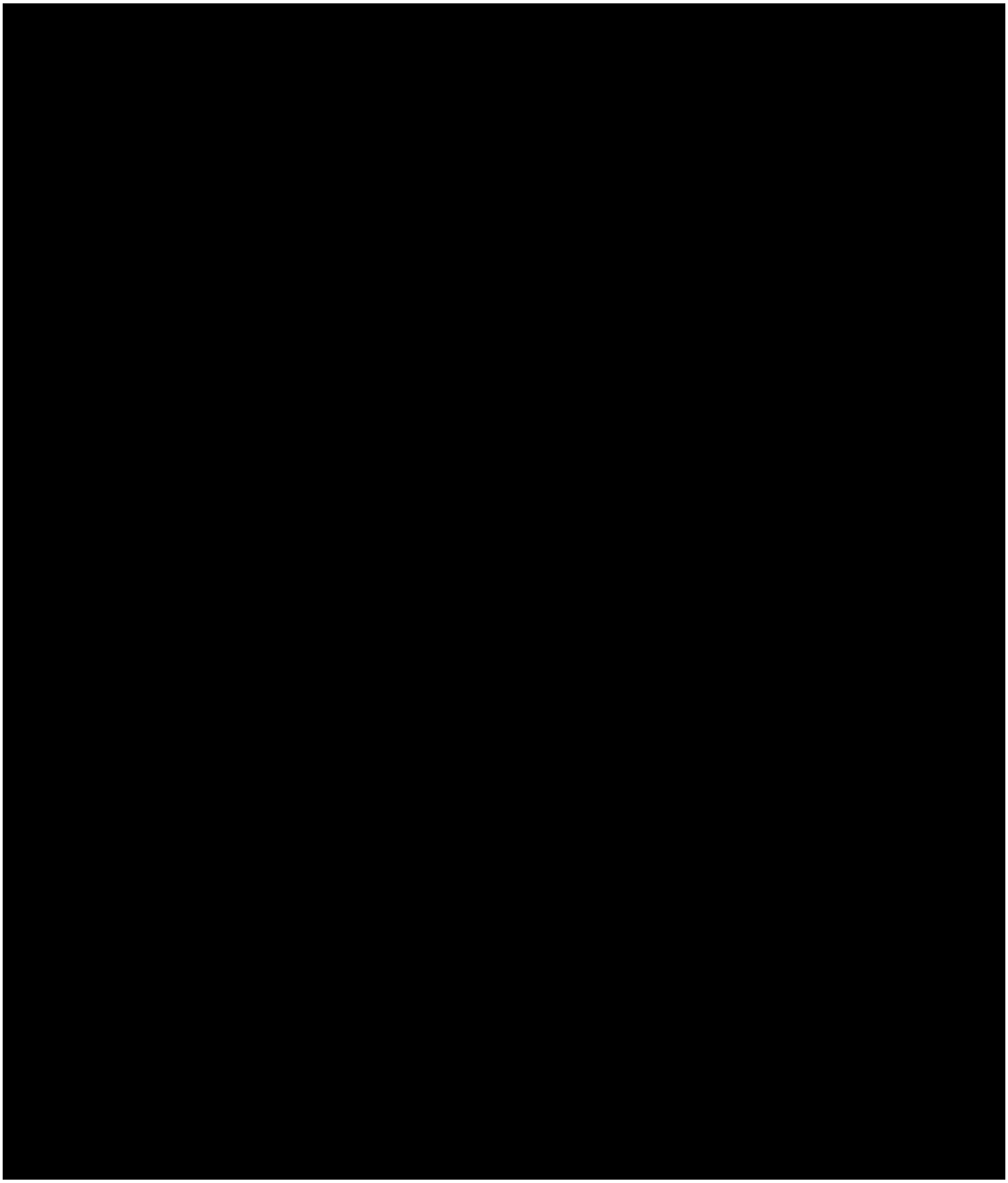












Commercial Case

Market analysis

Please provide details of how the proposed scheme fits with the local housing market and with local demand. Please provide supporting evidence of relevant value assumptions in the area

Trends and patterns in the local housing market

Medway's existing population and housing stock is currently focused in the four key urban sub-markets of Gillingham, Chatham, Strood and Rochester. The Hoo Peninsula on the other hand is predominantly rural and to date significant growth here has been resisted by the Council because of the lack of strategic infrastructure which renders it unsustainable.

The Medway Strategic Housing Market Assessment (**Appendix 18**) found that Medway formed part of a Housing Market Area (HMA), or broad area of search, with Gravesham, Swale, Maidstone and Tonbridge and Malling. Across the broader area, house prices have risen relatively consistently since the early 2000s, with only the 2008/9 recession acting as a brake on this rise. Medway has long been characterised by lower absolute house prices in this extremely buoyant regional picture.

Consultation with local agents undertaken as part of the SHMA pointed to the attractiveness of parts of Medway, particularly Rochester and Strood, as seeing an 'increase in buyers relocating outside London, driven by high prices in the capital and improved transport links in north Kent'. This trend was noted to be less prevalent in Chatham and Gillingham. Developer activity which includes several refused housing schemes on the Hoo Peninsula clearly demonstrates that there is pent-up market demand for additional housing on the Hoo Peninsula.

At present, the Hoo Peninsula remains relatively rural and does not benefit from the same transport accessibility. The HIF funding would support the delivery of infrastructure to deliver a step-change in transport accessibility such that it would provide an alternative to not just buyers looking to locate to Hoo but also reduce pressure on in-demand family housing stock which is currently at a premium in Chatham and Gillingham as parts of the borough's sub-market which the SHMA found cater to the needs of local families.

All of this is in the context of Medway's relative affordability which means that it remains a comparatively favourable location against elsewhere in Kent.

Market absorption and sales rates

The local agent consultation undertaken to inform the SHMA confirmed that demand was outstripping supply in both the private sale and private rented sectors. This was evidenced by any type of property that came onto the market being popular and selling or being rented quickly. This is reflected in Figure 1 (**Appendix 40**) which shows that in the last five years, new home sales have broadly tracked completions. New home sales in Medway doubled between October 2016 and October 2017 from 203 units sold in 2016 to 402 units sold in 2017 (Land Registry, 2018). Absorption rates reached 81% of completions in 2015/16 and was 62% in 2017/18.

Completions, driving by buoyant sales, at one of the Council's key sites at Rochester Riverside has exceeded expectations with the developer about to start on a next phase of development six months ahead of programme. This only underlines the ability of the market to absorb additional supply provided sustainable land is allocated to enable the delivery of new homes.

Average house prices and comparables

Figure 2 in **Appendix 40** shows that within the HMA and relative to prices in Kent and the wider South East, median house prices in Medway, along with Swale, are comparatively lower. However, the Figure 3 (**Appendix 40**) shows that within Medway, house prices have grown quickly since the recession compared to the rest of the HMA. Within the HMA, only Gravesham (171%) has outstripped Medway's (169%) relative growth; and house prices in both authorities have grown faster than the Kent (165%) and South East (160%) position. Despite this accelerated price growth, absolute prices remain low in the HMA and Kent more widely, such that Medway continues to be relatively affordable, with a ratio of 8.25 compared to 10.2 in Kent as a whole (Figure 4, **Appendix 40**).

The house price data on the Hoo Peninsula is contradictory. This is likely to in large part stem from the relatively fewer homes and therefore fewer transactions compared to elsewhere in the borough. Analysis in the SHMA showed that based on current asking price data in August 2015, Hoo had 'the lowest price level across all stock, with the exception of three-bed properties' (para. 3.26), when compared to Rochester, Strood, Chatham and Gillingham.

Conversely, Figure 5 (**Appendix 40**) shows for the key MSOA on the Hoo Peninsula (focused on Hoo St Werbergh – Medway003), median house prices have, with the exception of 2014, always exceeded those in Medway as a whole. Medway house prices have risen by an average of 51.7% since 2013, demonstrating strong market demand.

Similarly, the Medway Property Price Report 2018 (**Appendix 41**) explores house prices at town level and so does not provide detail for Hoo Peninsula as a rural area. However, the same method used in compiling the Medway-wide report has been used to understand property prices on the Hoo Peninsula (**Appendix 42**). The data sample of 173 houses listed for 2017 and 142 houses listed from January-July 2018 establishes an average asking price of £332,861 and £323,561 respectively with an average of 2.95 and 3.06 bedrooms per house in 2017 and 2018. The Medway average for March 2017 and March 2018 was substantially lower at £232,243 and £242,697 respectively.

The SHMA also confirms that the rural areas in Medway are characterised by a greater proportion of larger units compared to the urban areas which are likely to command higher values and so skew average prices on the Hoo Peninsula.

Local demographics

With reference to the 2016-based population projections, Medway's working age population is expected to increase from 179,000 to 192,000 between 2018 and 2035. However, over the same period, those aged 65 and over will increase at a faster rate with 19,000 additional older people expected to be living in Medway by 2035. The SHMA specifically considered the implications of this increasing older population in terms of housing provision and noted that rather than necessarily prompting dedicated growth in specialist housing and supported living, the preference was for adaptation of existing housing stock. This means that older households typically under-occupy housing stock by continuing to reside in homes that would otherwise meet needs for family housing. As a consequence, price pressures on these larger units remain high and so to ensure that the housing needs of the working-age population continue to be met (and that Medway's workforce is sustained), it is important that Medway plan for additional housing to boost supply.

The recently-published standard method for calculating local housing need indicates that Medway will need to provide 1,649 dwellings per annum over the course of their plan period. This represents a substantial uplift from past delivery which has averaged 589 homes (net) in the last five years (2014-18) (MHCLG Table 122). Recent delivery has been constrained by a lack of deliverable sites within the borough; the new Local Plan which is currently being prepared will be allocating sites to meet these needs and boost supply. However, the HIF funding is critical to unlocking sufficient sites in particularly the medium to long-term to ensure this Government set requirement as well as the needs of the local population are met.

Filename	Description
[redacted]	[redacted]
A40 Charts to Support Q.5.1.1.pdf	A40 Charts to Support Q.5.1.1
A18 North Kent SHMA.pdf	A18 North Kent SHMA
[redacted]	[redacted]

Delivery strategy

Please provide details of who will be delivering the infrastructure

The emerging Local Plan and evidence base including the Strategic Transport Assessment (STA) and Infrastructure Delivery Plan (IDP) have informed the HIF package of infrastructure investments. These key interventions will be financed by HIF and delivered by March 2024 to accelerate the pace of delivery and unlock overall scheme viability. Infrastructure beyond this date will be paid by developer contributions secured in line with the Statement of Common Ground (SoCG) between the Council and the Hoo Consortium, or through Section 106 agreements using the adopted Medway Guide to Developer Contributions and Obligations (**Appendix 43**).

The HIF package of infrastructure investments has been informed by the emerging Local Plan and associated evidence base including the Strategic Transport Assessment (STA) and Infrastructure Delivery Plan (IDP). The approach taken is that these key interventions which will be paid for HIF will be delivered by March 2024 to both accelerate the pace of delivery and ensure overall scheme viability. These items only form part of the infrastructure ask; however, elements required after March 2024 will be paid for by developer contributions secured in line with the Memorandum of Understanding between the Council and the Hoo Consortium, or through Section 106 agreements in line with the adopted Medway Guide to Developer Contributions and Obligations (May 2018).

The Council will be responsible for delivering all the infrastructure listed in the HIF bid. This includes the rail infrastructure works. While traditionally Network Rail might be expected to deliver the infrastructure, there is an established track-record of third parties delivering rail improvement schemes. The Council are currently investing the land assembly required to deliver the rail scheme; this relates primarily to the new chord as the main section on new track required. Other land, including the land to accommodate the new station at Sharnal Street, is being provided by the Hoo Consortium. Once completed, the rail line and station will be transferred to Network Rail. To ensure the scheme will be completed to the standard required by Network Rail, they will sit on the NRGG Board and will also be involved in the thematic group responsible for the rail package. Later phases of the rail development will be funded by other means later in the development programme.

Medway Council is also the highway authority and as such would be responsible for delivering all the proposed road infrastructure. The Council has a long-standing track record of delivering new highways infrastructure; recent examples include:

- An £11m transport and public realm improvement scheme for Strood town centre, which was developed, designed and will have been constructed within a three-year period (due to handover in summer 2019). By improving the accessibility and circulation and helping bring about modal shift through the creation of better and sustainable networks, the project has secured improved environmental conditions which will act as a catalyst to help increase the potential capacity of existing development sites, as well as bringing forward new development opportunities. A holistic scheme plan was been developed for Strood to address the challenges of poor journey times and accessibility and a tired and degraded urban environment. Measures will include schemes to unlock and facilitate access to major new housing and employment sites and significantly improve Strood Station. The scheme which was designed supported these goals by forming an integrated package of targeted improvements.

- Rochester Riverside preparatory engineering works including site flood protection and remediation of contaminated land on land owned by Medway Council following a process of land assembly. The scheme comprised: the construction of a 2.6km river wall forming the site boundary with the River Medway to provide the primary flood defence for the site; the contamination remediation of ground water and any contaminated land excavated as part of the works; the necessary land raising to provide

ground levels in accordance with that specified for flood defence purposes and for the development proposals. Following grant planning permission, the contract Preparatory Engineering Works contract was awarded by the Council to a joint venture between Edmund Nuttall and Van Oord of value in excess of £30M. This was a Design and Construction contract using the ICE Conditions of Contract Design and Construction 2nd Edition.

This will ensure a smooth process in terms of ensuring that it is constructed and maintained to the appropriate standard prior to formal adoption. While the road projects would be included in the same project governance and resourcing structure as the rest of the HIF projects, the team resourcing the projects would be largely drawn from in-house officers working to the HIF road infrastructure and delivery manager. The Council is currently looking at the detailed design of the schemes and whether any land outside either the Council or the Hoo Consortium's control is required to deliver the improvements. Advice received from BNP Paribas indicates that the Council will need to engage with three landowners to secure land; these discussions are already underway in order to reduce the potential need for the use of compulsory purchase powers to secure the additional land.

The Strategic Environmental Management schemes included within the HIF package would be delivered by the Council. While much of the land is currently in the control of the Hoo Consortium, the Council has engaged with the Consortium in developing an illustrative masterplan for the rural town at Hoo St Werbergh which includes the network of environmental sites surrounding the settlement. The need for a strategic approach to environmental management is recognised by all parties. It is anticipated that the Council will lead the design, consenting and works stages to deliver the environmental improvements but this will be done in consultation with the landowners, including making specific allowance early in the programme to liaise with landowners to agree on the mechanisms for delivery in the event it is not Council delivering the schemes, or any futures transfers of ownership.

The Hoo Consortium and other private sector promotors and landowners control a significant part of the sites and will continue to develop and promote these areas of land. These will be expected to align with the illustrative masterplan concepts prepared by the Council in consultation with the landowners and enshrined in the SoCG with the Hoo Consortium.

In addition to the Council's own in-house expertise, a delivery team comprising external consultants and contractors will be appointed to manage and progress the delivery on a day-to-day basis. The project team will integrate with council officers to ensure efficient, well-managed delivery.

Further detail is set out in Section 7.2 but a programme manager will be appointed, who will take responsibility for the day-to-day running of the project, acting as the liaison between the client and the rest of the team. Beginning with the design and planning process, the programme manager will take overall responsibility for delivery of the HIF funded infrastructure, overseeing the project managers for the individual work packages from the design and planning stages, through construction and finally to project review.

Other programme manager responsibilities will include reporting to the client, coordinating the project teams and ensuring project progress is made to time and budget.

While it is anticipated that there will be a programme manager responsible for overseeing the delivery of the HIF funded infrastructure, the number of infrastructure items to be provided means that there will be a number of projects run which deal with those items individually, or in small groups of related items. The managers of each of these projects will report to the programme manager.

A HIF planning manager will be appointed by the Council at an early stage in the process to provide advice on the requirements to obtain planning permission for the schemes. The HIF planning manager will advise on the best way to approach the application process, for example, whether it would be sensible to group multiple pieces of infrastructure together into a single application.

Within each project there will be several roles reporting to the project manager. The cost manager will work in a support role to the project manager, producing cost plans, providing cost advice undertaking procurement activities and undertaking reporting.

The Principal Designer role under the Construction (Design and Management) Regulations is to make sure that from the outset of design key health and safety matters are given due consideration to maximise safety for those people involved in the construction, use and ongoing maintenance of infrastructure.

In addition to ensuring that the client is aware of their responsibilities under the CDM regulations, the Principal Designer is responsible for the following, amongst other things:

- Ensuring the highest levels of health and safety during the construction phase.
- Providing designers and contractors with pre-construction information.
- Compiling the project's health and safety file, which will be a live document for the duration of the project. and
- Working with the principal contractor to ensure that construction is planned and executed with sufficient consideration given to health and safety.

Civil and structural design teams will be appointed at an early stage in the process. These teams will progress the concept infrastructure designs to full detailed designs suitable for planning approval. Following approval, the design teams will then continue to make any revisions necessary up to and during the construction period. The designs will be undertaken with due consideration to health and safety, with the key driver being to design out risk if possible, to avoid it occurring at a later point.

The Principal Contractor will be responsible for the construction of each infrastructure scheme. In conjunction with the project manager and other key members of the project team, it is the responsibility of the Principal Contractor to plan, manage and coordinate the construction. At the earliest opportunity, the Principal Contractor will engage with the design team, so that the practicalities of constructing any design are adequately considered and any risks are identified and either removed or mitigated.

As with other members of the project team, the Principal Contractor has duties relating to health and safety, this includes workers, visitors to site and members of the public. Construction programmes will be prepared and maintained by the Principal Contractor, who will inform the project manager of any material impact to the programme in terms of time or cost, at the earliest opportunity.

Procurement strategy

Please provide details of engagement with contractors to date and the procurement strategy for delivery of the infrastructure scheme

Medway Council's Category Management Team has a proven track record of successful project delivery, both in terms of quality and value for money. This was recognised in March 2014 at the Excellence In Public Procurement Awards 14/15 where the team achieved the Highly Commended Award for Innovation or Initiative and in August 2014 by being shortlisted for two major award categories in the CIPS Supply Management Awards 2014 and 2015 and for a further category in 2016. The team will provide support to

the NRGG Steering and Delivery Group, and to the thematic specific Project Owners throughout the life of the scheme, including pre- and post-delivery phases. The governance arrangements detailed in Section 7 provide additional detail on the team's role in the project management structure.

The NRGG infrastructure scheme will conform to the Council's Procurement Strategy 2016-2021 (**Appendix 44**) and Contract Procedure Rules (**Appendix 45**). The HIF Procurement Strategy will deliver the following objectives:

- Cost certainty
- High-quality infrastructure
- Large scale infrastructure
- Different interconnected elements
- HIF delivery deadline of March 2024
- Secure contractual obligations for third parties post March 2024

HIF resources will be used to pump prime infrastructure investment and deliver capital items prior to March 2024 that help to unlock housing. The secondary objective is to fund projects that would be resourced by Section 106 developer contributions to enable developers to pay for post-2023/24 phases while achieving commercial viability.

Given the number of separate infrastructure projects which will be delivered with HIF funding, many contractors will be required to ensure that the chances of overrun are minimised. The packages are set out below seek, where possible, to tie together items of related infrastructure which could be delivered by one contractor or a small group of contractors.

There are several procurement methods which could apply to the works. Different solutions may suit the scheme and the associated works. This section, therefore, sets out relevant information for a robust contracting and procurement strategy. Consideration is given to each of the available procurement options and the preferred procurement strategy is described. The preferred procurement options, identified in this section, are based on an initial assessment only and may be subject to change as the scheme is developed.

Medway has a proven track record of effectively procuring large-scale infrastructure contracts. The Council's Highway Infrastructure Contract 2017 was competitively tendered following a full OJEU procurement process and was awarded in August 2017 to Volker Highways; the contract includes an allowance contained within to carry out capital works which are related to works outside highway infrastructure maintenance which are usually, but not limited to, as a result of a capital funding allocation. Subsequently, Volker Highways was asked to provide a full cost and programme based on the design. The submissions were evaluated on price and programme, based on a detailed design already completed during the preconstruction phase.

Output-based specification

For the HIF scheme, the outcomes which the procurement strategy must deliver are to:

- Achieve reasonable surety that the scheme can be delivered within any funding constraints
- Minimising preparation costs through ensuring best value, and appropriate quality in relation to scheme design elements
- Use contractor experience and input to the construction programme to enable the preparation of a robust and achievable implementation programme; and
- Obtain contractor input to risk management, including mitigation measures, to capitalise at an early stage on opportunities to reduce construction risk.

Required outputs

The schemes for which funding is sought are as follows:

Rail:

- A new railway station and associated facilities at Sharnal Street
- New chord at Higham
- Improvements to the existing railway line

Roads:

- Relief Road (A289 to A228)

- Slip roads/Bridge/A289 realignment
- Higham Roadjunction
- Islingham FarmRoad
- Woodfield Way
- Upchat roundabout
- Chattenden Lane/Chattenden Barracks Lane junction
- Main Road Hoo Roundabout and approaches

- A228 improvements (Four Elms Hill to Ropers Lane and Sharnal Street station)
  - Main Road Hoo roundabout to Main Road Chattenden
  - Bells Lane roundabout
  - Ropers Lane roundabout
  - A228 Ratcliffe Road / Sharnal Street station junction

- A289 improvements (Four Elms roundabout to Anthony's Way roundabout)
  - Four Elms roundabout
  - Four Elms roundabout to Anthony's Way
  - Sans Pareil roundabout
  - Wainscott Road

- Local road improvements

- Upchat Road/ Upnor Road
- Cycle route improvements

Strategic environmental management scheme (SEMS):

- Zone 1
- Zone 2
- Zone 3
- Zone 4

The bid seeks HIF funding of £170,000,000 to deliver these outputs.

Issues and risks

The following issues are relevant to procurement:

- Many schemes are likely to exceed the OJEU limit and therefore need to be procured in accordance with the relevant EU rules. The Council has an established procedure set out in the Contract Procedure Rules (**Appendix 45**) to address this risk.
- Due to the scale of the schemes and timescales running in parallel in many cases, multiple contractors will be required to deliver the overall package.
- Funding will be fixed so price certainty is important.
- HIF funding will be required to be used by March 2024
- Provision needs to be made for season/weather/night time working and significant levels of traffic management for off-site works.

- Minimising the impact on the travelling public during construction is a priority.

Procurement strategy

The project governance will ultimately determine the preferred procurement strategy, provided it adheres the Council's overall procurement strategies and procedures included as Appendices **44** and **45**. The key risks identified and managed through any procurement process are:

- Time (speed or certainty of completion date);
- Cost (price level or cost certainty); and
- Quality (functionality and performance).

Quality can be managed through the procurement process, whether traditional or design and build. The following options have a variety of advantages and disadvantages:

Option 1 – Traditional contract

The traditional approach with any project, particularly in the construction industry, is to have design as a separate function from construction. This option provides the Council with a high level of control, particularly in relation to quality issues.

Option 2 – Design and build

There are several variants of design and build contracting, including just design and build (D&B), design, build and operate (DBO) and design, build, operate and maintain (DBOM). A greater or lesser proportion of the design work can be included in the design and build contract.

Option 3 – Prime contracting

This is conceptually very similar to D&B. A single contractor again acts as the sole point of responsibility to a client for the management and delivery of a construction project, on time, within budget (this time defined over the lifetime of a project) and in accordance with a performance specification.

Option 4 – Management contracting

This option involves the management contractor assisting the Council in putting together the scope of the work and procuring the works. This form of contract is suitable for fast-tracking projects, rather than achieving cost certainty and the transfer of risk. It is likely to provide benefit only if instigated right at the start of project development.

Procurement option assessment

Given the type of schemes under consideration and the timescales involved for delivery, establishing a contractor early in the process is considered important to influence the scheme design and construction methodology, reducing the potential level of impact associated with cost and time in comparison with the traditional form of contract.

At this stage, entering into a management contracting form of contract would be very likely to delay the scheme and add a layer of complexity that is not required.

Therefore, the traditional contract is the appropriate approach in this instance. This is the approach that the Council typically employ

Sourcing options

The potential options for sourcing the provision of the services include partnerships, frameworks, existing supplier arrangements and one-off procurement. Medway Council has engaged extensively [redacted] since 2015 to develop options and proposals for road schemes up to RIBA Stage 3. Similarly, [redacted] are currently providing the Council with advice on the feasibility of the rail scheme up to GRIP Stage 1+.

Both consultants have been appointed from the Medway Council Civil and Structural Engineering Framework which comprises 10 companies (Parsons Brinckerhoff, Waterman Infrastructure and Environment, Pell Frischmann, Project Centre, MLM Consulting Engineers, Capita Property and Infrastructure, JMP Consultants, Wilde Consultants, Grontmij, Mott MacDonald) and is envisaged will be used to procure future design services. Other frameworks available to Medway Council include the Homes England Multidisciplinary Framework.

For the procurement of construction services, the Council will use their existing frameworks and will also advertise in the Official Journal of the European Union as most procurement packages are in excess of the OJEU threshold. The Council will also engage with Network Rail and will seek to open the procurement of the rail infrastructure to their framework. Network Rail has recently awarded the track and rail system alliance contract to [redacted]

Commissioning packages

The exact split of the commissioning packages will be determined in due course; however, based on the current understanding, the following packages are anticipated:

Rail infrastructure: the rail improvements (new station, track improvements and new chord) will be treated as one package; however, it will be split between the design (GRIP 1-5) and construction (GRIP 6-8) phases.

Road infrastructure: similarly, the procurement of the design and construction stages for each of the road packages (relief road, A228 improvements, A289 improvements and local road improvements) will be done separately.

Strategic environmental management infrastructure: the scheme will be procured based on securing first a lead design consultant for RIBA Stages 1-5 and then a principal contractor to deliver or oversee the delivery of all 12 sites (RIBA Stages 5-8).

Please outline the procurement strategy to ensure build out of the wider scheme, including engagement with development partners to date, including use of SPVs, other joint ventures and legal proposals to bring forward homes

As is frequently the case with developments across the country, the Council is not responsible for the delivery of any housing and instead these will be delivered by the private sector. However, the Council has been working closely with the Hoo Consortium and other developers and landowners to ensure a comprehensive strategy is in place to deliver housing.

The Council has engaged extensively with the development industry to bring forward the proposals at the Hoo Peninsula. Historically, there have been applications for housing development on the Hoo Peninsula refused and then dismissed on appeal, with infrastructure under-provision forming part of the reasons for rejection of those schemes. This points to clear demand from the development sector to bring forward housing on the Hoo Peninsula; however, it is only by closing the strategic infrastructure gap that the Council will be in a position to permit such growth.

Further detail is provided in Management Case which confirms that the Council has entered into a SoCG with the Hoo Consortium as the body of landowners and developers which can deliver 8,000 of the 10,600 homes. The Hoo Consortium supports the HIF bid because the infrastructure will allow them to deliver more homes, achieving greater densities and at greater pace on their land holdings. The Statement of Common Ground commits the Hoo Consortium to a specific development phasing.

As planning authority, Medway Council will offer enhanced pre-application meetings to every development site to provide enhanced advice to potential developers, and potentially bring forward new developments at an accelerated pace/minimise delays. Pre-application advice can cover a wide range of issues including:

- details of any statutory designations and constraints affecting the site
- key planning policy context and assessment of the scheme against planning policy
- any other material considerations
- potential development considerations and contributions
- a synopsis of potential changes which may be needed to improve the scheme and, if possible, overcome objections.

- identification of areas within the pre-application scheme that may need addressing or changing
- whether the principle of the proposal is acceptable
- limited internal consultation
- a planning history search
- a summary of possible changes that may be needed to improve the scheme and, if possible, overcome objections.

The Council will also use Planning Performance Agreements to support a quality planning process for major and strategic developments and optimise their route and speed to construction. The Council also has the ability under paragraph 76 of the National Planning Policy Framework to impose shorter timescales on planning permissions in order to expedite the development.

Furthermore, given the strategic environmental issues that development on the Hoo Peninsula will need to address, the Council's approach of addressing these concerns on an area-wide basis will provide greater certainty to housing developers. The Council's strategy to procure the comprehensive design and delivery of the network of strategic environmental areas on Hoo will mean that rather than individual developments responding to these issues on an ad hoc basis, the Council will de-risk this element using HIF funding to deliver the schemes by March 2024.

Additionally, in order to ensure viability of development, the Council has worked with developers to devise Section 106 agreements which through the phasing of development and infrastructure do not create 'viability cliffs' which can act as a brake on development.

Outside the planning process, the Council can promote the Hoo Peninsula sites to more diverse range of housebuilders. In line with the findings of the Letwin Review and the Council's own procurement strategy which commits them to working with SMEs, the Council will be in a position to encourage the major housebuilders currently promoting schemes on the Hoo Peninsula to work with SME housebuilders and registered providers to diversify the future housing offer.

In addition to the finance available to private developers, at a purely local level, as the developers build and sell increasing numbers of dwellings on the site, it will provide income which can be used to finance the next phases of the development, perpetuating the delivery of the entire development.

The Council's resourcing of the HIF project includes a Project Officer (Finance and Monitoring) who would work closely with the landowners and developers, as well as the Council's planning team to ensure that the NRGG Steering and Delivery Group, and also the NRGG Board (whose membership will include landowners and developers including representatives of the Hoo Consortium), have a firm understanding of housing delivery. The intention that the specific governance arrangements of the HIF project means that these structures will remain in place after the closing of HIF project. This will be important to ensure that housing is being delivered in line with the agreed phasing; any deviation from this will be flagged at early stage and will be escalated to the appropriate level with a proposed solution.

In the event that development is not being delivered at the pace anticipated, The Council has several tools available to it, specifically Housing Revenue Account (HRA)

borrowing and the Medway Development Company Ltd (MDC). They can then build new homes, whether under the HRA in the form of council housing or the MDC, within control of the HIF programme to ensure pace of development. Critically the Council also have established links with registered providers of affordable housing who are often important in ensuring continued pace of delivery of housing.

Please attach any supporting evidence from contractors / developers which support your proposal

Filename	Description
A20 Statement of Common Ground.pdf	Signed Statement of Common Ground

Implementation timescales

Please provide an overview of the implementation timescales for your procurement strategy

The procurement strategy relates primarily to the infrastructure set out within this bid. However, it will be the Council's responsibility to ensure that the planning preconditions exist for the private sector to be able to bring forward housing under its own procurement strategy.

The Council will continue to bring its new Local Plan forward to ensure that it is adopted in line with the timescales set out in the Council's latest Local Development Scheme (December 2018). This expects that the Local Plan will be adopted in 2020, following submission to the Planning Inspectorate in December 2019. The Council will be working closely with landowners and developers to ensure that the baseline studies underpinning the planning applications are aligned with the evidence base for the emerging Local Plan.

This will allow the Council to determine planning applications swiftly following the adoption of the Local Plan. In relation to the majority of the homes which will come forward at Hoo St Werbergh, the Local Plan will include a masterplan which is the result of collaborate working between the Council and the Hoo Consortium; an illustrative version of this masterplan is contained within the SoCG. The Hoo Development Framework provides certainty to developers and allows for housing to be delivered in accordance with a strategic framework, supported by timely infrastructure upgrades.

The Council already has funding agreed for the additional work required to get the Local Plan through the Regulation 19 consultation, submission, examination and any subsequent consultation. Any further evidence base work or consultancy support required will be procured in line with the Council's adopted Procurement Strategy (**Appendix 44**).

It will be the responsibility of each thematic working group to procure the infrastructure within their thematic group. This process will be overseen by the Project Owner and will be carried out in line with the approved programmes for each workstream. The Council's Head of Procurement will have oversight to ensure that the processes being followed comply with the Council's overall procurement strategy.

An indicative timetable for procurement of detailed design and construction is provided below. It is highlighted that this timetable is accelerated compared to a typical project, due to the desire to maximise the benefit of HIF funding.

Task Name	**Indicative Date**
Issue Tender Documents	November 2019
Deadline for Tender Queries	January 2020
Tender Response Deadline	February 2020
Evaluate Tender Submissions	March 2020
Award Contract	June 2020

Whilst the above process is accelerated, it takes the approach of awarding the contract 9-12 months before it is expected that the planning application for the infrastructure will be approved. This is to enable the most time possible for the detailed design and planning application process but can accommodate a small amount of slippage in the procurement schedule. As with all parts of the project, significant effort will be put in place to reduce any impacts on the overall programme which could result in knock-on delays to the design and construction processes, so that the multiple infrastructure projects can be undertaken on site at the correct time, and housing delivery is not compromised.

Please provide an overview of your phasing and implementation strategy for the wider scheme

The phasing and implementation strategy for the wider scheme has been subject of significant discussion between the Council and the developers and landowners that have control of the sites on the Hoo Peninsula. It is also informed by the Medway's planning team's experience in monitoring and projecting delivery rates in the annual statutory Authority Monitoring Reports.

The SoCG between the Council and the Hoo Consortium sets out an agreed phasing of housing development over the period to 2035. The Council have then worked with other landowners to understand likely delivery across the other sites. The Council appointed [redacted] to provide them with advice on what would be feasible, bearing in mind the infrastructure within the HIF bid, particularly the provision of a rail link and station, is considered to represent investment which would support a step-change in the housing market. Thus, while the build-out rate which peaks at over 1,100 units per annum, is ambitious and represents delivery in excess of previous rates of housing delivery in the borough, these are deemed to be achievable. Furthermore, it must be viewed in the context of Medway's minimum local housing need as set out by the Government of over 1,600 units per annum.

To achieve these rates, in addition to standard house build types which will be implemented by developers, modular and self-build houses will also have a high profile place at the proposed development. Developers will look to implement modular builds as fits in to their business and delivery plans, enabling them to provide a faster turnaround on housing without compromising on quality. Opportunities for self builds will be provided on a wide basis throughout the development, enabling individuals to construct their own dwellings to their requirements, on serviced plots. This will be in line with policy in the emerging new Local Plan.

The nature of much of the development as sustainable growth on an existing settlement means that unlike other large housing developments, it is not conditional the delivery of big internal pieces of infrastructure such as a spine road to access development plots. While some access infrastructure will be required, this is not expected to be of a scale that would act as a barrier to development. This means that the phasing can assume multiple outlets across the site and it can also be flexible in relation which parcels of land come forward for development at what point in time. The Council, together with their consultant [redacted] has been working with the Hoo Consortium to provide a more detailed phasing of development by plot and also on developing different character areas which would support the delivery of different housing products across the wider development.

In relation to the infrastructure covered by the HIF bid, this will be delivered in line with the outline delivery programme provided in the Management Case and will be completed by March 2024. As confirmed in previous sections, the Council will be responsible for the delivery of all the infrastructure set out in the HIF bid.

The Council has been working with Hoo Consortium to ensure that the phasing of other infrastructure required by sitting outside the HIF bid aligns with housing delivery. For example, the Hoo Consortium's initial work indicates that the first primary school (two forms of entry) will be needed by 2025. In relation to secondary provision, the new school will need to be operating with seven forms of entry by 2030 and will then be later expanded to the full 10 forms of entry by 2035.

The Council's approach to developer contributions under Section 106, combined with the commitment set out in the SoCG with the Hoo Consortium that [redacted] agreement will be used, provides certainty of funding so that the Council can ensure the timely delivery of other infrastructure to align with housing delivery.

Contract management approach

Please provide details of your approach to contract management and any details of any arrangements already in place - this should include charging mechanisms

Contracts for each of the work packages to deliver infrastructure will be put together to adhere to the following principals:

- To ensure good relationships between parties within the contract;
- To enable delivery on a timely and cost-efficient basis to the necessary quality;
- To provide a clear and simple document, using straightforward language and is simple to understand; and
- To facilitate the implementation of sound project management principles and practices.

Contract length

Contract lengths will be dependent on the design package or infrastructure scheme to be provided. Where a design or a set of designs is being prepared, the contract will commence at the date of signing and will run to an agreed point, for example the granting of planning permission for the designs. Whilst the terms of the contract will remain in force for this period, it offers the opportunity to reconsider and of the terms which may be impacted as work progresses, and to agree to revise them as necessary.

For the construction and delivery of the infrastructure, the councils will seek to commission contractors at the earliest opportunity so that their experience can feed into the design process. Following this construction process will consist of a mobilisation period, followed by a construction duration. The period of construction will be governed by the overall programme for delivery of infrastructure in line with HIF funding spending requirements.

Due to the interlinked nature of some of the infrastructure packages, construction periods may be affected by construction of other packages. The programme manager will act in an overseeing role between package project managers and the contractors to ensure that the overall delivery programme is sufficiently developed that individual packages can have construction timescales detailed to a level which is agreeable with the contractors and to overall programme delivery.

Construction contracts will also encompass a period following construction, to be termed as a maintenance period. The maintenance period will be a minimum of 12 months but will be extended beyond this for certain pieces of infrastructure.

During the maintenance period, responsibility for addressing defects and general maintenance of a piece of infrastructure will sit with the contractor. As the end of the maintenance period approaches, the organisation who will be assuming control of the infrastructure will undertake reviews to determine whether it is suitable to be adopted. This could be for example, the local highway authority, Network Rail or Highways England. Should the reviews highlight any issues, these would be required to be rectified by the contractor and the maintenance period would be extended. If there are no issues, the relevant authority would assume responsibility for the infrastructure, and the contractor would be discharged.

Contract management

Overall contract management is likely to be undertaken by the HIF Legal Manager. For each work package, the Project Manager will also assume a contract management role, reporting to the Legal Manager.

The Council client team will continue to be led by the same staff members involved in the design, planning and procurement, ensuring continuity throughout the delivery process. A Project Board will be in place and meet monthly, and existing reporting lines will remain.

Payment mechanisms

The payment mechanism between the Council and contractors will be based on an NEC3 Engineering and Construction Contract Option B: Priced Contract with Bill of Quantities. This contract links payment to the completion of deliverables. A set of activities will be identified and included in the tender, and the contractor can add to these if desirable to create the 'Activity Schedule'. The Council will seek to minimise the number of Z clauses to reduce complications or confusion.

Payments to the contractor will be made monthly, and the contractor will only be due payment for the activities that have been completed in full during that month. The NEC3 Project Manager, with the help of the Supervisor, will define the appropriate payment each month, taking into consideration any payment applications submitted by the contractor.

Pricing framework and charging mechanisms

Within the civil engineering industry in the UK there are two widely used forms of contract – the ICE Conditions of Contract, and the New Engineering Contract (NEC3). Both are suitable, although the NEC3 is a more modern, partnership-oriented form.

The design and construction contracts are yet to be fully considered but may include the use of pain and gain percentages, set against a target price and the programme for the works package. This would only be able to be varied using compensation events. The pain and gain percentages and the associated triggers would be agreed prior to the commencement of the contract.

The potential use of pain and gain reflects the timescales which the proposals must attain, and the interconnected nature of these proposals, with delay to one package creating a potential knock on effect on one or more other packages. The purpose is to incentivise the contractor or designer to deliver their work to the target price and timescale, providing certainty of cost to the Council, and ensuring that the works are delivered in a timely manner.

By involving the contractor at the commencement of the project and in liaison with the designer, it is possible to include value engineering within the design process. If this has a measurable benefit to the cost and programme, the contract may specify that a proportion of the saving may be shared with the contractor.

Risk allocation and transfer

The NEC3 contract will set out a list of risks that remain with the employer. If any of these risks arise the contractor will be able to make a claim via the compensation event process. All other risks are managed through the contract process and allocated accordingly.

As with all other employers, the Council will add and amend clauses as appropriate to ensure they deal with risks in the most appropriate manner.

A risk register will be used which will record potential risks which could impact on the successful delivery of the project on time and on budget.

The risk register provided in the Management Case is the live document currently being utilised by the project team, it is subject to ongoing updates, but it offers a rounded consideration of the multiple risk categories which are being considered. All risks have been allocated a risk owner.

When a risk is identified during the course of the project, it will be assessed so as to understand and quantify the chance of the risk occurring and its potential impact on project delivery. The project manager will assign the risk in agreement with the recipient.

During the project, a risk can be transferred between parts of the project team if it is identified that the recipient is better able to manage it. The recipient will be responsible for the consequences if the risk occurs and therefore the risk will not be transferred until the recipient has confirmed that they understand the risk and accept it.

It will be noted that a risk will not be deemed to be assigned or reassigned until the recipient, or their delegate, has acknowledged that they have accepted it. The contract will set out the duration which the recipient has to respond, and the consequences should there not be a response in that time.

Additionally, the contract will specify that if a critical risk is raised, it will be flagged immediately to the HIF Legal Manager.

The Council will retain risks which are not transferred or avoided, although these may have been reduced or shared with members of the project team. The Council will manage the risks which they own, as is expected of risks managed by the project team. Through project meetings and updates, the HIF Programme Manager will keep track of all risks to ensure that the project is delivered to the Council's expectations.

Please provide details of the proposed key contractual clauses

The Council expects to use NEC3 Option A as the primary basis for contracting works. A copy of the core and main clauses is provided at **Appendix 46**. These are summarised as:

- Key dates: commencement, duration/contract finish date; milestones to accord with HIF spending requirements

- Liabilities: PII and period of time over which liability applies
- Linked contracts: where not possible to self-contain infrastructure package, need to include specific clauses to denote where delivery of another package affects/is affected by another package
- Payment requirements: measurable against activities in tender pricing, process, time periods, procedures in the event an invoice is disputed e.g. time period for clarification.
- Obligations to the employer: descriptions of work to be delivered and timescales, reasonable care and skill, design fit for purpose, H&S, regular reporting to programme manager, obligation to work with contractors on other work packages.
- Obligations to third parties: identify third parties e.g. operators of completed infrastructure or Homes England as the provider of HIF funding.

Additional information

Please provide details of the proposed key contractual clauses

The section should be read in conjunction with the Executive Summary (A00a) and List of Appendices (A00).

Filename	Description
A43 Guide to Developer Contributions and Obligations.pdf	Adopted Guide to Developer Contributions and Obligations
A44 Procurement Strategy 2016-2021.pdf	Current Procurement Strategy
A45 Contract Procedure Rules.pdf	Medway Council Contract Procedure Rules
A46 NEC3 Engineering and Construction Option A Terms and Conditions.pdf	NEC Option A - Core and Main Clauses
A54 Rail Construction Methodology.pdf	Rail construction methodology
A44a Procurement Strategy Progress Report.xlsx	Procurement Strategy Progress Report
A00 List of Appendices.pdf	A00 List of Appendices
A00a Executive Summary.pdf	A00a Executive Summary

Financial Case

What are the total scheme costs?

[redacted]

Will the infrastructure costs be 100% funded through HIF?

Yes

Please provide a summary of the total infrastructure costs of the project

Description	Type	HIF Funding
Railway Control Systems (Rail	Infrastructure	[redacted]
Electric Power and Plant (Rail)	Infrastructure	[redacted]
Permanent Way (Rail)	Infrastructure	[redacted]
Operational Telecommunication Systems (Rail)	Infrastructure	[redacted]
Buildings & Property (Rail Station)	Infrastructure	[redacted]
Civil Engineering (Rail)	Construction	[redacted]
Enabling Works (Rail)	Preparation costs (design and planning)	[redacted]
Preliminaries (Rail)	Preparation costs (design and planning)	[redacted]
Overheads and Profit (Rail)	Other	[redacted]
Design Team Fees (Rail)	Professional fees	[redacted]
Project Management Team Fees (Rail)	Infrastructure	[redacted]
Other Project Costs (Rail)	Other	[redacted]
Risk (Rail)	Contingency	[redacted]
Inflation (Rail)	Other	[redacted]
Slip Roads / Bridge /A289 Realignment	Infrastructure	[redacted]
Higham Road Jct	Infrastructure	[redacted]
Islingham Farm Road	Infrastructure	[redacted]
Woodfield Way	Infrastructure	[redacted]
Upchat Roundabout	Infrastructure	[redacted]
Relief Road (Section 1)	Infrastructure	[redacted]
Chattenden Lane / Lodge Hill Lane JCT	Infrastructure	[redacted]
Relief Road (Section 2)	Infrastructure	[redacted]
Main Road Hoo Roundabout & Approaches	Infrastructure	[redacted]
Main Road Hoo Rbt to Main Road Chattenden	Infrastructure	[redacted]
Bells Lane Roundabout	Infrastructure	[redacted]
Ropers Lane Roundabout	Infrastructure	[redacted]
A228 Ratcliffe Road / Station Jct	Infrastructure	[redacted]
Four Elms Roundabout	Infrastructure	[redacted]

Four Elms Roundabout to Anthony's Way Roundabout	Infrastructure	[redacted]
Upchat Road / Upnor Road	Infrastructure	[redacted]
Wainscott Road	Infrastructure	[redacted]
Cycle Route Improvements	Infrastructure	[redacted]
Inflation (Road)	Other	[redacted]
Fees & Charges	Professional fees	[redacted]
Survey Costs	Professional fees	[redacted]
Utility Costs	Infrastructure	[redacted]
Mitigation Measures	Contingency	[redacted]
Accommodation Works	Construction	[redacted]
Land Costs	Land (exc. Sunk costs)	[redacted]
Works on site 1	Construction	[redacted]
Works on site 2	Construction	[redacted]
Works on site 3	Construction	[redacted]
Works on site 4	Construction	[redacted]
HIF Delivery Team & Professional Fee's	Professional fees	[redacted]
Interest Payments to Medway from HIF Fund	Other	[redacted]

Please provide a summary evidencing how you have assumed these costs

[redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]

Item-specific assumptions:
- Existing platform is solid fill construction.
- No hazardous materials will be encountered during works
- No allowance for works to existing services encountered
- The estimate makes no allowance for works associated with the existing BPA line
- Compensation costs to the TOC's and FOC's for any possessions required are not included within the estimate Upgrading existing Level crossing has been included for at Church Street
- Wybourne Farm Level Crossing is removed, and a new Farm access is created from the next adjacent highway
- The 2-mile curve between Higham & Cliff Junction is single track
- The 2-mile curve is provided with an accommodation bridge crossing
- No doubling of the existing or new lines is included

Road / Highway Alignment

[redacted]

The Business Case road layouts have been developed to generate capacity after maximising existing layouts. These will be refined to suit the 3D topo survey and informed constraints and final details of adjacent developments.

It is assumed that interfacing with adjacent sites and private land will be permitted. It is assumed that no works will be permitted in the SSSI but can be undertaken adjacent to the boundary by consent. It has been assumed that some Departures from Standard may be required due to land constraints.

Drainage Strategy & Design
We have assumed that existing watercourses will be retained/replaced and increased where appropriate. It is assumed that drainage runoff will be managed at the source where possible.

Pavement Design
We have assumed that pavement treatments can be in the form of reconstruction, overlay/inlay or recycled form to ensure best value and due sustainability is considered. For part of the MOD roadway, we have assumed that concrete road construction will be required to facilitate heavy plant movements.

Traffic Signs
It has been assumed that where appropriate signs can be placed on passively safe posts.

Street Lighting
It has been assumed that standard street lighting units will be utilised with rooted foundations.

Highway Structures / Earthworks
It has been assumed that new structures will be required at the A289 Higham Road interchange and some modifications to existing Higham Road overbridge. Embankment widening will be required at various locations.

It has been assumed that embankment strengthening and widening will be required at various locations. It is assumed that every effort will be made to balance the earthworks excavation disposal and imported, but is subject to exposed conditions, agreement and permitted phasing.
It has been assumed that culvert extensions will be required at Four Elms Roundabout and the existing Main Road Hoo Roundabout.

Vehicle Restraint System
It has been assumed that the existing speed limits will not be increased.

Traffic Signals
It has been assumed that the Business Case Junction layouts may be revised to suit final agreed road access/restrictions.

Road Surveys

Topo survey
A topo survey does not exist for the whole site. Earthworks levels and topography have been assessed based on site inspection and desk studies.

Geotechnical Investigations
Limited information exists at this time. Previous schemes and working local knowledge from officers have informed the pricing. Extensive site investigation and pavement analysis have been assumed to be required to inform the design and optimise the use of existing infrastructure.

Drainage Survey
Limited information on existing drainage layout and conditions is available. Allowance provided based on existing drainage forms and areas of known flooding.

Ecological Surveys
Limited information exists across the site outside of the SSSI areas. Previous schemes and working local knowledge from officers has been included.

Air & Noise Impact Assessment - Works & Review
Limited information exists across the site. Previous schemes and working local knowledge from officers have informed the pricing.

Any other surveys
A GPR survey for locating utilities and a GPR survey for determining the existing road construction has been allowed to form the design going forward. These would be very beneficial for refining the design and adding further confidence to the works programme and costing. This will also enable mitigation on utilities early in the design development as there is known to be a significant number of utilities and conflicts in areas of the site.

Utilities
An allowance has been included for third party (eg BT, Gas, Electricity) costs for providing cost estimates and design to their affected plant.
An allowance has been included for third party (eg BT, Gas, Electricity) costs for protecting and diverting their services. This is based on information from previous schemes in the area and knowledge from local officers.

Mitigation Measures
An allowance has been included for mitigation measures which will be subject to imposed constraints and agreed on requirements once the final scheme and phasing determined.
Accommodation Works
An allowance has been include for accommodation works which will be subject to agreement with frontages once final scheme and phasing determined
Land Cost
An allowance has been included for land purchase. An allowance has been include for reassignment of the MOD Woodfield Way to highway adoption.

Strategic Environmental Management Scheme (SEMS)

The SEMS has been split up into 4 zones across the Hoo Peninsula and has been costed accordingly. The SEMS Zone information can be found in Project Summary.

No attachments

Can you provide detailed costing for the housing element of the wider project that forms part of your total scheme costs?

Yes

Description	Type	Cost
Base construction costs including preliminaries of the housing units.	Construction	[redacted]
External works such as fencing, railing, access etc. Includes NHCB costs.	Construction	[redacted]
Abnormal: costs other than those typically encountered for the project funding route, including costs accruing due to circumstances outside the project	Construction	[redacted]
Professional fees including architects, planning, construction design and management etc.	Preparation costs (design and planning)	[redacted]
Stamp duty	Land (exc. sunk costs)	[redacted]
Agents' fees relating to land acquisition	Land (exc. sunk costs)	[redacted]
Legal fees relating to land acquisition	Land (exc. sunk costs)	[redacted]
Cost of scheme marketing and sales costs	Professional fees	[redacted]
Costs incurred through borrowing	Finance costs	[redacted]
Allowance for overruns	Contingency	[redacted]
Profit	Allowance for developer profit	[redacted]

Please provide a summary evidencing how you have assumed these costs

[redacted]

[redacted]

Please provide detail on how the land cost included in your scheme costs has been arrived at and the basis of this assumption (if you have included these costs in either your infrastructure or housing costs)

[redacted]

Funding and Financing Sources

Have you applied for or received, other public funding or financing for the scheme?

No

What are the overall funding sources for the infrastructure scheme?

Description	Source	Total amount	Amount secured	Amount to secure	18/19	19/20	20/21	21/22	22/23	23/24	Future years
[redacted]											

What is the proposed funding and financing strategy for the infrastructure scheme? If funding sources have not been secured you should also provide commentary of how this is expected to be secured and progress against this - please reference the above table in your answer

A cashflow analysis has been attached outlining the proposed financing strategy for the infrastructure scheme.

Ensuring that the Scheme is Fully Funded

Due to the amount of critical infrastructure required at the outset to deliver development on the Hoo Peninsula over the life of the development, the feasibility of the scheme is reliant on HIF forward funding. It is estimated that forward funding the required infrastructure will cost [redacted] in nominal prices. HIF funding is sought for the entire cost.

From 2019 through to 2024, the HIF forward funding will be used to deliver key enabling infrastructure that can allow developers on site as early as possible. Critical elements of the scheme that are required within the first year of the project's operation (2019), include initial baseline studies and design teams to inform planning applications and the detailed design of infrastructure elements.

Medway Council has been advised by Homes England that the funding will be paid quarterly, three months in arrears. The total annual drawdown of funds will be profiled as follows:

[redacted]

[redacted]

Scheme Dependant Funding Sources

HIF forward funding is required to support 100% of the overall anticipated cost of the scheme.

[redacted]

[redacted]

What are the overall funding sources for the housing scheme (excluding this bid)?

Description	Source	Total amount	Amount secured	Amount to secure	18/19	19/20	20/21	21/22	22/23	23/24	Future years
[redacted]											

What is the proposed funding and financing strategy for the housing scheme? If funding sources have not been secured you should also provide commentary of how this is expected to be secured and progress against this - please reference the above table in your answer

It is expected that residential development of the Hoo Peninsula will be, for the most part, privately funded through major housebuilders in the area such as [redacted]

[redacted] See Appendix 24).

[redacted]

It should be noted that the figures presented in the table above have not been secured, they present an analysis of total build costs (i.e. the private sector investment) estimated to be required for building out 10,600 homes on the Hoo Peninsula.

The SoCG secures a commitment from developers to deliver a sustainable rural town on the Hoo Peninsula. In doing so, the developers are showing a commitment to financing the development of housing following the delivery of strategic infrastructure accessing the Peninsula.

Filename	Description
A24 Letter of Support - Medway Development Company.pdf	Letter of Support - Medway Development Company

Gross Development Value

How much is the assumed Gross Development Value (GDV) for the scheme?

[redacted]

Please provide a breakdown of the assumed GDV of the scheme in relation to the below:

Private sale	[redacted]
Rent income	[redacted]
Affordable sales income	[redacted]
Commercial income	[redacted]
Other	[redacted]

[redacted]

Recovery

Do you aim to recover any of the funding (to be retained locally)?

Yes

Please provide assumed profile of recovery

Up to 2020 [redacted]

[redacted]

How will the funding be recovered?

Medway Councils 'Guide to Developer Contributions' sets out the process of Section 106 (S106) recovery. The current S106 contributions in Medway stand at £12,401 per additional dwelling. However, Medway Council reserve the right for any large-scale developments (over 25 units) to recover additional S106 contributions related to Strategic Transport Infrastructure.

[redacted]

[redacted]

Note, the 940 homes with planning permission are only liable for the £12,401 S106 payments per additional dwelling.

Note, in line with Medway Councils developer contributions policy, S106 contributions are linked to the Annual All Price Index. Over the past 10 years, this index has averaged an increase of 3% per annum. Therefore, S106 contributions are assumed to increase at 3% per annum.

Funding recovery will be the joint responsibility of the NRGG Board, Medway Councils S106 Officer and the Developers Contribution Group. The joint responsibilities include:

- Ensure that draft and new S106 agreements are recorded
- Ensure that progress is being made to complete draft S106 agreements
- To monitor the implementation of planning permissions subject to S106 agreements
- To monitor trigger points to ensure works in kind are completed or contributions received in accordance with the S106 agreement/ Unilateral Undertaking concerned

Agreed profiles of recovery will be set with each developer on the Hoo Peninsula in accordance with Medway Councils 'Guide to Developer Contributions'.

How do you intend to use recycling to support future housing delivery in your area?

Recovered HIF funding will go towards enhancing the quality of infrastructure for future proofing growth across Medway. At first, it is anticipated that the recovered funding will go towards supporting the remainder of Medway's development needs to 2035 (10,272 homes or 37%).

Please note that of 28,033, according to Medway Council's latest monitoring data, 7,161 homes have planning permission. Therefore, 28,033 – (10,600 + 7,161) = 10,272.

Medway Council intend to use the Strategic Transport Infrastructure fund to support the viability of development sites across Medway, ensuring that sites identified in Medway's emerging Local Plan are sufficiently supported to meet the 2035 housing need and beyond.

In the strategic case, it was identified that enabling passenger services on the Grain Line through HIF forward funding now, has the potential to support further expansion of rail services to the Hoo Peninsula in the future. Medway Council has identified and explored the possibility of double tracking the line to support up to 4 trains per hour, building on the NRGG infrastructure. [redacted]

Additional Information

If you have any further information to support the Financial Case for your project, which has not already been captured in the above, please include this here

The section should be read in conjunction with the Executive Summary (A00a) and List of Appendices (A00).

Filename	Description
A00 List of Appendices.pdf	A00 List of Appendices
A00a Executive Summary.pdf	A00a Executive Summary

Management Case

Project Dependencies

Description	Critical	Outside of direct control
Local Plan allocation The housing sites which make up the scheme are not yet allocated in the development plan. The Council are reviewing preferred site allocations in advance of their Regulation 19 consultation in June-July 2019. Examination in Public is expected in early 2020 leading to adoption later that year.	Yes	No
Planning status Most of the housing and infrastructure does not yet have planning permission. 940 dwellings currently have planning permission but these form part of the 2,000-unit counterfactual. Planning applications will be submitted for the remaining units. However, until the emerging local Plan is adopted, planning permission cannot be granted for more than additional 1,060 dwellings unless strategic infrastructure is in place.	Yes	Yes
Landownership The Council does not have significant landholdings so can only deliver a small proportion any [redacted]	Yes	Yes
Build out rate The site has a low build out in the first five years but exceeds 700 dwellings per annum over the following years. This is a key element of the acceleration of the site, in that with the majority of the major infrastructure in place the developers are only required to build out the plot infrastructure, thus allowing multiple plots and builders to be on site simultaneously.	Yes	Yes
Funding The success of project is dependent on securing funding for the infrastructure necessary to support sustainable development on the Hoo Peninsula. The package of infrastructure sought is specifically intended to enhance the sustainability of development on the Hoo Peninsula to reduce dependence on private car travel	Yes	Yes
HIF programme The programme is dependent on beginning the preparation of the outline planning application(s) in Spring 2019 and adoption of the emerging local Plan in 2020. The process of consenting the rail infrastructure is via the NSIP regime and therefore will be through a Development Consent Order (DCO). The determination period for this approximately three years which leaves little time for construction and delivery of the infrastructure within the required period.	Yes	Yes
Industry capacity The HIF timeline defines that the funding has to be spent by Spring 2024. This means that there will be multiple projects across the UK competing for industry resources between 2019 and 2024. The scale of the project could be considered as a benefit and disbenefit, in terms of influencing contractors to bid for the projects. To make the project feasible and to offer the best opportunity to bid across multiple companies the infrastructure schemes have packaged to provide a range of scales to allow maximum coverage across the industry. The scale of works will require multiple large, medium and small-scale contractors to be on site simultaneously to deliver by the deadline.	Yes	Yes

Project governance, organisation structure and roles

Please outline the authority's approach to governance and oversight of the delivery of the proposal. This should include how you will work with any other key delivery partners (such as other landowners)

A New Routes to Good Growth (NRGG) Board will be established by Medway Council. The membership of the NRGG Board will be a combination of Council officers and members (including the local ward member), representatives from the local community (Parish Council), landowners (including representatives of the Hoo Consortium), representatives from the utilities providers including

Network Rail/DfT, South Eastern Trains, the CCG, Southern Water etc. The board will be chaired by a local leader (Leader of Medway Council) and Homes England will be invited to attend the NRGG Board as an observer.

The key functions of the NRGGB will be to:

• Establish the direction for the whole project and to approve key performance indicators against which the delivery of each thematic project will be measured

• Approve the Project Initiation Documents for each infrastructure theme

• Identify and ensure the appropriate resources required by the infrastructure projects within the overall project are made available in accordance with the latest agreed version of the Project Plan as it relates to each theme

• Make decisions as necessary throughout the life of the project

• Delegate day-to-day responsibility for leading the projects to the relevant Project Managers, under the guidance of their respective Project Owners and the Steering and Delivery Group

• Appoint suitably skilled individuals into the project assurance roles

Under the main NRGG Board, there will be a Steering and Delivery Group, which comprise a combination of Council officers and wider stakeholders [redacted] and will be responsible for coordinating the programme of infrastructure projects.

The Steering and Delivery Group will be chaired by the Project Sponsor who will:

• provide leadership and direction to other members of the Project Board and to the Project Manager

• ensure that all key stakeholders are committed to the project and adequately represented in the project's organisational structure

• ensure that budget holders and resource owners are committed to the project and that the necessary funds and other resources are made available when required

• ensure that project governance arrangements of appropriate rigour are implemented

• brief senior stakeholders on the current and forecast status of the projects

• receive, consider and act on regular reports/briefings from the Project Managers

• chair meetings of the Project Board

• ensure that all members of the Project Board understand their roles the commitments they must make in order that the required outcomes/benefits from the project are achieved

• ensure that the Project Manager is empowered to lead the project on a day-to-day basis

• ensure that the Project Manager is aware of the limits of authority and understands that issues outside those limits must be escalated to the Steering and Delivery Group or higher at the earliest opportunity. Change management requests which are medium or high risk are to be referred to the RCET Officer Project Board for decision

• negotiate with senior stakeholders to broker solutions to project issues that are outside the level of authority of the Project Manager

• decide how responsibility for Project Assurance will be met e.g. by delegation to a suitably-skilled individual

The Project Sponsor, who will be an officer of the Council at Assistant Director level, will be independent and will not have a day-to-day role in the running or delivery of any of the parts of the project. This separation is intended to ensure that the Project Sponsor can provide the independent scrutiny needed for the project to be delivered on time and within budget. The Project Sponsor will be the Senior Responsible Owner (SRO) for the HIF project.

The NRGG Steering and Delivery Group will oversee a series of thematic delivery groups. These thematic groups (road, rail and social infrastructure) will co-ordinate the delivery of the funded infrastructure. The membership of the thematic groups will vary according to specialism but anticipated members are set out below:

• Road infrastructure: Medway Council's Regeneration, Highways, Integrated Transport, Property, Finance and Planning team leads will represent this thematic group. External members would include external consultants appointed to lead the design of the road infrastructure (see Section 5 for procurement processes), DfT, Highways England, Volker Highways, representative from the Hoo Consortium and the relevant portfolio holder.

• Rail infrastructure: Medway Council's Regeneration, Integrated Transport, Finance and Property team leads will be members, together with representatives from Network Rail and the Hoo Consortium. In addition, the external consultant appointed to take the rail infrastructure through the GRIP stages would also form part of the group; this would be the design consultant in the earlier GRIP stages and then latterly the construction partner from GRIP Stage 5 onwards.

• Strategic Environmental Management Scheme): Medway Council's Regeneration, Property, Finance and Planning team leads will be members, together with the Parish Council, Birdwise, RSPB, Kent Wildlife Trust, Kent Bat Group and Natural England. It may be necessary to invite external consultants advising on the strategic environmental management areas to be involved in the group e.g. in

the early stages, this would be the consultant undertaking the cumulative impact assessment.
Each thematic group will have a Project Owner that will report into the NRGG Steering and Delivery Group and will be responsible for:
• Ensuring the governance arrangements and project management principles are adhered to
• Ensuring the project is technically and financially viable and complies with the Council's corporate standards and strategic business plans
• Administering the Business Case, funding and cost allocation for the project
• Providing leadership and direction throughout the project
• Ensuring the project remains focused on achieving its objectives and that the anticipated benefits can be achieved
Each Project Owner will have a Project Manager who is responsible for the day-to-day delivery of the project on their behalf. Each Project Manager's responsibilities will include:
• Preparation of project information including the Project Initiation Document (PID), Project Plan and Business Case. These documents will be signed off by the NRGG Board
• Monitoring and reporting progress into the Project Owner and Project Sponsor against plans and budgets, and ensuring quality
• Identifying and evaluating risks which might jeopardise the project's objectives, determining and managing actions to resolve risks, and maintaining the risk log. Where necessary, the Project Manager will escalate to the Project Board for risk mitigations actions outside the scope of delegated authority limits
• Managing and controlling changes to scope and requirements
• Ensuring the project resource plans and costs include sufficient, properly skilled support.
• Managing stakeholder relationships and communications (in accordance with an agreed Communications Plan)
• Liaison with nominated project assurance staff throughout the project
• Identifying the internal stakeholder leads, and determine their requirements and expectations i.e. an officer who has the predominant interest or gain upon the successful completion of a project. They will work closely with the Project Manager, the Project Owner and others within the project team to implement the project

Project dashboard reports are prepared by Project Managers in advance of NRGG Delivery and Steering Group meetings. The reports provide an update on project progress, finances, issues, risks and project changes. Project Managers of the thematic groups will use this report to flag up any areas of concern or decisions which need to be made at a higher level. Following the NRGG Steering and Delivery Board meetings, the project dashboard reports are to be updated if required before submission for consideration at RCET Officer Project Board.
The RCET Officer Project Board ('RCET Board') is a senior officer group which manages all capital projects which will include any HIF-funded projects. The RCET Board is responsible for the strategic management of the HIF projects and has authority to commit resources to the project in accordance with the Council's constitution. An updated dashboard report for the HIF project will be a standing item on the agenda. In addition the RCET Board are asked to consider any change management requests which are considered to be medium or high risk. The Board meets every four weeks. The NRGG Steering and Delivery Board meetings will be scheduled to happen in advance of the RCET Board meetings.
The NRGG structures will operate within Medway Council's existing governance structures. To maximise efficiency and minimise costs and complexity the management arrangements for the NRGG scheme will draw upon the Council's existing tried and tested measures. These are democratically responsible, following government guidance on capita spend, procurement, recruitment and reporting.
In practical terms, this means that the NRGG Board will provide reports into the Cabinet. While Medway's Cabinet, a Member-led group that manages Council business including high value/high-risk procurement and projects including externally funded projects, is only expected to be intermittently involved in decision-making on the project, it provides a mechanism for decision making to be escalated by the MPA Board to the highest level.
The Council's Section 151 Officer will be responsible for signing acceptance of the grant and its attached conditions, overviewing financial transactions and challenging where necessary and signing off any financial statements requested from Homes England.
The collective team of Council Members and officers, land owners, developers, consultants and external stakeholders will ensure a strong partnership between the mix of public and private sector bodies needed to deliver the development and provide the degree of oversight needed to satisfy the statutory requirements of the Council.

Please provide details of the authority's resourcing for the proposal

The Council has engaged [redacted] to provide support on the

preparation of the HIF bid. However, it is expected that further consultancy support will be required, the intention is that it will be principally overseen by an in-house team.

The Council has identified nine additional posts which will be needed over the period October 2019 to March 2024 to resource the implementation of the proposal, namely:

- HIF Head of Service
- [redacted] HIF Rail Infrastructure Delivery Manager (Rail Project Manager)
- [redacted] HIF Road Infrastructure Delivery Manager (Road Project Manager)
- [redacted] HIF Planning Manager
- [redacted] HIF Legal Manager
- [redacted] HIF Programme and Budget Delivery Manager
- [redacted] HIF Senior Projects Support Officer
- [redacted] HIF Project Officer (Communications and Partnerships)
- [redacted] HIF Project Officer (Finance and Monitoring)

[redacted] The Council will be seeking funding to cover the employment and operation costs of the additional posts.

To progress the detailed design of the infrastructure projects, the Council will be procuring further consultancy support. In line with the Council's procurement processes, the Council's Procurement Board will consider the procurement strategy for each project, consider submitted tenders and scrutinise outcomes. The Council's Assistant Head of Legal (Place) will provide advice to ensure that the procurement process complies with the Council's processes.

The Council has an established track record of delivering comparable infrastructure proposals. This includes:

- Strood Riverside: an £11m transport and public realm improvement scheme for Strood, which was developed, designed and constructed within a three-year period.
- A228 Main Road to Ropers Lane improvements: this £15.5m project, built between September 2003 and November 2005, involved the dualling of the A228 in Rochester between the Main Road and Ropers Lane junctions. The project also involved the creation of three new roundabouts. The highway infrastructure that was in place previously, a narrow single carriageway road, was inadequate to support the level of commercial development on the Hoo Peninsula, as well as being unsuitable for the increasing volume of heavy traffic which was serving this development. To support existing commercial premises in Grain and the wider Hoo Peninsula and to encourage further development, an improved highway network was required. In addition, some stretches of the old A228 experienced a higher than expected number of road traffic collisions, which was addressed through this scheme. The Council delivered the project to programme and within budget.
- Chatham Regeneration: this £12.5m project, consisted of elements which were delivered between February 2007 and December 2014. This scheme consisted of: conversion of Chatham ring road from one way to two-way traffic flow, demolition of Sir John Hawkins Way viaduct and a disused building to allow construction of a new bus route, realignment of Union Street at the junction with the A2and Chatham Bus Station enabling works. The overarching aim of this project was to create better traffic flow around Chatham town centre. Prior to this scheme being implemented, Chatham suffered from significant traffic delays, which also impacted on the bus companies' ability to deliver in accordance with their published timetable. As part of these improvements a new bus station was delivered, and bus-only lanes were introduced in key locations in the town. Introduction of two-way traffic has eliminated the need for vehicles to travel all the way around the town before reaching their destination. The project was built to programme and within budget.
- Thames Gateway Parklands (North Kent): Medway Council was the accountable body Communities and Local Government's Parklands North Kent, which was a £20m funded scheme delivering four projects over three years. The council managed the schemes delivery, programme, monitoring, claims and promotion. Parklands was delivered through an annualised budget, within budget, on time and to the agreed outputs

While the Council does not anticipate delivering the housing, the landowners/developers within the Hoo Consortium have appointed their own technical teams who are working with the Council to share information, including assisting in the development of the illustrative masterplan, with [redacted] as the Council's consultants, for the rural town. The Hoo Consortium includes Taylor Wimpey as experienced housebuilders already active in Medway.

[redacted]

Please attach an organogram depicting the governance structure and/or roles and responsibilities within the authority

Filename	Description
A52 Organogram.png	Organogram

Project management arrangements and project plan

Please provide details of the overall project management delivery arrangements for the project, including any challenges or constraints to delivery ofthe project

The delivery of the project will take a programme approach, led by an overall HIF Programme Manager who is identified in Section 7.2. Beneath the programme level will be a number of projects in respect of each of the infrastructure themes. The infrastructure themes will each have aproject manager.

A key document in project delivery will be the Project Execution Plan (PEP) which will be prepared, defining the project objectives and the means in which these will be delivered. The PEP will be an evolving document for the use of all parties on the project in establishing the expectations, requirements and deliverables. The purpose of the PEP is to be a single document which identifies responsibilities and co-ordinates various actions and procedures from other documents and/or data.

The PEP will cover the initial design stages of the infrastructure project, through to the site procedures of the construction phases. The PEP will set out specific key information to ensure clarity amongst all project staff. This will include the objectives and constraints of the project, and other details such as the key stakeholders. Organisational charts and a project directory will be prepared and regularly updated by the project manager. These will provide clear understanding of responsibilities falling to the Council, consultants and contractors and will set out key lines of communication.

Explicit detail of the responsibilities of key members of the project team will be provided, including but not limited to the Project Manager; Cost Manager; CDM Principal Designer; Planning Consultant; Civil and Structural Design Teams; and Principal Contractor. Once appointed, the scheme-specific Project Manager will review and coordinate the consultant and contractor programmes to prepare overarching programmes for each of the project stages. These will feed into a master programme maintained by the overall theme Project Manager. This will in turn be fed to the programme manager for incorporation into the overarching programme.

Each theme Project Manager's master programme will be updated monthly to illustrate actual progress against planned progress. All sub-programmes are expected to be updated monthly and provided to the project manager in sufficient time to be incorporated into stage and master project programmes.

Although the construction period will be set out in the master programme, the Principal Contractor will be responsible for the preparation of the construction programme. The construction programme will set out the project milestones and critical path. If the construction programme falls into significant delay, the Principal Contractor will update the programmes with the remedial measures and associated timescales for redressing the delay.
The following methods of communication will be used by the project team:

Meetings: client progress meetings will be held with the Programme Manager on a monthly basis and will be chaired by the scheme-specific Project Manager. Matters for discussion could include health and safety, construction, design, change control and project budgets. Throughout the project, it is expected that the Project Manager will meet with the Project Sponsor informally and discuss progress by phone.
Project team meetings will be chaired by the Project Manager and will be attended by the leads of the consultant and contractor teams, plus specialists from those teams as required. The project team meeting will take place prior to the Programme Manager meeting and will require the team leads to issue progress updates to the Project Manager prior to the meeting.

Design team meetings will be chaired by the lead designer (with the Project Manager in attendance) and will be held monthly, or more frequently as required. These meetings will be used to discuss design issues and potential resolutions, and to review progress.

Contractor progress meetings will be held monthly and chaired by the Project Manager. Agenda items will include programme status, actual costs against forecast costs, procurement and others.
Reporting: on receipt of inputs from the consultant and contractor team, the Project Manager will prepare a monthly progress report which will be issued to the Programme Manager and to the project team. In addition to an Executive Summary, the following sections will be included:

• A risk register detailing potential impacts to budgets, programme or quality of the project
• Details of actions required from the client to progress the project
• Progress against programme, with remedial measures identified against any slippages
• Progress against budgets, forecast expenditure and warnings on spend.
• Details of design progress and specific design issues being addressed.
• Details of contractor progress, also including environmental performance and health and safety issues.
The consultant/contractor reports which will feed in to the Project Manager's report will include the following as a minimum:
• Activities and progress in the preceding month
• Details of how progress aligns with the programme and any forecast issues
• Intended progress in the following month
• Details of any outstanding information requirements
• Contract/commercial issues

General correspondence: it is expected that members of the project team should correspond directly between themselves, copying in the Project Manager where necessary. Pertinent verbal and telephone correspondence should be recorded and placed in the project file.
[redacted]

Where the change varies the instruction to all or some of the project team, a standard change request form will be used. The form will be sent to the Project Manager who will coordinate the process. The project team will not act upon any change request until the Project Manager has issued instruction. The Project Manager will maintain a change log, detailing all requests for change and their status. This log will be issued to the client as part of the monthly report pack. At the project outset, the Project Manager will agree with the client a change value limit which the Project Manager is authorised to sign off. Where the cost of a change exceeds this limit, client authorisation will be required.
Information on the financial and programme implications of the proposed change should be provided to the Project Manager at the earliest opportunity so that these can be considered, in addition to whether there will be a necessity to make equivalent savings elsewhere in the project.

Provisional programme: the Medway Local Plan is expected to be adopted in 2020. In advance of the adoption of the Local Plan, it is expected that some applications from the Hoo Consortium and interests on sites on the wider peninsula will be received; however, it is only once the plan is in place that applications could be determined. Developers are working up details for outline planning applications and will seek confidence in the publication of the draft Local Plan of the Council's preferred growth strategy for Medway. [redacted] The anticipated build-out rates are ambitious and in order to achieve them, it will be necessary for multiple developers to be on site at any time.

The proposed infrastructure is significant in scale and not likely to be possible to be delivered by a single contractor. Therefore, schemes have been packaged to allow linked schemes to be constructed by individual contractors. This seeks to minimise the pressure on a single contractor in terms of resources and deadlines and will allow packages to be constructed simultaneously on and off-site, thus maximising the time period available and lessen risk on any single contractor influencing the whole build-out of the full programme of works.

The appointment of multiple contractors and having multiple contracts live simultaneously will increase the level of project management overseeing these works, but this is inevitable to maintain programme.

Please summarise your project delivery plan to deliver the infrastructure, this should include your anticipated land ownership / control strategy

The Project Delivery Plan has been assessed against the items listed in the guidance.
Deliverables: the infrastructure package to support the HIF bid are as follows:
Rail:
• New railway station and associated facilities at Sharnal Street
• New chord at Higham
• Improvements to an existing railway line
Roads:
• Relief road (A289 to A228)
o Slip roads/Bridge/A289 realignment
o Higham Road junction
o Islingham Farm Road
o Woodfield Way
o Upchat roundabout
o Chattenden Lane/Chattenden Barracks Lane junction
o Main Road Hoo Roundabout and approaches
• A228 improvements (Four Elms Hill to Ropers Lane and Sharnal Street station)
o Main Road Hoo roundabout to Main Road Chattenden
o Bells Lane roundabout
o Ropers Lane roundabout
o A228 Ratcliffe Road / Sharnal Street station junction
• A289 improvements (Four Elms roundabout to Anthony's Way roundabout)
o Four Elms roundabout
o Four Elms roundabout to Anthony's Way
o Sans Pareil roundabout
o Wainscott Road
• Local road improvements
o Upchat Road/ Upnor Road
o Cycle route improvements
Strategic environmental management scheme (SEMS):
• Zone 1
• Zone 2
• Zone 3
• Zone 4

The majority of the off-site works lie within the highway, Network Rail or property ownership of the Council or are part of the wider site area. The Council has sought advice from [redacted] to inform their acquisition strategy (Appendix 27), underpinned by land referencing. This confirms that in order to deliver the rail scheme [redacted]

- [redacted]
- [redacted]
- [redacted]

[redacted]

The road infrastructure, specifically the relief road, impacts on some land outwith Council ownership; namely in three places:

[redacted]

Activities: the key requirements are to submit planning applications which address the highway infrastructure in detail and secure permission. [redacted]

The road, rail and strategic environmental management schemes are not conditional on the Local Plan being adopted. The main infrastructure milestones related are summarised as:

- Planning permissions for road improvements: winter 2019 – spring 2020
- DCO for rail improvements (not already covered by permitted development): summer 2020 - autumn 2021
- Planning permissions for strategic environmental management areas: summer – autumn 2020
- New station, rail chord and track improvement works: winter 2020 - autumn 2023
- Relief road works: autumn 2021 – spring 2023
- A228 improvements: autumn 2020 – summer 2023
- A289 improvements: spring 2020 – winter 2022
- Local road improvements: spring 2020 – summer 2021
- Strategic environmental management areas: autumn 2020 – winter 2023

The education and medical elements of the bid can be offered to contractors as standalone schemes or part of an extended contract including the future works post 2024. The SoCG and emerging Local Plan will ensure that there is funding for this infrastructure provided through S106 and other funding sources.

Resources: Section 7.2 outlined in detail the resources required to oversee, manage and deliver the project. The key structure for this will be the NRGG Board which will include representation from all the relevant stakeholders, including the Hoo Consortium as having responsibility for the delivery of the majority housing, and will have overall responsibility for the delivery of the infrastructure needed to ensure the delivery of homes.

The Council will procure the necessary specialist consultancy support as required. The PEP will in part define the resources and workstream; as such this can be used to define resources and assess the opportunity to utilise internal or external resources. The likely timelines for each of the activities/items that are linked with the bid are set out above.
Dependencies and constraints: The key issues are linked to securing the funding for the project, securing planning permission (and the associated S106 funding which will be secured) and the ability to secure the works and complete them in the timeline associated with the HIF funding period. Delay in the project programme at any stage would have a knock-on effect to completing the works. To maintain programme, the information required to support the submission of planning applications is being collated, ready for submission in advance of the formal adoption of the new Medway Local Plan, if appropriate.

The advancement and simultaneous working of the planning applications and associated detailed design for on- and off-site works is

also integral to maintaining programme. Therefore, securing the funding to address these items in advance of completion of the Local Plan process is a key dependency.

Monitoring and control: The project has multiple milestones and gateways which will need to be advanced to allow the project to progress. The first key milestone is securing funding for advance planning and infrastructure costs. The scale and length of the project means that continued reviewing and updating is required, in that the proposed development will be built out over 25 years, which means that it will witness a high level of personnel turnover of the programme.

The Programme Manager will need to ensure consistency of delivery. The key to control is to seek to create manageable packages of infrastructure, which offers the maximum flexibility at tendering. The Council will seek to use a wide range of local, UK and world-wide contractors, to limit the risk of overburdening a single contractor.
This separation of works seeks to limit the interaction between contractors, almost establishing standalone sites for each of the works packages. This will increase the workload on supervision and monitoring of the off-site works, but it will seek to secure multiple bids for each package at a time when multiple HIF and other national funding streams will be releasing funds and therefore possibly leading to a shortage of contractors.

As set out in Section 5, it is envisaged that the contractors for the four road schemes will be procured separately; similarly, while there may be a lead contractor delivering the strategic environmental management areas, it is anticipated that they could oversee other contractors delivering specific zones. There is less flexibility on the rail scheme because the contractor will be inputting into the consenting process to ensure that it is deliverable and that enabling works can be undertaken, allowed under permitted development, while the DCO is being examined.

The package of road improvements will unlock 8,000 homes. The rail improvements, including the new station at Sharnal Street, would unlock a further 2,600 homes in the period to 2035, though plainly the opening up of a rail line has scope to accommodate further housing growth beyond the plan period.

Please provide details of your project delivery plan to deliver the homes unlocked by the infrastructure. Please detail any expected controls or levers you will put in place to ensure the delivery of housing comes forward on the sites

Deliverables: 10,600 homes will be unlocked by the infrastructure. The land comprising the site is in multiple ownerships; however, the Hoo Consortium which includes the Church Commissioners for England, Taylor Wimpey, Dean Lewis Estates and Gladman Developments controls a substantial proportion of the land that facilitates strategic growth. It has entered into a SoCG with the Council (Appendix 20). This will facilitate the delivery of 8,000 homes together with new and improved education, health, community, leisure, and environmental facilities.

The SoCG provides certainty on the following points:
• High-level principles relating to place-making and delivery of a thriving rural town
• The commitment to deliver development in alignment to the indicative masterplan managing strategic scale growth
• The phasing of housing per annum across the separate sites that make up the Hoo Rural Town
• Certainty over the scale of developer contributions under Section 106 which will provide funding for other infrastructure needed to support the development.

The Council and the Hoo Consortium will update the Statement of Common Ground when there is certainty on the outcome of the HIF bid to produce a Memorandum of Understanding to underpin the delivery of the growth scheme.

Of the residual homes, just under 750 homes already have planning permission and are within the Council's immediate five-year housing land supply calculations. It is envisaged that the remaining 1,940 homes will come forward in fewer than 10 planning applications within the first 10 years of the emerging plan period before 2028. It is anticipated that a further 1,500 homes will come forward on the Hoo Peninsula after 2035 i.e. beyond the Local Plan period.

The Council is not delivering significant numbers of homes other than potentially on sites in their ownership using their delivery vehicle (Medway Development Company). Therefore any landownership issues will be for developers to resolve with relevant

landowners. In the case of the Hoo Consortium, these discussions are well advanced [redacted]

Activities: as with the infrastructure, the key activity will be securing planning permissions for the additional homes. The SoCG is underpinned by the indicative masterplan for Hoo Rural Town. This will form the framework for the emerging Local Plan allocation. In addition, the Hoo Development Framework, which will be published alongside the draft Local Plan consultation in summer 2019, is the key planning tool that will provide a policy basis for strategic growth and also certainty to the market on the requirements for development.

Through engagement the Council has already undertaken on the Local Plan there is strong interest in delivering development on other sites identified for housing allocations across the Hoo Peninsula as part of the HIF scheme. [redacted] overseen by the HIF Planning Manager and HIF Legal Manager to provide structure and certainty as applications are being progressed for the 1,940 units which [redacted]

Resources: As the Council is not itself delivering homes, the resources required for the delivery of housing is largely focused on planning and monitoring roles. As set out in Section 7.2, the additional staffing within the Council includes a HIF Planning Manager and HIF Project Officer with responsibility for finance and monitoring.

The SoCG between the Council and Hoo Consortium commits the Hoo Consortium to sitting on the NRGG Board; in addition to this, the Hoo Consortium will be responsible for instructing its own consultant teams to participate in the emerging Local Plan and bring forward the outline planning application. The HIF Planning Manager will be responsible for coordinating day-to-day discussions between the Hoo Consortium and other developers and landowners, identifying risks and resolutions as they emerge and reporting into the HIF Head of Service on these matters.

Dependencies and constraints: the delivery of homes is dependent on the Local Plan progressing in line with its current timetable, being found sound at Examination in Public and adopted in 2020. Grant of planning applications for the 9,660 homes which at present do not have permission is dependent on the Local Plan being adopted. In advance of the adoption of the Local Plan, the Hoo Development Framework will provide a strategic planning basis for growth of the rural town, and clarity on requirements from developers. Work advanced on planning applications consistent with the development strategy for growth at Hoo can be used as evidence in Examination to demonstrate deliverability of the draft plan.

In order to maintain housing delivery in line with the forecast phasing, the Council is working hard to ensure that the Local Plan timetable does not slip and at the same time, [redacted]

While this bid considers the whole suite of infrastructure required to support development, it should be noted that the development will require major upgrades to the water utilities infrastructure. The Council have been engaging with Southern Water as the water authority to ensure that they are aware of the scale of growth planned at the Hoo Peninsula and that the necessary upgrades are built into their next water management plan such that the overall phasing of the project is not prejudiced. Again, the joint progress being made on bringing forward the Local Plan and the outline planning application will reinforce this engagement.

Monitoring and control: the Council will be monitoring the delivery of homes on the Hoo Peninsula using their existing planning policy team. This will be reported to the NRGG Steering and Delivery Group at regular intervals to ensure that housing is being built in line with the MoU. In the event that the Hoo Consortium deviates from its agreed phasing, Change Management controls will be employed and the NRGG Steering and Delivery Group will escalate the issue to the NRGG Board to resolve the issues.

Please summarise your maintenance strategy for ongoing costs for the scheme

All the new road infrastructure will become adopted and responsibility for its maintenance will lie with Medway Council as highway authority. The new road infrastructure will form part of the primary road network and will be subject to the same maintenance

schedules in terms of inspections, general maintenance and, where required, any major works in future such as resurfacing.

While the rail infrastructure (Sharnal Street station, chord and track improvements) will not be delivered by Network Rail, it is envisaged that the rail infrastructure will be transferred to Network Rail upon completion. Network Rail will then incorporate the maintenance of the infrastructure into the Southeast route contract for Control Period 7 (2024-2029). The Kingsnorth rail freight terminal will be maintained by the Kingsnorth operator and will not form part of the maintenance strategy.

[redacted]

While not included within the funding sought, it is envisaged that the utilities upgrades required to support growth will be maintained by the relevant utilities companies. Similarly, the education facilities delivered to support growth will be operated and maintained by Medway Council as the local education authority, and health facilities will be operated and maintained by the Medway CCG.

Project milestones

Please provide actual or estimated dates for the following infrastructure delivery milestones:

First infrastructure planning permission granted	30/09/2019
Last infrastructure planning permission granted	30/09/2019
All land assembly completed (if required)	30/09/2021
Project infrastructure works started	01/01/2020
Project infrastructure works completed	31/12/2023

Please provide actual or estimated dates for the following housing delivery milestones:

First residential units commenced	01/07/2019
Last residential units commenced	31/12/2035
First residential completion	01/01/2020
First residential completion	31/12/2036

Please attach an outline delivery programme for your proposal and the key milestones required to achieve it

Filename	Description
A53 Project Outline Delivery Programme.pdf	Delivery Programme

Please list planning references for the infrastructure works

Planning or any other consent applications have yet to be submitted. At present, concept drawings have been prepared to inform the HIF bid process and for discussion with consultees. Over the course of 2019, studies will be commissioned to support the design process and inform the necessary applications.
Permissions for the rail improvements will be secured under a Development Consent Order (DCO). The project is now at GRIP Stage 2. The outline delivery programme anticipates submission of the DCO to PINS in April 2020 and the Order being made in August 2021.

The road improvements will be secured under four different approvals packages which much of the local road improvements being allowed through permitted development. Planning applications will be submitted for the relief road in autumn 2019, the A289 works in summer 2019 and for the A228 improvements in winter 2019, when all the schemes have been developed to RIBA Stage 4.

The strategic environmental management areas are shown on the illustrative masterplan for the development. It is expected that a planning application will be submitted in May 2020 following a period of further evidence base work including setting an agreed method for the cumulative impact assessment, undertaking the necessary ecological studies and developing the design to RIBA Stage 5. Any change to this approach would be subject to the change management protocols set out in Section 7.2

Please list all statutory powers or consents required and already obtained to deliver the HIF works

As set out in the preceding sections, the planning application will form the main consenting vehicle for the road infrastructure. The planning application will also include any public right of way diversions or stopping up required. The permission would be subject to conditions and will also have the standard six-week challenge period following grant. Following grant of planning permission, any necessary Traffic Regulation Orders applications will be made to the Council as highway authority if any changes to existing TROs are needed. The outline programme allows scope for all these approvals to be secured in a timely manner.

Of the four road schemes that comprise the road infrastructure within the HIF bid, only the relief road requires land outside the control of the Council. The outline delivery programme, which expects planning permission will be secured for the relief road in Q1 2020 includes an 18-month window for any land acquisition. [redacted]

The rail infrastructure will go through the DCO process, so will be subject to a statutory order which will include all the necessary consents and powers to deliver the infrastructure. There are two challenge periods: in the 28-day period that PINS have to consider whether to accept the DCO application once submitted and then subsequently in the six weeks after the Order is made through judicial review. The DCO will include a requirement to commence within five years; this is well within the bounds of the outline delivery programme which expects works to be completed by the end of 2023.

For the strategic environmental management areas, as set out above, a planning permission that aligns with the Hoo Development Framework will be secured by either the Council or the Hoo Consortium. It is likely that this planning permission will be subject to conditions including submission of details prior to commencement and then at an operational level, the agreement of management plans for the future maintenance of the areas. The planning permission will be time limited to three years which is in line with the outline delivery programme. Discussions are on-going between the Council and the Hoo Consortium; however, it is not envisaged that any statutory powers will be needed to deliver the works.

Stakeholder management

Please summarise how the key delivery partners will work together effectively

The Hoo Consortium, as a key delivery partner, is already working up planning application details for the main element of 8,000 homes and as set out in the SoCG. While the Council does not have any significant landholdings, the Council will be determining planning and highways authority when planning applications are submitted.
The Head of Service and HIF Delivery Team will manage and monitor project delivery. Senior officer meetings and Member briefings are already held, as a process, to administer other funding streams' delivery (Local Growth Fund). HIF will function in a similar way. The two key members (Council and Hoo Consortium) have agreed a governance structure around a joint board, following the SoCG.

Technical stakeholders and partners: engagement and community representative engagement that might be affected by the proposals, including Parish Councils, has been undertaken as part of the Hoo Development Framework masterplanning process. Masterplan concepts have been prepared taking all feedback into consideration and can inform the future preparation of applications. Further work is planned as part of the statutory consultation on the draft local plan.

Partnership working between Highways England, Network Rail and Southeastern/future franchisee, is essential to the successful delivery of the sustainable transport infrastructure. It is envisaged that as well as sitting on the NRGG Board, these parties will be

involved in the relevant thematic groups, with project managers on each being responsible for day-to-day engagement with these key partners (based on current working arrangements).
The Council has worked closely with Network Rail to consider a proposal for a passenger rail link, with a new chord serving a new railway station at Sharnal Street. These discussions have been underway since 2017, following collection of evidence for the initial Strategic Transport Assessment for the emerging Local Plan, and has evolved positively since.

Network Rail were unable to appoint directly, as their internal Infrastructure Projects Team were facing time constraints and pressures at the end of Control Period 5. However, Network Rail recommended [redacted] to undertake the GRIP 1+ process and were subsequently appointed as the lead designer for the rail scheme by the Council in collaboration with Network Rail. Network Rail has engaged South Eastern Trains (rail franchise) and Department for Transport within the process to ensure an informed GRIP1+ design.
The Council will continue to work collaboratively with Network Rail on GRIP2, which the Council is developing at its own financial risk. GRIP2 will incorporate the Route Asset Managers to ensure quality of design and Network Rail buy-in and support through to detailed design. The Council and Network Rail will continue to consult with South Eastern Trains and DfT throughout this process.

The Council recognises the skills and expertise required to lead a rail project and has retained a former Network Rail team member to work with consultants, DfT, Network Rail and South Eastern throughout the co-development phase. That officer will be able to apply for the Rail Infrastructure Delivery Manager post identified in the resourcing structure to ensure continued expertise and engagement during the HIF delivery period. With our proposed management case, we are confident in our ability to work together with our partners to deliver the rail scheme.
The Council and partners have had extensive consultation with key stakeholders to discuss and develop the NRGG road schemes. As a unitary authority, with upper tier and lower tier functions, the Council is the Highways Authority with an Integrated Transport team that liaises closely with the Council's planning policy and planning development teams as appropriate. The Council's Integrated Transport team has engaged with Department for Transport (DfT) to ensure the HIF schemes, particularly the relief road, comply with DfT policy. The Council has engaged with Highways England, particularly on how growth affects the Strategic Road Network (SRN), but how proposals to the change on the SRN might affect Medway's roads including through regular discussion about the Lower Thames Crossing proposals. The Council forms part of and is actively engaging with Transport for the South East (TfSE); the Council's Leader is a member of TfSE's Partnership Board.

The Council have used consultants including [redacted] to develop support for the case, building upon the work done for the Strategic Transport Assessment of the emerging Local Plan. The Council are engaging with MOD, DIO and Homes England regarding land ownerships adjacent to the proposed schemes. Similarly the Council has engaged positively with the Hoo Consortium about the proposed schemes, how it unlocks their developments, and impacts on land holdings.

As part of the emerging Local Plan review, in July 2018 there was the first of many workshops with Hoo St Werburgh parish council which sought to gain a more localised level of feedback about the development leading to a high-level view to the development in terms of scale, master planning and infrastructure etc.
As part of the NRGG, there will need to be a raft of public forums, which will seek to inform and seek support from the public both locally to the site and across the authority areas that this option is most appropriate to secure the councils' housing numbers moving forward. This will require a major public consultation exercise including public forums, exhibitions, letter drops etc. The Council's HIF communication and partnership project officer will be responsible for administering this process, which will include engagement with the Hoo St Werburgh Parish Council and High Halstow Parish Council as they proceed with their emerging neighbourhood plan. The HIF project team will establish effective communications and engagement structures to support the implementation of the scheme, to inform details of delivery and coordinate development activities locally.

Other engagement includes with the RSPB given the strategic environmental importance of the Hoo Peninsula. They have provided a letter of support for the approach to establish a strategic environmental management scheme at Appendix 23. There will also be public engagement as part of a planning application process; due to the scale of the development, the need to promote is heightened thus requiring an enhanced and robust consultation process, building on work to date.

The local MP for Rochester and Strood is Kelly Tolhurst; the Council have been engaging positively with her and, due to the

complexity of the HIF scheme, she will respond to the request for support post submission of the bid.

Please summarise how you will work with the other key stakeholders to ensure project success (i.e. local residents / businesses)

As explained in Section 7.2, the NRGG Board will be the main mechanism for ensuring that key stakeholders including landowners and infrastructure providers and operators will have an opportunity to inform and influence future iterations of the Hoo Masterplan and the design and delivery of the Strategic Environmental Management scheme.
Engagement has already taken place with many key stakeholders and this has assisted in providing the Council with a well-developed understanding of the profile of land interests across the Hoo Peninsula.

The emerging Local Plan process forms the main mechanism for engaging local residents and businesses. The draft Local Plan has already been subject to three rounds of statutory public consultation in 2016, 2017 and 2018. Details are set out at: https://www.medway.gov.uk/info/200149/planning_policy/519/future_medway_local_plan/3. This represents the latest stage of engagement with stakeholders as to the suitability of the Hoo Peninsula to accommodate significant housing growth. Over 300 responses were received to this consultation and further consultation is programmed for summer 2019 (Regulation 19). Depending on the outcome of the HIF bid, this Regulation 19 consultation draft will include additional detail in relation to growth on the Hoo Peninsula. This will be key mechanism for engagement with local residents and businesses.

Furthermore, a Neighbourhood Plan (NP) area has been designated at Hoo St Werburgh and High Halstow is also progressing its Neighbourhood Plan. It is possible that Neighbourhood Plans will be brought forward during the course of the HIF project. A representative from the NP area will be invited to the NRGG Board to ensure they are engaged throughout the project and ensure that Neighbourhood Plans are produced in compliance with the Local Plan. As set out in the governance structure shown at 7.2.3, a specific Community Participation Group is proposed which would provide the key forum of engagement with the Parish Councils etc.

The draft indicative masterplan has been subject to consultation during workshops held at the Chattenden Social Club and also at the main Council offices in Chatham. Stakeholders invited included local charities, parish councillors, representatives from local health and education services and council officers representing environmental health, public health and leisure

Project assurance

What are your project assurance processes, such as gateways reviews, to ensure project delivery against the business case?

As outlined in Section 7.2, it will be NRGG Board's responsibility to appoint an appropriate project assurance officer that will oversee the delivery of the project against the business case. The appointed assurance officer will be responsible for developing an assurance plan which will sit alongside the PID which will then be integral to the overall project plan. The assurance plan will be approved by the Project Sponsor and NRGG Board.

The Council's Head of Internal Audit and Counter Fraud will lead on providing independent assurance over the governance and financial management arrangements. They will be involved in the programme from an early stage.

The HIF programme sets out the milestone periods linked to planning, detailed design and construction of the schemes. For the rail infrastructure, the gateway reviews relate to the GRIP stages (**Appendix 51**); the detailed programme for the rail infrastructure includes provision for a gateway review and issue of stage gate certificate at the end of every GRIP stage. This aligns with Network Rail's design and construction processes. Similarly, for the road infrastructure and strategic environmental management infrastructure, the gateway reviews will align to the RIBA stages.

The assurance plan will be subject to regular review by the project managers to feed into reports to the project owners and then to the project sponsor at NRGG Delivery and Steering Group.

The Council will be capitalising the revenue costs of delivery the HIF investment programme from May 2019 to September 2023. The September 2023 date provides six months to close the programme down. The NRGG Board will continue to function post-HIF infrastructure delivery to maintain the Council's and HE's involvement in assuring the delivery of the housing after 2023.

Please provide details of your proposed internal monitoring approach for the scheme

As set out in Section 7.3, a Head of Service will be appointed to oversee the delivery of the infrastructure. The Head of Service will be responsible for reporting to the Council, stakeholders, public and other relevant parties. A number of tools will be utilised to monitor progress such as the risk register, detailed programmes for planning, design etc. all of which will need to be reviewed and updated and shared with the project team and wider stakeholder and public groups.

The project is of a scale that it is likely that the developers/Council will need to appoint a professional team to progress the project, this will include Project Managers for each thematic project. The Project Managers will report into the NRGG Steering and Delivery Group, and where necessary issues, will be escalated to the NRGG Board.
The following is likely to be a simplified project management process.

• Monitoring is the regular observation and recording of activities taking place in a project or programme. It is a process of routinely gathering information on all aspects of the project. To monitor is to check on how project activities are progressing. It is observation; systematic and purposeful observation.
• Monitoring is a systematic and long-term process that gathers information with regard to the progress made by an implemented project to assess the project against the set targets.
There are multiple software programmes that could be used to support the above process.

Risk Management

Please outline key risks to delivery and mitigations including known delivery constraints and blockages

Number	1	**Likelihood**	Medium low	**Impact**	High
Description	Failure to secure upfront capital infrastructure funding through the Housing Infrastructure Fund process				
Mitigation	None. HIF funding is a necessity to deliver				

Number	2	**Likelihood**	Medium low	**Impact**	High
Description	Local Plan programme slippage or delay in reaching adoption				
Mitigation	Council managing production of Submission Draft Local Plan to clear timetable as corporate priority and meeting legal requirements. Collation of robust evidence base to justify development strategy and policies key to achieving soundness in Examination.				

Number	3	**Likelihood**	Low	**Impact**	High
Description	Delay to the planning application submission and determination				
Mitigation	The Council has continually worked with the developers and landowners from site promotion to implementation and delivery. Engagement with these stakeholders throughout the allocation process to delivery of homes means that Council's expectations are understood and demonstrated at the planning application stage. In relation to the Hoo Consortium, these expectations are distilled in the SoCG. Key issues can be considered at the pre-application stage. The use of agreed Planning Performance Agreements also helps ensure that the expectations of each party is set out and timelines for determination can be built into these.				

Number	4	**Likelihood**	Low	**Impact**	Medium low
Description	Delays in the planning process caused by internal and external consultee comments / feedback				
Mitigation	Pre HIF and during HIF's development, the council have had a significant amount of engagement with internal and external stakeholders which has helped to establish the constraints and opportunities for the site and de-risk the later planning process. This has included environmental bodies in relation to SSSIs and SPAs on the Hoo Peninsula which has shaped those sites being put forward as the Council's preferred draft allocations, Highways England and other local consultees. Through taking this approach, the issues and expectations of the consultees should be well understood at the application stage. It is appreciated that further comments are likely to be submitted at the application stage, these should be reasonably minor points in detail rather than the issues not understood by the applicant upon submission of the application.				

Number	5	**Likelihood**	Medium low	**Impact**	Low
Description	Insufficient utilities capacity to support growth				
Mitigation	Joint working with Water to ensure Hoo Peninsula growth in factored into the next water management plan. Other utilities constraints are less severe but will be managed in an on-going way through the NRGG Steering and Delivery Group which the key utilities providers will be invited to attend and participate in.				

Number	6	**Likelihood**	Low	**Impact**	Low
Description	Flood risk – flood risk modelling results in different/ greater area of flood risk and potential requirement for different solutions which could result in increased costs.				
Mitigation	Baseline work undertaken and appropriate mitigation and development approaches progressed. Surface water management would be considered at the detailed master planning stage. A system for sustainable urban drainage to manage run-off rates could to be located outside the floodplain area, providing protection to the wider region				

Number	7	**Likelihood**	Low	**Impact**	Medium high
Description	Potential ecological impacts on designated ecological sites including the Chattenden Woods and Lodge Hill SSSI and the Medway Estuary and Marshes SPA could result in, for example, a requirement to change the scheme proposals. This would have subsequent impacts on the masterplan, potential delays and impacts on viability.				
Mitigation	Conservative buffers to be established and built into the masterplan. Full habitat check to be undertaken in advance of works and agreed with Medway Conservation and Ecology Officers, to minimise any potential impact from proposed works.				

Number	8	**Likelihood**	Medium low	**Impact**	Medium low
Description	Identification of additional / unforeseen ecological features, for example protected species. Disruption costs / time & requirement for additional mitigations / relocations etc.				
Mitigation	Full habitat appraisal to be undertaken and subsequent required ecological surveys to be undertaken in advance of works and agreed with Local Authority Conservation and Ecology Officers, to ensure potential impacts associated with proposed works are minimised and mitigated. A suite of Strategic Environmental Measures (SEMS) are proposed and will continue to be developed as the scheme progresses in agreement with key stakeholders including Natural England				

Number	9	**Likelihood**	Low	**Impact**	Low
Description	Presence of invasive species on site resulting in delays to development due to requirements to remove and/ or increased costs. Risk of spreading into other areas.				
Mitigation	Checks to be undertaken and mitigation and contingency plans in-place for eventuality.				

Number	10	**Likelihood**	Low	**Impact**	Low
Description	Potential for pollution impacts associated with the construction phase including dust and air pollution, noise, lighting. Potential associated impacts include pollution and damage to soils, water, air, and ecological receptors.				
Mitigation	Potential pollution impacts would be mitigated through Construction Environmental Management Plans (CEMPs) to reduce and appropriately mitigate impacts through the construction phase. Contractors would be responsible for implementing measures to minimise pollution, and where required, remediate.				

Number	11	**Likelihood**	High	**Impact**	Medium high
Description	Air quality and noise pollution associated with transport infrastructure during the operation of the development could have a negative impact on ecological receptors and human health worsen air quality within the Four Elms Air Quality Management Area (AQMA).				
Mitigation	Masterplanning will need to factor in appropriate buffers and there will need to be a nominal standoff distance from the roads and railways to consider noise and air pollution. Additional traffic impact arising from development may require air pollution mitigation. Central to this bid is a package of highway improvements to provide capacity and resilience at Four Elms junction, and these highway improvements will mitigate and reduce air quality and noise impacts within the study area's and within the Four Elms Hill AQMA.				

Number	12	**Likelihood**	Low	**Impact**	Low
Description	Unforeseen ground conditions result in additional costs for management/ disposal/ remediation.				
Mitigation	Intrusive investigation at the earliest appropriate opportunity to highlight where remedial works required so these can be scheduled in.				

Number	13	**Likelihood**	Low	**Impact**	Medium low
Description	Potential townscape/landscape and visual impacts arising from the construction and operation of the proposed development. This could result in a requirement to change the scheme proposals and would have subsequent impacts on the masterplan.				
Mitigation	A landscape mitigation strategy would be considered at the detailed masterplanning stage. Potential visual impacts could be mitigated through CEMPs to reduce and appropriately mitigate impacts through the construction phase. Contractors would be responsible for implementing measures to minimise potential impacts.				

Please outline your approach to managing risk

The risk management strategy is a process for identifying adequate assessment and response to risk. Regular, active review allows for early decision making to mitigate risks. The Programme and Budget Delivery Manager is responsible for risk management and will review the effectiveness of the risk management strategy during the programme.
A risk register will record potential risks which could impact on the successful delivery of the project on time and on budget. The risk register in Appendix 37 is the live document currently being utilised by the project team, it is subject to ongoing updates, but it offers a rounded consideration of multiple risk categories.

The risk register will be regularly reviewed, updated and re-issued to the project team. All risks have been allocated a risk owner. All members of the project team should be aware of all the scheduled risks and should notify the Project Manager as soon as possible if anything (not already identified) is likely to affect either the project cost or programme.

All parties have a shared responsibility to help mitigate risks, by means of good planning, co-ordination, communication and co-operation. When a risk is identified it will be assessed so as to understand and quantify the chance of the risk occurring and its potential impact on project delivery. The risk will be reviewed against its likelihood and the resultant impact.

To ensure clarity on risk status, high risks will be assigned a red status with low risks being assigned a green status. Amber status will be assigned to those risks in between. All risks will be regularly monitored, and the Red, Amber, Green status updated where considered necessary. The revised priority of risks can then be acted on appropriately.

Once the causation factors and implications of a risk have been fully evaluated, the mitigations or solutions can be considered. If it is possible to take measures to avoid the risk, this will be the first option. Where feasible, measures can be used to reduce risks. For

example, redesigning infrastructure or altering a construction method. When mitigation for a risk is identified, the risk register should be updated with details of the proposed mitigation, and a revised evaluation of the status with the mitigation in place.

A risk can be transferred between parts of the project team during the course of the project if it is identified that the recipient is better able to manage it. The recipient will be responsible for the consequences if the risk occurs and therefore the risk will not be transferred until the recipient has confirmed that they understand the risk and accept it.
The Council will retain risks which are not transferred or avoided, although these may have been reduced or shared with members of the project team. The Council will manage the risks which they own, as is expected of risks managed by the project team. Through programme and project meetings and updates, the council will keep track of all risks to ensure that the project is delivered to their expectations.
Lessons learned from managing risks will be shared as the project progresses to ensure risks continue to be managed as efficiently as possible for the duration of the project. Detailed costing of the project will include a risk allowance as part of the budget. The risk allowance is to be ringfenced to address risks and should not be absorbed into other areas of the project. The allowance should be as accurate as possible based on the risks identified at the time of the detailed costing exercise. If fewer risks occur than forecast as the project progresses, or their cost is lower than expected, the overall risk allowance will be decreased accordingly. Conversely, if risks occur that were not forecast, a change control process will be required. Part of the process will be to determine whether there is sufficient budget in the risk allowance, or whether another funding provision is required.

Please attach a copy of your current risk register for the scheme

Filename	Description
A37 Risk Register.pdf	Risk Register

Additional information

If you have any further information to support the Management Case for your project, which has not already been captured in theabove, please include this here

The section should be read in conjunction with the Executive Summary (A00a) and List of Appendices (A00).

Filename	Description
A51 GRIP Programme.pdf	GRIP Programme
A23 Letter of Support - Royal Society for the Protection of Birds.pdf	Letter of Support - Royal Society for the Protection of Birds
A20 Statement of Common Ground.pdf	SoCG
A[redacted]	[redacted]
A00a Executive Summary.pdf	Executive Summary
A00 List of Appendices.pdf	List of Appendices

Project Sign Off

Please set out how you have considered your duties under the Equalities Act 2010 (Public Sector Equality Duty) and State Aid risks

Medway Council uses a Fair Access, Diversity and Inclusion Policy to:
- Eliminate unlawful discrimination, harassment and victimisation
- Promote equality of opportunity
- Foster good relations between different sections of the community

The Council, all staff, elected Members and contractors are committed to, and responsible for, ensuring that no service user, employee, job applicants, partner, contractor, supplier or member of the public is unlawfully discriminated, harassed or victimised on the grounds of: race, ethnicity, nationality, ethnic or national origin, colour, disability, gender identity or presentation, marital or civil partnership status, maternity or pregnancy, family and caring responsibilities, sex, sexual orientation, age, HIV status, religion or belief, political beliefs, social class, trade union activity or irrelevant spent convictions.

We want to ensure that Medway's regeneration drives economic development to encourage new and existing businesses to grow in Medway. We want people to have access to the new jobs, homes and opportunities that HIF will create. Construction of infrastructure will go through our open procurement process, which includes how potential contractors contribute towards the Public Sector Equalities Duty; outlining commitments to apprenticeships, traineeships and skills, SME supply chains, local suppliers and reducing carbon footprint.
NRGG complies with State Aid regulations by following the due process through procurement for commissioning infrastructure. We have ensured that all infrastructure addresses a clear market failure and does not inherently distort competition.

We will not create a competitive advantage to land promoters or developers on the Hoo Peninsula, because without the HIF intervention, there is no viable market for construction. Sites are progressing through a Local Plan process, which follows due process, public consultation and legal consultation prior to submission and approval.

Please attach your Section 151 officer sign off for your proposal

Filename	Description
A55 S151 Sign-Off.pdf	S151 Sign-Off

INFORMATION NOTE

Project Name: **Good Routes to Good Growth**

Note Title: **Executive Summary**

Date: **22/03/2019**

Prepared By: [redacted]

This bid seeks £170 million in Housing Infrastructure Fund (HIF) Forward Funding to unlock development of 10,600 homes on 283.5 hectares in a new rural town at Hoo St Werburgh and in a wider network of villages.

Medway's housing needs assessment indicates a requirement for 28,033 homes between 2018 and 2035. The ability to house this growth in established urban and suburban areas without excessive strain on existing infrastructure is heavily restricted. Medway Council's preferred approach, identified in the emerging Local Plan process, focusses growth in a new rural town in the Hoo Peninsula, alongside urban regeneration and sustainable settlement expansion.

With HIF infrastructure, 10,600 houses will be complete by 2035, meeting 38% of Medway's housing need. Capable of delivering 12,100 houses by 2043 and up to 15,000 by 2052, development on the Hoo Peninsula will allow regional housing need to be met more effectively than other options.

With a farming base, the wider Hoo economy has centred on port-related activity and energy generation. Localised degraded landscapes are part of their legacy, negatively affecting perceptions and house prices. Poor connections to Medway, Kent and elsewhere, limited infrastructure capacity, and extensive environmental designations mean that housing development has been incremental and restricted. While development is limited to 2,000 units without key transport infrastructure, environmental 'capacity' effectively restricts housing development at Hoo to 940 units. The cost and scale of the required infrastructure undermines development viability. While S106 contributions would be attracted, they will be insufficient for the infrastructure needed to unlock the 10,600 homes. Moreover, related funds will be received incrementally over a long period, severely delaying infrastructure and housing delivery.

HIF will fund £63.94m in in rail infrastructure including: a station at Sharnal Street, partial double tracking for continuing freight services; and a new 'Chord' at Higham. This will reintroduce passenger services from the area to and from London and other parts of Kent, alleviating pressure on the road network and, with the potential for additional services, adding future resilience and development capacity; £85.70m in road infrastructure including: improvements to the A228, a new link at Woodfield Way and a wider package of highway improvements providing capacity and to enable development resilience at Four Elms junction, presently the main access for the Hoo Peninsula; and £14.35m on a Strategic Environmental Management Scheme including 150ha of wetlands and other measures to manage the effects of development in a high value environment. £6.01m is needed to resource project delivery.

This bid is prepared by Medway Council. It is supported by the South East LEP and backed by the Hoo Consortium, a group of ownership and development interests including the Church Commissioners for England, Taylor Wimpey, Dean Lewis Estates and Gladman Developments. This group wholly or partially controls sites which will deliver more than 7,396 (70%) of the anticipated housing units.

A signed Statement of Common Ground confirms Medway Council and Hoo Consortium agreement to collaborative working, strategic phasing and accelerated development linked to infrastructure delivery to support an expanded rural settlement. The parties are committed to a plan-led approach, working jointly behind phased development to an agreed masterplan & implementation plan including a bespoke infrastructure programme, reinforcing HIF with developer contributions to education, health, community, leisure and social infrastructure and environmental works to protect the Hoo Peninsula's landscape and biodiversity. Medway Council is maintaining an effective dialogue with the owners of

INFORMATION NOTE

the sites which the remaining 30% of homes will be built on. Planning performance agreements will be developed for these sites.

A New Routes to Good Growth Board will be established, chaired by Medway Council. It will include the Hoo Consortium. It will continue post 2023 to ensure masterplan delivery.
By 2035, it is estimated that HIF- supported development on the Hoo Peninsula will:

- Deliver 10,600 homes, meeting 38% of Medway's future housing need
- Create a new rural town
- Generate a land value uplift of £613.5m;
- Enable £1.6bn housing investment
- Enable Section 106 contributions of £259.0m; and,
- Enable provision of 3,180 (30%) affordable homes with a further impact of £40.0m

Without HIF support, infrastructure to unlock housing development in the Hoo Peninsula will not be delivered. Medway will not be able to meet its future housing need, reducing economic growth and intensifying affordability issues.

HIF infrastructure is vital for the creation of a new rural town to underpin Medway's future sustainable growth.

INFORMATION NOTE

Project Name: **New Routes to Good Growth HIF**

Project Ref: **45421**

Note Title: **List of Appendices**

Date: **22/03/2019**

Prepared By: [redacted]

0. Executive Summary
1. Hoo Peninsula Highways Business Case
2. Scheme Infrastructure and Plans
3. Secretary of State Decision Letter
4. School Places Analysis
5. SGN Network Capacity
6. Southern Water - Water Resource Management Plan
7a. SPN Regional Development Plan
7b. Wastewater Growth Business Case
8. Assessment of Additional Utility Provision
8a. Utilities Map
9. Freight flows and terminals
10. Network Rail Enhancement Funding & RNEP
11. TRACKmaps scan of the Grain Branch with Medway Chord and Sharnal Street
12. Train operators
13. Medway passenger figures
14. Hybrid project development and delivery
15. Rail Chart
16. Letter of Support: South East Local Enterprise Partnership
17. Thames Estuary 2050 Growth Commission Vision and Objectives
18. North Kent SHMA
19. Medway Council Authority Monitoring Report
20. Statement of Common Ground
21a. Letter of Support: Network Rail (Grain Branch)
21b. Letter of Support: Network Rail (Strategic Planning)
21c. Letter of Support: Highways England
22. Letter of Support: Southeastern
23. Letter of Support: Royal Society for the Protection of Birds
24. Letter of Support: Medway Development Company
25. Indicative S106 Payments vs. Funding Requirements
26. SSSI Map
[redacted]
28. Shortlisted Options Analysis
29. Additional HMA Indicators
30. Kent County Council Housing Information Audit
31. Anticipated Housing Phasing
[redacted]
33. Sharnal Street Station Economic Appraisal
34. Sharnal Street Demand Forecast
35. Natural Capital Planning Tool Outputs
[redacted]
37. Risk Register
38. Highways Aimsun Model Validation Report
39. Figures and Appendices to Medway Aimsun Model Validation Report
40. Charts to Support Q.5.1.1
[redacted]
43. Guide to Developer Contributions and Obligations

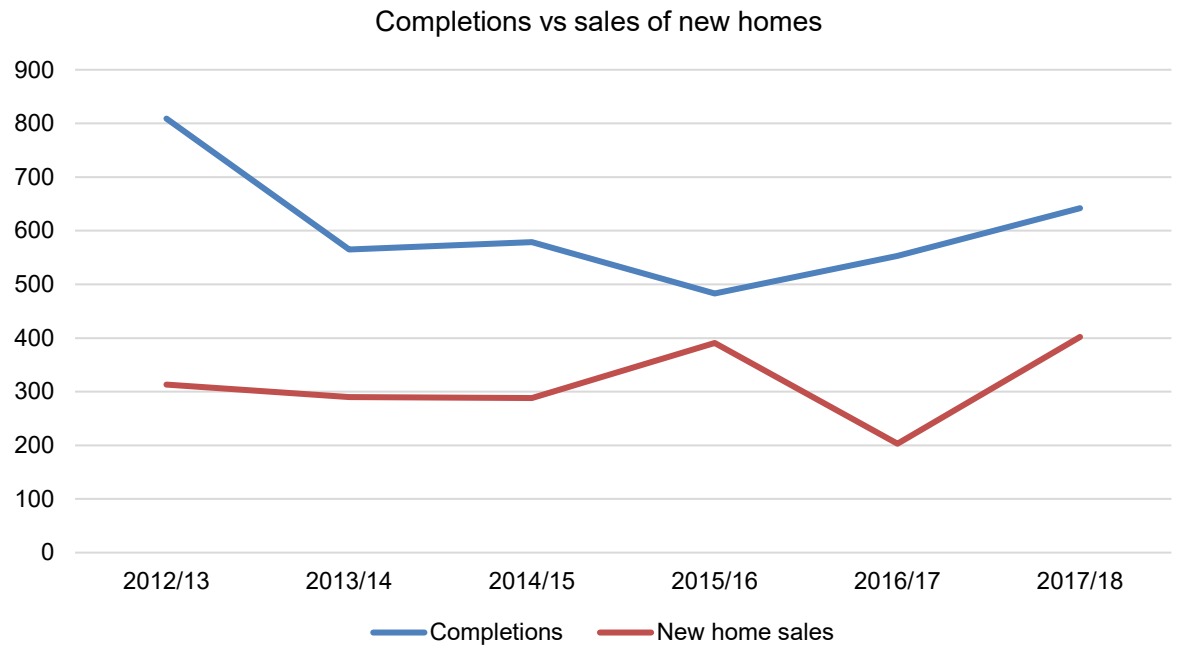
INFORMATION NOTE

44. Medway Procurement Strategy 2016-2021
44a. Procurement Strategy Progress Report
45. Contract Procedure Rules
46. NEC3 Engineering and Construction Option A Terms and Conditions
[redacted]
51. GRIP Programme
52. Organogram
53. Project Outline Delivery Programme
54. Rail Construction Methodology
55. S156 Sign Off

INFORMATION NOTE

Project Name: New Routes to Good Growth HIF
Project Ref: 45421
Note Title: Charts to Support Q.5.1.1
Date: 21/03/2019
Prepared By: [redacted]

Figure 1



Source: Land Registry

INFORMATION NOTE

Figure 2

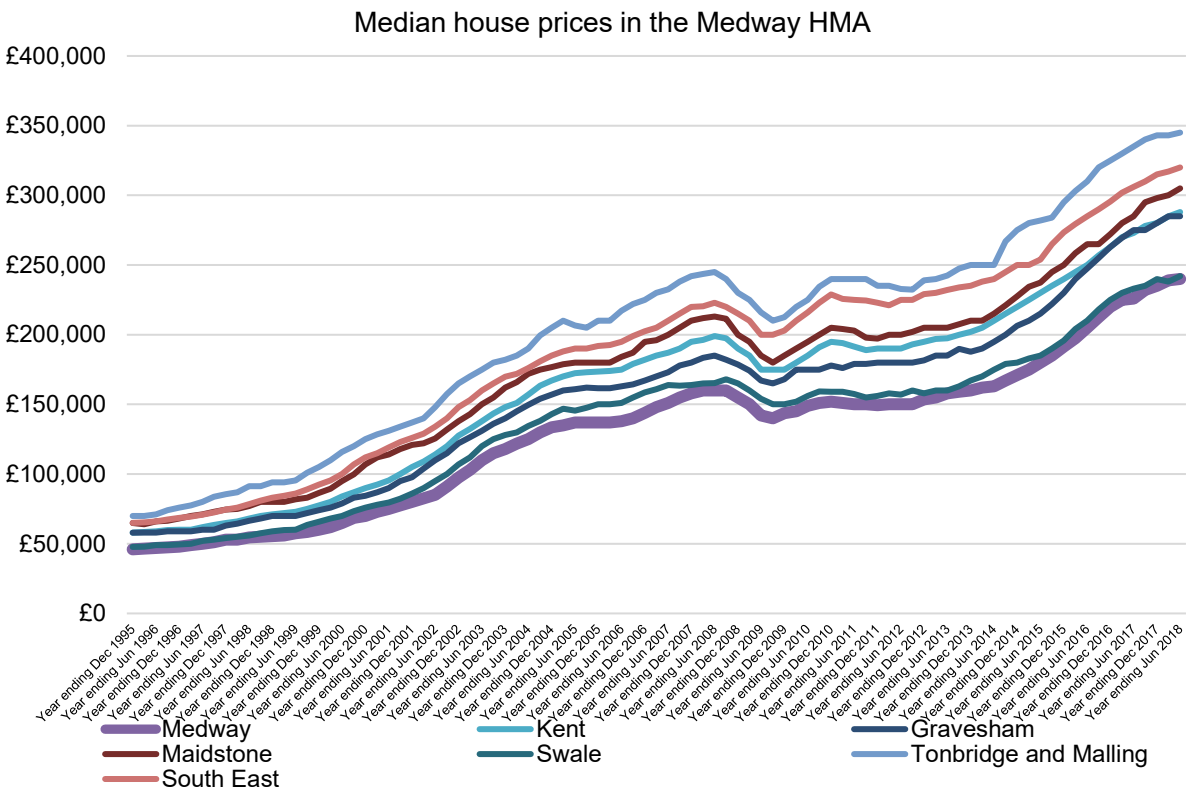
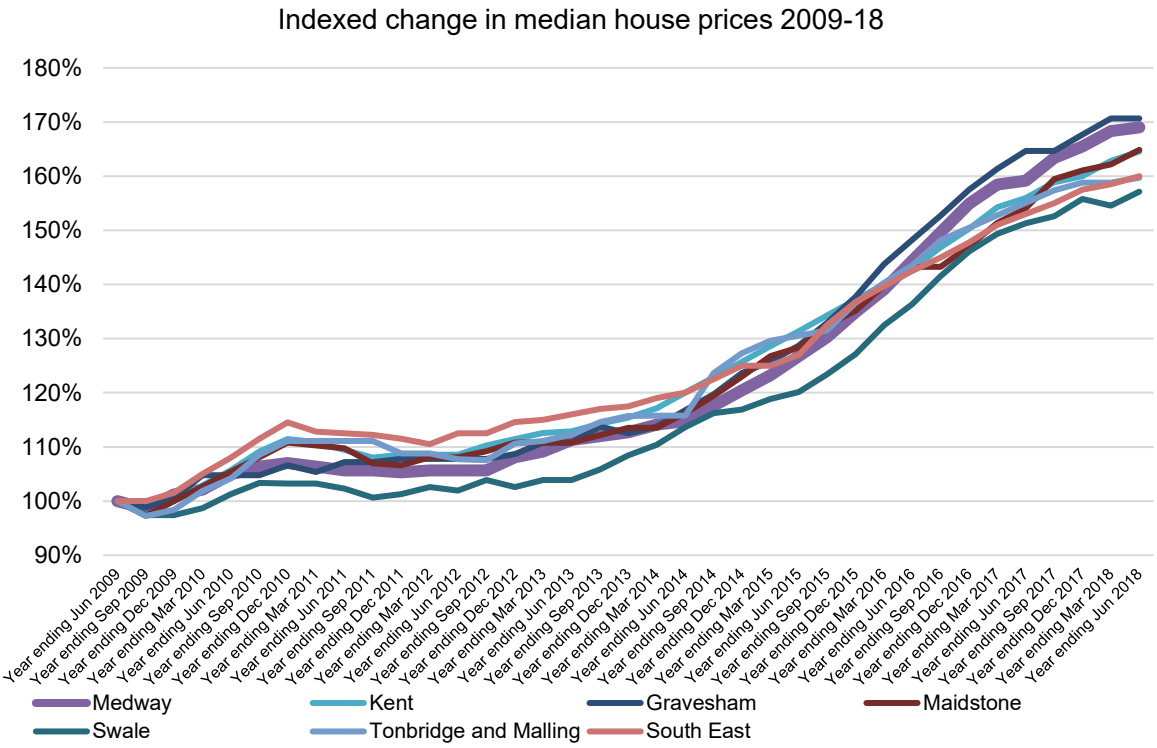


Figure 3



Source: ONS HPSSA dataset 9

INFORMATION NOTE

Figure 4

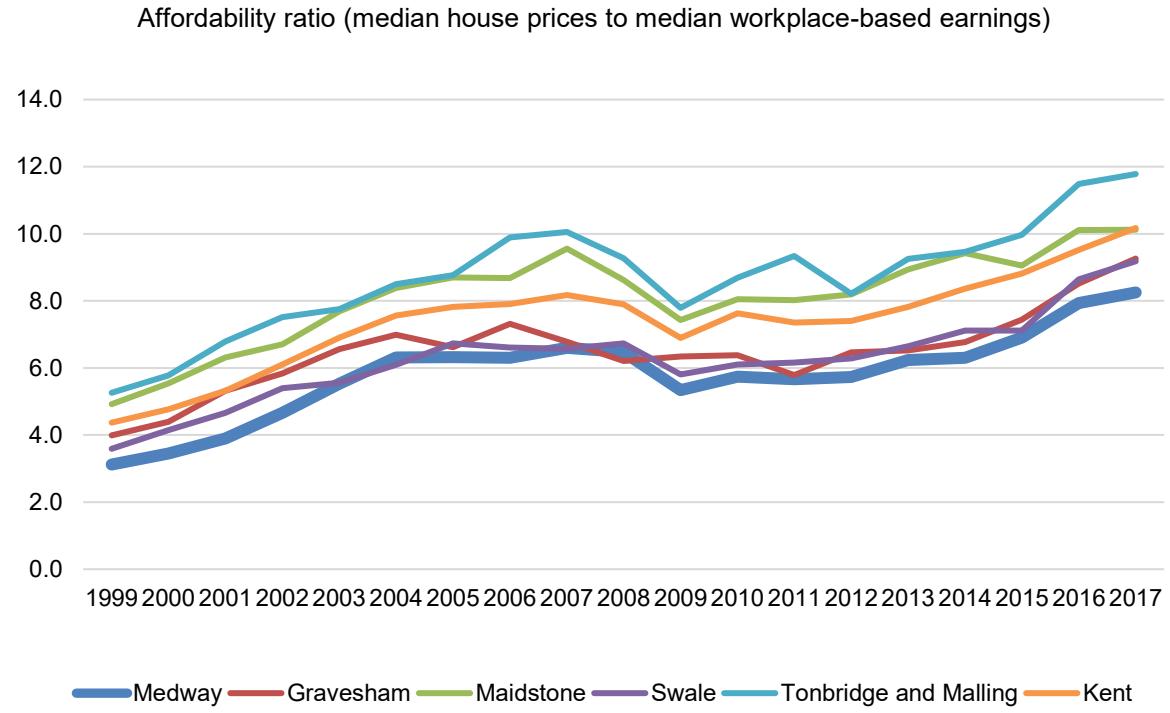
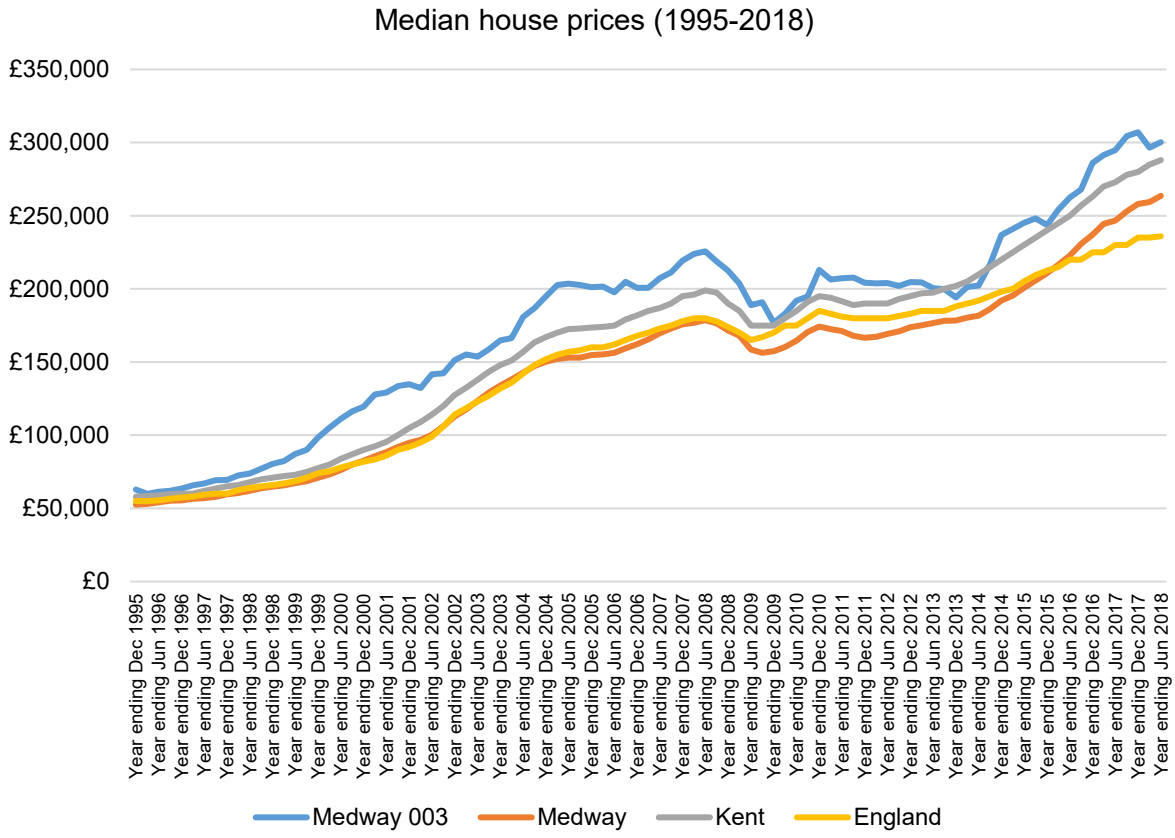


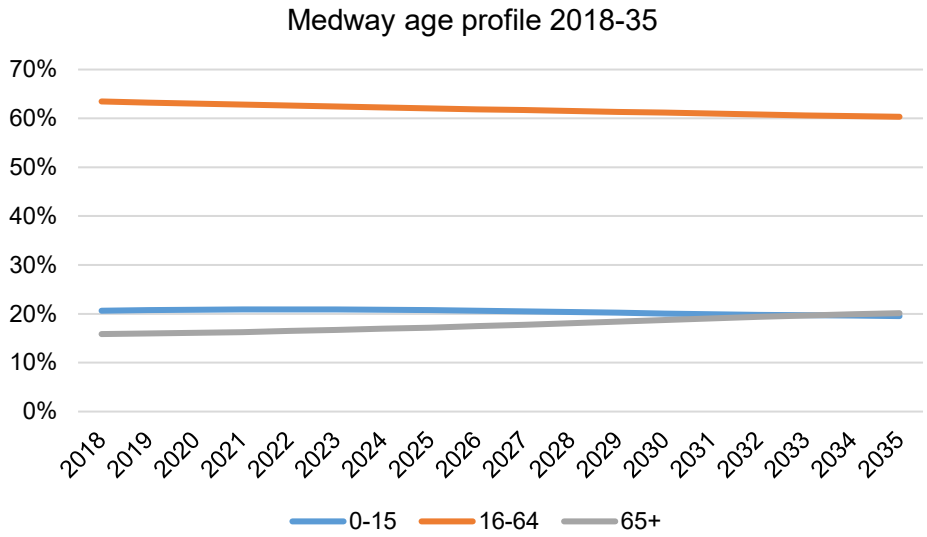
Figure 5



Source: ONS HPSSA dataset 9

INFORMATION NOTE

Figure 6



Source: 2016-based SNPP (2018, ONS)

HIF Team
Ministry for Housing, Communities and Local Government
2 Marsham Street
London
SW1P 4DF

Dear HIF Team,

Section 151 support – HIF Forward Fund Business Case – New Routes to Good Growth

I confirm I am satisfied that the Medway Council led business case for HIF Forward Funding is a fair reflection of projects as they currently stand and Medway Council will be willing to act as sponsor for the programme should it be awarded funding.

The information contained in the business case details the make-up of funding for the programme, the provisional funding profile and the arrangements for cost overruns.

Medway Council has a strong track record of delivering externally funded capital schemes to programme and budget, as detailed within our business case.

Yours sincerely

Ministry of Housing, Communities & Local Government

Our ref: APP/A2280/W/17/3175461
Your ref: PP-05441858

Tim Booth
Gladman Developments Ltd
Gladman House
Alexandria Way
Congleton Business Park
Congleton
Cheshire
CW12 1LB

8 November 2018

Dear Sir

TOWN AND COUNTRY PLANNING ACT 1990 – SECTION 78
APPEAL MADE BY GLADMAN DEVELOPMENTS LTD
LAND AT TOWN ROAD, CLIFFE WOODS, KENT, ME3 8JL
APPLICATION REF: MC/16/3669

1. I am directed by the Secretary of State to say that consideration has been given to the report of Matthew Nunn BA BPL LLB LLM BCL MRTPI, who held a public local inquiry on 28, 29 and 30 November, and on 5 and 6 December 2017 into your appeal against the decision of Medway Council to refuse your application for outline planning permission for up to 225 residential dwellings (including up to 25% affordable housing), introduction of structural planting and landscaping, informal public open space and children's play area, surface water flood mitigation and attenuation, vehicular access point from Town Road and associated ancillary works; all matters to be reserved with the exception of the main site access, in accordance with application ref: MC/16/3669, dated 31 August 2016.

2. On 13 September 2017, this appeal was recovered for the Secretary of State's determination, in pursuance of section 79 of, and paragraph 3 of Schedule 6 to, the Town and Country Planning Act 1990.

Inspector's recommendation and summary of the decision

3. The Inspector recommended that the appeal be allowed, and outline planning permission granted subject to conditions.

4. For the reasons given below, the Secretary of State disagrees with the Inspector's recommendation. He has decided to dismiss the appeal and refuse planning permission. A copy of the Inspector's report (IR) is enclosed. All references to paragraph numbers, unless otherwise stated, are to that report.

Ministry of Housing, Communities & Local Government
Maria Stasiak, Decision Officer
Planning Casework Unit
3rd Floor Fry Building
2 Marsham Street
London SW1P 4DF

Tel: 0303 444 1624
Email: PCC@communities.gsi.gov.uk

Matters arising since the close of the inquiry

5. On 28 June 2018, the Secretary of State wrote to parties to afford them an opportunity to make representations on the judgment of the Court of Justice of the European Union (CJEU) in Case C-323/17 *People Over Wind and Sweetman v Coillte Teoranta* of 12 April 2018.

6. On 27 July 2018, the Secretary of State wrote to parties giving them the opportunity to make representations on the revised National Planning Policy Framework, published on 24 July 2018.

7. A list of representations which have been received since the inquiry is at Annex A. Copies of these letters may be obtained on written request to the address at the foot of the first page of this letter.

8. On 26 October 2018, Government published "Technical consultation on updates to national planning policy and guidance", dealing with the calculation of local housing need and other matters, including the *People Over Wind and Sweetman v Coillte Teoranta* issue. While a number of the issues dealt with in that document are relevant to this case, given these remain the subject of consultation and may not be the final position, the Secretary of State has made his decision here based on existing policy.

Policy and statutory considerations

9. In reaching his decision, the Secretary of State has had regard to section 38(6) of the Planning and Compulsory Purchase Act 2004 which requires that proposals be determined in accordance with the development plan unless material considerations indicate otherwise.

10. In this case the development plan consists of the saved policies of the Medway Local Plan, adopted May 2003. The Secretary of State considers that the development plan policies of most relevance to this case are those set out at IR14-17.

11. Other material considerations which the Secretary of State has taken into account include the National Planning Policy Framework ('the Framework') and associated planning guidance ('the Guidance'). The revised National Planning Policy Framework was published on 24 July 2018, and unless otherwise specified, any references to the Framework in this letter are to the revised Framework.

Emerging plan

12. The Secretary of State notes that the Council is currently preparing a new Local Plan, and a Neighbourhood Plan is at a very early stage. He further notes that no draft policies have yet been published for either.

13. Paragraph 48 of the Framework states that decision makers may give weight to relevant policies in emerging plans according to: (1) the stage of preparation of the emerging plan; (2) the extent to which there are unresolved objections to relevant policies in the emerging plan; and (3) the degree of consistency of relevant policies to the policies in the Framework. Given their very early stage of development the Secretary of State takes the view that no weight can be attributed to either of these emerging plans.

Main issues

Five-year housing land supply

14. The Secretary of State has given careful consideration to the Inspector's analysis of the five-year housing land supply at IR93 which reports that the parties do not dispute that the Council cannot demonstrate a deliverable 5 year supply of housing, and that the appellant believes it to be no better than 2.75 years, with the Council claiming it to be around 3 years.

15. However, as the Local Plan was adopted in 2003, the adopted housing requirement figure is more than 5 years old. Paragraph 73 of the Framework indicates that in that scenario, local housing need should be applied. The Secretary of State has applied the standard method set out in guidance, and has concluded that local housing need for Medway is 1,310.

16. He notes that under paragraph 73 of the Framework, a 20% buffer should apply where there has been significant under-delivery of housing over the previous three years. He further notes that the most recent Monitoring Report before the inquiry (December 2016) (IR23) shows that in 2015-16, there were 553 completions against a requirement of 1,000 dwellings. He considers that this is significant under-delivery. The Secretary of State has taken into account the fact that no evidence has been put forward in response to his reference back letter of 27 July 2018 to suggest that Medway (which accepted that it was a 20% authority under the old Framework – IR23) is not a 20% authority under the provisions of the revised Framework. He therefore considers that a 20% buffer should be applied. This gives an annual requirement of 1,572 dwellings. The Secretary of State further notes that no party has suggested in representations that the assessment of housing supply should change as a result of the change in definition of 'deliverable' in the revised Framework. Overall he considers that there is a housing land supply of 3.9-4.3 years.

17. While this means that the shortfall in housing land supply has reduced since the inquiry, there is still not a 5-year housing land supply. The Secretary of State considers that his conclusions on housing land supply do not alter the weight he assigns to the matters set out below, or his decision on the case as a whole. For this reason, he does not consider that it is necessary to refer back to parties on this matter before reaching his decision.

Locational accessibility

18. The Secretary of State notes that the site is located close to the village of Cliffe Woods which has a range of shops, services and community facilities (IR101). He agrees with the Inspector (IR109) that residents are likely to travel further afield for larger food supermarkets, specialist shops, leisure, employment, and secondary schools, and that this is likely to generate trips by car.

19. The Secretary of State has carefully considered the Inspector's analysis of available public transport (IR102-104). He has taken into account that bus services do not operate in the very early morning or after early evening, that cycling is not a realistic option for most or an attractive option, and that the nearest train station is 2km away. He has further taken into account the proposals to improve accessibility of the scheme (IR105-7), and whilst he agrees that the proposed measures will go some

way to facilitating sustainable travel modes, given the uncertainty around the operation of the 'Arriva Click' service (IR106) he gives these measures limited weight.

20. The Secretary of State has further taken into account the Framework's statement in paragraph 103 that the opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and he agrees with the Inspector that given the rural character of the area, a realistic approach to the general travel method of residents is required (IR109). However, in the Secretary of State's judgement, the proposed development does not limit the need to travel or offer a genuine choice of transport modes, and is therefore in conflict with the Framework's policy on promoting sustainable transport (paragraph 103 of the Framework). His concerns are not overcome by the proposed mitigation. He therefore disagrees with the Inspector's conclusion that there is no intrinsic conflict with the requirement of Policy BNE25 that development should 'offer a realistic chance of access by a range of transport modes' (IR110). The Secretary of State considers that these conflicts carry substantial weight against the proposal.

21. The Secretary of State agrees that by introducing new market and affordable housing along with the associated economic benefits, the proposal would comply with paragraphs 83-84 of the Framework, which advocate supporting a prosperous rural economy.

Effect on character and appearance

22. For the reasons given at IR111-116, the Secretary of State agrees with the Inspector at IR116 that the appeal scheme would inevitably adversely affect the currently open and rural character of the landscape, and in terms of Policy BNE25(i) would not maintain or enhance the character, amenity and functioning of the countryside. He therefore considers it is in conflict with that aspect of the policy. He also considers it is in conflict with the development strategy set out in Policy S1, which seeks to prioritise development within the existing urban areas, and Policy S2, which implements that strategy.

23. For the reasons given at IR94-100, the Secretary of State agrees that Policy BNE25 read as a whole is not fully consistent with the Framework, that Policies S1 and S2 run counter to the objectives of the Framework to significantly boost the supply of homes, and that the weight that should be attached to conflict with Policies BNE25, S1 and S2 should be reduced (IR 97 and 100). Overall the Secretary of State considers that these development plan policies carry moderate weight, and that the conflict with them in terms of protection of the countryside also carries moderate weight.

24. He notes that the numbering and precise wording of the relevant parts of the Framework have changed on publication of the revised Framework; however, these changes do not alter his conclusions on these matters.

Benefits of the proposal

25. The Secretary of State agrees with the Inspector that the proposal would introduce much-needed market and affordable housing for local people; would create investment in the locality and increase spending in shops and services; and would result in jobs during the construction phase (IR127). Overall he considers that the

additional housing carries significant weight, and the economic benefits carry moderate weight in favour of the proposal. He further agrees with the Inspector that the creation of open space with play area, new planting and landscaping, the provision of a pond, new pedestrian routes would convey benefits to the wider population in addition to mitigating the adverse effects of the development (IR128). He considers that these benefits carry limited weight.

26. As set out in paragraph 19 above, the Secretary of State also considers that the improvements to public transport infrastructure carry limited weight in favour of the proposal. As no evidence has been put before him that the New Homes Bonus would be used to help make the proposal acceptable in planning terms, he has not given it any weight in the planning balance.

Appropriate assessment

27. Following the reference back to parties exercise described in paragraph 5 of this letter, the Secretary of State has concluded that the screening assessment undertaken for the purposes of this appeal and presented to the inquiry is no longer legally sound.

28. Therefore, as competent authority for the purposes of the Conservation of Habitats and Species Regulations 2010, the Secretary of State has carried out a new screening. He has concluded on the basis of this screening that an appropriate assessment is required, and has carried out that assessment, consulting Natural England as the appropriate nature conservation body. Both the screening and appropriate assessment are attached to this decision letter at Appendix B. On the basis of his appropriate assessment, and for the reasons set out in that assessment, the Secretary of State considers that he can safely conclude that the proposed development would not adversely affect the integrity of any European site.

29. The Secretary of State notes that under paragraph 177 of the Framework, the presumption in favour of sustainable development does not apply where development requiring appropriate assessment is being determined.

Other matters

30. The Secretary of State notes the Council's agreement that safe access to the site can be achieved, subject to various highway improvements being undertaken, and that these can be secured by condition (IR117). He considers that the evidence put forward does not suggest there would be an unacceptable impact on highway safety, or that the residual cumulative impacts on the road network would be severe, and hence the development does not conflict with the provisions of the Framework at paragraph 109.

31. The Inspector considered further objections raised in relation to the loss of 2.6 hectares of best and most versatile (BMV) agricultural land. The Secretary of State agrees with the Inspector that the loss of agricultural land is not significant enough to be a determining issue in this case (IR120). He attaches limited weight to the loss of BMV land.

32. The Secretary of State has considered a number of other concerns raised in respect of local services, outlook and privacy, ecology and nature conservation, flood risk,

ground conditions/contamination and archaeology and heritage. For the reasons given in IR118, 119, 121 and 123-125, the Secretary of State considers that these matters do not weigh against the scheme.

Planning conditions

33. The Secretary of State has given consideration to the Inspector's analysis at IR87-89, the recommended conditions set out at the end of the IR and the reasons for them, and to national policy in paragraph 55 of the Framework and the relevant Guidance. He is satisfied that the conditions recommended by the Inspector comply with the policy test set out at paragraph 55 of the Framework. However, he does not consider that the imposition of these conditions would overcome his reasons for dismissing this appeal and refusing planning permission.

Planning obligations

34. Having had regard to the Inspector's analysis at IR84-85, the planning obligation dated 13 December 2017, paragraph 56 of the Framework, the Guidance and the Community Infrastructure Levy Regulations 2010, as amended, the Secretary of State agrees with the Inspector's conclusion for the reasons given in IR86 that the obligation complies with Regulation 122 of the CIL Regulations and the tests at paragraph 56 of the Framework. However, he does not consider that the obligation overcomes his reasons for dismissing this appeal and refusing planning permission.

Planning balance and overall conclusion

35. For the reasons given above, the Secretary of State considers that the appeal scheme is not in accordance with Policies BNE25, S1 and S2 of the development plan, and is not in accordance with the development plan overall. He has gone on to consider whether there are material considerations which indicate that the proposal should be determined other than in accordance with the development plan.

36. Although there is no 5-year housing land supply, the presumption in favour of sustainable development does not apply because of the effect of paragraph 177 of the Framework (as set out in paragraph 29 above).

37. The Secretary of State considers that the housing benefits of the proposal carry significant weight, and the economic benefits carry moderate weight. The provision of open space with play area, new planting and landscaping, the provision of a pond, new pedestrian routes and improvements to public transport infrastructure carry limited weight in favour of the proposal.

38. The Secretary of State considers that the conflict with the Framework and the development plan in terms of sustainable transport carries substantial weight, the conflict with development plan policies designed to protect the countryside and prioritise development within existing urban areas carries moderate weight, and the loss of BMV land carries limited weight against the proposal.

39. Overall, the Secretary of State considers that there are no material considerations that indicate that the proposal should be determined other than in accordance with the development plan. He therefore concludes that planning permission should be refused.

Formal decision

40. Accordingly, for the reasons given above, the Secretary of State disagrees with the Inspector's recommendation. He hereby dismisses your appeal and refuses planning permission for outline planning permission for up to 225 residential dwellings (including up to 25% affordable housing), introduction of structural planting and landscaping, informal public open space and children's play area, surface water flood mitigation and attenuation, vehicular access point from Town Road and associated ancillary works; all matters to be reserved with the exception of the main site access.

Right to challenge the decision

41. A separate note is attached setting out the circumstances in which the validity of the Secretary of State's decision may be challenged. This must be done by making an application to the High Court within 6 weeks from the day after the date of this letter for leave to bring a statutory review under section 288 of the Town and Country Planning Act 1990.

42. A copy of this letter has been sent to Medway Council and Rule 6 parties, and notification has been sent to others who asked to be informed of the decision.

Yours faithfully

Maria Stasiak

Maria Stasiak
Authorised by the Secretary of State to sign in that behalf

Annex A

SCHEDULE OF REPRESENTATIONS

Party	Date
Mr David Wolfson, SAVE Action Group	9 January 2018
Mr Roger Brown , Chair SAVE Action Group	15 July 2018
Gladman Developments Ltd	19 July 2018
Gladman Developments Ltd	10 August 2018
Medway Council	24 August 2018
Medway Council	28 August 2018
Natural England	27 September 2018

Annex B
RECORD OF THE SCREENING ASSESSMENT AND HABITATS REGULATIONS ASSESSMENT UNDERTAKEN UNDER REGULATION 61 OF THE CONSERVATION OF HABITATS AND SPECIES REGULATIONS 2017 (AS AMENDED) FOR AN APPLICATION UNDER THE TOWN AND COUNTRY PLANNING ACT 1990

Project Title and Location: Recovered planning appeal: APP/A2280/W/17/3175461 Land off Town Road, Cliffe Woods, Kent, ME3 8JL

Project description: outline planning permission for up to 225 residential dwellings (including up to 25% affordable housing), introduction of structural planting and landscaping, informal public open space and children's play area, surface water flood mitigation and attenuation, vehicular access point from Town Road and associated ancillary works; all matters to be reserved with the exception of the main site access (Planning Application Ref: MC/16/3669, dated 31 August 2016).

Completion Date: 27 September 2018

Project description – further information

1. The appeal site and surroundings are described at paragraphs 9 – 13 of the Inspector's report arising from a public inquiry held into this appeal between 28 November and 21 December 2017. A copy of the inspector's report is attached to this assessment. The proposal description is set out in further detail in the planning application and other inquiry documentation in the Core Document List of the Inspector's report from p 34.

Competent authority

2. The above proposal, having been recovered by the Secretary of State for Housing, Communities and Local Government, is to be determined by him using his powers under section 78 of the Town and County Planning Act 1990. The Secretary of State is therefore the 'competent authority' for the purposes of the Conservation of Habitats and Species Regulations 2017.

PART 1 – SCREENING

3. In its letter dated 16 October 2016 Natural England confirmed to Medway Council that it considered that subject to appropriate mitigation the proposal could be screened out as not having a likely significant effect on the relevant designated sites i.e. Appropriate Assessment was not required. A judgment in the Court of Justice of the European Union (CJEU) in People Over Wind and Sweetman and Coillte Teoranta (12 April 2018) means this interpretation is no longer legally sound.

4. It will now fall to the Secretary of State to take a screening decision for this application, taking into account any relevant information. As part of this process, a reference back to parties was undertaken, to enable further relevant evidence to be addressed by parties to the Inquiry.

Screening Assessment

Relevant documentation

5. The Secretary of State has consulted with parties on the implications of the CJEU ruling in his letter of 28 June 2018 and has taken into account the documents supplied in

response, namely 'Town Road, Cliffe Woods, Kent Information for an Appropriate Assessment following CJEU People over Wind judgement (Case C-323/17)', dated 12 April 2018 and prepared for Gladman Developments Ltd ('IFAA') and 'Habitat Regulation Assessment Screening Matrix and Appropriate Assessment Statement' prepared by Medway Council in August 2018 ('SMAAS'). In this screening assessment, all references to sections, unless otherwise stated, are to the IFAA and SMAAS documents.

6. The Secretary of State has also taken into account comments submitted by SAVE Cliffe Woods, a Rule 6 party, in a letter of 15 July 2018, as well as a separate 'Appellant's note' provided for Gladman Developments Limited in addition to the IFAA.

7. The Secretary of State agrees with sections 1 to 4 of IFAA, which set out relevant background and context, and the legislative and policy background. The IFAA also sets out factual information about the Special Protection Area (SPA) and Ramsar sites concerning their relationship with the application site.

Consideration and conclusions

8. In screening the proposals , the Secretary of State needs to conclude whether they would be likely to have a significant effect on the internationally important interest features of the site, either alone, or in combination with other projects.

9. The Secretary of State agrees with the relevant European designated sites identified in section 6.0 to 6.2 of IFAA:

- Thames Estuary and Marshes SPA/Ramsar
- Medway Estuaries and Marshes SPA/Ramsar

10. The conservation objectives for both the Thames Estuary and Marshes SPA and the Medway Estuaries and Marshes SPA are:

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

- The extent and distribution of the habitats of the qualifying features
- The structure and function of the habitats of the qualifying features
- The supporting processes on which the habitats of the qualifying features rely
- The population of each of the qualifying features, and,
- The distribution of the qualifying features within the site.

11. The Secretary of State has paid close regard to IFAA sections 6.4 to 6.8 and the SMAAS 'Part 2 – HRA Screening Assessment'. For the reasons given at IFAA 6.6 the Secretary of State agrees that due to its close proximity, relatively convenient pedestrian links and resulting local population increase there would be potential for likely significant effects from the proposed development when considered alone in terms of impact on the Thames Estuary and Marshes SPA/Ramsar. He concludes that, in the absence of avoidance or mitigation measures, the development proposal would have the potential to contribute towards a significant disturbance effect on the interest features for which the

Thames Estuary and Marshes SPA and Ramsar site has been classified. Accordingly there is no need to go on to consider in combination effects with other plans and projects or the impact on Medway Marshes SPA/Ramsar at the screening stage.

12. Having regard to all the available information and the views of the Council and Applicant set out in the IFAA and SMAAS, the Secretary of State finds there is no evidence to indicate likely significant effects would occur as a result from the development proposals other than through the disturbance to the Thames Estuary and Marshes SPA/Ramsar.

Overall conclusions

13. The Secretary of State has concluded that, in the absence of avoidance or mitigation measures, the proposal would have potential to contribute towards a significant effect on the interest features for which the Thames Estuary and Marshes SPA and Ramsar site has been classified.

14. Accordingly, as the competent authority in this case, the Secretary of State has gone on to carry out the required Appropriate Assessment in Part 2 of this document.

PART 2 – APPROPRIATE ASSESSMENT

15. The Secretary of State has identified at the screening stage potential to contribute towards a significant effect on the interest features for which the Thames Estuary and Marshes SPA and Ramsar site has been classified and has determined that an Appropriate Assessment is required.

16. In accordance with the People Over Wind and Sweetman and Coillte Teoranta ruling, avoidance or mitigation measures can only be considered at this Appropriate Assessment stage. This Appropriate Assessment now needs to consider whether it can be concluded that the proposal will not adversely affect the integrity of the sites in question. In the event it is concluded that the mitigated project will adversely affect the integrity of the protected sites considered, the Appropriate Assessment will need to consider whether it can be demonstrated that there are no alternatives and that there are imperative reasons of over-riding public interest as to why it must proceed.

Relevant documentation

17. The Secretary of State has had regard to the responses received following reference back to parties, particularly the IFAA and SMAAS. He has also had regard to documents considered at the public inquiry, listed at pages 33 to 37 of the Inspector's report, noting the relevance of Core Documents CD2.21 Ecological Appraisal December; 2.5 Ecological Appraisal; and 3.1–3.16 Consultation Responses.

18. The Secretary of State's Appropriate Assessment has not simply relied on and adopted the above information. Rather, the Secretary of State has considered all the evidence, including the views of Natural England, the Government's advisors on ecological issues, in reaching his conclusions on the Appropriate Assessment.

Consideration

19. At the screening stage, the Secretary of State has already concluded that the application proposals would be likely to have a significant effect on the Thames Estuary and Marshes SPA and Ramsar site in respect of disturbance effects from additional recreational visits. There is no evidence of other direct impacts either during the construction or

operational phases of the development proposals. In contrast the IFAA does not indicate there to be a similar likelihood of significant impact on the Medway Estuaries and Marshes SPA/Ramsar. In terms of disturbance affects it is clear at IFAA 6.7 that a number of factors reduce likelihood of walking journeys from the site to this SPA/Ramsar. However, from IFAA 6.8 it is also apparent that occasional car-borne visits may occur and the SMAAS at 'Part 3 – Appropriate Assessment' concludes that additional dwellings result in additional activity, causing disturbance to protected bird species that over–winter or breed on these SPA and Ramsar sites. Therefore as the Medway Estuaries and Marshes SPA/Ramsar is also within the zone of influence from the site, it is also considered at this stage as is the in-combination effects of the proposal site alongside other planned development.

20. The Secretary of State has considered the proposed measures to avoid/mitigate the potential for significant impacts and is satisfied that these will reduce harm from the proposed development to both the SPA/Ramsar sites. The mitigation proposed is a financial contribution to the Strategic Access Management and Mitigation Strategy (SAMMS) detailed in the IFAA 7.6 to 7.10 as well as other measures that will be beneficial to reducing harmful effects on the SPA/Ramsar and which are set out at IFAA 7.2 to 7.5. He notes that the IFAA and SMAAS conclude that through the mitigation and additional measures the proposal will not adversely affect the integrity of either European Protected site, and that the Natural England agreed this as its position when consulted by Medway Council on the preparation of the SMAAS.

21. The Secretary of State has paid close attention the SAMMS function, setting out a strategy which includes a range of measures to resolve disturbance issues to wintering birds on the North Kent Marshes focusing on European protected/Ramsar sites as set out at SMAAS 'Part 2 – HRA Screening Assessment':

- Rangers to provide wardening and visitor engagement
- A North Kent Coast dog project to promote responsible dog ownership and encourage walking on lead in sensitive areas
- Codes of conduct developed in partnership with local groups and clubs to raise awareness of recreational disturbance in a variety of activities both on and off of the water
- Interpretation and signage
- New and/or enhanced infrastructure
- Enforcement and Monitoring

The measures are to be delivered through the Birdwise project (www.birdwise.org.uk) , a partnership of local authorities and conservation organisations in North Kent, to ensure that development, considered in-combination, does not have an adverse effect on the integrity of the European sites. Monitoring is to be undertaken on recreational impacts at each of the European protected sites. IFAA 8.8 confirms the applicant agrees the financial contribution required for this. This is secured via a unilateral undertaking dated 13 December 2017 which provides for a payment of £50,305.50 for bird mitigation (paragraph 85 of the Inspector's report).

22. The Secretary of State has considered the multi-faceted approach of the SAMMS described at IFAA 7.8. He is satisfied that the SAMMS is sufficiently robust in setting a level of financial contribution per household (see IFAA 7.7) that will be sufficient to mitigate the SPA/Ramsar sites from development anticipated in the wider North Kent coastal area.

Overall this is agreed to mitigate the in-combination impact from plans and projects in the area including on the two European protected sites.

23. For the reasons given at IFAA 7.2 to 7.3, the Secretary of State considers that the provision of maintained open space and recreation on site, a circular walk around the application site and off-lead areas will reduce the frequency of dog walking away from the appeal site and support the diversion of visitors away from the designated sites. Furthermore, as explained at IFAA 7.4 to 7.5, information is to be provided in packs to emphasise the sensitivity of the areas concerned, give practical guidance on how households can lessen the impact on these and explain the recreational alternatives available. The Secretary of State considers that these measures, while not essential or part of the proposed mitigation, will usefully serve to further lessen the impact on both the Thames Estuary and Marshes and the Medway Estuaries and Marshes SPA/Ramsar sites.

24. For the reasons given at IFAA 6.9 to 6.15 the Secretary of State concludes that the provision of open space represents a suitable measure which will alleviate both existing and potential increased recreation at the SPA/Ramsar site. He recognises that this provision is an integral part of the scheme, and not a proposed mitigation measure intended to protect the SPA/Ramsar site.

25. The Secretary of State agrees that the proposed mitigation for this scheme is compliant with the SAMMS. He also agrees with the assessment of the impact of the potential effects on the integrity of the European protected sites set out both in the SMAAS and IFAA. He concludes that the application proposals would not adversely affect the integrity of the Thames Estuary and Marshes and the Medway Estuaries and Marshes SPA/Ramsar site when the development proposal is considered, either alone or in-combination with other plans or projects.

Natural England's advice

26. This appropriate assessment concludes that the Secretary of State is able to ascertain that the proposal will not result in adverse effects on the integrity of any of the sites mentioned above. Having considered the assessment, and the measures proposed to mitigate for all identified adverse effects that could potentially occur as a result of the proposal, Natural England advises that we concur with the assessment conclusions, providing that all mitigation measures are appropriately secured in any permission given.

Consideration and conclusions

27. Having concluded that the proposal will not adversely affect the integrity of either SPA/Ramsar site, and having given careful consideration to the advice of Natural England, the Secretary of State has considered how the proposed mitigation/avoidance measures needed to ensure the acceptability of the proposal are to be secured should the application be granted.

28. The provision of a financial contribution to SAMMS is to be secured through the unilateral undertaking dated 13 December 2017.

29. The provision of public open space is to be secured via planning condition 4, and the appellant's commitment to providing interpretation boards and resident's information packs is also noted.

30. Accordingly, the Secretary of State is satisfied that if the appeal proposal were granted outline planning permission, the mitigation and avoidance measures he has

deemed necessary to make the proposal acceptable could be secured. In the light of this conclusion, he has not needed to go on to consider whether it can be demonstrated that there are no alternatives and there are imperative reasons of over-riding public interest as to why it must proceed i.e. the derogation tests.

31. Copies of the technical information and correspondence referred to in this Assessment may be obtained by application to the address at the bottom of the first page of the decision letter.

The Planning Inspectorate

Report to the Secretary of State for Housing, Communities and Local Government

by Matthew Nunn BA BPL LLB LLM BCL MRTPI

an Inspector appointed by the Secretary of State

Date: 29 March 2018

TOWN AND COUNTRY PLANNING ACT 1990

MEDWAY COUNCIL

APPEAL BY

GLADMAN DEVELOPMENTS LTD

Inquiry Opened on 28 November 2017

Land off Town Road, Cliffe Woods, Kent, ME3 8JL

File Ref: APP/A2280/W/17/3175461

File Ref: APP/A2280/W/17/3175461
Land off Town Road, Cliffe Woods, Kent, ME3 8JL

- The appeal is made under section 78 of the Town and Country Planning Act 1990 against a refusal to grant outline planning permission.
- The appeal is made by Gladman Developments Ltd against the decision of Medway Council.
- The application Ref MC/16/3669, dated 31 August 2016, was refused by notice dated 5 May 2017.
- The development proposed is described as 'outline planning permission for up to 225 residential dwellings (including up to 25% affordable housing), introduction of structural planting and landscaping, informal public open space and children's play area, surface water flood mitigation and attenuation, vehicular access point from Town Road and associated ancillary works; all matters to be reserved with the exception of the main site access.

Summary of Recommendation: the appeal be allowed, and planning permission granted subject to conditions

Preliminary Matters

1. The Secretary of State recovered the appeal on 13 September 2017 and directed that he would determine it himself. The reason given was that the appeal involved a proposal for residential development of over 150 units on a site of over 5 hectares. This would significantly impact on the Government's objective to secure a better balance between housing demand and supply, and create high quality, sustainable, mixed and inclusive communities.

2. The Inquiry sat on 28, 29 and 30 November, and on 5 and 6 December 2017. In addition to my accompanied site visit on 6 December 2017, I made unaccompanied site visits on other occasions, before, during and after the Inquiry. The Inquiry was closed in writing on 21 December 2017 to allow time for the completion of a planning obligation. This took the form of a unilateral undertaking, dated 13 December 2017. I deal with this in the body of my report[1].

3. The Cliffe and Cliffe Woods Parish Council sought 'Rule 6' status which was granted by letter dated 25 July 2017. Mr Chris Fribbins gave evidence to the Inquiry on behalf of the Parish Council.

4. The application is made in outline with all matters except for access reserved for subsequent determination. The proposal includes a Location Plan (7199-L-01 Rev A), an illustrative Development Framework Plan (7199-L-03 Rev E) showing an indicative layout, and a Proposed Access Arrangement (P16020-001-D)[2].

5. The Council refused the application on 5 May 2017, citing two reasons for refusal[3]. However, the second reason was amended by the Council in September 2017 to exclude reference to a 'valued landscape' as per Paragraph 109 of the National Planning Policy Framework ('the Framework'). At the same time, references to Policies S1 and S2 of the Medway Local Plan were also deleted. The second reason now reads: '*The development, if permitted, would have an*

[1] Inquiry Document (ID) 31
[2] CD 2.1, CD 2.1 & CD 2.18
[3] CD 5.2

adverse impact on the character and visual amenity of the local area, contrary to Paragraph 17 of the National Planning Policy Framework and Policy BNE25(i) of the Medway Local Plan 2003'[4].

6. Following the appellant's request for a screening opinion under the Town and Country Planning (Environmental Impact Assessment) Regulations 2011 (as amended), the Council determined that an Environmental Impact Assessment (EIA) was not required on the basis the proposal did not constitute EIA development[5].

7. An updated Statement of Common Ground, signed and dated 29 November 2017, was jointly agreed by the Council and appellant and provided during the Inquiry[6].

8. The appellant's evidence in relation to landscape matters was originally prepared by Mr Phil Rech. Unfortunately, due to illness, he was unable to attend the Inquiry and landscape evidence was given by Mr Gary Holliday. An addendum was provided by Mr Holliday to be read in conjunction with Mr Rech's original proof.

The appeal site and surroundings

9. The irregularly shaped appeal site comprises a group of three, generally flat, agricultural fields to the west of the built-up area of Cliffe Woods. Cliffe Woods is a village on the Hoo Peninsula in Kent to the north of Strood, Rochester and Chatham. The site area is around 11 hectares. A portion of a field further to the north is proposed to be used for a sustainable drainage scheme and pond. The northern, western and southern boundaries of the site abut open agricultural land. The eastern boundary is delineated by Town Road (B2000) and the residential properties of Mortimers Avenue and Ladyclose Avenue. A public footpath RS72 runs through the site, adjacent to the site's northern boundary. This footpath connects with Town Road to the east, running through an area of scrubland and rough grassland, and to the west runs across further fields connecting to Buckland Road. The field boundaries are defined by a mix of hedging and rows of poplar trees.

10. There are two Second World War pillboxes, one in the north eastern corner of the site, and the other on the south boundary. In the wider context, to the north are further arable fields, often with poplar shelter belts. The built-up area of the village is located to the east of the site on rising land. Further to the south are arable fields, with a small square reservoir enclosed by trees on the eastern side of Town Road. Land to the west comprises arable fields gently rising up to Cooling Hill.

11. The appeal site is not covered by any specific landscape designations. At the national level, the site is identified as falling within the 'North Kent Plain National Character 113'[7]. Its characteristics are an open, low and gently undulating landscape, with large arable and horticultural fields with regular patterns and rectangular shapes predominating. The national profiles are necessarily broad in their descriptions. At a county level, the site is identified as lying within the

[4] CD 12.2
[5] CD 4.9 and 4.10
[6] ID 13
[7] Landscape and Visual Impact Assessment [CD 2.6]

western part of the 'Hoo Peninsula' character area. It is noted that farmland is the predominant land use, although its character varies quite markedly. At a local level, the site is identified as within the 'Cliffe Woods Farmland' landscape character area. This is described as an undulating and complex mix of arable farmland and orchards, with poplar shelter belts being a dominant feature[8]. The description notes that there is a tranquil, rural feel away from roads, creating a distinctive landscape with few detracting features. However, it also notes that principal detracting features include the B2000 with heavy traffic, including lorries servicing the aggregate works and industrial estates, together with pylons to the north and the suburbanisation of village edges.

12. The site is reasonably close to a range of European and nationally designated sites. These include the Thames Estuary and Marshes Special Protection Area (SPA) and Ramsar site; the Medway Estuaries and Marshes SPA and Ramsar site; the North Down Woods Special Area of Conservation (SAC); Peter's Pit SAC and Site of Special Scientific Interest (SSSI); Benfleet and Southend Marshes SPA; Queendown Warren SAC/SSSI; and Chattenden Woods and Lodge Hill SSSI[9].

13. There is no relevant recent planning history at the appeal site.

Planning Policy Context

14. The statutory development plan comprises the 'saved' policies of the Medway Local Plan ('The Local Plan') adopted in May 2003. The Council, in its original reasons for refusal, cited Policy BNE25(i), Policy S1 and Policy S2[10]. Although Policies S1 and S2 were removed from the amended second refusal ground, they were referred to during the Inquiry and relied on by the Council.

15. Policy BNE25 relates to development in the countryside, and criterion (i) states that development will only be permitted if it maintains, and wherever possible enhances, the character, amenity and functioning of the countryside, including the river environment of the Medway and Thames, and it offers a realistic chance of access by a range of transport modes. Criteria (ii) to (vii) impose further conditions on development. These are: that development should be either on a site allocated for that use; or is development essentially demanding a countryside location (such as agriculture, forestry, outdoor or informal recreation); or is a re-use or adaptation of an existing building that is, and would continue to be, in keeping with its surroundings; or is a re-use or redevelopment of the existing built-up area of a redundant institutional complex or other developed land in lawful use; or is a rebuilding of, or modest extension or annex to a dwelling; or is a public or institutional use for which the countryside location is justified and which does not result in volumes of traffic that would damage rural amenity. The policy states that the countryside is defined as that land outside the urban and rural settlement boundaries defined on the proposals map.

16. Policy S1 sets out a development strategy which is to prioritise re-investment in the urban fabric. This includes the redevelopment and recycling of under-used and derelict land within the urban area, with a focus on the Medway riverside areas and Chatham, Gillingham, Strood, Rochester and Rainham town centres.

[8] See Mr Etchell's Proof, Paragraph 3.2.7 onwards & Mr Rech's Proof, Paragraph 3.12 onwards
[9] CD 2.5, Chapter 3
[10] CD 12.1

Policy S2 sets out strategic principles. Of particular relevance is principle (i) which seeks to maintain and improve environmental quality and design standards; and principle (ii) which requires a sustainable approach to the location and mix of new development, to provide local communities with a range of local facilities (including transport measures to serve development and sensitivity in the use of energy and natural resources). Principle (iii) focuses on adopting a sequential approach to the location of major people and traffic attracting forms of development.

17. Policy H11 is not cited in the reasons for refusal, and the Council states that it is not relied on in this appeal and no weight should be placed on it[11]. It was referred to during the Inquiry. Essentially, the policy restricts housing development within the confines of the villages or settlements, unless the site is allocated for housing development in the Local Plan, or an exceptional justification can be made. Cliffe Woods is one of the villages listed within the Policy.

18. The Council is currently preparing a new Local Plan that will guide development up to 2035. This will be a single document, containing both strategic and development management policies, land allocations, minerals and waste, and a policies map. The emerging plan is at an early stage and no draft has yet been published. The latest Local Development Scheme does not anticipate adoption of the emerging plan until 2019. Hence, at this stage, there are no specific policies that can attract any weight.

19. Cliffe and Cliffe Woods Parish Council has submitted proposals to prepare a Neighbourhood Plan. The Council approved the neighbourhood plan area in June 2015 but no draft version has yet been produced. Thus there is no document to which any weight can be given.

Matters agreed between the Council and Appellant

20. The appeal site is located outside, but partly adjacent to, the settlement boundary of Cliffe Woods. It is not allocated for any specific purpose in the Local Plan, nor subject of any designations, including those relating to environmental, historic environment, open space or landscape. It is not a 'valued landscape' in terms of Paragraph 109 of the Framework. Cliffe Woods is identified as a 'rural Settlement' under Policy H11 of the Local Plan.

21. Cliffe Woods contains a range of shops, services and community facilities which include: a community centre, the Cliffe Woods Social Club including the Woodpecker Bar; a Co-op convenience store, including a Post Office; a 'Premier' convenience store; a chip shop takeaway; an Indian takeaway; a health centre; pharmacy; a church; a day nursery; a recreation ground; a primary school; and recycling facilities[12].

22. In terms of transport, the closest bus stop to the site lies around 450m to the east of the centre of the site, along View Road. The 133 bus route operated by Arriva is the main service in Cliffe Woods linking the village to Strood, Rochester, Chatham and St Mary's Island. Other services include routes 193, 417, 601 and

[11] Council's Closing Submissions, Paragraph 80
[12] ID 13, Paragraph 5.4.1

633. The nearest railway station is around 2 km from the site at Higham. Trains operate in each direction serving stations at Gillingham, Chatham, Rochester, Strood, Gravesend, Dartford, Woolwich Arsenal, Lewisham, London Bridge, London Waterloo East, and London Charing Cross[13].

23. It is agreed that the Council is unable to demonstrate a deliverable five year supply of housing, as required by the Framework. The appellant is of the view that the supply is no better than 2.75 years whereas the Council says it is around 3 years. The Council also accepts that there has been a record of persistent under-delivery of housing in the past, and it is a '20%' authority for the purposes of assessing the requisite buffer. The most recent Monitoring Report (December 2016) shows that between 2013 and 2016 there were 2,180 completions against a requirement of 4,000, resulting in a deficit of 1,820 over that period[14].

24. It is agreed that the 'tilted balance' of Paragraph 14 of the Framework applies which states that permission should be granted unless any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in the Framework taken as a whole.

25. There is no objection on highway grounds subject to the works set out in the Statement of Common Ground[15]. No objections are raised on arboricultural, archaeological, ecological, noise or contamination grounds subject to the imposition of appropriate conditions. There are no designated heritage assets within the site, although as already noted, there are two Second World War pillboxes along the site boundaries, which are non-designated heritage assets. Subject to the imposition of conditions, no objections are raised in respect of the effect on these non-designated heritage assets[16].

26. It is agreed that the site falls within Flood Risk Zone 1, the area least at risk at flooding, and that the proposal would not result in any unacceptable impacts on flood risk and drainage, subject to appropriate conditions. In relation to the best and most versatile (BMV) agricultural land, a proportion of the site falls within the BMV 'Good' (Grade 3a) category, whilst the majority is within the BMV 'Moderate' (Grade 3b) category. It is agreed that the loss of agricultural land is not significant enough to be a determining issue[17].

The Case for the Council

27. The Council's full case is contained within the opening and closing statements made by Mr Robert Williams[18], along with the submitted proofs of evidence, comprising Mr Sensecall's proof relating to planning matters, and Mr Etchell's proof relating to landscape matters. This is a summary of the Council's case.

Locational Sustainability

28. Cliffe Woods is not a sustainable location for residential development of this scale. It is a small village with a limited range of shops and limited employment and leisure facilities. There is no secondary school, no larger supermarket, no

[13] ID 13, Paragraph 5.5.1 & 5.5.2
[14] ID 13, Paragraph 5.17
[15] ID 13, Paragraph 5.4.2
[16] ID 13, Paragraph 5.15
[17] ID 13, Paragraph 5.19.1
[18] ID 8 & ID 28

public house, no library, no dentist, no sports centre and no bank. Walking and cycling would not be a realistic proposition for most trips. This is particularly the case for employment, most leisure and retail activities, entertainment and secondary education. Town Road (B2000), which is the most direct route to the main settlements and employment centres to the south, does not have a cycle lane, is predominantly unlit, hilly and is a route used by a large number of HGVs accessing the nearby Brett Aggregates site in Cliffe.

29. Except in respect of school services, the bus service to the village is poor. Although there is a service connecting the village with the centres of Strood and Chatham, it is relatively infrequent (particularly at weekends) and its operating hours severely restrict its utility, especially for commuters or those wishing to travel in the evenings. This is backed up by empirical evidence. The Method of Travel to Work (MTW) data demonstrates that virtually 70% of people within Cliffe Woods travel to work by car[19]. This increases to 75% when passengers and those using motorcycles are accounted for. This is over 10% higher than across Medway as a whole, 12.5% higher than the average across the south east (excluding London) and 16% higher than the average across England as whole.

30. Conversely, only 6.2% of commuter trips from Cliffe Woods are made by foot, cycle or bus, lower than the average across the Hoo Peninsula (8.9%), less than half of the average within Medway (14.9%) and less than a third of the average across England as a whole. The high dependency on private car travel, and the low take-up of sustainable modes of transport is illustrative of the lack of realistic opportunities to use sustainable modes of transport for commuters from Cliffe Woods, as well as the lack of employment opportunities in the village itself.

31. The proposal is a large scale residential development increasing the population of the village by over 20%. It would result in approximately 540 new inhabitants and would generate significant traffic movements, with the Transport Assessment recording an increase of over 15% in traffic movements on Town Road/Lillechurch Road in the AM and PM peaks[20].

32. The scheme itself would not make Cliffe Woods a sustainable location. The appellant does not promote a '*mix of uses in order to provide opportunities to undertake day-to-day activities including work on site*', as encouraged by Paragraph 38 of the Framework. It brings forward no retail, employment or other community uses. On the contrary, what is proposed is a single use, residential development which would fail in any material way to enhance the facilities, service or employment opportunities within Cliffe Woods.

33. In an attempt to bolster the sustainability credentials of the proposal (thereby acknowledging the weakness of the scheme), the appellant has indicated a willingness to fund a demand-responsive 'Arriva Click' bus service, through a planning obligation. This 'Click' service was suggested for the first time in the appellant's proof[21] relating to highways and transport. At no point has the Council been involved in any of the discussions with Arriva. Although the appellant originally offered to fund the service for two years, it is now prepared to do so for five. However, much uncertainty surrounds the operation of the

[19] Mr Schumacher's Proof, Table 5.1
[20] Transport Assessment, Table 6.5 [CD 2.11]
[21] Mr Schumacher's Proof

scheme, and it was increasingly clear during the Inquiry that the appellant has only a limited understanding of how it would operate in practice.

34. For example, it was suggested in evidence that the service could guarantee a waiting time of no more than 20 minutes, but this cannot be correct. If the minibus was heading away from Cliffe Woods to Strood station, there is simply no possibility of it making the drop-off and returning to Cliffe Woods within a 20 minute time-frame, especially in rush hour, notwithstanding the use of 'algorithms'. The provision of the service is also time limited to five years. After that, Arriva will have to make a commercial decision as to whether to retain the service.

35. The appellant accepted that the 'Click' service was still an embryonic service. As such, there can be no guarantees that the service would be self-financing in the long run. The appellant would cover the cost of only one twelve-seater minibus. Thus, at any one time, only 2.5% of the new residents of the proposed development could use the service. Only limited weight should be attributed to the benefits provided by the 'Arriva Click' service. In any event, the service cannot disguise the fact future residents would be highly dependent on car travel, and it cannot be relied upon to make Cliffe Woods a sustainable location for development.

36. The Inspector in the *Hoo* decision[22] concluded that the high degree of dependency on car travel and failure of that scheme to make the location sustainable was an 'enduring harm' which was 'significant'. The same conclusions apply here, albeit for different reasons. Cliffe Woods is not a sustainable location for a development of this scale and nature, and would not be made sustainable by the proposal. The resultant high degree of dependency on non-sustainable forms of transport is an enduring harm which is significant and which should weigh very heavily against the proposal.

37. Locating development in a village which is neither currently sustainable, nor would be made sustainable by the proposal, with the failure to offer '*a realistic chance of access by a range of transport modes*' (Local Plan Policy BE25(i)), let alone to '*make the fullest possible use of public transport, walking and cycling*' (Framework Paragraph 17), means that the development is contrary to both national and development plan policy.

Effect on Character and Appearance - Landscape

38. This would be a large and significant development in terms of character and visual amenity. There are open and rural views into and across the site from its northern and eastern boundaries, with more limited views from slightly further afield to the west and south, as well as medium to long range views from the east and south. The site and immediately surrounding area is assessed as of "medium" landscape quality, and "medium/high" sensitivity to the type of development proposed[23].

39. The development would take place within a part-edge-of-settlement context, but would extend the built form out into open countryside on the west side of Town

[22] APP/A2280/W/15/3132141 [Appendix D of Mr Sensecall's Proof]
[23] Mr Etchell's Proof, Paragraph 8.5

Road (B2000) from the main part of the village. The site is influenced by the edge of the settlement to a degree, but the western edge of the village is reasonably well contained and vegetated, and is also low key in terms of height and density. The buildings to the west of the B2000 are predominantly bungalows, at most 1.5 storeys. The change to the local landscape would be highly visible and would be difficult to screen effectively, at least in the short term, and the development would lead to a significant urbanisation of what is currently a pleasant rural landscape.

40. The development would leapfrog the existing edge of the village and introduce new, taller buildings into an open and rural landscape. There would be a high degree of landscape change within the site as the existing fields would become a new housing estate. There would be 'moderate to high adverse' effects on the character and landscape around the site, and these effects would decrease slowly over time[24]. Effects would persist at a 'moderate adverse' level after 15 years and there would be long term significant harm to the local landscape[25]. There would also be some significant adverse visual effects, mainly for the properties to the east of the site, and for users of the public footpath that runs through the northern part of the site[26].

41. As a consequence, there would be a clear conflict with the core planning principles set out in Paragraph 17 of the Framework. The scheme would harm the character and beauty of the countryside. There would also be a clear conflict with Local Plan Policy BNE25(i) as the development would neither maintain nor enhance, the character, amenity and functioning of the countryside. This weighs heavily against the proposal.

Council's Planning Balance

42. Turning to the planning balance, it is not disputed that there is a substantial need for new housing in Medway. It is accepted that the Council has a large shortfall against the requirement to demonstrate a five year supply of housing such that the 'tilted balance' in Paragraph 14 of the Framework is engaged. The Council recognises the need for new housing and has, where appropriate, granted permission for large scale residential developments where the adverse impacts do not significantly and demonstrably outweigh the benefits. In particular, in the last 12 months the Council has granted permission for over 2,000 dwellings on non-allocated sites alone[27]. It is also preparing a new Local Plan which will be designed to meet its objectively assessed housing needs in full.

43. The relevant legislation establishes a statutory priority in favour of the development plan. The proposal does not accord with the development plan. It conflicts with Policy S1 (Development Strategy) as the thrust of this policy has the objective of focusing new development within the urban area. It conflicts with Policy S2 (Strategic Principles) because of the adverse impacts on landscape and visual amenity, and because Cliffe Woods is not a sustainable location for new development. It would also conflict with Policy BNE25(i) as the scheme would fail to maintain the character and amenity of the countryside and because

[24] Ibid, Paragraph 8.8
[25] Ibid, Paragraph 8.8
[26] Ibid, Paragraph 8.9
[27] For example, at Otterham Quay Lane, Ref MC/16/2051, granted Feb 2017 for a scheme of up to 300 homes [ID 9]

the location of the development would not offer a realistic chance of access by a range of transport modes.

44. Significant weight can be given to Policy BNE25(i) and the harm it seeks to prevent because the protection of the countryside and promotion of sustainable transport are consistent with the Framework. The interests protected by BNE25(i) are separate to, and not based on, out-of-date settlement boundaries. It is perfectly appropriate to give weight to Policy BNE25 to the extent it does not derive from settlement boundaries that in turn reflect out-of-date housing requirements. Therefore the breach of that policy – in respect of harm to landscape character and promotion of sustainable transport modes - should carry significant weight. Disaggregation of policies is not inappropriate in principle: there is no reason why a decision-maker should not afford more or less weight to parts of a policy, particularly where (as here) the different parts reflect different objectives. The appellant's approach of reducing weight across the board, even where there is compliance with the Framework, risks 'throwing the baby out with the bathwater', by ignoring those elements of policies which continue to reflect national policy.

45. As to the strategic policies, the focus of Policy S1 is consistent with national policy, especially the core planning principle to '*encourage the effective use of land by re-using land that has been previously developed (brownfield land)*'. Similarly, the appellant does not dispute Policy S2(i) and (ii) are in broad accordance with the Framework[28]. It follows that the breach of these policies should also be afforded significant weight.

46. *Adverse impacts*: the harm caused by significant development coming forward in an unsustainable location, with the resultant high dependency on the private car, is a harm which should be given significant weight (as per the *Hoo* decision). In terms of landscape and visual impacts, the moderately adverse effects over time are significant and they should also weigh heavily against the proposal. There would be harm to the non-designated heritage assets (the pillboxes), albeit that harm would be less than substantial. This too should weigh against the proposal. Finally, there is the harm to the public interest in having plan-led planning decisions which necessarily arises from the grant of permission for development which is otherwise than in accordance with development plan.

47. *Benefits*: the provision of up to 225 dwellings, including a 25% affordable housing element, would be a significant benefit. The Council also accepts that the resultant positive effect on jobs and the economy from the provision of this level of housing would be beneficial. However, 'double-counting' must be avoided. For example, there is nothing unusual about the benefits to jobs and the economy from this particular housing development as compared to any other. Thus when significant weight is given to the provision of new housing, that is in part because of the economic (and other) benefits which ordinarily flow from the provision of new housing. The same apples in relation to the 'Vitality and Viability' that it is claimed the residents would bring to the village of Cliffe Woods.

48. Although local finance considerations, such as the New Homes Bonus, are capable of being a material consideration, it is only so far as the financial

[28] Mr Booth's Proof, Paragraph 7.3.11 & 7.3.12

considerations are material to the application[29]. As the Planning Practice Guidance (PPG)[30] makes clear, these can only be material considerations where it is shown that they would help to make the development acceptable in planning terms. This has not been done in this instance[31]. In terms of environmental features, much of what is claimed to be a benefit (planting, provision of green infrastructure) is in reality mitigation to reduce the landscape and visual effects. It is accepted that there is the potential for biodiversity benefits on the site and this should be given weight.

Council's Overall Conclusions

49. The development is in neither a sustainable location nor one which would be made sustainable. The failure to offer a realistic chance of access by a range of sustainable transport modes, and the adverse impacts which would be caused to the local landscape character and visual amenity - all of which result in breaches of the development plan - with the resultant harm to the public interest in having plan-led decisions, significantly and demonstrably outweigh the benefits of the scheme. The undeniably considerable benefits of the scheme are significantly and demonstrably outweighed by the adverse effects it would cause. Therefore, the presumption in favour of sustainable development in the Framework does not apply. There is no justification for departing from the development plan in this instance, and the appeal should be dismissed.

The Case for the Appellant

50. The appellant's full case is contained within the opening and closing statements made by Ms Thea Osmund-Smith[32], along with the submitted proofs of evidence, comprising Mr Booth's proof relating to planning matters, Mr Rech's proof relating to landscape matters (together with the addendum provided by Mr Holliday), and Mr Schumacher's proof relating to highways and transport. This is a summary of the appellant's case.

Locational Sustainability

51. The site is a sustainable location for development and is well connected to Cliffe Woods. The scheme includes three points of access into the site in addition to the proposed new vehicular access along Town Road. There are realistic options for walking, public transport, and cycling for journeys to work, recreational activities, and to services and facilities in nearby settlements. Cliffe Woods is an attractive place to live and provides a range of facilities for day-to-day living. It is close to the Medway Towns, as well as the Medway City Estate, a major employment area.

52. The appeal scheme is within walking distance of key facilities within the village, including a primary school. Cliffe Woods is an active and well run local community with various social clubs and societies operating within the village, a number of which meet in the community centre. The shops in Cliffe Woods are capable of meeting day-to-day needs. For larger weekly shops, people would

[29] s.70(2)(b) of TCPA 1990
[30] Paragraph: 011 Reference ID: 21b-011-20140612
[31] ID 28, Paragraph 105
[32] ID 7 & ID 30

generally choose a car to travel in any event, given the number of bags to carry, even if walking was an option.

53. Mr Schumacher provides a comprehensive assessment of the sustainability credentials of the settlement, examining the bus routes, cycle routes and the availability for multi-modal access. He concludes that Cliffe Woods is a sustainable settlement. Bus stops are within walking distance of the site (less than 500 metres). There is an hourly bus service to Strood, Rochester and Chatham which allows for journeys to work and nearby secondary schools (Route 133). The service starts in the morning at 0651 hrs and the last returning service to Cliffe Woods is at 1745 hrs. This service would be perfectly adequate for commuters working in the Medway Towns between 0800 hrs and 1600 hrs or 1700 hrs. It is accepted that the bus service would not provide a viable option for evening / night time travel because, although it may be possible to use the bus for an outward journey, it would be necessary to get a taxi back.

54. The site is close to Higham Railway Station that connects to London Charing Cross with two trains per hour. Ample car parking is available there (around 100 spaces). Strood and Rochester stations are close by (around 6 kms). From there, connections can be made to Gravesend, Ebbsfleet, Stratford, St Pancras International, Maidstone, Gillingham, Ramsgate, Faversham, London Victoria and London Charing Cross. There is a network of routes that mean that cyclists can avoid using the B2000, although it is accepted that these are more likely to be used for recreational rather than commuting purposes. There is a cycling group in the village that meets twice a month for social rides.

55. It is not disputed that the private car would be the main mode of travel for commuting purposes. However, the Framework explains that the Government recognises different policies and measures will be required in different communities and opportunities to maximise sustainable transport solutions will vary from urban to rural areas[33]. This is a pragmatic response which recognises the same level of public transport cannot be expected of a village such as Cliffe Woods as it would be for an urban area. Short car journeys to work should not be viewed as inherently unsustainable, and this has been accepted at other appeals[34]. Moreover, the private car represents the main mode of travel to work nationally, and it would not be reasonable to expect these proposals to break with the national trend. Even if public transport opportunities are provided, it does not always mean they will be taken up.

56. The appellant is proposing to fund an 'Arriva Click' service to be secured in the planning obligation. This is a demand-responsive service whereby users book a seat in advance and are picked up from a safe location. The funding would be for five years from occupation of the first dwelling, with £50 credit provided to each household to encourage the use of the service. It would operate Monday to Friday between 0630 hrs and 2200 hrs and on Saturday and Sunday between 0630 hrs and 2330 hrs serving Cliffe Woods and providing connections to Strood, Rochester and Chatham[35].

[33] Paragraph 29
[34] CD 10.4, Paragraph 25 & CD 10.7, Paragraph 31
[35] ID 30, Paragraph 66

57. The service would function as a hybrid bus / taxi, with regular services to railway stations at peak times, and within a designated catchment. Arriva has indicted that the likely catchment would be Cliffe Woods, Wainscott, Strood, Medway City Estates, Rochester, Chatham and St Mary's Island. At the weekends, the service would extend to Bluewater Shopping Centre. It would therefore provide connectivity to a range of employment opportunities, education and local services including Medway City Estate[36]. The 'Click' service has already been tried and tested in Sittingbourne and has been in operation there since 2017[37]. Arriva consider that this sort of service represents the future of sustainable transport provision. Such a demand-responsive service avoids running empty buses which may occur with traditional services. It would also use low emission Euro VI vehicles.

58. The Council has not raised concerns in respect of highway safety issues, or congestion, and it is agreed that safe access to the site can be achieved, subject to various improvements. It is not alleged that residual cumulative transport impacts would be severe, as per Paragraph 32 of the Framework.

59. Although the Council suggests that the scheme should include a mix of uses to make it sustainable, there is no policy basis for this, nor is there evidence that certain uses, for example employment units, would be viable on this site. Nor could it be guaranteed that occupiers of the new housing would work in the employment units even if they were provided. The Council has not claimed that existing infrastructure within the village cannot cope with the development.

60. Although the Council relies on the *Hoo* appeal decision[38], it is not comparable to the circumstances of this case. In that case the site was at some distance from, and poorly connected to, the services and facilities of Hoo. The boundary of the village was 'relatively impermeable'[39] and there was poor pedestrian connectivity. The village of Cliffe Woods is not impenetrable to the site: quite the opposite, and there is good pedestrian connectivity.

Effect on Character and Appearance – Landscape

61. In terms of landscape impact, it is accepted that there will be some harm arising from the development. That is almost inevitable when open countryside is built on (because green fields are perceived as more desirable than built development), but that does not, of itself, make the proposals unacceptable. In this instance, the Council now accepts that the landscape is not 'valued' in terms of Paragraph 109 of the Framework. It is not out of the ordinary, and it has no important or defining landscape features. It is not a rare landscape and has limited ecological value. It is not designated for its landscape beauty, nor has it ever been, in contrast to other parts of Medway[40]. It is affected by noise from Town Road (B2000), and the existing urban edge of Cliffe Woods. There is housing adjacent to the appeal site itself, which rises up the hill to the east of the site. Hence it has something of a 'settlement edge character'.

[36] ID 30, Paragraph 67
[37] ID 18
[38] APP/A2280/W/15/3132141 [Appendix D of Mr Sensecall's Proof]
[39] Ibid, Paragraph 16
[40] For example, designated as Special Landscape Areas

62. The site is considered to be of 'medium' overall landscape value[41]. In terms of the overall effect on the landscape character of the site itself and its immediate context, the initial 'moderate adverse' effect would reduce to 'moderate/minor' after ten years[42]. In terms of visual effects, the effects would initially be 'moderate adverse' reducing to 'moderate/minor adverse'[43]. There would be no 'major' or 'high' adverse effects. Over time, the scheme would be successfully assimilated into the landscape.

63. The site has limited lawful public access. In fact, the majority of the site is not accessible to the public and most of the appeal site has no formal recreational function[44]. Although the public footpath running along the northern boundary would be affected, it would only be for a limited length of around 300 metres. In practical terms, those walking along the footpath would have simply to walk further to access a countryside view[45]. In any event, the presence of the built-up area of Cliffe Woods is very obvious in existing views from the footpath, whether travelling east or west. New housing need not be unattractive and can create a pleasant environment. There are no designated viewpoints within or towards the site. Although the views from nearby residential properties might be regarded by residents as important, in general terms, the loss of a view cannot be a material planning consideration. The Council accepts that planting and green infrastructure would reduce the adverse effects of development. The Development Framework Plan proposes structural planting in the form of a 15 metre wide corridor alongside the footpath as well as an area of open space in the north east corner of the site[46].

64. The scheme itself is landscape led, comprising nearly 4 hectares of green infrastructure (around a third of the site area). Significant new native planting could be introduced to reinforce the site boundaries. It is not alleged that the appeal site is important to the setting of Cliffe Woods. The rural setting of the village would remain if the scheme was permitted. The development would comprise a logical and natural extension to the existing settlement. In terms of night-time effects, the Council has not raised a specific objection, and a sensitive lighting scheme could be implemented to minimise any impacts. Lighting is already apparent, especially in housing that rises up the hill.

65. The landscape is not of the type that the Framework seeks to protect from development, sitting at the bottom of the landscape hierarchy in terms of its status. Paragraph 113 of the Framework states that protection should be commensurate with status. In areas where there is a housing supply deficit, development should be directed to areas of lesser environmental value.

66. To conclude on this issue, the proposals would not result in any unacceptable harm to the landscape, nor the wider countryside. The scheme could be developed in a way that leads to landscape enhancement, enabling the proposal to successfully assimilate with its surroundings.

[41] Mr Rech's Proof, Paragraph 8.8
[42] Mr Rech's Proof, Paragraph 5.13
[43] Comparative Table [ID 1]
[44] Mr Rech's Proof, Paragraph 3.40
[45] As per the Gibraltar Farm appeal decision, Paragraph 217 (APP/A2280/W/16/3143600)
[46] Mr Rech's Proof, Paragraph 5.17

Appellant's Planning Balance and Overall Conclusions

67. The existing Local Plan, adopted in 2003, was only intended to guide development up to 2006. It is based on an out-of-date housing requirement figure that is not capable of delivering Medway's current housing needs. The latest Strategic Housing Market Assessment (SHMA)[47] that forms part of the evidence base for the emerging Local Plan identifies an objectively assessed need of 1,281 dwellings per annum (dpa). This is significantly higher than the annual requirement that the adopted Local Plan is predicated on (867 dpa) derived from the Kent Structure Plan. The figure from the SHMA may need to be increased before the new plan is adopted. The Council can only demonstrate a 2.75 year supply of housing[48] and is a '20%' authority because of persistent under-delivery of housing.

68. Although there is significant public benefit in maintaining a plan-led system, the policies of the Local Plan are incapable of meeting current housing requirements. This reduces the weight that can be attached to them. It is inevitable that greenfield sites outside the defined settlement boundaries will be required if the shortfall is to be addressed. In fact, the Council is already granting permission for sites outside the settlement boundary in conflict with the Local Plan[49]. In the Gibraltar Farm appeal decision, the Secretary of State agreed with the Inspector that greenfield land will need to be developed[50].

69. Policy BNE25 imposes a 'blanket ban' on development of the sort proposed here, but that policy is intrinsically linked to out-of-date settlement boundaries, and does not reflect the Framework's objective to boost significantly the supply of housing. It is a policy formulated to protect the countryside for its own sake[51] but this is no longer a requirement of the Framework, which now advocates a hierarchical approach to protection. The Council seeks to only apply part (i) of the Policy, and to disapply (ii) to (vi), but the wording of the policy does not allow such an approach. It is not how the policy works. Part (i) of the Policy contains the words "*and is either*", and so is to be interpreted in the light of the exceptions that follow. Although there is a conflict with Policy BNE25, the conflict can only be given little weight.

70. Policies S1 and S2 are not mentioned in the amended reasons for refusal, but the Council seeks to rely on them. This is surprising given the Council's decision to delete reference to them. Although Policies S1 and S2 urge an 'urban focus', that should not be to the exclusion of rural development, nor does it mean the proposal is in conflict with them. Essentially, these policies are silent on the development proposal[52].

71. In the 'Development Options' for the emerging Local Plan[53], Cliffe Woods is earmarked for growth. At the very least, there will be some incremental expansion, and one option would see Cliffe Woods perform as an 'expanded

[47] CD 9.2
[48] Mr Booth's Proof, Page 24
[49] Otterham Quay Lane [ID 9]
[50] CD 10.1, Paragraph 13 (& Inspector's Report, Paragraph 200)
[51] Medway Local Plan, Paragraph 3.4.71 [CD 7.1]
[52] ID 30, Paragraphs 113 & 114
[53] CD 8.1

village'. Therefore, the village is already regarded as appropriate for some household growth.

72. There is no heritage reason for refusal, and thus no statutory duties relating to heritage assets are engaged. There are non-designated heritage assets and therefore Paragraph 135 of the Framework is engaged. This is not a 'restrictive policy' in terms of the Framework, but even without applying the Paragraph 14 'tilted balance', the negligible harm[54] to one pillbox (on the southern boundary[55]) is heavily outweighed by the benefits of the scheme[56]. No harm would be sustained to the other pillbox (on the north eastern boundary[57]). No harm would be sustained to a third pillbox, located outside the appeal site, around 200 metres to the south.

73. The scheme would make a valuable contribution to market and affordable housing. There are economic and social benefits to the scheme[58]. Local spending would increase, supporting local facilities and services[59]. The development would result in jobs during the construction phase[60]. The New Homes Bonus would bring additional resources to the Council[61]. The scheme would offer new recreational opportunities, including a trail around the site, past the pillboxes. There would be net gains in biodiversity with additional planting and provision of green space. The existing pillboxes would be converted to dedicated bat roosts, and there would be heritage benefits in securing their preservation for future generations.

74. The Council accepts that financial contributions towards health, education, the public realm and affordable housing mitigate the impacts of the scheme and meet the relevant policy requirements. To conclude, there are only very limited adverse impacts to be weighed against a number of very significant benefits, including the provision of market and affordable housing. There are also bio-diversity benefits. The new residents of the scheme could contribute to Cliffe Woods and become active members of the community, enhancing the village. Therefore, the appeal should be allowed.

The case for Cliffe and Cliffe Woods Parish Council

75. The Parish Council's case is summarised in the original 'Rule 6' submission and the statement provided at the Inquiry[62]. The Parish Council is disappointed to see that the decision of the Council is now subject of appeal. It wants to ensure that the views of local residents are presented to the Inquiry. The Parish Council has been engaged since the pre-application meetings took place, and has responded to both the pre-planning application consultation and application itself, and participated in the public meeting at the Cliffe Woods Community Centre in October 2016 called in response to residents' serious concerns, held jointly with Kelly Tolhurst MP and Medway Council Ward Councillors.

[54] Mr Booth's Appendix 3 (Built Heritage Summary Statement for Appeal)
[55] Type 24 Pillbox TQ 77 SW 56
[56] ID 30, Paragraphs 124 - 127
[57] Type 24 Pillbox TQ 77 SW 59
[58] Mr Booth's Proof, Page 44
[59] Household expenditure from the new homes is estimated to be around £7.4 million per annum
[60] The build cost is estimated to be around £23.9 million with 212 jobs per annum created during construction
[61] Estimated to be around £2.1 million [Mr Booth's Proof Page 44]
[62] ID 27

76. The Parish Council strongly supports the Council's reasons for refusal, relating to the sustainability of the site, and the effect on the landscape. The suggested financial contributions from the legal agreement do not cover the impacts that this scheme would have on facilities within the village. The development would impact on existing services: pre-school, primary school, doctors' surgery, the community centre and other community facilities. In particular, the primary school would be unable to satisfy the needs of this development – and provision will need to be provided elsewhere, leading to more traffic. There is already over-reliance on the private motor vehicle and other transport provision is poor. There are limited facilities and services in the locality – most are in Strood, Rochester, Chatham and Gravesend. The proposal does not address the additional problems that this development would create. The site, originally assessed as a 'valued landscape', has always been in agricultural use, and provides a natural boundary between Cliffe Woods and the boundary with Gravesham / Kent County Council.

77. The site is located on the west side of Town Road (B2000) and is separated from the village facilities by a busy main road with significant lorry movements to Cliffe (Salt Lane). The traffic survey commissioned by the Parish Council shows that significant numbers of lorries use the B2000. The proposed highway works, including the provision of a footpath between View Road and Tennyson Road, do not overcome the problems of crossing the road. The main access to the site is adjacent to the busy B2000 Town Road / View Road junction (a main route into the village for residents) with poor visibility from View Road towards the proposed new access. There are already traffic problems around the primary school at drop-off and pick-up times, which will be exacerbated by this scheme.

78. The suggestion that the 'Click' bus service would help reduce the need for a car has not been proven. The ability to pick up a customer within 20 minutes would be very difficult to achieve, especially in peak times, and would not be practical if Bluewater Shopping Centre were to be included as a destination. There is a lack of clarity as to how the service could be booked, and whether there would be a need for pre-booking and pre-paying via a smart phone.

79. The scheme fails to address the problems it would create and is unsustainable. There is little practical benefit being proposed for the village. The development is located on the 'wrong side' of the B2000. The Parish Council fully supports the reasons for refusal and requests that the appeal is dismissed.

Comments of Third Parties

80. The Council's committee report advises that there were 332 letters of objection from local residents, as well as a petition comprising 198 signatures. A number of individuals spoke against the scheme at the Inquiry[63]. Objections to the proposals raise many points and include the following: the site is not identified in the Medway Local Plan nor Neighbourhood Plan; the site is not in a sustainable location with limited shops / services and public transport provision; the large scale of development is unacceptable, and will overload existing limited facilities and infrastructure in the village; it will cause increased pressure on schools, doctors surgeries, police, fire services etc; the financial contributions in the legal agreement are inadequate; and the provision of affordable housing is inadequate.

[63] Listed as interested persons at the end of this report

81. It will result in the loss of open countryside and the loss of the best and most versatile agricultural land – such land should be retained for food production, especially in the light of the decision to leave the European Union; development would have a significant environmental impact – including impacts on biodiversity, and local habitats, including nearby Special Protection Areas and Sites of Special Scientific Interest; it would have a harmful effect on the landscape character of the area and destroy the village environment; new housing development should take place on brownfield sites; there is no need for housing on this scale; the development would lead to urban sprawl and to Cliffe Woods becoming an extension of Strood and Rochester; the lack of a 5 year supply of housing is only temporary and does not outweigh the harm that this development would permanently cause; and there would be loss of amenity, outlook and views especially from properties in Ladyclose Avenue and Mortimers Avenue.

82. There would be increased light and air pollution; the indicative scheme layout is unacceptable; the land is potentially contaminated; there are potential subsidence issues in the locality; there are drainage concerns, including those relating to increased runoff causing flooding; there would be an increase in crime and antisocial behaviour; there would be an unacceptable impact on the highway network – the roads are already dangerous, especially the B2000 that has many HGV lorry movements; the increase in traffic would make the problem worse and the proposed access point has limited and poor visibility; and the application documentation is misleading and there has been poor pre-submission community consultation.

Other objections

83. **Kelly Tolhurst (Member of Parliament for Rochester and Strood)** objects to the proposal, noting the substantial opposition from local constituents. In a letter dated 5 July 2017, she observes that a public meeting was attended by more than two hundred local residents who were unanimously opposed to the scheme. Specific concerns related to the increased pressure on local services, transport, emergency services, the primary school and GP practice. The proposal would also have an adverse effect on the environment, as well as causing increased pollution and traffic congestion.

Planning Obligation

84. The appellant has provided a planning obligation dated 13 December 2017 in the form of a unilateral undertaking. The obligation secures the provision of affordable housing at the rate of 25%. It also secures various financial contributions towards: the provision of a bus service scheme comprising a 'Click' demand-responsive minibus service, including credit (£50) to pay for travel on the bus service; a bus season ticket for the first occupier of each dwelling; improvements to public transport infrastructure in the vicinity - for example upgrading the bus stop/shelter (£25,000); an education contribution towards nursery, primary, secondary and sixth form education (to be calculated using a formula); a healthcare contribution (up to £105,288.75); a school transport contribution (£5,000) towards the costs of safer roads to school initiatives and updating Cliffe Woods Primary School's travel plan.

85. The obligation secures a footpath contribution (£1,800) towards two 'kissing gates' to replace the stiles at each end of footpath RS72 on the northern

boundary of the site, as well a contribution (£500) towards new footpath signage; and an outdoor open space contribution (to be calculated according to a formula). It also provides for bird mitigation (£50,305.50); and towards waste management (£85,686.30). The obligation provides for the establishment of a management company to maintain the open space (including the play area) in accordance with a scheme to be submitted to and approved in writing by the Council. The obligation provides for a public realm contribution (£55,125). It also provides for a monitoring fee (£2,700) towards the Council's costs of monitoring compliance of the obligations.

86. I have no reason to doubt that the formulae and charges used by the Council and County Council to calculate the various contributions are other than soundly based. In this regard, the Council has produced a Compliance Statement[64] which demonstrates how the obligations meet the relevant tests in the Framework[65] and the Community Infrastructure Levy Regulations[66]. The development would enlarge the local population with a consequent effect on local services and facilities. I am satisfied that the provisions of the obligation are necessary to make the development acceptable in planning terms, that they directly relate to the development, and fairly and reasonably relate in scale and kind to the development, thereby meeting the relevant tests in the Framework and the Community Infrastructure Levy Regulations. I have taken the obligation into account in my deliberations.

Conditions

87. I have reviewed the suggested conditions in the light of the discussion at the Inquiry and advice in the PPG. Where necessary, I have reworded them for clarity and simplicity, and have also amalgamated some of the conditions to avoid duplication.

88. Commencement conditions are necessary to comply with the relevant legislation. A condition requiring compliance with the submitted plans and specifying the maximum number of dwellings is necessary for the avoidance of doubt. A condition specifying the scope of requirements in relation to reserved matters is necessary to ensure these matters are properly dealt with and to achieve a high quality scheme. These matters include the design and layout of dwellings and materials to be used; details of boundary treatments, hard and soft landscaping; details of retained trees and hedgerows; existing and proposed ground levels; internal road layouts, parking and pedestrian routes, including surfacing details; details of the public realm; details of refuse and recycling storage; measures to minimise the risk of crime; and an open space masterplan. A condition to ensure the replacement of any trees or plants that die, become diseased or are removed is required to ensure the effectiveness of the landscaping scheme.

89. A condition relating to lighting is necessary to ensure adequate illumination, whilst minimising light pollution and safeguarding ecological interests. Conditions relating to sustainable surface drainage, ecology, highway works, archaeology and contamination are required to ensure that these matters are appropriately addressed. A condition requiring a travel plan is required to minimise private car

[64] ID 17
[65] Paragraph 204
[66] Regulation 122 & 123

trips and encourage sustainable modes of transport. A condition requiring a construction management plan is necessary to minimise disturbance to local residents. A condition relating to the two pillboxes on the site is necessary to ensure these non-designated heritage assets are protected. A number of the conditions relate to pre-commencement activities. In each of these cases, the requirement of the condition is fundamental to make the scheme acceptable in planning terms.

Inspector's Conclusions[67]

Main Issues

90. In the light of all the evidence and submissions, I consider the main issues to be:

    i. the locational accessibility of the site, in terms of shops and services, and public transport;

    ii. the effect on the character and appearance of the area, including the landscape; and

    iii. in the absence of a five year supply of deliverable housing sites, whether any adverse impacts would significantly and demonstrably outweigh the benefits of the scheme.

Reasons

Planning Policy Context

91. The relevant legislation[68] requires that the appeal be determined in accordance with the statutory development plan unless material considerations indicate otherwise. The statutory development plan comprises the Medway Local Plan ('the Local Plan') adopted in 2003. Only Policy BNE25 is now specifically cited by the Council in its refusal grounds. *[5]*

92. The Framework sets out the Government's planning policies and is a material consideration in planning decisions. The Framework does not change the statutory status of the development plan for decision-making, but provides guidance for decision-takers in determining planning applications. The Local Plan predates the Framework, although the Framework states that policies should not be considered out-of-date simply because they were adopted prior to the Framework's publication[69]. Nonetheless, the Local Plan is formally 'time expired', its end date being 2006. That said, the mere age of a plan does not mean that it loses its statutory standing as the development plan.

93. In this case, there is no dispute that the Council cannot demonstrate a deliverable five year supply of housing, as required by the Framework. The appellant is of the view that the supply is no better than 2.75 years although the Council says it is around 3 years. Either way, the shortfall in supply remains significant. The Council also accepts that the housing targets in the Medway

[67] In this section, the numbers in square brackets [] refer to earlier paragraphs of this report
[68] Section 38(6) of the 2004 Act
[69] Paragraph 211

Local Plan no longer represent the objectively assessed housing need for the district, and that the settlement boundaries were only designed to plan for growth up to 2006. There is no dispute between the Council and appellant that Paragraph 14 of the Framework is triggered. Indeed, the housing shortfall is sufficient, of itself, to trigger the second part of Paragraph 14. This so called 'tilted balance' states that permission should be granted unless any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in the Framework taken as a whole *[23, 24, 42, 67]*.

94. There was disagreement at the Inquiry as to the weight to be given to Policy BNE25 [*44, 69*]. Given that Policy BNE25 is concerned with development in the countryside, both the Council and appellant were of the view that it should not be considered a policy for the supply of housing[70] particularly as case law has effectively narrowed the definition of such policies[71]. Nonetheless, I consider that Policy BNE25 in dealing with development in the countryside is intrinsically linked to settlement boundaries that in turn reflect out-of-date housing requirements. Furthermore, it is clear that its application is not leading to sufficient housing being provided in accordance with the Framework nor is it boosting the supply of housing[72].

95. The Framework also advises at Paragraph 215 that due weight should be given to relevant policies in existing plans according to their degree of consistency with the Framework. In terms of Policy BNE25, Part (i) states that development will only be permitted if it maintains, and wherever possible enhances the character, amenity and functioning of the countryside and it offers a realistic chance of access by a range of transport modes. This first part of the policy is subject to further criteria which restrict development to specific uses or circumstances set out at (ii) to (vii). In my judgement, the wording of the policy implies that criterion (i) should be read conjunctively and not disjunctively with the subsequent criteria. This is clearly conveyed by the words '*and is either*' at the end of criterion (i).

96. The Framework refers to the planning system performing various roles, including an environmental one. This involves contributing to protecting and enhancing the natural, built and historic environment[73], as well as, amongst other things, taking account of the different roles and character of different areas, and recognising the intrinsic character and beauty of the countryside[74]. The Framework specifically states planning should contribute to conserving and enhancing the natural environment[75]. It also seeks to promote sustainable transport and give people a choice about how they travel[76]. To that extent, the first criterion of Policy BNE25 is not in fundamental conflict with the underlying aims of the Framework.

[70] Council's Closing Submissions, Paragraph 85 (2)
[71] *Suffolk Coastal District Council v Hopkins Homes Ltd and SSCLG; Richborough Estates Partnership LLP and SSCLG v Cheshire East Borough Council [2017] UKCS 37*
[72] Paragraph 49
[73] Paragraph 7
[74] Paragraph 17
[75] Paragraph 17
[76] Section 4

97. All that said, Policy BNE25 read as a whole is not fully consistent with the Framework to the extent that it lacks a hierarchical approach requiring that landscape protection is commensurate with status, and it arbitrarily restricts proposals to various forms of development that meet certain specific criteria. That is not surprising given that the Local Plan was conceived at a time when national guidance sought to protect the countryside for its own sake, as acknowledged in supporting paragraph 3.4.71[77]. Indeed, the thrust of the Framework has moved away from a 'blanket protection' of the countryside, to a more hierarchical approach of consideration of landscape value, and it places no 'in principle' restriction on the type of development.

98. To sum up, I consider that the wording of the Policy BNE25 means that it was intended to be applied as a whole, rather than its individual elements selectively. Furthermore, whilst it remains legitimate to consider the impacts of development on the character and appearance of the countryside, the policy's approach to development in the countryside does not fully accord with the Framework's more hierarchical approach to landscape protection. In addition, it is clear that its application is not resulting in sufficient housing being provided. The Secretary of State in the *Gibraltar Farm* decision concluded that the policy 'clearly seeks to restrict housing growth'[78]. Overall, therefore, all these factors diminish the weight that can be accorded to any conflict with this policy.

99. At the Inquiry the Council also sought to rely on Policies S1 and S2 of the Local Plan, notwithstanding that these policies were deleted from the reasons for refusal[79] *[5, 43, 45, 70]*. Policy S1 sets out the development strategy for the plan area and seeks to prioritise development within the existing urban areas. Policy S2 is concerned with the implementation of the development strategy set out in Policy S1, with a focus on maintaining and improving environmental quality and design standards, and a sustainable approach to the location and mix of new development to provide local communities with a range of local facilities (including transport measures to serve development).

100. These principles are broadly consistent with the overall objectives of the Framework. Nonetheless, it is clear that the development strategy of the Local Plan and the application of Policies S1 and S2 are failing to provide sufficient housing in accordance with the Framework. This runs counter to the objectives of Paragraph 47 of the Framework which seeks to boost significantly the supply of housing. Again, this limits the weight that can be attached to any conflict with these policies.

Locational Accessibility

101. The village of Cliffe Woods has a range of shops, services and community facilities *[21]*. There is a parade comprising a useful variety of outlets: a pharmacy, two convenience / grocery stores (including a post office), a fish and chip takeaway (which also sells burgers and kebabs), and an Indian takeaway. There is also a community centre and social club (including the Woodpecker Bar). There is a doctors' surgery/health centre, a church, a day nursery, a primary school and recreation ground. There is also a sizeable car park in the village

[77] Page 79 of the Local Plan
[78] APP/A2280/W/16/3143600, Paragraph 11 [CD 10.1]
[79] CD 12.2

centre where there are recycling facilities. These facilities are all close to the appeal site, and would be readily accessible to future residents.

102. The site is also accessible to public transport *[22]*. The closest bus stop to the site lies around 450m to the east of the centre of the site, along View Road. The 133 bus route is the main service in Cliffe Woods linking the village to Strood, Rochester, Chatham and St Mary's Island. However, whilst operating at reasonably regular intervals during the day, it does not operate in the very early morning or after early evening. Therefore, its timetable restricts the utility for commuters or those wishing to travel in the evenings for leisure purposes. The nearest railway station is not far away, at around 2 km from the site at Higham, where car parking is available. Trains operate in each direction serving stations at Gillingham, Chatham, Rochester, Strood, Gravesend, Dartford, Woolwich Arsenal, Lewisham, London Bridge, London Waterloo East, and London Charing Cross.

103. Although the village centre does provide a useful selection of outlets for essential shopping needs, residents of the village would need to travel further afield for a wider and more specialist range of shops. Although the use of internet shopping is growing, this does not obviate the need for shopping trips. Employment opportunities in the village are somewhat limited, as are leisure facilities. Although some residents may work from home, many would need to commute to larger centres. Also, there is no secondary school, library or bank in the village.

104. It seems to me that, notwithstanding the existing level of public transport, including both buses and train services, residents would be likely to rely on the private car for a number of trips. Although cycling may be an option for some residents, it is not a realistic option for most, especially those wishing to travel to Strood, Chatham or beyond for commuting purposes. Indeed, the appellant accepted that the possible options for cycling, utilising Town Road (B2000) and existing national and local cycle networks, were not particularly attractive to cyclists[80]. Town Road, which is the most direct route to the main settlements and employment centres to the south, does not have a cycle lane, is predominantly unlit and is heavily used by lorries.

105. Measures have been proposed by the appellant to improve accessibility of the scheme *[56, 57]*. As part of the planning obligation, the appellant has agreed to fund a bus service scheme for a period of five years. It is envisaged that this will operate as an 'Arriva Click' demand-responsive service. The planning obligation requires the details of the scheme be agreed, including specification of the vehicles to be used, the departure points, en-route stops, and the charging and fares to be employed.

106. It is clear that a degree of uncertainty exists as to how this service would operate in practice, particularly in order to guarantee the waiting times suggested by the appellant. Both the Council and Parish Council urged that only limited weight could be attributed to the benefits provided by this service, and it could not be relied upon to alter the dependency on the car for future residents *[34, 35, 78]*. I acknowledge that the bus scheme is still in its embryonic stages, and further liaison will be required to crystallise its exact details and mechanics.

[80] This was accepted by Mr Schumacher in cross–examination.

However, the scheme should not be discounted as potentially improving transport links and accessibility to the site.

107. The appellant also proposes a financial contribution of £25,000 towards the costs of public transport infrastructure improvements in the vicinity of the site including upgrades to the bus stop in View Road. The appellant proposes to offer a bus season ticket for a period of three months and 'bus service credit' of £50 to pay for travel on the 'click' service for future households of the development *[84]*. All these measures will go some way to facilitating sustainable travel modes, and improving the site's accessibility to sustainable transport.

108. The Council relies on the *Hoo* appeal decision[81], where the Inspector found that a residential development was not in a sustainable location, and would be highly dependent on car travel *[36, 60]*. However, that decision is not directly comparable to the circumstances of this case. In that case, the site was at some distance from, and poorly connected to, the services and facilities of Hoo. The boundary of the village was 'relatively impermeable'[82]. The site although juxtaposed with the western boundary of Hoo, had little or no connection with it and there was poor pedestrian connectivity. By contrast, in this case, the site is in close proximity to the centre of Cliffe Woods, its associated shops and other facilities. Although separated by Town Road, the facilities are not impenetrable to the site and there is good pedestrian connectivity.

109. To sum up on this first issue, there is a range of essential shops and other services in Cliffe Woods that would be accessible to future residents of the scheme. Nonetheless, residents are likely to travel further afield for larger food supermarkets, specialist shops, leisure, employment, and secondary schools. This is likely to generate trips by car, notwithstanding the existing public transport services available in the locality. Importantly however, the Framework, although seeking to promote sustainable transport, recognises that different policies and measures will be required in different communities, and opportunities to maximise sustainable transport solutions will vary from urban to rural areas[83]. Parts of the Medway District are more rural in character, including the Hoo Peninsula and the village of Cliffe Woods. This means that options for public transport are more limited, as are the availability of shops, local services and facilities. This requires a realistic approach to the general travel method of its residents.

110. Moreover, residents of the appeal development would be in no different position to the existing residents of Cliffe Woods. Measures are proposed as part of the scheme to improve accessibility and encourage sustainable transport. I find no intrinsic conflict with the requirement of Policy BNE25 that development should '*offer a realistic chance of access by a range of transport modes*'. Weighing all the above in the balance, I am satisfied on the first issue that the proposal can be justified in this location. Furthermore, by introducing new market and affordable housing along with the associated economic benefits, the proposal would comply with the Framework, which advocates supporting a prosperous rural economy[84].

[81] APP/A2280/W/15/3132141 [Appendix D of Mr Sensecall's Proof]
[82] Ibid, Paragraph 16
[83] Paragraph 29
[84] Paragraph 28

Effect on Character and Appearance – Landscape

111. The appeal site has no specific landscape designation or protection. At a local level the site falls within the 'Cliffe Woods Farmland' landscape character area. This character area is described as comprising undulating arable farmland and orchards, with poplar shelter belts being a dominant feature. Whilst the description notes that there is a tranquil, rural feel away from roads, it also accurately records that detracting features include the B2000 which carries heavy traffic (including lorries), together with pylons to the north and the suburbanisation of village edges *[11]*.

112. In terms of scenic quality, the appeal site can be regarded as reasonably attractive, comprising open fields, but it is nothing out of the ordinary. It contains few landscape features of intrinsic value. Indeed, the Council specifically amended its second reason for refusal to omit reference a 'valued landscape'. Although currently open, its character is significantly affected by the urban development on its edges – in particular, the busy Town Road (B2000), the residential housing within Mortimers Avenue and Ladyclose Avenue as well as the larger urban expanse of Cliffe Woods on rising land to the east. Whilst I acknowledge the northern, western and southern boundaries abut open agricultural land, the site is largely perceived in the context of the nearby development. I do not consider the site to be an essential or intrinsic component of the wider open countryside. In terms of tranquillity, the locality is affected by the heavy traffic flows, including a significant number of lorries along Town Road.

113. Although I observed a number of walkers traversing the edges of fields, these are not formal public rights of way. Indeed, the majority of the site is not accessible to the public and most of the appeal site has no formal recreational function *[63]*. The open fields do, however, provide a setting for the public footpath running along the northern boundary. This footpath is clearly popular and locally valued, and is a route used by walkers, including those living in the village. The proposed coverage of the existing fields with housing would inevitably compromise views from this stretch of footpath. The introduction of built form would undoubtedly alter users' experiences: rather than walking past an open field, it would in effect become a walk past a housing estate. The development would create a substantially more suburban appearance. Most users are likely to find their experience and enjoyment of this section of footpath diminished by such changes to the landscape.

114. All that said, only a very limited section of footpath would be affected by the proposal. In practical terms, those walking along the footpath on the northern edge of the appeal site would simply have to walk further westwards to experience an open country view. In any event, views from the footpath are already affected by the properties of Mortimers Avenue and Ladyclose Avenue, as well as the built environs of Cliffe Woods rising up the hill. The Development Framework Plan proposes structural planting comprising a 15 metre wide corridor alongside the footpath as well as an area of open space in the north east corner of the site. These features would help mitigate the impact on the footpath *[63]*.

115. Turning to views in the wider landscape, the site has a relatively restricted 'visual envelope'[85]. There are views from the north and east, but these are

[85] Landscape and Visual Appraisal, Figure 7 [CD 2.6]

filtered by the existing built development of Cliffe Woods. Views from the west are impeded because of the undulating landform and vegetation along the site's boundary. To the south, views are affected by intervening belts of vegetation, although during the winter months when deciduous trees lose their leaves, the site is more obvious. Limited views of the site are possible from the local lanes of Buckland Road to the west and Lillechurch Road to the south. Nonetheless, the effect of the development on the wider landscape could be mitigated by structural planting, as shown on the Development Framework Plan.

116. Drawing all these matters together, in terms of character and appearance, the appeal scheme would inevitably adversely affect the currently open and rural character of the landscape. It would result in the urbanisation of agricultural fields, although the impact of the scheme would reduce as the proposed structural planting and landscaping matures. In terms of Policy BNE25(i), the scheme would not maintain or enhance the character, amenity and functioning of the countryside, and so would not accord with that aspect of the policy. On the other hand, Paragraph 113 of the Framework states that landscape protection should be commensurate with status. This undesignated landscape is not of the type that the Framework seeks to protect from any forms of development, sitting at the bottom of the landscape hierarchy in terms of its status. In areas where there is a housing supply deficit, development should be directed to areas of lesser environmental value.

Other Matters

117. A number of objectors have raised concerns in relation traffic safety and congestion *[77, 82]*. The Council has agreed that safe access to the site can be achieved, subject to various highway improvements being undertaken. These include the provision of a new section of footway on the eastern side of Town Road between the junctions with Tennyson Avenue and View Road; the realignment of the existing carriageway and the provision of a 2 metre wide footway along the site frontage, including a pedestrian crossing island; the provision of a controlled pedestrian crossing to the south of the Town Road/Tennyson Road junction; and the provision of a traffic island at the existing speed limit terminal on Town Road to the south of Cliffe Woods, along with new carriageway surfacing. Such measures could be secured by condition. It is not alleged that residual cumulative transport impacts of the scheme would be severe, in terms of Paragraph 32 of the Framework. The evidence does not suggest that the scheme should fail on highway grounds.

118. Objectors have also raised concerns regarding the overburdening of local services, including education and medical *[76, 80]*. The appellant's planning obligation provides for financial contributions in respect of education and healthcare provision. The amounts have been calculated using the Council's own formula based on the anticipated need generated from future residents of the appeal site. There is no reason for the approval to be withheld based on these concerns.

119. Concerns have been raised regarding the impact on outlook and privacy at nearby properties, especially from the residents of Mortimers Avenue and Ladyclose Avenue *[81]*. The Development Framework Plan indicates that an undeveloped margin of around 15 metres would be retained along the boundaries adjacent to these properties. Detailed plans, when drawn up, would indicate the

precise layout and positioning of dwellings, and ensure that there are no adverse effects in terms of privacy and overshadowing. Clearly, the outlook from these properties would change, but there is no reason to suppose the effect would be unacceptable.

120. Objectors have raised concerns in relation to the loss of best and most versatile (BMV) agricultural land *[81]*. The majority of the site is within the BMV 'Moderate' (Grade 3b) category although a proportion of the site falls within the BMW 'Good' (Grade 3a) category. Both the Council and appellant agree that the loss of agricultural land is not significant enough to be a determining issue in this case, and I see no reason to take a different view *[26]*.

121. A number of other concerns have been raised in respect ecology and nature conservation interests, flood risk, ground conditions / contamination and archaeology *[81, 82]*. In terms of ecology, no part of the site is covered by wildlife designations. An Ecological Appraisal has been undertaken to determine the habitats present within the site[86]. The Appraisal concludes that the main body of agricultural land is considered to be of low ecological value, but that the hedgerows, ditches and trees on or near to the site boundaries are likely to provide opportunities for a range of local wildlife. No signs of badger activity were identified, nor were any bat roosting habitats identified within the developable area, with commuting and foraging habitats largely restricted to hedgerows and trees forming the site boundaries. Appropriate mitigation measures could be undertaken, secured by condition, to ensure there is no negative effect on nature conservation interests. There is also the opportunity for ecological enhancement and habitat creation through new open spaces proposed within the site.

122. The site is also reasonably close to a range of European and nationally designated sites *[12]*, including SPAs, Ramsar sites, SACs and SSSIs. Such sites are susceptible to damage caused by increasing recreational pressure. However, Natural England (NE)[87] considers the proposal to be acceptable, subject to appropriate mitigation[88], including in respect of birds, which can be secured by a planning obligation and conditions.

123. A Flood Risk Assessment has been prepared which confirms that the site falls entirely within Flood Zone 1 where there is a low probability of flooding. Flood and drainage matters can be appropriately dealt with by a condition requiring the submission of a sustainable drainage scheme prior to any development commencing *[26]*.

124. In terms of ground contamination, the site has previously been used for agricultural activities with a low risk of contamination. With regards to archaeology, an archaeological desk based assessment has been carried out and the comments of the County Archaeological Officer sought[89]. In accordance with the advice received, both contamination and archaeological matters can be satisfactorily dealt with by suitably worded conditions *[25]*.

[86] CD 2.5
[87] CD 3.7 & 3.16
[88] As detailed in the Thames, Medway and Swale Estuaries Strategic Access Management and Monitoring Strategy
[89] CD 3.8

125. There are Second World War pillboxes along the edge of the site. Paragraph 135 of the Framework requires any effects on the significance of a non-designated heritage asset to be taken into account. The Council has not raised any objections regarding the impact on these non-designated assets, subject to an appropriate condition being imposed and I see no reason to take a different view *[25]*.

Planning Balance and Overall Conclusions

126. The relevant legislation requires that the appeal be determined in accordance with the statutory development plan unless material considerations indicate otherwise. The Framework states that proposals should be considered in the context of the presumption in favour of sustainable development, which is defined by economic, social, and environmental dimensions and the interrelated roles they perform. These dimensions give rise to the need for the planning system to perform a number of roles.

127. In this case, the additional housing would be a weighty benefit for the area, by introducing much needed private and affordable housing for local people. It would boost the supply of housing in accordance with the Framework, contributing up to 225 homes, of which up to 25% would be affordable. It would bring about additional housing choice and competition in the housing market. The scheme would bring about social and economic benefits. It would create investment in the locality and increase spending in shops and services. It would result in jobs during the construction phase. The New Homes Bonus would bring additional resources to the Council.

128. The scheme has other advantages, including the provision of open space with an equipped play area that could also be used by the general public. New planting and landscaping, as well as the provision of a pond as part of the sustainable urban drainage system, has the potential to enhance the ecology and biodiversity of the site. New pedestrian routes would be created across the site to supplement the existing public footpath. The obligation provides, amongst other things, for improvements to the public transport infrastructure, including the upgrade of the nearby bus shelter, and the provision of an on-demand responsive 'Click' bus service. Not only would these measures mitigate the adverse effects on the development, they would also convey benefits to the wider population.

129. The development would result in the loss of open agricultural land and would result in the urbanisation of the existing fields. However, the existing landscape is adjacent to, and perceived in the context of, the urban edge of Cliffe Woods. It contains few landscape features of intrinsic value and the Council does not contend that this is a 'valued landscape'. The impact of the scheme would significantly reduce as the proposed structural planting and landscaping matures. There is no reason why the development could not be adequately assimilated over time. Paragraph 113 of the Framework states that landscape protection should be commensurate with status. In areas where there is a housing supply deficit, development should be directed to areas of lesser environmental value.

130. Cliffe Woods is accessible to public transport, including bus and train services. Although provision is not comparable to that of a built-up urbanised area, there are opportunities for residents to use public transport. There is a range of essential shops and other local facilities, which are within walking distance.

Residents of the new development are likely to travel further afield for a wider range of shops, services, leisure opportunities and employment, necessitating trips by private vehicles. That said, residents of the appeal development would be in no different position to other existing residents of Cliffe Woods.

131. The Framework, although seeking to promote sustainable transport, recognises that different policies and measures will be required in different communities, and opportunities to maximise sustainable transport solutions will vary from urban to more rural areas. Parts of Medway, including Cliffe Woods, are more rural in character with less generous provision of public transport and more limited facilities, compared with built-up urban areas. A realistic approach is required to the general travel method of residents, and this should not weigh against the development.

132. The Council refers to the public interest in having a plan-led system for the delivery of housing. However, it is a core planning principle of the Framework that plans should be kept up to date[90]. In addition, the Framework is clear that every effort should be made objectively to identify and then meet the housing needs of an area[91]. The Medway Local Plan, adopted in 2003, was only intended to guide development up to 2006. It is based on an out-of-date housing requirement. Its policies are incapable of meeting current housing requirements. In the *Gibraltar Farm* appeal decision, the Secretary of State agreed with the Inspector that greenfield sites outside the defined settlement boundaries would inevitably need to be developed. That situation has not changed.

133. In summary, there would be some conflict with Policy BNE25(i) of the Medway Local Plan in terms of the effect on the landscape. However, the development would offer access by a range of transport modes, as required by BNE25(i), although new residents may also rely on private vehicles. The scheme would be not be located within an existing urban area, as prioritised by Policies S1 and S2. Importantly, though, the Council cannot demonstrate a five year supply of housing. Moreover, Policy BNE25 is not fully compliant with the Framework, and, together with Policies S1 and S2, they are not delivering the necessary provision of housing. This diminishes the weight that can be attached to any conflict with these policies.

134. The significant ongoing housing shortfall attracts substantial weight in favour of granting permission for the proposals, unless any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies of the Framework taken as a whole. I am satisfied that none of the reasons put forward for opposing the development establishes that the harm would be significant or would demonstrably outweigh the benefits. Therefore, notwithstanding any conflict with Policies BNE25, S1 and S2 of the Local Plan, I recommend that the appeal should succeed, subject to the imposition of conditions.

135. In reaching my recommendation, I have carefully considered the serious concerns voiced by many local residents, the Cliffe and Cliffe Woods Parish Council, the Ward Councillors and the Member of Parliament for Rochester and Strood. I appreciate that there is substantial opposition to the scheme.

[90] Paragraph 12
[91] Paragraph 17, 3rd bullet

However, in this case, I have judged the balance falls in favour of granting permission because the adverse impacts would not significantly and demonstrably outweigh the benefits.

Recommendation

136. I recommend that the appeal be allowed and planning permission be granted subject to the conditions set out in the schedule at Annex A.

ANNEX A

Schedule of Conditions

1) Details of the appearance, landscaping, layout and scale (hereinafter called "the reserved matters") shall be submitted to and approved in writing by the local planning authority before any development takes place and the development shall be carried out as approved.

2) Application for the approval of the reserved matters shall be made to the local planning authority not later than 2 years from the date of this permission. The development hereby permitted shall begin no later than 12 months from the date of approval of the last of the reserved matters to be approved.

3) The development hereby permitted shall be carried out in general accordance with the following plans: Location Plan 7199-L-01 Rev A; Development Framework Plan 7199-L-03 Rev E; Proposed Access Arrangement P16020-001-D; and the number of dwellings shall not exceed 225.

4) Details of appearance, landscaping and layout required to be submitted and approved under Condition 1 shall include details of:

   i. the design, layout and form of the dwellings, including details of the external surfaces and materials to be used;

   ii. fencing, walling, boundary treatments and means of enclosure of the dwellings;

   iii. a scheme of hard and soft landscaping, including additional planting along the boundaries of the site, the specification of trees, hedges, and shrub planting, and details of species, density and size of stock;

   iv. all trees and hedgerows on the land and details of those to be retained and how they will be protected during construction;

   v. existing and proposed ground levels;

   vi. the internal road layout and car parking provision; and the layout of proposed pedestrian routes within the site, including details of the works proposed to existing Public Right of Way RS72;

   vii. the public realm including the colour, texture and quality of surfacing of footpaths, roads, parking areas and other shared surfaces;

   viii. refuse / recycling storage and collection points;

ix. measures to minimise the risk of crime; and

x. an open space masterplan for the site, including long term design objectives, management responsibilities and maintenance schedules.

5) The landscaping works shall be carried out in accordance with the approved details agreed by the local planning authority, and any trees or plants which within a period of 5 years from the date of planting die, are removed or become seriously damaged or diseased shall be replaced in the next planting season with others of a similar size and species, unless the local planning authority gives written approval to any variation.

6) No dwelling shall be occupied until an external lighting strategy has been submitted to and approved in writing by the local planning authority. The strategy shall ensure adequate illumination of roads and paths and avoid unnecessary light pollution. The strategy shall: (i) identify areas and features on site that are particularly sensitive for bats, and (ii) provide details of how and where external lighting will be installed so that lit areas will not disturb and prevent bats using their territory, including breeding sites and resting places. The strategy shall be implemented and thereafter managed and maintained in accordance with the approved details.

7) No development shall commence until a scheme for a sustainable surface water drainage strategy has been submitted to and approved in writing by the local planning authority. The scheme shall be implemented and thereafter managed and maintained in accordance with the approved details.

8) The dwellings shall not be occupied until a travel plan to promote and encourage the use of alternative modes of transport to the car has been submitted to and approved in writing by the local planning authority. The travel plan shall include raising awareness in respect of cycling, walking, car share initiatives, car clubs and provide details of a nominated travel plan co-ordinator. The scheme shall include, for the first occupier of each dwelling, the provision of a travel information welcome pack to raise awareness in respect of sustainable modes of transport.

9) No development shall take place until a construction management plan has been submitted to and approved in writing by the local planning authority. The plan shall provide for: details of how construction traffic will access the site; the proposed hours and days of working; proposals to minimise disruption to the adjacent local area from ground works, construction noise and site traffic; the parking of vehicles of site personnel, operatives and visitors; loading and unloading of plant and materials; the contractors' site storage areas and compounds; vehicle wheel washing facilities; measures to guard against the deposit of mud or other substances on the highway; a strategy for the minimisation of noise, vibration and dust (including from any piling works); and site contact details in case of complaints . The approved details shall be adhered to throughout the construction period.

10) No development shall commence until a detailed schedule of highway works (to be undertaken in general accordance with Plan P16020-001-D) has been submitted to and approved in writing by the local planning authority. The dwellings shall not be occupied until the works have been undertaken

in accordance with the approved details, and they shall be permanently retained thereafter. The works shall include:

i. the provision of a new section of footway on the eastern side of Town Road between the junctions with Tennyson Avenue and View Road;

ii. the realignment of the existing carriageway and the provision of a 2 metre wide footway along the site frontage, including the provision of a pedestrian crossing island;

iii. the provision of a controlled pedestrian crossing to the south of the Town Road/Tennyson Road junction;

iv. the provision of a traffic island at the existing speed limit terminal on Town Road to the south of Cliffe Woods, along with new carriageway surfacing; and

v. ensuring no obstruction, structure or erection exceeding 0.6 metres in height within the sightlines of the new site access with Town Road.

11) No development shall commence until an ecological management strategy has been submitted to and approved in writing by the local planning authority. The strategy shall include: details of objectives to achieve ecological enhancement of the site; details of measures for encouraging biodiversity within the site; review of site potential and constraints; details of works to achieve objectives; details of the body or organisation responsible for implementation; the timetable for implementation; details of aftercare and long term maintenance; details of monitoring and remedial measures; details of a legal and funding mechanism by which the implementation of the Strategy will be secured. The strategy shall be carried out as approved.

12) No development shall take place until a programme of archaeological work has been secured and implemented in accordance with a written scheme of investigation, which shall first have been submitted to and approved in writing by the local planning authority.

13) No development shall take place until a scheme relating to the two pillboxes on the site has been submitted to and approved in writing by the local planning authority. The scheme shall provide details for the protection of the pillboxes, and how they will be utilised in the future. The scheme shall be carried out as approved.

14) If during the course of development, contamination is found to be present on the site, then no further development (unless otherwise agreed in writing by the local planning authority) shall be carried out until the developer has submitted and obtained written approval from the local planning authority for a remediation strategy detailing how the contamination shall be dealt with. The remediation strategy shall be implemented as approved, verified and reported to the satisfaction of the local planning authority.

APPEARANCES

FOR THE COUNCIL

Mr Robert Williams	of Counsel, Instructed by Medway Council

He called

Steven Sensecall	Carter Jonas
John Etchells	John Etchells Consulting

FOR THE APPELLANT

Ms Thea Osmund-Smith	of Counsel, Instructed by Gladman Developments Ltd

She called

David Schumacher	PRIME Transport Planning
Tim Booth	Planning Director, Gladman Developments Ltd
Gary Holliday	FPCR Environment & Design Ltd

FOR CLIFFE AND CLIFFE WOODS PARISH COUNCIL

Chris Fribbins	Clerk to the Parish Council

INTERESTED PERSONS

Roger Brown	Representative of SAVE Cliffe Woods Campaign & Local Resident
Ray Styles	Local Resident
Greg Kitsell	Local Resident
David Wolfson	Local Resident
Josephine Brown	Local Resident
Robert Norton	Local Resident
David Johnson	Local Resident

DOCUMENTS SUBMITTED AT THE INQUIRY

1. Comparison of Landscape and Visual Assessments of the Council and Appellant
2. Gladman Developments Ltd v Daventry DC [2016] EWCA Civ 1146
3. Bloor Homes East Midlands Ltd v SSCLG & Hinckley and Bosworth Borough Council [2014] EWHC 754 (Admin)
4. Extract of Planning Practice Guidance relating to Brownfield Registers and Permission in Principle
5. Note on admission arrangements for Cliffe Woods Primary School for September 2018
6. Detailed Access Plan showing trees to be retained
7. Opening Statement on behalf of the Appellant
8. Opening Statement on behalf of the Council
9. Council Committee Planning Report relating to land at Otterham Quay Lane, Rainham, Kent (Ref MC/16/2051)
10. Notes for a statement from SAVE (Save Agricultural Village Environment) by Mr Roger Brown
11. Note showing bookings at Cliffe Woods Community Centre
12. Historic Map of Cliffe Woods
13. Updated Statement of Common Ground, dated 29 November 2017
14. Submissions of David Wolfson
15. Extracts of various legal agreements relating to the provision of bus services
16. Department for Transport Note TAG Unit M1.2 Data Sources and Surveys
17. Planning Obligation Note: explaining provisions and compliance with CIL Regulations
18. Note about 'ArrivaClick'
19. Note regarding local activities in Cliffe Woods, by Mr Booth
20. Development Framework Plan (7199-L-03 Rev E) – annotated with dimensions
21. Submissions of Mr Robert Norton
22. Submissions of Mr David Johnson
23. Note of Dianne Foreman, Chair of Governors, Cliffe Wood Primary School
24. Map showing additional viewpoints of site
25. Schedule of suggested conditions

26. Note by Arriva regarding 'Click Service'

27. Closing Submissions on behalf of Cliffe and Cliffe Woods Parish Council by Mr Chris Fribbins

28. Closing Submissions on behalf of Medway Council

29. SSCLG & Reigate & Banstead Borough Council & Tandridge District Council v Redhill Aerodrome Ltd [2014] EWCA Civ 1386

30. Closing Submissions on behalf of the Appellant

31. Completed Planning Obligation dated 13 December 2017

Proofs of Evidence submitted by the Council

Mr Steven Sensecall	Proof & Appendices (Planning)
Mr John Etchells	Proof & Appendices (Landscape)

Proofs of Evidence submitted by the Appellant

Mr Tim Booth	Proof & Appendices (Planning)
Mr Phil Rech	Proof & Appendices (Landscape)
Mr Gary Holliday	Addendum to Mr Rech's Proof (Landscape)
Mr David Schumacher	Proof & Appendices (Highways and Transport)

Evidence submitted by Cliffe Woods and Cliffe Woods Parish Council

Mr Chris Fribbins	Statement of Case & Appendices

CORE DOCUMENTS LIST

CD1 Original Planning Application Documents

1.1 Planning Application Form and Notice Letters
1.2 Location Plan - Dwg No. 2013-076-100 (Superseded)
1.3 Development Framework Plan 7199-L-03 Rev D (Superseded)
1.4 Access Plan P16020-001B (Superseded)
1.5 Design and Access Statement (Superseded)
1.6 Ecological Appraisal (Superseded)
1.7 Landscape and Visual Appraisal (Superseded)
1.8 Arboricultural Assessment (Superseded)
1.9 Phase 1 Desk Based Site Investigation (Superseded)
1.10 Flood Risk Assessment (Superseded)
1.11 Foul Drainage Analysis (Superseded)
1.12 Transport Assessment (Superseded)
1.13 Travel Plan
1.14 Archaeological Assessment (Superseded)
1.15 Noise Screening Report
1.16 Air Quality Method (Statement)
1.17 Planning Statement (Superseded)
1.18 Statement of Community Involvement (Superseded)
1.19 Socio Economic Report
1.20 Heritage Statement

1.21 Soils and Agriculture Report (Superseded)

CD2 Post Application Documents

2.1 Location Plan Rev A
2.2 Development Framework Plan Rev E
2.3 Access Plan Rev C
2.4 Design and Access Statement
2.5 Ecological Appraisal
2.6 Landscape & Visual Impact Assessment
2.7 Arboricultural Assessment
2.8 Phase 1 Site Investigation
2.9 Flood Risk Assessment
2.10 Foul Drainage Analysis
2.11 Transport Assessment
2.12 Archaeological Assessment
2.13 Planning Statement
2.14 Statement of Community Involvement
2.15 Soils and Agriculture Report
2.16 AADT Traffic Figure
2.17 Access Management Strategy
2.18 Access Plan Rev D
2.19 Air Quality Damage Costs
2.20 CGMS response to Historic England
2.21 Ecological Appraisal December
2.22 Trip Distribution Data
2.23 Stage 1 Road Safety Audit
2.24 Technical Note

CD3 Consultation Responses

3.1 Kent Police
3.2 PROW Team
3.3 Footpath Officer
3.4 Highways England
3.5 Southern Water
3.6 KCC Ecological Advice
3.7 Natural England
3.8 Archaeological Officer
3.9 Historic England
3.10 Southern Water
3.11 KCC Biodiversity
3.12 Friends of the North Kent Marshes
3.13 Parish Council
3.14 Highways
3.15 Highways England
3.16 Natural England 2

CD4 Relevant Correspondence

4.1 Email from Chris Butler regarding updated reports
4.2 Email from D Stoddart to Kevin Bown re: Technical Note
4.3 Email from D Stoddart to Chris Butler re: revised Access Plan
4.4 Email from D Stoddart to Chris Butler re: Stage 1 RSA
4.5 Email from K Bown to D Stoddart re: removal of highway objection
4.6 Email from D Harris to P Hilldrup re: outstanding consultee responses

4.7 Email from P Hilldrup to C Butler re: planning committee dates
4.8 Email from C Butler to P Hilldrup re: removal of Natural England objection
4.9 Request for Screening Request
4.10 Screening Request Response

CD5 Decision Notice and Committee Report

5.1 Committee Report
5.2 Decision Notice

CD6 Plans for Determination

6.1 Location Plan - Rev A
6.2 Development Framework Plan - Rev E

CD7 Development Plan

7.1 Local Plan Proposals Map
7.2 Medway Local Plan 2003
7.3 Medway Saved Policies

CD8 Emerging Local Plan Documents

8.1 Local Plan Development Options

CD9 Development Plan SPG / SPD and Evidence Base

9.1 December 2016 AMR
9.2 Medway SHMA Final Report
9.3 SLAA Report and Maps February 2017
9.4 Guide to Developer Contributions 2014

CD10 Relevant Appeal Decisions

10.1 Land at Gibraltar Farm, Ham Lane, Hempstead, Gillingham APP/A2280/W/16/3143600
10.2 Not required
10.3 Not required
10.4 Land off Lucks Lane Buckden APP/H0520/W/16/3159161
10.5 Land off Rusper Road, Ifield APP/Z3825/W/15/3019480
10.6 Land off Chapel Lane, Norton in Hales APP/L3245/W/15/3004618
10.7 Land off Banady Lane, Stoke Orchard APP/G1630/A/14/2223858
10.8 Tadgedale Quarry, Mucklestone Road, Loggerheads APP/P3420/W/16/3149399
10.9 Not required
10.10 Land off Chester Road Malpas APP/A0665/A/13/2193956
10.11 Land off Churton Road Farndon APP/A0665/A/13/2196893
10.12 Land off Gipping Road and Church Road Stowuplands APP/W3520/W/15/3139543
10.13 Land off Yatt Road North Lea APP/D3125/W/15/3136376

CD11 Relevant Judgements

11.1 SSCLG v Telford and Wrekin Council [2016]EWHC 3073 (Admin)
11.2 Suffolk Coastal District Council [2017] UKSC 37
11.3 Phides Estates Ltd & Shepway District Council [2015] EWHC 827 (Admin)
11.4 SSCLG v Stroud District Council [2015] EWHC 488 (Admin)
11.5 SSCLG v Forest of Dean District Council [2016] EWHC 2429 (Admin)

CD12 Other Core Documents

12.1 Email from D Harris minor change to wording Reason for Refusal
12.2 Planning Committee minutes 25.10.17
12.3 Medway Village Infrastructure Audit January 2017
12.4 GLVIA 3
12.5 National Character Area Profile 113 ‘ North Kent Plain’
12.6 Landscape Assessment of Kent (October 2004)
12.7 Kent Historic Landscape Characterisation (May 2001)
12.8 Medway Landscape Character Assessment (March 2011)
12.9 Correspondence from Brendan Doyle June 2016 (from pre application discussions)
12.10 Illustrative Masterplan (extracted from CD2.4)
12.11 Gravesham Landscape Character Assessment (May 2009)
12.12 Email from Chris Butler providing update on S106 contributions
12.13 Developer contributions: Public Realm
12.14 Greenspace Services s106 Open Space
12.15 NHS Property request for contributions
12.16 Public Realm request for contributions
12.17 s106 Contributions – Chatham projects
12.18 s106 Contributions Rainham project
12.19 s106 Chatham Town Centre
12.20 s106 Rainham High Street
12.21 CLG Housing Need Consultation
12.22 Rochester Committee Report

Ministry of Housing, Communities & Local Government

www.gov.uk/mhclg

RIGHT TO CHALLENGE THE DECISION IN THE HIGH COURT

These notes are provided for guidance only and apply only to challenges under the legislation specified. If you require further advice on making any High Court challenge, or making an application for Judicial Review, you should consult a solicitor or other advisor or contact the Crown Office at the Royal Courts of Justice, Queens Bench Division, Strand,London,WC2 2LL (0207 947 6000).

The attached decision is final unless it is successfully challenged in the Courts. The Secretary of State cannot amend or interpret the decision. It may be redetermined by the Secretary of State only if the decision is quashed by the Courts. However, if it is redetermined, it does not necessarily follow that the original decision will be reversed.

SECTION 1: PLANNING APPEALS AND CALLED-IN PLANNING APPLICATIONS

The decision may be challenged by making an application for permission to the High Court under section 288 of the Town and Country Planning Act 1990 (the TCP Act).

Challenges under Section 288 of the TCP Act
With the permission of the High Court under section 288 of the TCP Act, decisions on called-in applications under section 77 of the TCP Act (planning), appeals under section 78 (planning) may be challenged. Any person aggrieved by the decision may question the validity of the decision on the grounds that it is not within the powers of the Act or that any of the relevant requirements have not been complied with in relation to the decision. An application for leave under this section must be made within six weeks from the day after the date of the decision.

SECTION 2: ENFORCEMENT APPEALS

Challenges under Section 289 of the TCP Act
Decisions on recovered enforcement appeals under all grounds can be challenged under section 289 of the TCP Act. To challenge the enforcement decision, permission must first be obtained from the Court. If the Court does not consider that there is an arguable case, it may refuse permission. Application for leave to make a challenge must be received by the Administrative Court within 28 days of the decision, unless the Court extends this period.

SECTION 3: AWARDS OF COSTS

A challenge to the decision on an application for an award of costs which is connected with a decision under section 77 or 78 of the TCP Act can be made under section 288 of the TCP Act if permission of the High Court is granted.

SECTION 4: INSPECTION OF DOCUMENTS

Where an inquiry or hearing has been held any person who is entitled to be notified of the decision has a statutory right to view the documents, photographs and plans listed in the appendix to the Inspector's report of the inquiry or hearing within 6 weeks of the day after the date of the decision. If you are such a person and you wish to view the documents you should get in touch with the office at the address from which the decision was issued, as shown on the letterhead on the decision letter, quoting the reference number and stating the day and time you wish to visit. At least 3 days notice should be given, if possible.

Report

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North Kent Strategic Housing and Economic Needs Assessment

Strategic Housing Market Assessment

Final Report

Medway Council

November 2015

Contents

Appendices

1. Introduction

1.1 The purpose of this Strategic Housing Market Assessment (SHMA) is to understand Medway Council's current and future housing market and how this relates to housing growth and needs. The SHMA will identify levels of housing demand and produce estimates of households in affordable housing need, including the requirements of specific needs groups. It will inform understanding of Medway's local housing market in the short and longer term.

1.2 The findings of the research will be used to inform the development of the local plan and policies for long-term delivery of housing within the authority area, as well as informing negotiations on planning applications. More specifically in relation to planning policy, the research will inform the Council's emerging Local Plan, which will replace the 2003 Medway Local Plan and cover the period up to 2035.

1.3 Medway sits within the wider Kent and wider South East of England context. Whilst the authority is inevitably influenced by London, it also has strong regional connections through motorway and rail networks, in particular to the east. These factors influence business location, labour market and housing markets. There has been progress on targeted regeneration schemes, and Medway benefits from relationships to the wider regional economy. There has been marked growth in residential values in the last year.

1.4 Despite sitting within a dynamic economic context, Medway has experienced greater economic challenges than some neighbouring areas, and market values across a range of domains trend lower than nearby areas. In retail terms locations of main settlements close to the Thames Estuary mean that there are some characteristics of coastal communities, with something of a 180 degree catchment creating more challenges than faced by other centres. Economic restructuring away from traditional manufacturing and distribution industries and divestment of military facilities has had a long term impact. The post 2008 recession had marked impacts locally, and the return of values to pre-recession values has been slow, and in some cases has shown recent worsening. Socio-economic characteristics do display some concentrations of deprivation.

Background

1.5 The SHMA provides a fit for purpose evidence base to help develop housing and planning policies by considering the characteristics of the housing market, how key factors work together and the probable scale of change in future housing need and demand.

SHMA Requirements: The NPPF (2012), Planning Practice Guidance (2013 & 2014) and CLG SHMA Guidance (2007)

1.6 The publication of the National Planning Policy Framework (NPPF) in March 2012 forms an important consideration for this SHMA research. This was augmented with the publication of draft Planning Practice Guidance in August 2013, finalised in March 2014, but which is periodically updated.

1.7 At the heart of the NPPF is the presumption in favour of sustainable development. In paragraph 14 this states that "*local planning authorities should positively seek opportunities to meet the development needs of their area*". However, this should not be the case if "*any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole; or specific policies in this Framework indicate development should be restricted*". This may include, "*For example, those policies relating to sites protected under the Birds and Habitats Directives and/or designated as Sites of Special Scientific Interest; land designated as Green Belt, Local Green Space, an Area of Outstanding Natural Beauty, Heritage Coast or within a National Park (or the Broads Authority); designated heritage assets; and locations at risk of flooding or coastal erosion*" (Footnote 9).

1.8 Core planning principles are set out within the NPPF. One of these in particular is important concerning this evidence base document. This states that planning should:

- "*Proactively drive and support sustainable economic development to deliver the homes, business and industrial units, infrastructure and thriving local places that the country needs. Every effort should be made objectively to identify and then meet the housing, business and other development needs of an area, and respond positively to wider opportunities for growth. Plans should take account of market signals, such as land prices and housing affordability, and set out a clear strategy for allocating sufficient land which is suitable for development in their area, taking account of the needs of the residential and business communities*" (Paragraph 17, bullet point 3).

1.9 Paragraph 159 of the NPPF requires local planning authorities to "*have a clear understanding of housing requirements in their area*". They should "*prepare a Strategic Housing Market Assessment to assess their full housing requirements, working with neighbouring authorities where housing market areas cross administrative boundaries. The SHMA should identify the scale and mix of housing and the range of tenures that the local population is likely to require over the plan period which:*

- *Meets household and population projections, taking account of migration and demographic change;*

- *Addresses the need for all types of housing, including affordable housing and the needs of different groups in the community (such as families with children, older people, disabled people, service families and people wishing to build their own homes); and*
- *Caters for housing demand and the scale of housing supply necessary to meet this demand*"

1.10 The Draft Planning Practice Guidance (August 2013) was published to complement the NPPF and provide advice on how to deliver its policies. This was subsequently revised forming the new Planning Practice Guidance (PPG) (March 2014). Part of the PPG was specifically related to assessment of housing and economic development needs.

1.11 According to the Guidance (Paragraph: 002 Reference ID: 2a-002-20140306); "*The primary objective of identifying need is to: identify the future quantity of housing needed, including a breakdown by type, tenure and size*…." The definition of need in the guidance (Paragraph: 003 Reference ID 2a-003-20140306) is explained as follows:

- "*Need for housing in the context of the guidance refers to the scale and mix of housing and the range of tenures that is likely to be needed in the housing market area over the plan period – and should cater for the housing demand of the area and identify the scale of housing supply necessary to meet that demand;*
- *Need for all land uses should address both the total number of homes based on quantitative assessments, but also on an understanding of the qualitative requirements of each market segment; and*
- *Assessing development needs should be proportionate and does not require local councils to consider purely hypothetical future scenarios, only future scenarios that could reasonably be expected to occur*".

1.12 The Guidance also states that "*Plan makers should not apply constraints to the overall assessment of need, such as limitations imposed by the supply of land for new development, historic under-performance, infrastructure or environmental constraints. However, these considerations will need to be addressed when bringing evidence bases together to identify specific policies within development plans*" (Paragraph 004 Reference ID: 2a-004-20140306).

1.13 "*Local planning authorities should assess their development needs working with the other local authorities in the relevant housing market area in line with the duty to cooperate. This is because such needs are rarely constrained precisely by local authority administrative boundaries*" (Paragraph 007 Reference ID: 2a-007-20150320).

1.14 The Guidance describes a housing market area as "*a geographical area defined by household demand and preferences for all types of housing, reflecting the key functional*

linkages between places where people live and work. It might be the case that housing market areas overlap. The extent of the housing market areas identified will vary, and many will in practice cut across various local planning authority administrative boundaries" (Paragraph: 010 Reference ID: 2a-010-20140306). The HMA should be defined using house prices, rates of change in house prices, household migration and search patterns and contextual data e.g. travel to work area boundaries, retail and school catchment areas (Paragraph: 011 Reference ID: 2a-011-20140306)

1.15 In Paragraph: 014 Reference ID: 2a-014-20140306 plan makers are advised to "*avoid expending significant resources on primary research as this will in many cases be a disproportionate way of establishing an evidence base. They should instead look to rely predominantly on secondary data to inform their assessment which are identified within the Guidance*".

1.16 The Guidance requires plan makers to use household projections published by the Department for Communities and Local Government as "*the starting point estimate of overall housing need*". Although these "*may require adjustment to reflect factors affecting local demography and household formation rates which are not captured in past trends. For example, formation rates may have been suppressed historically by under-supply and worsening affordability of housing*" (Paragraph: 015 Reference ID: 2a-015-20140306).

1.17 The projections may also take account of "*migration levels that may be affected by changes in employment growth or a one off event such as a large employer moving in or out of an area, or a large housing development such as an urban extension in the last five years*", and "*demographic structure that may be affected by local circumstances or policies e.g. expansion in education or facilities for older people*" (Paragraph: 017 Reference ID: 2a-017-20140306).

1.18 Market signals should also be taken into account (Paragraph: 019 Reference ID: 2a-019-20140306):

- Land Prices;
- House Prices;
- Rents;
- Affordability;
- Rate of Development; and
- Overcrowding.

1.19 Paragraph : 021 Reference ID: 2a-021-20150326 indicates that "*Once an overall housing demand figure has been identified, local authorities are required to break this down by*

tenure, household type (singles, couples and families) and household size. Plan makers should therefore examine current and future trends of:

- *The proportion of the population of different age profiles;*
- *The types of household (e.g. singles, couples, families by age group, numbers of children and dependents);*
- *The current housing stock size of dwellings (e.g. one, two+ bedrooms); and*
- *The tenure composition of housing*".

1.20 "*When considering future need for different types of housing, plan makers will need to consider whether they plan to attract a different age profile eg increasing the number of working age people. Plan makers should look at the household types, tenure and size in the current stock and in recent supply, and assess whether continuation of these trends would meet future needs*". They should also seek to quantify the needs of the following groups (Paragraph: 021 Reference ID: 2a-021-20150326):

- The private rented sector;
- People wishing to build their own homes;
- Family housing;
- Housing for older people; and
- Households with specific needs.

1.21 The calculation of affordable housing need "*involves adding together the current unmet housing need and the projected future housing need and then subtracting this from the current supply of affordable housing stock*", fully according with Paragraph: 022 Reference ID: 2a-022-20140306. Detail of the data sources used is provided in a later section.

1.22 As Paragraph: 029 Reference ID: 2a-029-20140306 sets out; "*The total need for affordable housing should be converted into annual flows by calculating the total net need (subtract total available stock from total gross need) and converting total net need into an annual flow. The total affordable housing need should then be considered in the context of its likely delivery as a proportion of mixed market and affordable housing developments, given the probable percentage of affordable housing to be delivered by market housing led developments. An increase in the total housing figures included in the local plan should be considered where it could help deliver the required number of affordable homes*".

1.23 Prior to the publication of the Draft Planning Practice Guidance and its revision as the new PPG, The CLG had published SHMA guidance 'Strategic Housing Market Assessments – Practice Guidance' in August 2007 (hereafter 'the SHMA Guidance'). This SHMA Guidance "*sets out a framework that local authorities and regional bodies can follow to develop a good*

understanding of how housing markets operate". Although the Planning Practice Guidance now provides the most up-to-date guidance for undertaking research of this kind, and the 2007 SHMA Guidance no longer has formal guidance status, the framework and approach set out in the SHMA Guidance remains useful and relevant, and clearly sets out key steps and outputs for the SHMA to follow which are also compliant with the new Planning Practice Guidance.

1.24 The SHMA Guidance recognises that "*housing markets are dynamic and complex*" and as a result SHMAs "*will not provide definitive estimates of household need, demand and market conditions*". SHMAs can however, "*provide valuable insights into how housing markets operate both now and in the future. They should provide a fit for purpose basis upon which to develop planning and housing policies by considering the characteristics of the housing market, how key factors work together and the probable scale of change in future housing need and demand*".

1.25 The approach taken within this SHMA follows this SHMA Guidance, in combination with the NPPF and Revised Planning Practice Guidance (March 2014). It addresses each of the core outputs as set out in Table 1 below, with an additional column outlining within which section of the report the core output is addressed. Section 10 of this Report provides a conclusion to the analysis by bringing together each of these core outputs.

Table 1 - Compliance with CLG Guidance Core Outputs

SHMA Guidance – Core Outputs Table 2.1	Report section in which key outputs are presented and analysed
Output 1 - Estimates of current dwellings in terms of size, type, condition, tenure	Section 3
Output 2 - Analysis of past and current housing market trends, including balance between supply and demand in different housing sectors and price/affordability. Description of key drivers underpinning the housing market	Section 3
Output 3 - Estimate of total future number of households, broken down by age and type where possible	Sections 3 & 6
Output 4 - Estimate of current number of households in housing need	Section 5
Output 5 - Estimate of future households that will require affordable housing	Section 6
Output 6 - Estimate of future households requiring market housing	Section 9
Output 7 - Estimate of the size of affordable housing required	Section 6
Output 8 - Estimate of household groups who have particular housing requirements e.g. families, older people, key workers, black and minority ethnic groups, disabled people, young people, etc…	Section 8

Source: CLG SHMA Guidance (2007) & GVA (2014)

1.26 This research has utilised a range of methodological approaches drawing upon new and updated secondary data to develop a robust understanding of the operation of the housing market area. It has also involved undertaking a new Housing Needs Survey. This approach aligns with the Guidance, which advises that the SHMA research can draw from a range of primary and/or secondary data sources:

"Whether a strategic housing market assessment is based upon secondary or survey data should not be a factor in determining whether an assessment is robust and credible. No one methodological approach or use of a particular dataset(s) will result in a definitive assessment of housing need and demand. The quality of the data used is the important consideration in determining whether an assessment is robust and credible rather than its nature" (CLG Strategic Housing Market Assessments Practice Guidance – Version 2, 2007, paragraph 11).

1.27 The Housing Needs Survey, conducted by telephone and face to face interviewing, involved the participation of 1,000 Medway residents, with interviews distributed proportionally across the 22 Medway wards, using a weighted sampling approach. This replicates the demographic profile of the authority area.

1.28 The survey results are analysed and presented in a separate report in Appendix 2

1.29 Where data is available from a number of sources (primary and secondary data) a process of triangulation has been conducted. The purpose of triangulation in research is to increase the credibility and validity of the results. Triangulation is a technique that facilitates validation of data through cross verification from more than two sources. In particular, it refers to the application and combination of several research methodologies in the study of the same topic.

1.30 Throughout the assessment the application of this technique has involved comparing, contrasting and, where relevant, aligning information from a variety of sources to ensure, based on the professional judgement of the research team, and in discussion with Medway Council, that the most up-to-date and locally reflective information has been utilised. This serves to further ensure that the findings of the SHMA are robust and credible.

1.31 This SHMA identifies the market and affordable housing requirements for Medway. The wider Housing Market Area which Medway operates within is reviewed as an initial step in the process. This provides a context for understanding the context that the Medway housing market operates within and allows comparisons between Medway and other nearby authorities.

Report Structure

1.32 This report is structured around the following sections. These largely align with the steps set out in the CLG Guidance to assist in extracting key information from the report:

- **Section 2: Defining The Housing Market Area** – This section identifies the wider housing market within which Medway sits. The section includes a review of the latest migration and travel to work trends, house price data and other market signals in order to identify these areas;
- **Section 3: Baseline Analysis** – This section brings together the key findings from the housing, demographic and economic data analysis from the North Kent Strategic Housing and Economic Needs Assessment (SHENA) Baseline report, which informs this SHMA. The most relevant information for this Report's analysis is summarised, including analysis of Medway's current housing stock, demographic trends, economic trends and housing trends. Whilst full data analysis and commentary is available from the Baseline Report itself, this Section also introduces some new analysis, such as further analysis of land registry data, private rental values and social housing waiting lists.
- **Section 4: Access to Housing** – This Section sets out an understanding of the financial requirements for accessing housing in the authority area, specifically considering

mortgage finance and household income levels. It benchmarks access to different housing tenures in the authority area based on these financial requirements, set at different affordability thresholds.

- **Section 5: Objectively Assessed Housing Requirement** – This section considers population and household projections, in order to develop an objectively assessed understanding of the future housing requirements likely to be experienced in Medway;
- **Section 6: Meeting the Affordable Need of Households** – A calculation of the short and long-term level of housing need for affordable housing is undertaken following the stepped process set out in the CLG Guidance. The section concludes with an estimation of the breakdown by size of the affordable housing identified as being required over projection period, reflecting on patterns within housing register data;
- **Section 7: The Role of Affordable Housing in Meeting Need** – This Section explores intermediate, affordable rent and social rent tenures and their accessibility to Medway households at different affordability thresholds. Size specific affordable requirements and the impact of Welfare Reforms on accessing housing is also considered.
- **Section 8: Housing Requirement for Specific Groups** – This section draws upon the quantitative outputs of the modelling processes presented in the previous sections, to assess future demand of a number of specific demographic household classifications including, student, BME, older person and disability households; and
- **Section 9: Conclusions**– This section draws a number of conclusions from the data presented in this SHMA report, with specific reference to the CLG SHMA guidance Core Outputs (see Table 1)

2. Defining the Housing Market Area

2.1 Medway's main towns comprise Strood, Rochester, Chatham, Gillingham and Rainham. Outside of the urban area key settlements include Cuxton, Halling and Upper Halling, Hoo St Werburgh, Cliffe, High Halstow, St Mary Hoo, Allhallows, Lower Upper and Middle Stoke, Grain, Cliffe Woods, Cooling, Lower and Upper Upnor and Chattenden .

2.2 Local house price and income disparities are problematic for the authority area in relation to housing affordability, resulting in affordable housing need to be addressed. Price and stock characteristics for different parts of the authority area are also addressed.

2.3 As set out in the Planning Practice Guidance *(Paragraph: 010 Reference ID: 2a-010-20140306; "a housing market area is a geographical area defined by household demand and preferences for all types of housing, reflecting the key functional linkages between places where people live and work. It might be the case that housing market areas overlap. The extent of the housing market areas identified will vary, and many will in practice cut across various local planning authority administrative boundaries*". This definition recognises that interrelationships in the real world transcend local authority administrative boundaries and sometimes only cover parts of an administrative area.

2.4 However, the definition of a Housing Market Area relies on the use of robust, comparable and available data. The majority of this data is not available at a sub-authority level and it is therefore difficult to quantify sub-area trends. The approach to defining the Medway Housing Market Area (HMA) draws on published data is in line with guidance, which relates to whole authority areas.

2.5 However this quantitative definition is set against a further quantitative and qualitative understanding of the area and its relationship with neighbouring authorities, developed though our own research and consultation with residents and local stakeholders. This acknowledges the sub-authority area distinctions, within and across this defined area, which are not necessarily reflected in the guidance compliant data used to define the HMA, and allows an understanding of the wider sphere of influence (which may reach beyond the defined HMA).

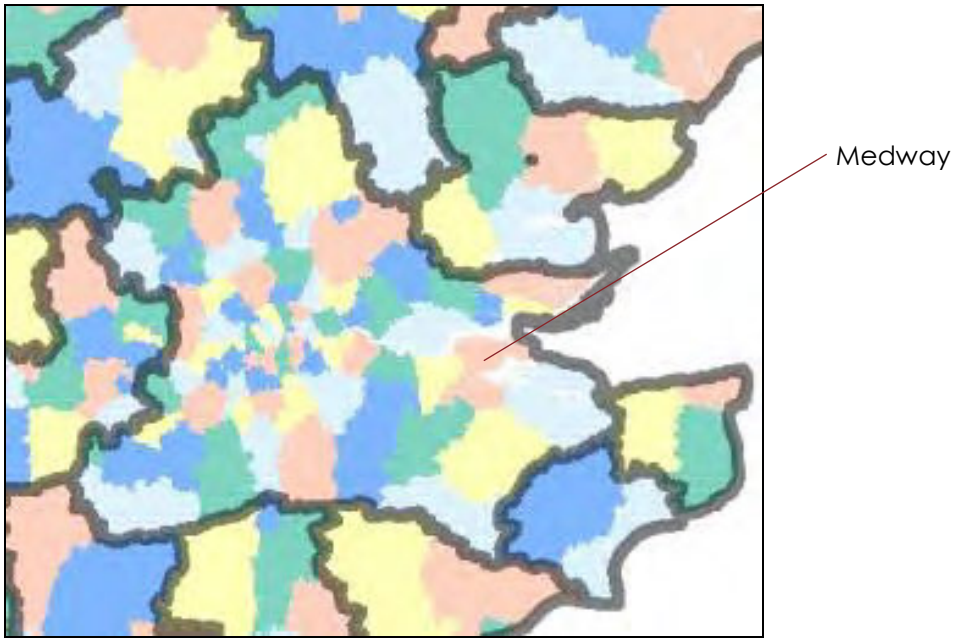
2.6 The Centre for Urban & Regional Development Studies (CURDS) has undertaken a research project into 'The Geography of Housing Market Areas in England', funded by the National Housing and Planning Advisory Unit (NHPAU), which has produced a range of HMA related outputs. Mike Coombes and Colin Wymer's Stage 2 Report from CURDS (July 2010) on 'Alternatives for the Definitions of HMAs' bases the definition of HMAs "purely on analyses of

commuting and/or migration patterns". The production of 'silver standard'[1] HMA geographies that aligns HMA boundaries as closely as possible to local authority boundaries is most relevant and useful in the definition of Medway's SHMA, and acts as a good starting point for this SHMA definition.

2.7 Using the CURDS data 'silver standard' version of Strategic HMAs, Medway (00LC) is defined within a very broad 'HMA' which contains a total of 71 local authority areas, including all London Boroughs and Medway's neighbouring authorities as shown in Figure 1.

2.8 Using the CURDS data 'silver standard' single tier set of HMAs, Medway is defined within a tighter knit 'HMA' which includes neighbouring local authorities, Swale, Tonbridge and Malling and Maidstone, but excludes Gravesham.

Figure 1 - CURDS Defined Silver Standard LA Strategic 'HMA' Including Medway



Source: http://www.ncl.ac.uk/curds/assets/documents/3.pdf

2.9 These CURDS HMA definitions emphasise the strength of London on the housing markets across the South East region. However in planning terms this 'silver standard' area is unmanageable and includes areas which have weak functional relationships with Medway. It is also impractical considering that housing needs planning for London is undertaken centrally by the GLA.

2.10 As such the approach taken within this SHMA reflects best practice guidance in identifying the functional housing market areas. It draws on a range of data including:

- travel to work patterns,

[1] This silver standard definition provides the closest match to local authority boundary definitions, whereas the gold standard involves alterations to ward groupings.

- migration patterns (internal migration flows and origin and destination moves) and
- house price data.

2.11 In particular, the focus has been on the travel to work data and migration data from the Census (2011) and latest mid-year estimates (2014), housing market data (particularly house prices) from CLG (based on VOA data), and Demographic data from the Census (2011). The commuting patterns in the CURDS definition were based on the 2001 Census, so the travel to work patterns analysed here provide a more up to date indication of commuting flows. Considering the coverage of data being used, the wider housing market area is defined in alignment with local authority boundaries, as is the case in CURDS' silver standard definitions.

2.12 Whilst the CURDS data helps to set the wider context for Medway's HMA, it acts as a starting point for the definition of its HMA, which required further interrogation. The use of wider and more up to date data than used by CURDS results in the definition of a narrower HMA which includes Medway, Gravesham, Swale, Maidstone and Tonbridge & Malling. However, it is not a completely exclusive geography for understanding influences on Medway as other authorities or parts of authorities may also have some migration, commuting and house price relationships and influences with Medway, albeit these will be less significant. The influence of London on Medway is also an important consideration, which is reflected throughout this analysis.

2.13 This wider HMA identified incorporates those local authorities which have the strongest and most consistent migration and commuting relationships with Medway, as well as linkages in house prices and rates of change trends. This takes a combined consideration of the strongest relationships with Medway demonstrated in analysis of internal migration flows and origin and destination migration trends (including self-containment calculations), commuting patterns (including containment levels) and trends in house price increase and rates of change at the whole Local Authority level (which this data is available at).

2.14 Whilst inclusion of authorities in the HMA does not necessarily mean that there is a strong relationship between all sub-areas of that authority and Medway, it does reflect its strength with Medway as a whole Local Authority. This is important, and an appropriate approach considering that there are significant sub-area distinctions within Medway itself (as is the case for all Local Authorities).

2.15 Each of these elements of analysis identify the authorities which have the strongest links with Medway in that domain (i.e. migration, commuting and house prices). The wider HMA is defined by drawing together these three parts of analysis to identify the authorities which have a consistently strong relationship with Medway, and should therefore be included within its HMA. This consistency is determined through the identification of Local Authorities which show a strong relationship across a number of the factors considered - aggregate internal

migration flows, origin and destination migration trends, aggregate commuting flows and house prices and rates of change.

2.16 The Medway Council Housing Market Area (HMA) encompasses a wider area beyond the authority area, to include:

- Medway;
- Gravesham;
- Swale;
- Maidstone; and
- Tonbridge & Malling

2.17 Housing Market Areas are defined in relation to the context and the neighbouring influences acting on a housing market. Considering this, the HMA defined for Medway in this SHMA is not regarded as a definitive or exclusive HMA and is better understood as a grouping of the local authorities which have the strongest relationships with Medway, as discussed above. In other words, the HMA defined here is focussed on Medway. It is accepted that there are HMAs which are centred around the other HMA centres, which overlap with this HMA but may have different local authority inclusion.

2.18 Figure 2 shows the Wider HMA identified by this process.

Figure 2 – Identified Wider Housing Market Area

Source: Neighbourhood Statistics, 2015

Internal Migration Flows

In-Migration (Gross)

2.19 This sub-section considers the internal migration moves between Medway and all local authorities within England and Wales, based on ONS data for Internal Migration by Local Authorities in England and Wales – Year ending June 2014.

2.20 Based on average inward migration flows, Medway has a strong relationship with Maidstone, Swale and Gravesham. In 2014, approximately 2,462 people moved into Medway from these authorities, equating to c. 21% of those moving to the authority area, as shown in Table 2.

2.21 The age-specific trends in internal migration into Medway in 2014 are shown below in Table 3. This age-specific data is only available for aggregated moves, so does not show the age profile of moves out from Medway to a specific authority. For total moves into Medway the highest proportion of moves occurred in the 15-29 and 30-44 age groups (c. 62%), which suggests a labour migration driver for these moves in the working age population.

2.22 However, this is very similar to the national age specific distribution for England and Wales, which has 40% of moves in the 15-29 age group and 25% of moves in the 30-44 age group, which suggests this is not a trend unique to Medway. The proportion of 18% of moves into Medway in the 0-14 age group is more distinct from the national trend, which has a proportion of 14% for this age group. This suggests that affordability could also be a driver for this higher proportional movement of families with children.

2.23 Four of the top ten authorities in terms of total flows into Medway are London Boroughs, which reflects the strength of London's influence on Medway in relation to migration contribution. This is considered to reflect the affordability pressures in the capital, which are seeing people move eastwards along the Thames Corridor. If grouping all London Boroughs together, this constitutes 33% of total flows into Medway in 2014. Whilst this further emphasises London's influence on the authority, this is not a realistic way of considering London in this analysis based on sub-London distinctions.

Table 2 - Total Flows into Medway (2014)

Area	Number of People	% of New Residents
Maidstone	**847**	7%
Swale	**821**	7%
Gravesham	**794**	7%
Tonbridge and Malling	629	5%
Bexley	511	4%
Lewisham	443	4%
Dartford	378	3%
Greenwich	377	3%
Canterbury	291	2%
Bromley	291	2%

Source: ONS Internal Migration Data – Table IM2014-1a and IM2014-1b, 2014

Table 3 - 2014 Age-specific migration into Medway

	2014	%
0-14	2,190	18%
15-29	4,630	38%
30-44	2,890	24%
45-59	1,430	12%
60+	910	8%
Total	**12,050**	**100%**

Source: ONS Internal Migration Data – TableIM2014-T5, 2014

Out-Migration (Gross)

2.24 Medway has particularly strong outward migration flows to the Swale and Maidstone local authority areas, and to a slightly less prominent extent with Tonbridge and Malling. Approximately 19% of outward moves from Medway are to Swale and Maidstone, with a further 6% to Tonbridge and Malling, based on average annual flows in 2014, as shown in Table 4.

Table 4 - Total Flows out of Medway (2014)

Area	Number of People	% of Outward Moves
Swale	**1157**	10%
Maidstone	**1056**	9%
Tonbridge and Malling	**666**	6%
Gravesham	**530**	5%
Canterbury	**429**	4%
Dartford	**240**	2%
Thanet	**216**	2%
Greenwich	**193**	2%
Bexley	**184**	2%
Ashford	**162**	1%

Source: ONS Internal Migration Data – Table IM2014-1a and IM2014-1b, 2014

2.25 The age-specific trends in internal out migration from Medway in 2014 are shown below in Table 5. This data is only available for aggregated moves, so does not show the age profile of moves out from Medway to a specific authority. The highest proportion of moves out of Medway occurred in the 15-29 age group (41%), which suggests a labour migration driver for these moves in the working age population. This was followed by the second highest proportion in the 30-44 age group (21%).

Table 5 - Age-specific Internal Migration out of Medway (2014)

	2014	%
0-14	1,850	16%
15-29	4,740	41%
30-44	2,490	21%
45-59	1,450	12%
60+	1080	9%
Total	**11,610**	**100%**

Source: ONS Internal Migration Data – Table IM2014-T5, 2014

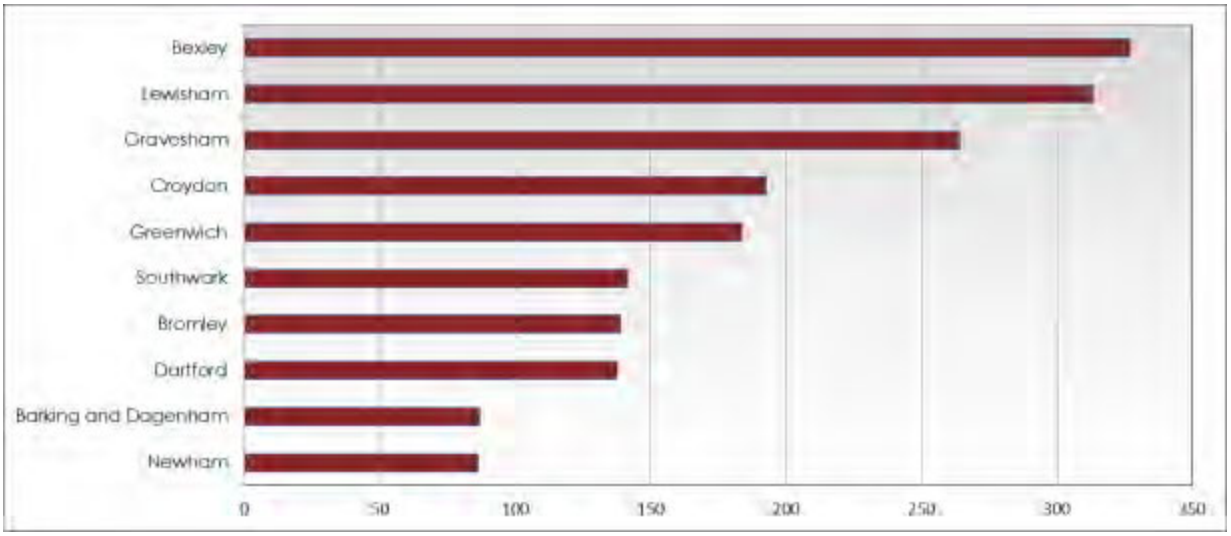
2.26 Only two of the top ten authorities in terms of total outflows are London Boroughs, which shows that it has a much weaker relationship with Medway in relation to receiving people. This

demonstrates the one way nature of London's influence on the authority. It also suggests when considering the neighbouring authorities which feature strongly as receivers of Medway's population, that Medway continues the west to east move of people along the Thames Corridor as the influx of people displaced from London for affordability reasons displaces Medway residents for the same reason. If grouping all London Boroughs, this constitutes 16% of total flows out of Medway in 2014, significantly less than the total inwards flows. However, as indicated above this is not a realistic way of considering London in this analysis based on sub-London distinctions.

Aggregate Migration

2.27 Aggregate migration considers the combined net gain and net loss for Medway. Figure 3 shows the authority areas which have resulted in the highest levels of net gain for Medway.

Figure 3 - Net Migration Gains (2014)



Source: ONS Internal Migration Data – Table IM2014-1a and IM2014-1b, 2014

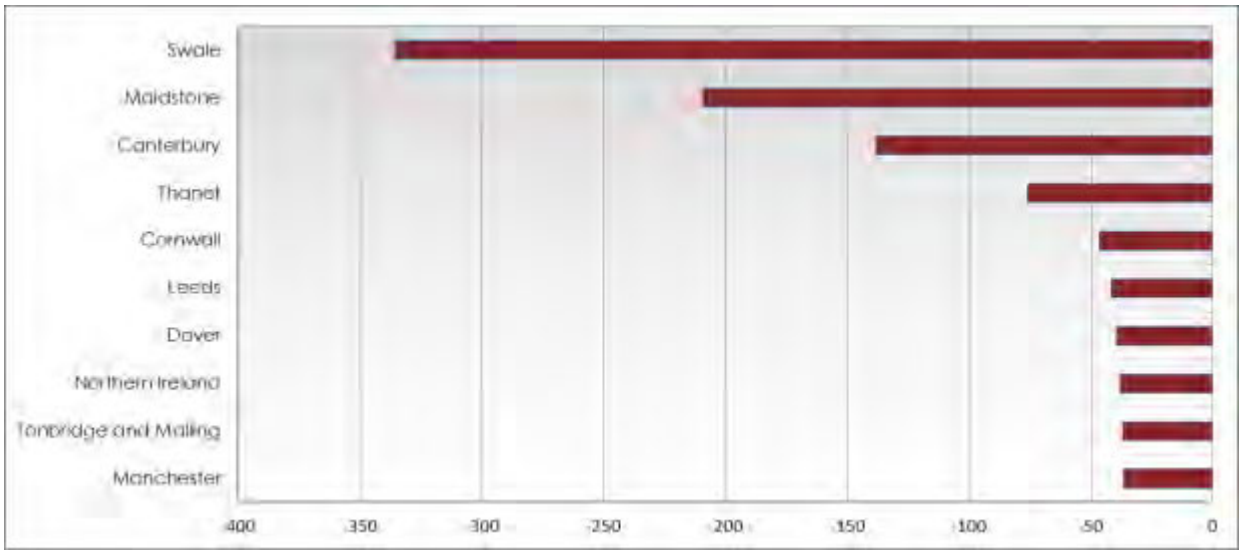
2.28 The majority of the top ten authorities with moves into Medway are London Boroughs, with the exception of Gravesham and Dartford. As already touched on in relation to total flows, this suggests strong trends in terms of people relocating out of the capital to the Authority, which is likely to be driven particularly by London's increasing affordability pressures which are squeezing many households out of London. The two non-London authorities in the top ten are neighbouring authorities. This reflects strong localised migration links, with predominance in 'border-hopping' into Medway rather than moving in from areas which are further afield.

2.29 The greatest net gain to Medway is from the London Borough of Bexley, with a total of 327 people in 2014, which increased from a net gain of 280 people in 2013. This is followed by the net gains of 313 people from Lewisham and 264 people from Gravesham.

2.30 As demonstrated in Figure 4, half of the top ten net out-migration destinations are nearby and neighbouring authorities, particularly Swale which demonstrates the strongest link with Medway. This reinforces the locality of movements both out of and into Medway. Unlike net migration gains however, London boroughs do not feature in the top ten for net migration losses, suggesting a weaker relationship with London in terms of out-migration trends. This is not unexpected given the affordability pressures noted above.

2.31 As already indicated, the most significant net loss of people out of Medway in 2014 was to Swale, with a net loss of 336 people. This is followed by a net loss of 209 people to Maidstone and 138 people to Canterbury.

Figure 4 - Net Migration Losses (2014)

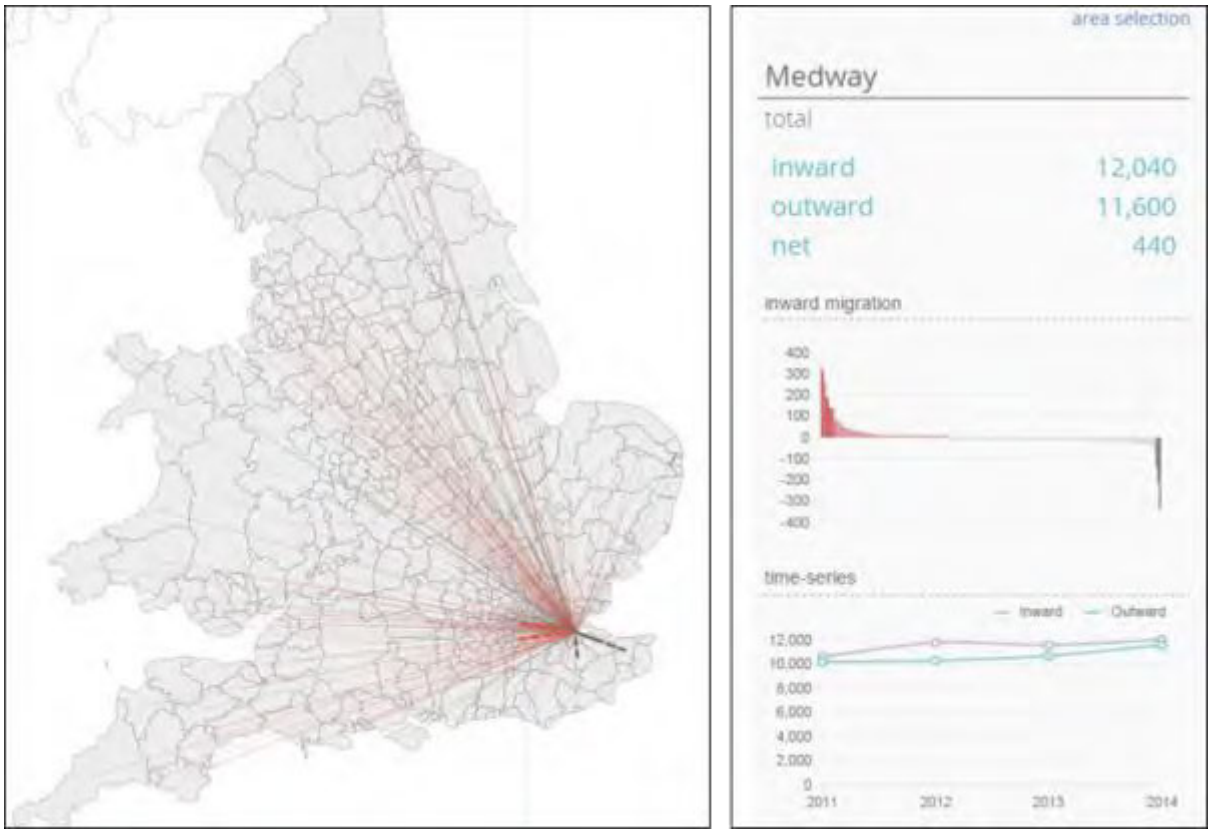


Source: ONS Internal Migration Data – Table IM2014-1a and IM2014-1b, 2014

2.32 The analysis of net migration trends shows a complex interrelationship between local authorities. It suggests that in general, the most recent annual trend has been for people to migrate from Bexley, Lewisham and Gravesham into Medway, and out of Medway into Swale, Maidstone and Canterbury.

2.33 Figure 5 shows the net migration flows in an Interactive Map produced by ONS. This reinforces the inward influence of London and the outward relationship with neighbouring authorities, reinforcing the analysis above and the pattern of west to east migration along the Thames Corridor originating as a result of affordability pressures in London causing a displacement effect in those places where London residents migrate to.

Figure 5 – Net Migration Flows (2014)

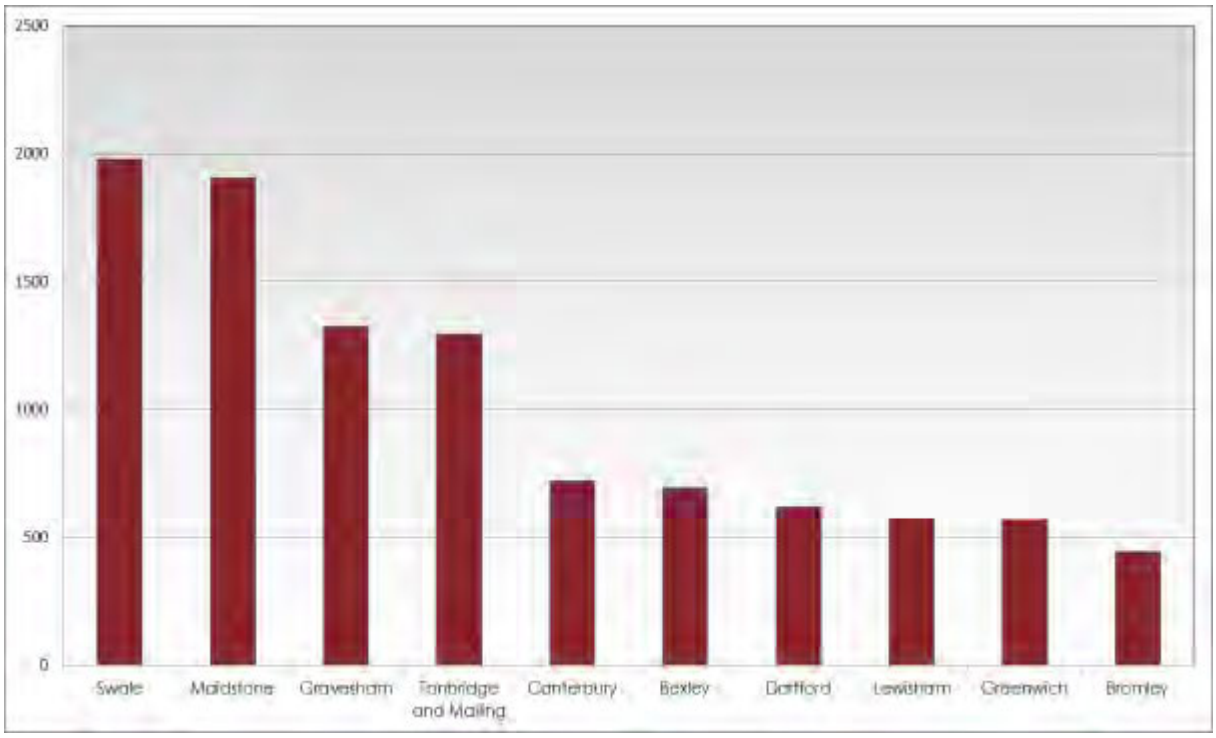


Source: ONS Internal Migration Data – Internal Migration Interactive Map (http://www.neighbourhood.statistics.gov.uk/HTMLDocs/dvc25/index.html#sty=true&flow=flow0&period=3&fix=undefined&view=200,-40,650,635&tr=0,0&sc=1)

2.34 The relative scale of aggregate flows, shown in Figure 6 provides greater clarity in understanding the flows occurring between Medway and its 'providing' and 'receiving' authorities. These aggregate flows combine the figures for in and out migration to identify the total flow of people between Medway and other authorities. This leads to the definition of Medway's strongest migration flow area, shown in Figure 7, which includes Swale, Maidstone, Gravesham and Tonbridge and Malling (all with aggregate migration flows above 1,000).

2.35 These four authority areas have the strongest relationship with Medway in terms of internal migration. Within this, the strength of Medway's relationship with Swale and Maidstone is particularly strong. Both these authorities have aggregate migration flows which are close to 2,000.

Figure 6 - Aggregate Migration Flows (2014)



Source: ONS Internal Migration Data – Table IM2014-1a and IM2014-1b, 2014

Figure 7 – Strongest Migration Flow Area

Source: Neighbourhood Statistics and GVA, 2015

Origin and Destination Migration Trends

2.36 This sub-section is based on 2011 Census data estimating the "usual resident population of the UK who were living at a different address one year ago"[2]. This identifies the origin and

[2] https://www.nomisweb.co.uk/census/2011/mm01cuk_all

destination of migrants who moved in the year prior to the Census. It seeks to refine our understanding of the migration moves influencing Medway, testing this for those neighbouring authorities that are already emerging as having potential inclusion within Medway's HMA based on aggregate migration flows.

2.37 Dartford is included in this consideration because it is the 7th highest contributor to Medway's total 2014 inflows, the 6th highest contributor to Medway's total 2014 outflows, and the 8th highest contributor to Medway's 2014 net migration gains. This shows consistency in its migration links with Medway, however not as strong as those for Gravesham, Swale, Maidstone and Tonbridge & Malling. Another reason for its inclusion is to test the market realities of the pan North Kent planning approach, where policies are often planned based on the organisational geography spanning from Dartford to Swale. As such, the inclusion of Dartford allows for an element of testing of the potential Housing Market Area relationships with this organisational North Kent geography.

2.38 London Boroughs are not considered specifically in this analysis, despite several boroughs also showing a consistent migration relationship with Medway in the above analysis, particularly Bexley. This is because, as explained above, the London influence is only significant in terms of internal moves into Medway (inward flows and net migration gains), which means when considering this in combination with internal moves out of Medway (outward flows and net migration losses) those London Boroughs which showed a strong inward influence become much less significant.

2.39 This analysis focuses on the moves which started and finished in Medway, establishing the number of moves to and from Medway in this period, and the number of moves which involved remaining within the Medway authority boundary. Analysis of these inward, outward and 'within authority' moves facilitates calculation of Medway's migration containment rate.

2.40 As set out in the PPG (*Paragraph: 011 Reference ID: 2a-011-20140306*) in relation to the definition of housing market areas; "*Analysis of migration flow patterns can help to identify these relationships and the extent to which people move house within an area.* ***The findings can identify the areas within which a relatively high proportion of household moves (typically 70 per cent) are contained.*** *This excludes long distance moves (eg those due to a change of lifestyle or retirement), reflecting the fact that most people move relatively short distances due to connections to families, friends, jobs and schools.*"

2.41 Table 6 shows the number of moves which started and finished in Medway and neighbouring authorities which, based on the previous analysis, could form the wider HMA, as well as the total moves to and from each of these authorities.

Table 6 - Origin and destination of migrants who moved in the year prior to the 2011 Census

		Origin →								
		Medway	Gravesham	Swale	Maidstone	Tonbridge & Malling	Dartford	HMA Total Moves (destination and origin)	Total Moves (all authorities)	Total Moves (SE, E & L moves)
Destination ↓	**Medway**	**17,443**	720	632	752	487	326	**23,371**	**37,087**	**33,247**
	Gravesham	527	**5,093**	86	96	86	831	**8,356**	**12,903**	**11,944**
	Swale	950	131	**8,504**	296	119	111	**11,333**	**18,053**	**16,667**
	Maidstone	831	138	371	**8,392**	992	108	**12,859**	**22,011**	**19,840**
	Tonbridge & Malling	517	170	71	803	**4,942**	108	**12,298**	**16,590**	**15,054**
	Dartford	186	478	62	80	56	**4,003**	**6,349**	**14,224**	**13,227**

Source: ONS Census (MM01CUK_ALL – Origin and destination of migrants by age (broad grouped) by sex), 2011

2.42 From these figures demand-side and supply-side containment can be calculated for Medway as a single market, and for Medway as part of the wider group of neighbouring authorities which form the potential HMA.

2.43 The containment analysis is calculated cumulatively, from left to right in the below tables. This facilitates identification of the point at which the highest level of containment is reached, and therefore the authorities included within the group which demonstrates the greatest containment. Containment is considered in terms of moves to and from all local authorities in England & Wales (Total). However to address the exclusion of long distance moves set out in the PPG, it is also considered in terms of moves to and from authorities in the South East, East and London regions (Total Moves SE, E & L). This SE, E & L moves is therefore used to inform this consideration of containment levels.

2.44 For cumulative demand-side containment, shown in Table 7, the highest proportion of containment (61%) is for Medway as a single market. However, this is substantially below the 70% threshold suggested in the PPG so it does not support the identification of Medway as self-contained in terms of destination moves.

Table 7 – Cumulative Demand-side Containment

	Medway	Gravesham	Swale	Maidstone	Tonbridge & Malling	Dartford
Total Moves (All)	55%	54%	55%	53%	51%	49%
Total Moves (SE, E & L)	61%	60%	60%	59%	56%	54%

Source: ONS Census (MM01CUK_ALL – Origin and destination of migrants by age (broad grouped) by sex), 2011 & GVA Analysis, 2015

2.45 For cumulative supply-side containment, shown in Table 8, the highest proportion of containment (62%) is for Medway as a single market. However, as for the demand-side containment, this is substantially below the 70% threshold suggested in the PPG so it does not support the identification of Medway as self-contained in terms of origin moves.

Table 8 – Cumulative Supply-Side Containment

	Medway	Gravesham	Swale	Maidstone	Tonbridge & Malling	Dartford
Total Moves (All)	55%	54%	54%	53%	51%	49%
Total Moves (SE, E & L)	62%	60%	60%	58%	56%	54%

Source: ONS Census (MM01CUK_ALL – Origin and destination of migrants by age (broad grouped) by sex), 2011 & GVA Analysis, 2015

2.46 Table 9 shows cumulative **overall containment,** which calculates all destination and origin moves which occur between Medway and the potential HMA neighbouring authorities as a proportion of total moves (SE, E & L). This suggests a core relationship between Medway, Gravesham and Swale, which show 70% containment. This meets the suggested self-containment threshold, which would suggest these authorities are within the Medway HMA.

Table 9 - Cumulative Overall Containment

	Medway	Gravesham	Swale	Maidstone	Tonbridge & Malling	Dartford
Total Moves (All)	**63%**	**63%**	**63%**	**62%**	**64%**	62%
Total Moves (SE, E & L)	**70%**	**70%**	**70%**	68%	71%	68%

Source: ONS Census (MM01CUK_ALL – Origin and destination of migrants by age (broad grouped) by sex), 2011 & GVA Analysis, 2015

2.47 The containment level reduces slightly when Maidstone and Dartford are considered within the potential Medway HMA. The inclusion of T&M has a disproportionate effect on the self-containment for the Medway HMA. This is a result of significantly higher levels of internal moves within T&M, which result in a high level of Borough level self-containment.

2.48 The marginal difference in the cumulative overall containment levels here, supports the fact that this containment analysis, based on 2011 Census data which is the most recent data available which identifies moves within as well as beyond local authority boundaries, should not form the sole basis on which Medway's HMA should be defined. This is particularly the case considering that the Census data was collected in 2011, so whilst it captures a snapshot from that time, the dynamic nature of population change and household migration means that much could have changed since then which will not be evident from this data.

2.49 Based on this containment analysis, in combination with the previous analysis, the case for excluding Dartford is clear. It does not increase containment when considering all moves, or those within the more localised area of the South East, East and London.

2.50 There is an obvious need to consider the other indicators within this Section in order to make the most accurate and robust definition possible, which considers the full spectrum of PPG suggested evidence.

Commuting Trends

2.51 Table 10 shows that 63% of residents aged 16-64 within Medway are economically active in employment. Medway has a marginally higher proportion than England (62%), but a lower proportion than the South East (65%). Within the wider HMA, the proportion of residents in each local authority area aged 16-64 that are economically active ranges from 62% (Swale) to 67%. The proportion in Medway is therefore towards the lower end of this range.

2.52 In 2014 Medway had the highest unemployment rate across all comparators (9.2%) with England the next highest at 6.5%. This is set within the context of considerable fluctuation in unemployment rate trajectories and levels across all comparator areas. Despite signs of reducing unemployment rates in recent years reflecting economic recovery, very few areas have returned to pre-recession unemployment levels.

Table 10 - Economic Activity Rates (2011)

	Economically Active (%)			Total Economically Active (%)
	In employment	Unemployed	Full time student	
England	62	4	3	69
South East	65	3	3	72
Kent	63	4	3	70
Medway	**63**	**5**	**3**	**71**
Gravesham	63	5	3	71
Dartford	68	4	3	75
Swale	62	5	2	69
Maidstone	67	3	3	73
Tonbridge & Malling	67	3	3	73

Source: ONS Census (KS601EW to KS603EW), 2011

2.53 Figure 8 shows the relevant part of the 2011 Medway Travel To Work Area (TTWA) map, which identifies Medway as a TTWA which includes Maidstone. This indicates the strong relationships between Medway and its neighbouring authorities in economic terms, particularly with Maidstone, the north of Tonbridge and Malling and the west of Swale. However, the relationship weakens as you move further south and east, when moving into the Tunbridge Wells, Ashford and Canterbury Travel To Work Areas.

2.54 Consideration of these Travel To Work Areas facilitates an understanding of the commuting patterns and economic relationship at the sub local authority level. This provides a more nuanced Housing Market Area understanding beyond the scope of the data considered in this analysis, however there is no alternative, robust approach considering the available data, which is why the guidance compliant methodology, and therefore the methodology adopted throughout this analysis, operates at the Local Authority level.

Figure 8 - 2011 ONS Travel to Work Areas

Source: ONS, 2015
(https://geoportal.statistics.gov.uk/Docs/Maps/Travel_to_work_areas_(UK)_2011_map.pdf)

Out-Commuting

2.55 Location of usual residence and place of work statistics from the 2011 Census show that of those residents who were economically active (in employment) in 2011, 51% (53,629) worked within the local authority area. This demonstrates a relatively low supply-side self-containment rate (the number of people living and working in an area divided by the number of residents in the area)[3], compared to the generally accepted 75% level:

*"The current criteria for defining TTWAs is that generally at least 75% of an area's resident workforce work in the area and at least 75% of the people who work in the area also live in the area. The area must also have a working population of at least 3,500. However, for areas with a working population in excess of 25,000, self-containment rates as low as 66.7% are accepted.."(*http://www.ons.gov.uk/ons/guide-method/geography/beginner-s-guide/other/travel-to-work-areas/index.html)

2.56 In simpler terms, this means that there is a relatively low percentage of employed Medway residents who remain within the authority area to work, reflective of high levels of out-

[3] http://www.ons.gov.uk/ons/guide-method/geography/beginner-s-guide/other/travel-to-work-areas/2001-based-travel-to-work-area-methodology.pdf.

commuting and areas where there may be more residential than employment focus. Therefore, Medway cannot be considered as being supply side self-contained in the context of commuting.

2.57 A further 7% (53,629) of residents worked in Maidstone, 6% (6,354) worked in Tonbridge and Malling, 5% (5,037) worked in Westminster & City of London, and the remaining 31% worked elsewhere. Three of the top ten authorities in terms of total out-commuting are London Boroughs, which reflects the strength of the relationship between Medway and London in relation to commuting, reflecting the employment opportunities in the capital and its relative accessibility from Medway. If grouping all the London Boroughs together, this constitutes 33% of total commuting flows out from Medway in 2014. Whilst this further emphasises London's influence on the authority, this is not a realistic way of considering London in this analysis based on sub-London distinctions. This could suggest that TTWA flows are not the best measure for defining Housing Market Areas for Local Authorities in the South East like Medway, because of this London influence, however this is why this forms only one component of the overall HMA definition.

2.58 The supply side self-containment is analysed using data on out-commuting by Medway residents, as shown in Table 11.

Table 11 – Workplace Location of Medway Residents - TTW Profile

Location of Workplace	Number of Working Medway Residents	% of Working Medway Residents
Medway	53,629	51%
Maidstone	7,578	7%
Tonbridge and Malling	6,354	6%
Westminster & City of London	5,037	5%
Swale	4,201	4%
Dartford	3,977	4%
Gravesham	3,185	3%
Bexley	1,652	2%
Tower Hamlets	1,325	1%

Source: ONS Census (WU01UK), 2011

In-Commuting

2.59 Location of usual residence and place of work statistics from the 2011 Census show that of those who are economically active and working within the Medway local authority area in 2011, 70% (53,629) live within Medway. This demonstrates relatively strong demand side self-

containment (the number of people living and working in an area divided by the number of jobs in the area)[4], stronger than the level of supply side self-containment, however not meeting the 75% level which would result in considering Medway to be demand side self-contained. This being said, it would satisfy the 66.7% indicated to have the potential to be accepted for urban areas with a population above 25,000. In simpler terms, this means that there is a reasonable proportion of jobs within Medway which are undertaken by those who live within the authority area.

2.60 A further 6% (4,751) of the Medway workforce is resident in Swale, 5% (4,165) is resident in Maidstone, 3% (2,523) is resident in Tonbridge and Malling, 3% (2,389) is resident in Gravesham, and the remaining 13% is resident elsewhere. Only one of the top ten authorities in terms of total inward commuting flows is a London Borough, showing a much weaker relationship with Medway that for commuting flows out to London. This is unsurprising considering the economic pull and opportunities London offers, which Medway is unlikely to be able to compete with. There is a much stronger out-commuting pull from Medway out to neighbouring authorities such as Swale and Maidstone. If grouping all London Boroughs, this constitutes only 3% of total commuting flows into Medway in 2014, significantly less than the total inward commuting flows. However, as indicated above, this is not a realistic way of considering London in this analysis based on sub-London distinctions.

2.61 This demand side self-containment is analysed using data on in-commuting by the Medway workforce, as shown in Table 12.

Table 12 – Residence Location of Medway Workforce - TTW Profile

Location of Residence	Number of Medway Workforce	% of Medway Workforce
Medway	53,629	70%
Swale	4,751	6%
Maidstone	4,165	5%
Tonbridge and Malling	2,523	3%
Gravesham	2,389	3%
Canterbury	1,099	1%
Dartford	811	1%
Ashford	681	1%
Bexley	481	1%

Source: ONS Census (WU01UK), 2011

[4] http://www.ons.gov.uk/ons/guide-method/geography/beginner-s-guide/other/travel-to-work-areas/2001-based-travel-to-work-area-methodology.pdf.

Commuting Flows

2.62 It is not possible to combine the supply side and demand side containment proportions into one proportion, because they are based on different base populations (number of residents in the area and number of jobs in the area respectively). However, neither of these proportions constitutes the 75% level suggested to indicate self-containment, therefore, Medway should not be considered self-contained in relation to commuting.

2.63 In relation to aggregate commuting flows, it is evident that Medway has the strongest link with Maidstone, but also shows strong connections to Swale, Tonbridge and Malling, Gravesham and Dartford. If grouping all London Boroughs, this constitutes a total flow of 10,608. However, as indicated above, this is not a realistic way of considering London in this analysis based on sub-London distinctions.

2.64 This leads to the definition of Medway's strongest commuting flows area, shown below in Figure 9, which includes Medway, Maidstone, Swale, Tonbridge and Malling and Gravesham (all showing total flow above 5,000).

2.65 This replicates the same authorities that are included within Medway's Strongest Migration Flow Area detailed above. This emphasises the significance of the links between Medway these other four authorities.

Table 13 - Aggregate Commuting Flows (2011)

Authority	In	Out	Total Flow
Medway	53,629	53,629	**107,258**
Maidstone	4,165	7,578	**11,743**
Swale	4,751	4,201	**8,952**
Tonbridge and Malling	2,523	6,354	**8,877**
Gravesham	2,389	3,185	**5,574**
Dartford	811	3,977	**4,788**
Bexley	481	1,652	**2,133**
Canterbury	1,099	719	**1,818**
Bromley	313	1,219	**1,532**
Sevenoaks	434	1,039	**1,473**

Source: ONS Census (WU01UK), 2011

Figure 9 – Strongest Travel to Work Flows Area

Source: Neighbourhood Statistics and GVA, 2015

House Prices

2.66 Table 14 identifies median average house prices for Medway, neighbouring authorities and the wider HMA, in 2000, 2007 and 2013, to understand pre and post-recession growth trends.

Table 14 - Median Average House Prices for Medway and Neighbouring Authorities

Authority	Median House Price (£)			Growth (%)		
	2000	2007	2013	Pre-recession (00-07)	Post-recession (07-13)	**Total (00-13)**
Gravesham	84,000	180,000	188,000	114.29%	4.44%	123.81%
Medway	**70,000**	**158,000**	**160,000**	**125.71%**	**1.27%**	**128.57%**
Dartford	89,000	195,000	200,000	119.10%	2.56%	124.72%
Swale	76,500	164,500	167,000	115.03%	1.52%	118.30%
Maidstone	107,000	210,000	210,000	96.26%	0.00%	96.26%
Tonbridge and Malling	124,000	241,000	249,950	94.35%	3.71%	101.57%
Canterbury	89,500	200,000	210,000	123.46%	5.00%	134.64%
Sevenoaks	143,250	270,000	285,000	88.48%	5.56%	98.95%
Wider HMA	92,300	190,700	194,990	106.61%	2.25%	111.26%

Source: CLG Live Table 586, 2014

2.67 Based on the CLG data (drawing from Land Registry data) the median average house price in Medway in 2013 was £160,000. This is compared with an average of £194,990 for the defined wider HMA (Medway, Gravesham, Swale, Maidstone and Tonbridge & Malling).

2.68 Table 14 shows that Medway has consistently had the lowest median house prices in 2000, 2007 and 2013, in the context of comparable authorities. Medway however demonstrated the strongest pre-recession price growth at 125.71% (2000-2007), compared to 106.61% for the wider defined HMA. Post-recession (2007 – 2013) growth however has been slow in the context of comparable authorities at 1.27%, compared to 2.25% for the wider HMA as a whole.

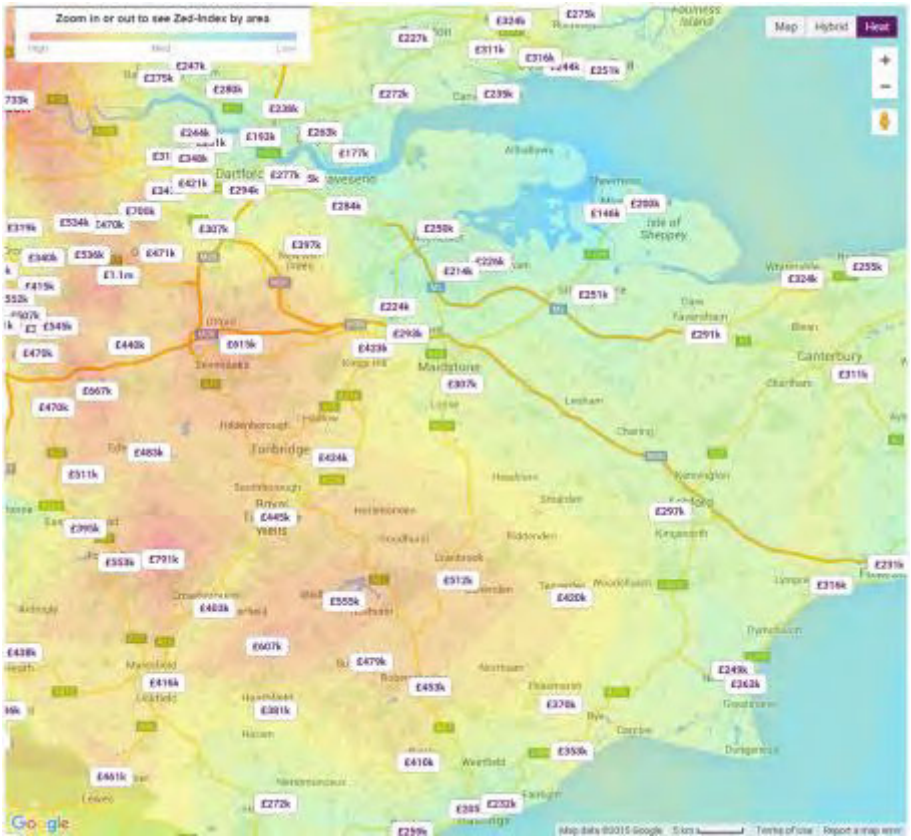
2.69 There is a notable difference in prices across the wider HMA, with a range of £89,950 between the highest price in Tonbridge and Malling (£249,950) and the lowest price in Medway (£160,000).

2.70 The series of heat maps shown in the following four figures show the complex pattern of house prices in and around Medway. Areas of high value tend to be clusters in two locations. Firstly in rural areas where properties tend to be larger and set within protected environments such as the AONB values are significantly higher than most urban areas. Secondly values are also higher in urban areas where there are clusters of new development (such as Chatham Maritime) or are close to stations on the North Kent Line, which now benefit from HS1 services.

Figure 10 - Medway Heat Map 1

Source: Zoopla Heat Map (http://www.zoopla.co.uk/heatmaps/)

Figure 11 - Medway Heat Map 2



Source: Zoopla Heat Map (http://www.zoopla.co.uk/heatmaps/)

Figure 12 - Medway Heat Map 3

Source: Zoopla Heat Map (http://www.zoopla.co.uk/heatmaps/)

Figure 13 - Medway Heat Map 4

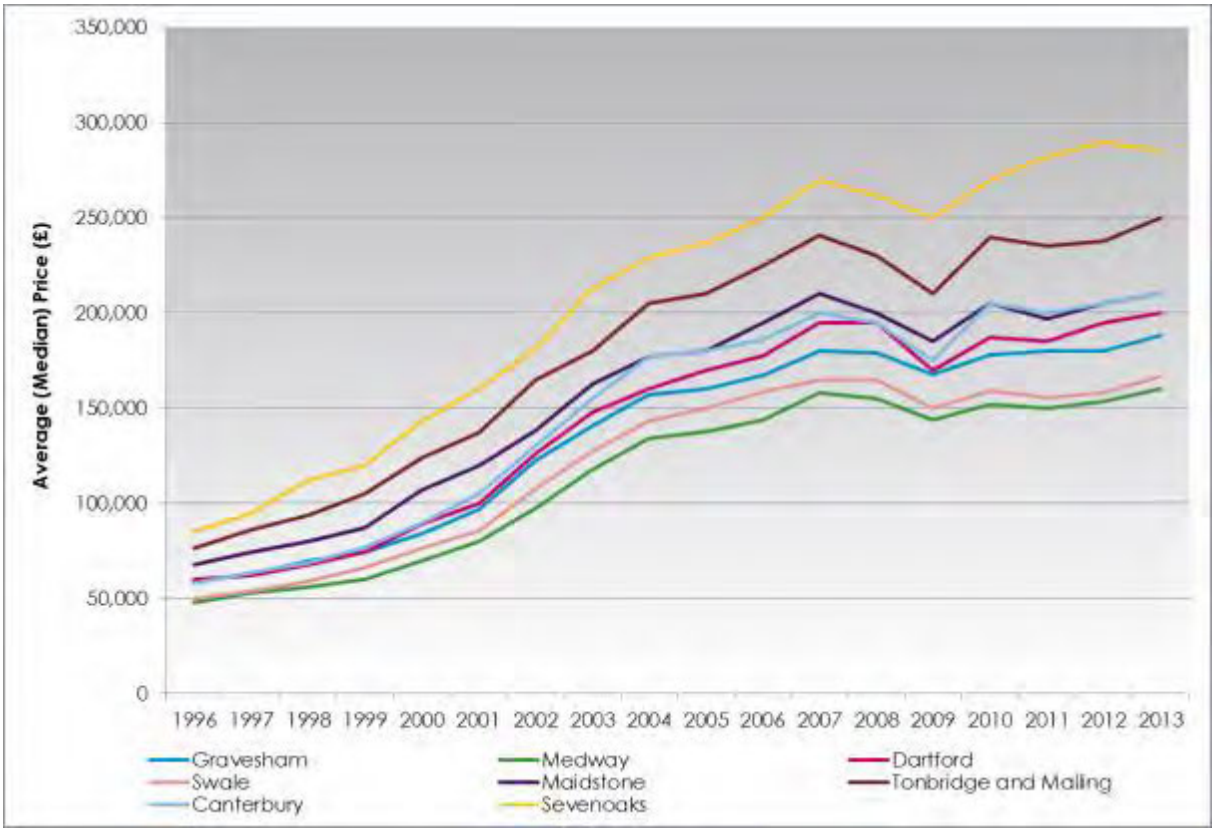
Source: Zoopla Heat Map (http://www.zoopla.co.uk/heatmaps/)

Growth Trends

2.71 Trends in house price data have been analysed over the period from 1996 to 2013. Figure 14 shows the average house price trends in Medway and its neighbouring authorities.

2.72 Despite variation in the mean average house price levels for different local market areas, all areas exhibited a similar trend line throughout the period, which reflects the same market fluctuations. Particularly significant was the price dip for all areas in 2009, reflective of recessionary impacts. There is particularly strong alignment between Medway and Swale throughout the period.

Figure 14 - Median House Price Based on Land Registry Data (1996 - 2013)



Source: CLG Live Table 586, 2014

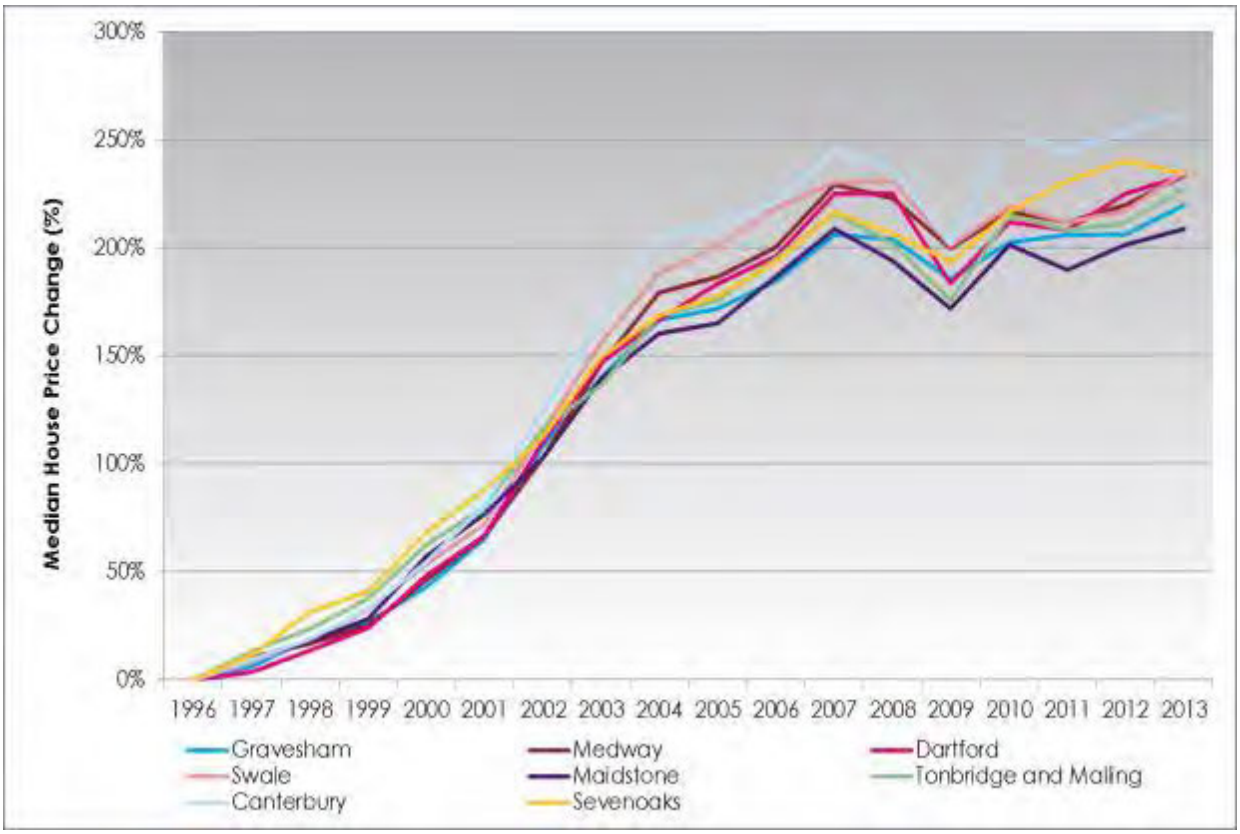
Rates of Change

2.73 Figure 15 illustrates the percentage change in mean average house prices for Medway and its comparator areas, from the 1996 base year. By 2013, average house prices in Medway increased 233% from the 1996 base year. This is the second highest increase in the context of the wider HMA, only marginally behind Swale which demonstrated the strongest house price increase at 235%. The average increase for the wider HMA was 226% from the 1996 base year.

2.74 As was the case for the growth trends, there is relative comparability in the trajectories for all areas, reflecting similar market trends. However there is variation evident in the level of changes and therefore the scale of market influence acting on certain authorities. In this sense Medway, Swale, Tonbridge and Malling have showed similar rates of changes, with some distinction from the rates shown by Gravesham and Maidstone.

2.75 Table 15 ranks the authorities within the wider HMA by the median average house price for 2013 and confirms the percentage growth since 1996.

Figure 15 - Percentage Increase in Mean House Prices from 1996 Base Year



Source: CLG Live Table 586, 2014

Table 15 - Median Average House Price and Growth

Authority	2013 Median Average House Price (£)	Growth since 1996 (%)
Medway	**£160,000**	**233%**
Gravesham	£188,000	219%
Swale	£167,000	235%
Maidstone	£210,000	209%
Tonbridge & Malling	£249,950	228%
Dartford	£200,000	233%
Wider HMA	**£195,825**	**226%**

Source: CLG Live Table 586, 2014

2.76 Average prices and rates of growth will influence patterns of migration. The comparability between these values for the authorities within the wider HMA is likely to contribute to the movement evident between these authorities in the analysis of migration patterns and TTW flows.

2.77 The analysis of house price growth trends and rates of change shows more complexity and less clear-cut relationships between Medway and nearby authorities. There is variation evident in average house prices and their growth rates. However, there is close alignment in the rates of change trends shown in neighbouring and nearby authorities, which suggests that they could be operating in the same market area as each other.

2.78 Whilst it is more difficult to draw meaningful conclusions from this data, compared to the analysis of internal migration, origin and destination migration trends and commuting flows, the alignment in rates of changes supports the strength of the relationship of Medway with Gravesham, Swale, Maidstone and Tonbridge and Malling.

2.79 In this indicator more than others it is important to note that synergies and differences will be more prominent at the sub-authority level, with key relationships experienced between particular urban and rural sub-areas for example.

Housing Market Area Conclusion

London Influence

2.80 As is the case for many authorities in the South East and East of England, London has a significant influence on Medway in relation to migration and housing demand.

2.81 The migration data analysed in this section shows the strong inwards migration trend from London to Medway in 2014, where the total London – Medway moves constituted 33% of all moves into Medway. Four of the top ten migration contributors to Medway's population in 2014 were London Boroughs (Bexley, Lewisham, Greenwich and Bromley).

2.82 However, the strength of these inward migration trends is not evident for Medway's outward migration. Total moves out from Medway to London in 2014 constituted only 16% of all moves out of Medway, and only Greenwich was in the top ten receivers of Medway's population in 2014.

2.83 Considering aggregate flows with Medway, Lewisham, Greenwich and Bromley were the eighth, ninth and tenth authorities in the top ten, however their aggregate flows were significantly below those of neighbouring authorities with Medway.

2.84 Set in the context of house prices and market trends, these migration patterns demonstrate how the housing pressures faced by London are initiating west to east migration along the Thames Corridor, and therefore having a significant influence on authorities like Medway. These factors distort local housing market trends and the usual relationship between location choices for working and living.

Local Housing Market Dynamics

2.85 The analysis set out in this Section shows that Medway is located within an area with a range of inter-relationships with locally based authorities, as well as London Boroughs which have an inevitable influence on authorities in the South-East of England. This is reinforced by the existing CURDS HMAs and spheres of influence which contextualise this section and the approach to defining the wider Housing Market Area.

2.86 Excluding the London influence, there are equally complex relationships evident between neighbouring authorities in this area. This has been demonstrated in this section through considering the range of indicators which can determine the appropriate housing market area including; migration trends, travel to work and commuting patterns, self-containment levels and housing market trends.

2.87 From this analysis it is clear that Medway does not have an entirely definitive or constant relationship with a single authority/group of authorities across all indicators, reinforcing the complex relationships that exist. The Housing Market Area definition is therefore based on the preponderance of evidence and the most consistent set of relationships across all the data elements considered.

Migration

2.88 In terms of in-migration at the borough level Medway has the strongest relationships with Maidstone, Swale, Gravesham (all contributing 7% of total growth) and Tonbridge and Malling (contributing 5% of total growth), between them accounting for over a quarter of all moved into Medway.

2.89 For out-migration the strongest relationships again with these four authorities, with 30% of moves out of Medway finishing in either Swale (10%), Maidstone (9%), Tonbridge and Malling (6%) or Gravesham (5%).

2.90 Unsurprisingly, based on these trends, the Aggregate Migration Flows (i.e. moves in + moves out – showing the total strength of relationship) again show the strength of the relationship between Medway and its four adjoining authority areas.

2.91 The strength of the relationship between these authorities and Medway (from the Medway perspective) is weaker when self-containment is considered, i.e. where the moves between Medway and these boroughs is considered as a proportion of all moves involving these boroughs to locations within the South East, East of England and London.

2.92 Overall self-containment in this sense is relatively consistent at c.70%, although the inclusion of Maidstone does weaken the relationship, decreasing the self-containment rate to 68%. Self-containment is highest when all 5 local authorities are considered together, reaching 71%. The inclusion of T&M has a disproportionate effect on the self-containment for the Medway HMA. This is a result of significantly higher levels of internal moves within T&M, which result in a high level of Borough level self-containment.

2.93 Given this the strongest self-containment relationship for Medway would appear to be with Gravesham and Swale, with marginally weaker linkages to Maidstone and Tonbridge and Malling.

Commuting

2.94 Travel to work and commuting patterns also reinforce the strength of the relationship between Medway and the adjoining authority areas. The ONS produced Travel to Work Area (TTWA) maps highlight the influence of London, with its TTWA extending out across Kent as far as Medway. However, outside of Gravesham none of Medway's neighbours fall within this area.

2.95 The Travel to Work relationship identified by the ONS highlights a number of 'splits' across local authority areas. The Medway TTWA extends south into Maidstone and Tonbridge and Malling, however it doesn't capture the whole of both areas. Much of Maidstone is encapsulated in this TTWA (including the town of Maidstone itself) however only the north of Tonbridge and

Malling is included, with the south and west of the borough forming part of the Tunbridge Wells TTWA.

2.96 Similarly, whilst the west of Swale (including Sheppey) is within the Medway TTWA the east of the borough towards and beyond Faversham falls within the Canterbury TTWA.

2.97 This analysis helps to refine borough level commuting pattern data which highlights Maidstone, Tonbridge & Malling and Swale as the key destinations for Medway residents for work (excluding London) whilst Swale, Maidstone, Tonbridge and Malling and Gravesham are key contributors to the Medway workforce.

2.98 Taking all travel to work data together suggests that the strongest relationships are between those parts of neighbouring authorities that are closest to Medway, i.e. the north of Tonbridge and Malling, the north of Maidstone and the west of Swale.

Market Factors

2.99 Considering the prevailing market signals and trends there are understandable differences in the detailed levels of demand and values, however there are clear commonalities in terms of the scale of change between Medway, Swale, Gravesham and (to a lesser extent) Maidstone over the period 1996 – 2013. Tonbridge and Malling, Canterbury, Dartford and Sevenoaks demonstrated substantially stronger value change over the same period, which suggests there are different influences acting on the market in these areas.

2.100 At the sub-authority area level, the heat mapping detailed in this section shows the complex pattern of house prices in and around Medway. Areas of high value tend to be clusters in two locations. Firstly in rural areas where properties tend to be larger and set within protected environments such as the AONB values are significantly higher than most urban areas. Secondly values are also higher in urban areas where there are clusters of new development (such as Chatham Maritime) or are close to stations on the North Kent Line.

2.101 Taking into account these fluctuations values are relatively closely related, or lying within similar value bands, for much of the area north of the M20 and even as far as the London-Maidstone rail line that runs through West Malling. South of this, values become consistently higher and therefore have little or no relationship to predominant value bands in Medway.

2.102 House price data suggests that the identified wider HMA provides a broad range of house prices and types to create a functional housing market area, which caters for a range of population groups.

The Defined Housing Market Area

2.103 Considering all the dynamics and indicators in the round, there is clearly a consistently strong relationship between Medway, Gravesham, Swale, Maidstone and Tonbridge and Malling which suggests these should form the Housing Market Area.

2.104 However, it must be recognised that whilst these are strong relationships, they are not consistent across full local authority areas. Indeed, where data is available at a sub-authority level a clear pattern emerges that indicates the core relationships are with only parts of Swale, Maidstone and Tonbridge and Malling.

2.105 For Swale the relationship is strongest in the west, not extending much beyond Sittingbourne which itself (as suggested in the Swale SHMA) has its own identity but still has key links to Medway. For Tonbridge and Malling the relationship is likely to be only with those areas to the north of West Malling and East Malling, albeit there are functional economic relationships with Kings Hill. For Maidstone again the strongest relationship is with the north of the borough, however again there are functional relationships between Medway and Maidstone town centre.

2.106 However, these sub-authority variations cannot be accurately captured given the limitations of the data, the use of which is compliant with guidance. The definition of the Housing Market Area is therefore as follows:

- **Medway;**
- **Gravesham;**
- **Swale;**
- **Maidstone; and**
- **Tonbridge and Malling.**

2.107 It should be noted that this definition does not negate the significance of Medway's links with other areas not included within the wider HMA i.e. Canterbury and Sevenoaks. As indicated above, the analysis is intended to reflect the preponderance of evidence and strongest patterns.

2.108 This approach to defining the HMA is PPG compliant, and has led to the definition of an appropriate and functional HMA area to be taken forward through this study.

3. Baseline Analysis: Demographics, Housing and Economics

3.1 This section brings together the key findings from the housing, demographic and economic data analysis from North Kent SHENA Baseline Report, which informs this SHMA. The most relevant information for this SHMA's analysis is summarised, whilst the full data analysis and commentary is available from the Baseline Report itself.

The Current Housing Stock

3.2 This sub-section summarises the current housing stock situation for Medway, based on information drawn from Chapter 4 of the Baseline Report.

Population, Households and Dwellings

- The latest 2011 Census recorded a population of 263,925 people in Medway. The latest ONS 2014 mid-year population estimates update this figure to 274,015 (an increase of 10,090 people, 4%).
- Based on the 2011 population level, Medway makes up the largest proportion of the population in the wider HMA, at 34%.
- The total number of dwellings in Medway has increased from 102,578 in 2001 to 110,107 in 2011. This is an increase of 7,529 dwellings, equating to a 7% increase over the ten year period.

Stock Type

- Medway has a significantly lower proportion of detached stock than comparator areas, at 14%. This is compared to 28% for the South East region and 25% for Kent. This is the lowest proportion within the HMA.
- Medway shows the highest proportion of terraced stock (41%) compared to other areas. This proportion is 9% above the 32% for Gravesham and Swale.
- Medway's proportion of semi-detached stock (29%) is largely in line with national, regional and HMA proportions.
- Medway has a low proportion of purpose built flatted stock at 12% when compared to England, the South East and Gravesham, with 17%, 16% and 16% respectively. Medway's proportion of purpose built flatted stock however is similar to that in Tonbridge and Malling and Swale.

Stock Size

- When compared to the wider Kent context, Medway has a similar proportion of 1 bed (10%), 2 bed (25%), 4 bed (13%) and 5 bed (3%) properties.
- Medway has a higher proportion of 3 bed properties (49%) when compared with England (41%), South East (39%) and Kent (40%). This is also the highest proportion in the HMA, where excluding Medway, proportions range from 42% (Maidstone) to 47% (Gravesham).

Stock Quality

- Based on the very basic proxy of households with central heating, Medway has a high overall stock quality at 96.8%. There is therefore no obvious concern with basic stock quality raised from analysis.

Stock Tenure

- In terms of stock tenure, approximately 70% of stock is in private ownership, 15% is privately rented, 13% is socially rented and 1% is in shared ownership. Within the context of the wider HMA, this demonstrates a high proportion of owner occupation, with proportions ranging from 65% in Gravesham to 71% in Tonbridge and Malling. The figure for England is 63%. With regards to other tenures, Medway's proportions are similar to those within the HMA.
- In Medway approximately 4% of households in the Authority are at least one bedroom too short and therefore considered to be overcrowded. This is the same as for the South East region, but below that for England (5%). Analysis suggests there is no significant issue with overcrowding in Medway, which may be reflective of the ageing nature of the populations. It highlights the importance of considering the impact of welfare reforms and the bedroom tax, which could affect these households if within the social rented sector.
- In Medway approximately 35.8% of households in the authority have at least one too many bedrooms and are therefore considered to be under-occupying. This is the second highest proportion across the HMA, with only Swale showing a higher proportion at 36.4%. This suggests that there is a relatively substantial prevalence of under-occupancy in the Authority. When considered in combination with the evidence of some levels of overcrowding (albeit not constituting a significant issue) it indicates a mis-alignment of stock use and the potential to incentivise under-occupying households to downsize to help address issues of overcrowding without relying solely on the delivery of new larger units.

Demographic Trends

3.3 This sub-section summarises the current demographic trends in Medway, based on information drawn from Chapter 2 of the Baseline Report.

Population Growth

- Medway had a population of 249,488 in 2001, 263,925 in 2011 and 274,015 in 2014. This shows 10% population growth over the 13 year period from 2001 – 2014, increasing by 24,527 people.

Population Age Structure

- The age profile from 2001 – 2014 reflects the ageing nature of Medway's population (with 30% growth in the 60+ age cohort). An interesting age specific trend is the reduction in the 30-44 age group (8% reduction), and the 0-15 age group (7% reduction) which represents the children of the 30-44 age group. This suggests that there has been a decrease in the number of economically active people, at the same time as an increase in the retired population. This structure has the potential to create pressures on healthcare and sheltered accommodation, and increase the propensity of under-occupancy occurring among older people with more bedrooms in the home than they require.

Components of Change

- Natural change (fertility exceeding mortality) was the most significant contributor to Medway's population growth over 2001 – 2014, contributing 16,407 people. International migration was the next most significant contributor to growth, contributing 8,255 people. Domestic migration had an overall negative contribution to population change, -1,995 people, however over the past 4 years domestic migration has become a positive net contributor. Medway has the strongest links in terms of inward and outward population flows with Swale (1,978 total moves), Maidstone (1,903 total moves), Gravesham (1,324 total moves) and Tonbridge and Malling (1,295 total moves).

Ethnicity

- Ethnic diversity in Medway has increased between the 2001 and 2011 Censuses, supported by the influence of international migration to population growth. 2011 Census data shows that minority (non-white) ethnic groups made up approximately 10% of the Medway population, which is higher than the average for Kent and the majority of neighbouring HMA local authorities (with the exception of Gravesham). Increasing diversity could have housing implications, particularly affecting size

requirements considering the propensity for multi-generational households within certain ethnic minority groups.

Economic Trends

3.4 This sub-section summarises the current economic trends in Medway, based on information drawn from Chapter 2 of the Baseline Report.

Employment Rates

- In 2011 71% of Medway's population was economically active. This is comparable with local, regional and national comparator areas
- In 2014 Medway had the highest unemployment rate across all comparators (9.2%) with England the next highest at 6.5%. This is set within the context of considerable fluctuation in unemployment rate trajectories and levels across all comparator areas. Despite signs of reducing unemployment rates in recent years reflecting economic recovery, very few areas have returned to pre-recession unemployment levels.

Occupation Levels

- The highest proportion of the Medway resident workforce are engaged in professional occupations (15.3%), closely followed by associate, professional and technical occupations (15%). This occupation structure is largely aligned with the other comparator areas.

Housing Trends

3.5 This section examines the cost and affordability of housing across the housing market area. The review considers performance across:

- **The Owner Occupier Sector:** House price analysis, examination of the relative change in house prices and the current housing market, including a consideration of more affordable (low cost / lower quartile) elements of market housing, as well as a review of mortgage finance to identify the barriers to access for first time buyers;
- **Private Rented Sector:** Examination of rental levels of different components of the private rented sector, which forms an important component of the overall housing offer; and
- **Affordable Housing Sector:** Review of the changes in demand, as recorded through the waiting list for social rented properties within Medway and an assessment of current average rental levels, including consideration of the 80% market rent levels.

3.6 The section concludes by considering the ability of households to access housing based upon analysis of income and housing costs. The section should be read in conjunction with the housing data in The Current Housing Stock section.

Owner Occupation

3.7 Figure 16 below provides a general indication of property values in Medway and the surrounding area, based on Zoopla's Zed Index, which provides an average property value based on current Zoopla estimates for that area. As such, it does not relate specifically to either asking or sale prices but provides a good indication of house price variation across the authority area and in neighbouring areas.

3.8 Figure 16 identifies the lowest values in Medway around Chatham and Gillingham and the surrounding areas. There are some areas of higher value in the rural communities north of the River Medway but overall, it shows fewer areas of high value when compared to the wider area.

Figure 16 – Medway Residential Values Heat Map

Source: Zoopla, 2015 (http://www.zoopla.co.uk/heatmaps/)

****Add series of maps****

House Price by Type of Property

3.9 In order to remove the impact of the housing stock type, where locations with a higher proportion of houses than flats will have higher mean prices, analysis of the relative values of each of the housing types has been undertaken.

3.10 The analysis in Table 16 below uses 2015 data from the Land Registry to provide the most up to date snapshot of the market possible.

Table 16 - Average House Price by Type, Q1 and Q2 2015

	Detached	Flats	Semi-detached	Terrace	Average
Medway	**£324,902**	**£136,109**	**£221,557**	**£171,012**	**£198,400**
Wider HMA	£407,802	£151,181	£252,246	£202,243	£250,027
Gravesham	£434,595	£137,669	£261,614	£209,104	£238,454
Maidstone	£420,377	£146,951	£266,512	£208,011	£263,059
Swale	£301,958	£128,330	£212,092	£173,755	£208,710
Tonbridge and Malling	£557,178	£206,847	£299,454	£249,335	£341,514

Source: CLG Price Paid Data – Yearly File 2015 (Land Registry), 2015
Data produced by Land Registry © Crown copyright 2015

3.11 As shown in Table 16, Medway has an overall average home price of £198,400, with a range of £188,793 between the highest detached and lowest flat prices.

3.12 The overall average price for the Authority is the lowest of all the local authorities within the wider HMA. Swale is the second lowest at £208,710 (as difference of £10,310 or c. 5%). The overall Medway average is £44,349 (22.3%) lower that the overall average for the wider HMA, which is £242,749.

3.13 In terms of each stock type for Medway compared to the other local authorities that make up the wider HMA, Medway had the second lowest values across detached, flatted and semi-detached stock. Swale had the lowest. Medway had the lowest value for terraces.

3.14 The overall average sale price for the authority area masks significant variation across Medway's sub-markets. There is a difference of £35,241 (20%) between the average price in Chatham (£180,229) and the average price in Rochester (£215,470).

Table 17 – Average House Price by Type, Medway Submarkets, Q1 and Q2 2015

	Detatched	Flats	Semi-detached	Terrace	Average
Chatham	£299,018	£131,234	£199,150	£156,816	£180,229
Gillingham	£316,102	£133,657	£226,245	£168,692	£195,034
Rochester	£351,053	£141,664	£232,392	£186,613	£215,470

Source: CLG Price Paid Data – Yearly File 2015 (Land Registry), 2015
Data produced by Land Registry © Crown copyright 2015

3.15 The red and blue shading in the table indicates the sub-markets with the highest (red) and lowest (blue) price levels, across the majority of stock types and for the overall average. Chatham has the lowest house prices and Rochester the highest consistently across all stock types.

House Sales

3.16 The number of house sales provides an indicator of market activity and buoyancy. The data in Table 18 below shows the local authority house sales since 1996, and Figure 17 illustrates the indexed levels of transactions from 1996 to 2012.

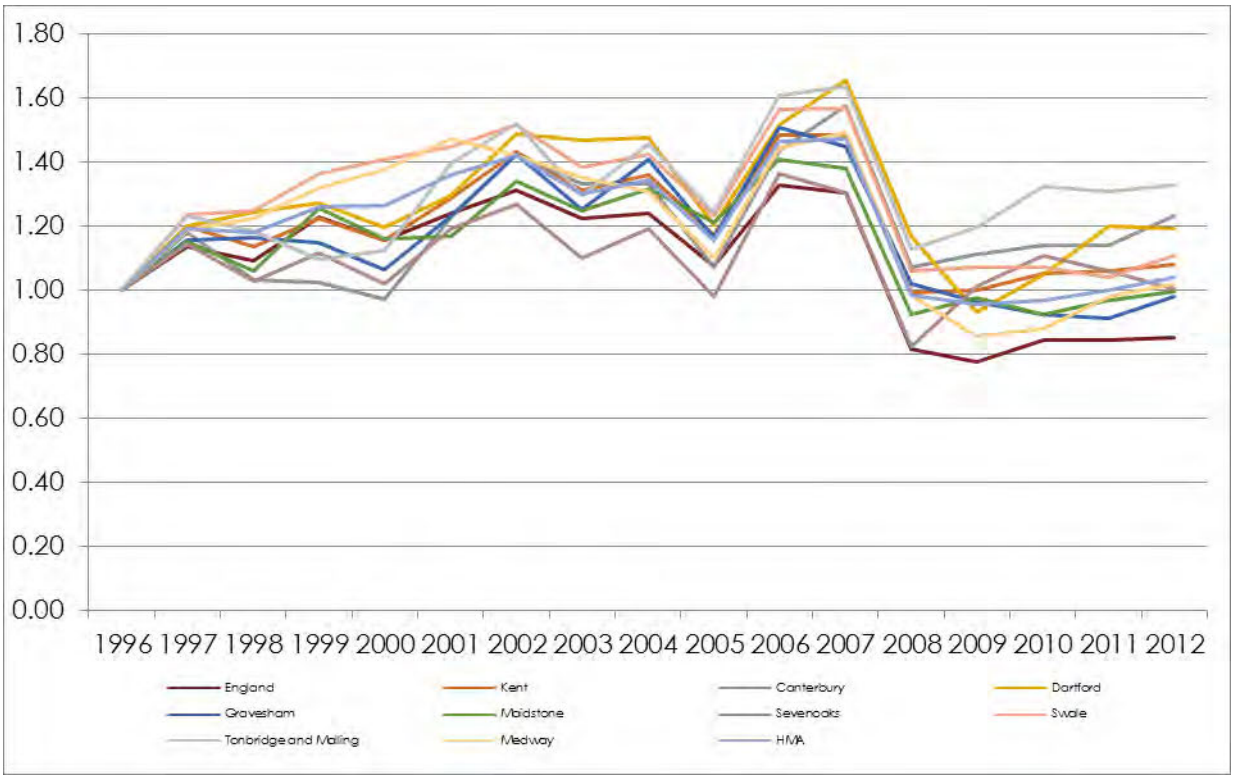
3.17 There has been a noticeable decline in sales since the 2006 peak, reflecting the downturn in the economy and the economic conditions affecting demand for property. This is reinforced by the sharp fall in transaction levels for all local authorities within the wider HMA and Kent and England, between 2006 and 2008. In 2012 all comparable areas were yet to reach pre-recession peak transaction levels.

Table 18 - Local Authority Home Transactions across Selected Years

	1996	2006 Peak	2009 Low	2012
England	948,810	1,223,129	586,894	632,136
Kent	25,050	36,206	18,584	20,054
Wider HMA	12,691	18,358	9,213	9,992
Medway	4,441	6,227	2,810	3,287

Source: CLG Live Table 588, 2014

Figure 17 - Indexed Levels of Transactions (1996 - 2012)



Source: CLG Live Table 588, 2014

Lower Quartile House Prices

3.18 The CLG records the lower quartile house prices for each authority across the UK. The CLG SHMA Guidance (August 2007) recommends that the lower quartile price of properties

represents the lower levels of the housing market, and such properties should be considered to be those most likely to be able to be purchased by households on lower incomes or households entering the market for the first time.

3.19 Table 19 and Figure 18 illustrate lower quartile price trends between 1996 and 2011 for Medway and the wider HMA, alongside Kent and England.

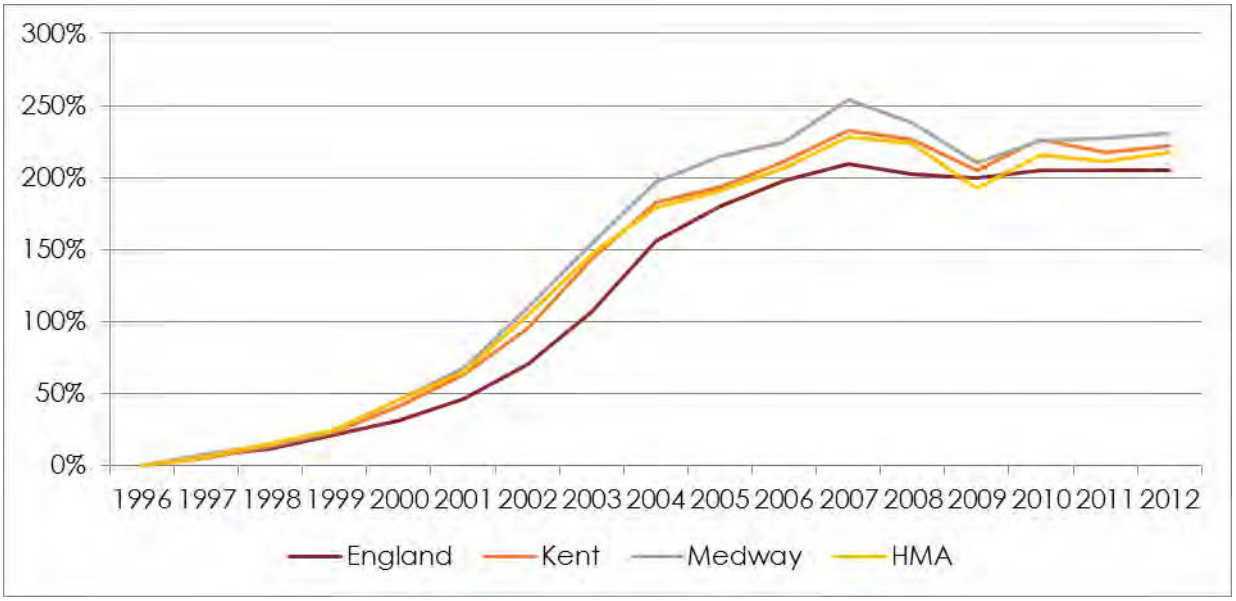
3.20 In all areas lower quartile house prices have grown substantially since 1996. Medway demonstrated the most significant growth throughout the overall period, at 231%, compared to 215% for the wider HMA, 222% for Kent and 205% for England. Within the wider HMA Maidstone, Gravesham and Swale experienced the slowest growth at 204%, 212% and 216% respectively.

Table 19 - Lower Quartile House Price Comparisons

Area	1996	2012	% Change
England	41,000	125,000	205%
Kent	45,950	148,000	222%
Wider HMA	46,535	146,500	215%
Medway	**37,000**	**122,500**	231%

Source: CLG Live Table 587 (based on Land Registry), 2014

Figure 18 - Percentage Increase in Lower Quartile House Prices (from 1996 base year)



Source: CLG Live Table 587 (based on Land Registry), 2014

3.21 The significant growth in LQ house prices contributes to growing affordability pressures at all geographic levels. This will influence the level at which affordability and access to housing should be calculated.

Advertised Purchase Price

3.22 To supplement the Land Registry house price data, asking prices from Zoopla are collated to better understand the current market position. This is generally considered to be one of the more comprehensive market driven sources of sales and rental values information.

3.23 It is important to note that the accuracy of this data is in part dependent on the number of properties which are currently advertised, which means that anomalies can sometimes be observed where there are few properties (due to the increased likelihood of the average figures being skewed by a low or high outlier). The other caveat to the data is that it is not reflective of stock quality, type or age, which are factors with an obvious impact on prices. Despite this, the data provides a valuable indication of overall price trends.

3.24 Table 20 details current asking price for some of Medway's key sub-markets. This table details prices by number of bedrooms. Red and blue shading is applied to the highest and lowest value for each bedroom size respectively. The data is based on a total of 2,583 properties, a large sample size which facilitates meaningful price analysis.

Table 20 - Current Asking Prices (Zoopla – August 2015)

	1 bed	2 bed	3 bed	4 bed	5 bed	Number of properties
Rochester	£100,000	£163,000	£244,000	£426,000	£524,000	**178**
Strood	£105,000	£194,000	£214,000	£366,000	£430,000	**43**
Chatham	£97,000	£152,000	£195,000	£315,000	£434,000	**183**
Gillingham	£110,000	£172,000	£250,000	£402,000	£576,000	**2130**
Hoo	£69,000	£131,000	£216,000	£265,000	£275,000	**49**

Source: Zoopla UK Area Stats, 2015 (http://www.zoopla.co.uk/market/uk/)

3.25 Gillingham has the highest price levels for 1, 3 and 5 bed stock, Strood has the highest price level for 2 bed stock and Rochester has the highest price level for 4 bed stock. This variation makes it hard to identify clear patterns of high value areas across the Authority.

3.26 Patterns for low value areas are however more clear, with Hoo having the lowest price level across all stock, with the exception of 3 bed properties.

3.27 It is important to add the caveat when analysing asking prices that they do not reflect actual market transaction values, and are often likely to be adjusted downwards to reach the sold price. Nor does the data capture the more rural areas of high value that Figure 16 demonstrated, focusing on urban settlements.

Sales Agent Consultation

3.28 As part of researching private sales trends, the following 6 sales agents were consulted:-

1. Bairstow Eve (Strood);
2. Robinson Michael and Jackson (Strood);
3. Ward and Partners (Rochester);
4. Ward & Partners (Chatham);
5. Your Move (Chatham);
6. Ward & Partners (Gillingham);

3.29 The consultation sought to understand the local sales market at the time of the survey (July / August 2015), including the profile of buyers and average sales prices. The agents consulted worked within specific areas of Medway, rather than area-wide, and were targeted as far as possible to be geographically representative of the key settlements across the Authority.

Values

3.30 Agents were asked to provide a range of values for typical house types in their area, detailed in the table below. It should be noted that this is difficult for agents to provide, since house prices are so much determined by the location and specification of individual properties. The below however provides a general indication of the value range across Medway, showing a trend of the highest values in Chatham and Rochester, and lowest values in Gillingham and Strood.

3.31 Agents across all areas commented that new build properties could achieve significant premiums when compared to the resale of existing stock. In particular, one agent commented that new build properties were popular with incoming buyers moving from London, who sought homes that were ready to move into.

Table 21 - Minimum and Maximum Sales Values by Property Type, Agent Consultation May 2015

	1 bed Flat	2 bed Flat	2 bed House	3 Bed House	4 bed house
Gillingham					
Min	£90,000	£110,000	£140,000	£160,000	£200,000
Max	£135,000	£140,000	£150,000	£220,000	
Average	**£112,500**	**£125,000**	**£145,000**	**£190,000**	**£200,000**
Chatham					
Min	£100,000	£145,000	£150,000	£180,000	£250,000
Max	£140,000	£160,000	£220,000	£300,000	
Average	**£120,000**	**£152,500**	**£185,000**	**£240,000**	**£250,000**
Strood					
Min	£100,000	£100,000	£160,000	£230,000	£300,000
Max	£130,000	£150,000	£200,000	£260,000	
Average	**£115,000**	**£125,000**	**£180,000**	**£245,000**	**£300,000**
Rochester					
Min	£110,000	£140,000	£150,000	£230,000	£320,000+
Max	£130,000	£150,000	£200,000	£270,000	
Average	**£120,000**	**£145,000**	**£175,000**	**£250,000**	**£320,000+**
Difference %	18%	7%	33%	17%	n/a

Source: GVA Agent Consultation, 2015

Origin of new buyers

3.32 Agents were asked about the origin of buyers, specifically whether there is much demand from buyers moving into the area from other parts of the authority area and beyond.

3.33 Agents in Rochester and Strood noted a recent increase in buyers relocating out of London, citing recent town investments and improved rail links as key drivers. All agents agreed that price increases in London were the underlying factor pushing people out of the capital and to north Kent, where they could get 'more for their money'.

3.34 Agents in Chatham and Gillingham however noted that this trend was less obvious, explaining that the buyer's market was still largely dominated by local families.

Property Demand (size, type, location)

3.35 Agents across Medway spoke of a strong market at this time, with demand outstripping supply, making for a strong sellers' market. As such most agents commented that any type of property that came on the market was popular and sold quickly. When pushed however, most agents agreed that 3 bed family houses were the most popular stock type.

3.36 A couple of agents commented on a shortage of 3 beds. In Chatham, an agent explained that whilst there was a good supply of smaller 'starter' properties suitable for first times buyers, there was a local lack of 3+ bed properties which created problems when it came to first time buyers moving on.

3.37 An agent in Rochester also commented on a lack of 3+ family housing. In Strood however, an agent felt that the real shortage was in smaller homes of one and two bedrooms. He explained that he usually had a lot of buyers seeking this type of property, with very few on offer.

3.38 Agents from across all areas did not necessarily see proximity to rail station and centre facilities as the key determinates of value / demand. Instead certain areas tended to develop good reputations (based on schools, housing stock, local facilities) that commanded high values. Access to the M2 and the road network were also key important factors that made areas popular.

Buyer profile

3.39 Agents were asked about the profile of buyers in the area, in terms of household type and size. As well as families, buy to let investors and first time buyers were key features in the local market.

3.40 In Gillingham, the proximity to London and the local student market were seen as key drivers underlying the buy to let market. In Strood, an agent noted that increasingly, owners looking to move were keeping their existing properties to let, rather than selling up. This was contributing to an overall lack of available properties in the market, creating an imbalance between supply and demand.

3.41 A number of agents, covering Gillingham, Chatham, Strood and Rochester, noted a recent increase in first time buyers. This was considered to be largely due to increased mortgage availability. An agent explained that Chatham was particularly popular with first time buyers because there was a good supply of suitable smaller stock. Similarly, an agent considered Gillingham to be popular with this market due to its relatively low values when compared to the wider area.

Key themes / conclusion

3.42 The key themes drawn from agent consultation were:

- There was a strong sellers' market at the time of the consultation (July / August 2015) owing to a shortage of available properties versus an increase in demand. As a result buyers are faced with limited choice and available properties are often able to achieve premium values over and above their asking prices.
- Agents in Rochester and Strood noted a recent increase in buyers relocating outside of London, driven by high prices in the capital and improved transport links in north Kent. This trend was less pronounced in Chatham and Gillingham areas, where the market was still dominated by local families.
- In general, agents agreed that 3 bed properties were the most popular amongst buyers. Agents in Chatham and Rochester noted a shortage in this type of stock.
- There was a strong buy to let market across all areas, together with an increased first time buyers' market
- Agents across all areas commented that new build properties could achieve significant premiums when compared to the resale of existing stock.
- Proximity to town centre and rail stations did not necessarily dictate higher values, with 'good' neighbourhoods able to command premium values

Private Rented Sector

3.43 Nationally the private rented sector has undergone a period of significant expansion. There has been a nationwide PRS growth trend, which has seen the number of PRS dwellings increase by 134% over the ten years between 1991 and 2011. This trend is expected to continue, and it has been estimated by the Government that the number of PRS homes could increase by a further 15% over the next 10 years. .

3.44 The growth in this sector has been the result of favourable investment conditions, the lack of access to mortgages and a wider shift in attitude, particularly among young people, to seeing private rental property as a viable alternative to owner-occupied housing. This reflects the affordability challenges of accessing home ownership. The sector is now playing an important role in the operation of housing markets, offering a more affordable alternative to owner-occupation and social renting

3.45 Considering this, there has been increased interest from institutional investors looking to build serviced rental accommodation.

3.46 Table 24 presents private monthly rental costs across England, the South East, the wider HMA and Medway. It also shows a range of different rental indicators by bedroom size, with the mean average rent (an important link to the affordable rent product) compared to the upper, medium and lower quartile rental levels.

3.47 Concentrating on the average (mean) price for 2 and 3 bedroom properties as a reflection of a typical or standard unit, it is evident that the cost of renting in Medway (£692) is lower (£80, c.12%) than the level for the wider HMA (£772). It is also lower than the average for England (£729) and the South East (£868).

3.48 When considering the lower quartile rent levels, the cost of renting in Medway (£632) is £68 (11%) lower than the cost of renting in the wider HMA (£700) and £74 (12%) lower than the South East. Medway is however significantly more expensive (£122) than the lower quartile rent level for England (19%). This data implies that Medway is relatively affordable within a regional South East and local HMA context.

3.49 In addition, Local Housing Allowance (LHA) levels are approximately in line with these levels (based on Medway and Swale Broad Rental Market Area), suggesting that benefit claimants are able to access private rental accommodation in some areas of Medway.

Table 22 – Private Monthly Rental Levels (Oct 2013 – Sept 2014)

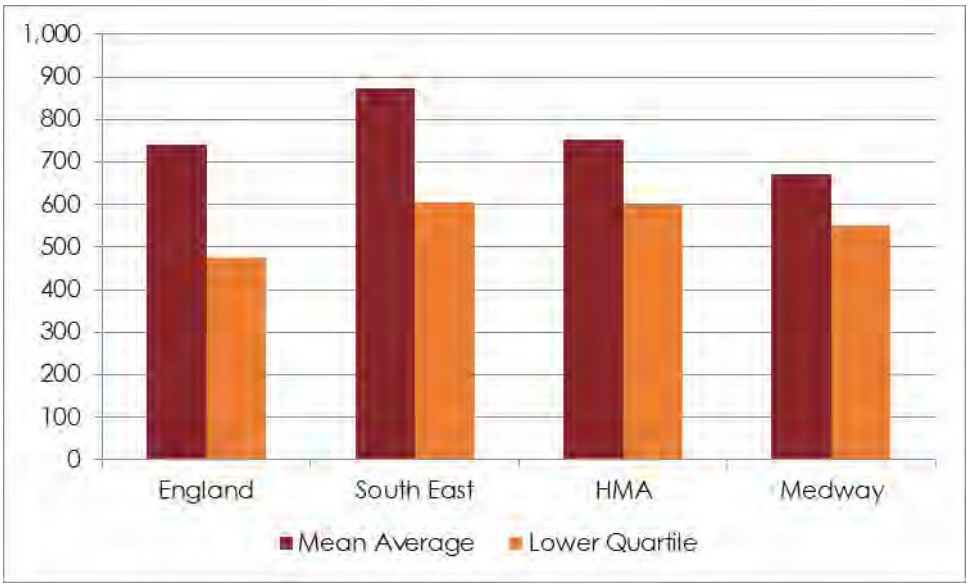
	Count of rents	Mean Av.	Lower Quartile	Median	Upper Quartile	Affordable Rent		
All						80%	70%	60%
England	489,000	742	475	595	800	594	519	445
South East	75,390	873	605	760	975	698	611	524
HMA	7,039	752	599	709	840	601	526	451
Medway	2,985	671	550	650	750	537	470	403
1 Bedroom								
England	83,553	625	425	520	695	500	438	375
South East	15,246	625	525	600	710	500	438	375
HMA	1,228	570	529	569	613	456	399	342
Medway	1,383	548	495	550	600	438	384	329
2 Bedroom								
England	196,132	693	485	580	750	554	485	416
South East	28,517	804	660	770	895	643	563	482
HMA	2,650	713	660	708	764	570	499	428
Medway	1,030	656	600	650	725	525	459	394
3 Bedroom								
England	119,642	789	550	675	850	631	552	473
South East	16,381	980	785	900	1,100	784	686	588
HMA	2,042	857	751	842	940	685	600	514
Medway	878	735	670	725	800	588	515	441
4+ Bedroom								
England	43,172	1,412	800	1,100	1,625	1,130	988	847
South East	8,188	1,743	1,200	1,500	1,995	1,394	1,220	1046
HMA	529	1,328	1,052	1,215	1,470	1,062	930	797
Medway	231	1,114	895	1,100	1,250	891	780	668

2&3 Bedroom								
England	315,774	729	510	616	788	583	511	438
South East	44,898	868	706	817	970	695	608	521
HMA	4,692	776	700	766	841	620	543	465
Medway	1,908	692	632	685	760	554	485	415

Source: ONS Private Rental Market Statistics Tables 1.1 – 2.7 (based on VOA data), 2014

3.50 Comparison of the average and lower quartile rent level for Medway and its comparator areas is presented in Figure 19. This emphasises variation between the mean average and LQ rental levels within each area, and their variation across each area.

Figure 19 – Private Monthly Rental Levels for All Properties (Oct 2013 – Sept 2014)



Source: ONS Private Rental Market Statistics Tables 1.1 – 2.7 (based on VOA data), 2014

Advertised Rental Values

3.51 To supplement the VOA private rental data, advertised rents from Zoopla are collated to better understand the current market position. This is generally considered to be one of the more comprehensive market driven sources of sales and rental values information.

3.52 Table 23 details current advertised rents for some of Medway's key sub-markets, as was undertaken previously for current asking prices. This table details advertised rents by number of bedrooms. Red and blue shading is applied to the highest and lowest value for each bedroom size respectively. The data is based on a total of 588 properties and therefore is a much smaller sample than for the earlier analysis of asking prices. This makes it more difficult to identify clear patterns in highest and lowest rent levels, where one over or under-valued property could more significantly impact the average rent level. It therefore reduces the reliability of the advertised rents analysis. The same caveats apply to these advertised rents as did to advertised asking prices, where there are a particularly small number of properties on

the market in certain sub-markets, and where the data is not reflective of stock quality, type or age.

3.53 Table 23 shows that Chatham had the lowest asking rents across all properties (except for 5 beds, where only Gillingham has available stock). Gillingham had the highest asking rents for 2, 4 and 5 bed properties, whilst Hoo had the highest for 1 beds and 3 beds (although this was only based on one property in each case), with Rochester having the next highest for 1 and 3 beds.

Table 23 – Current Advertised Rents (Zoopla – Aug 2015)

	1 bed	2 bed	3 bed	4 bed	5 bed	Number of properties
Rochester	£659	£794	£1,007	£1,318	n/a	47
Strood	£564	£804	£929	n/a	n/a	14
Chatham	£508	£760	£830	£1,033	n/a	63
Gillingham	£573	£822	£980	£1,385	£1,930	462
Hoo	£676	n/a	£1,101	n/a	n/a	2

Source: Zoopla UK Area Stats, 2015 (http://www.zoopla.co.uk/market/uk/)

Agent Consultation – Lettings

3.54 As part of researching private rental trends, the following nine letting agents were consulted:-

1. Your Move (Strood);
2. Mann (Strood);
3. Rochester Lettings (Rochester)
4. Your Move (Rochester);
5. Lambourne Hill (Chatham);
6. Your Move (Gillingham / Rainham);
7. Look Estates (Gillingham / Rainham);

3.55 The consultation sought to understand the local lettings market at the time of the survey (July / August 2015), including the profile of renters and rental prices. The agents consulted worked within specific areas of Medway, rather than area-wide, and were targeted as far as possible to be geographically representative of the key settlements across the Authority.

Values

3.56 Agents were asked to provide a range of values for typical house types in their area, detailed in the table below. It should be noted that this is difficult for agents to provide, since rental values are so much determined by the location and specification of individual properties. The

below however provides a general indication of the value range across Medway, showing that generally the lowest values are in Gillingham and Chatham and the highest in Rochester and Strood. Interestingly, this is not in line with the analysis of current asking rents, detailed in Table 23 which show a general pattern of higher rents in Gillingham.

Table 24 - Minimum and Maximum Rental Values, Agent Consultation Aug 2015

	1 bed Flat	2 bed Flat	2 bed House	3 Bed House	4 bed house
Gillingham / Rainham					
Min	£500	£650	£700	£700	£900
Max	£600	£700	£750	£950	£1,000
Average	**£550**	**£675**	**£725**	**£825**	**£950**
Chatham					
Min	£650	£650	£675	£750	£900
Max	£675	£725	£750	£850	
Average	**£663**	**£688**	**£713**	**£800**	**£900**
Strood					
Min	£500	£700	£725	£800	£900
Max	£675	£750	£800	£950	£1,100
Average	**£588**	**£725**	**£763**	**£875**	**£1,000**
Rochester					
Min	£500	£600	£700	£850	£925
Max	£800	£895	£800	£900	£1,500
Average	**£650**	**£748**	**£750**	**£875**	**£1,213**
Difference %	60%	49%	14%	6%	62%

Source: GVA Agent Consultation, 2015

3.57 The above prices are based on the assumption that properties are let to single households. However, agents in Rochester and Gillingham noted that because of a large demand for student accommodation, bigger properties were often rented as Houses in Multiple Occupation (HMO) which could achieve premium rentals. This can have the impact of skewing the rental market and in some cases limiting the number of larger homes available to family households.

Tenant Profile

3.58 All agents agreed that there was demand from a range of tenants across Medway, including single people, young couples and families. Agents in Gillingham and Rochester also noted a significant demand from students. Two agents – one in Gillingham and one in Rochester – specifically noted that their agencies were reluctant to take tenants in receipt of housing benefit and exclusively let to 'professional' households.

Origin of new tenants

3.59 Agents from across Medway noted a significant demand from people moving into the local authority area from London, in addition to local tenants. In Strood, Chatham and Gillingham / Rainham this was felt to be a recent trend, largely fuelled by increased rents in London together with improved rail links to the capital. In Rochester however both agents explained that this was an established trend that they had experienced for many years.

3.60 An agent in Rochester also noted a demand from international tenants, namely teachers, who moved to the town on year-long placements requiring short term rental accommodation.

Property Demand (size, type, sub-location)

3.61 Agents from across the area agreed that three bed properties tended to be the most popular. Two bed properties were also seen as popular in Chatham, Gillingham and Rochester.

3.62 There was seen to be a lack of available properties on the market across the stock types. An agent in Gillingham however specifically noted a lack of larger 3+ bed family homes due to popularity of HMOs associated with the student market, which tend to achieve higher rents than if let to a single household and therefore were popular with landlords. This has led to a shortage of larger single- let homes, meaning that when they did come on the market they let very quickly.

3.63 When asked about determinants of value / demand within the sub regions, the majority of agents emphasised that the spec of a property was more important than its specific location. Therefore proximity to town or railway stations was not necessarily an important factor in generating rental value, and was really down to the specific needs of that tenant i.e. commuters prefer to be near the town centre, families near good schools. In particular new build properties achieved higher rents, with factors such as parking provision, gardens and good bathroom facilities generating value.

Market Activity

3.64 All agents spoke of a strong market in terms of demand, with renters outstripping available supply. Some agents felt that this was due to the recent increase in house prices; with some landlords deciding to cash in and sell their properties rather than continue to let. The lack of

available properties meant that houses let quickly when released onto the market. Two agents (from Strood and Chatham) explained that properties could rent within one day of being marketed.

3.65 The key themes drawn from agent consultation were:

- Agents reported a general value trend across Medway, of lowest values in Gillingham and Chatham and the highest in Rochester and Strood.
- All agents agreed that there was demand from a range of tenants across the local authority area, including single people, young couples, families and students
- Agents noted a significant demand from people moving into the Medway authority area from London, in addition to local tenants
- Agents from across the area agreed that three bed properties tended to be the most popular. In Gillingham the agent specifically noted a lack of this type of property, due to many larger homes being rented as HMO properties which can command a premium value over single lets
- All agents spoke of a strong market in terms of demand, with renters outstripping available supply. This meant that houses that came onto the market were let very quickly.

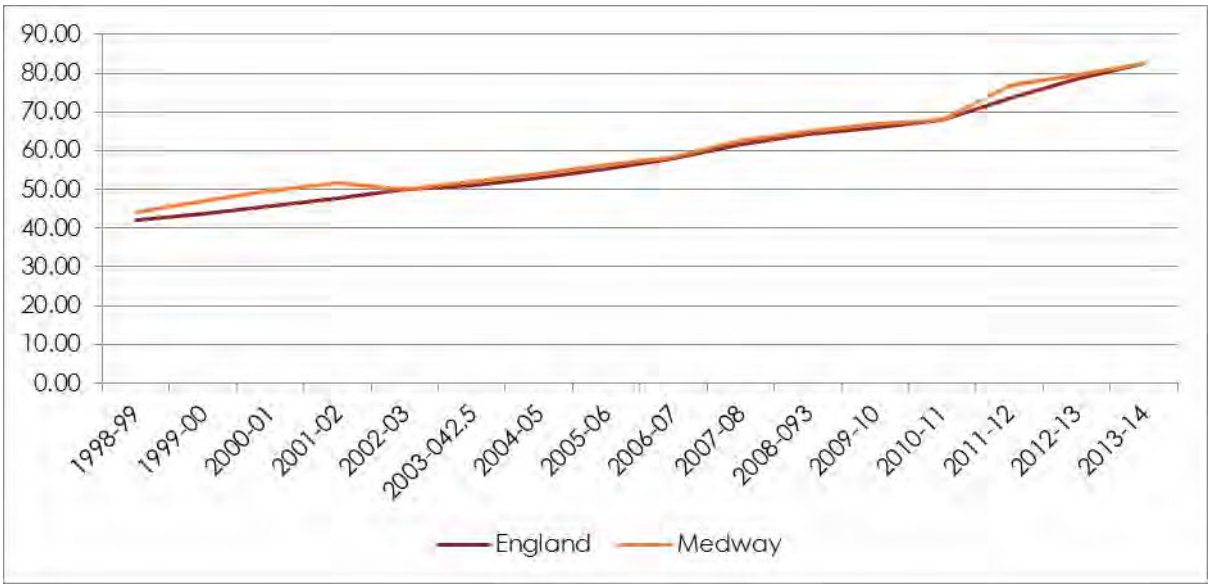
Social Rented Sector

3.66 The social rented sector by its nature operates differently from both of the owner occupier and private rented sectors. The tenure is intended to address the housing needs of local people who are unable to meet their housing needs in the local housing market because of the relationship between costs and incomes.

3.67 Change in local authority and registered provider average weekly rents over the period from 1998 to 2014 are shown in Figure 20 and Figure 21

3.68 There is close alignment between local authority weekly rents for Medway and England, which in 2013-14 were £82.42 and £82.44 respectively. Since 2000 Medway has tracked slightly above the national level over the whole period.

Figure 20 – Local Authority Weekly Rents (1998 – 2014)

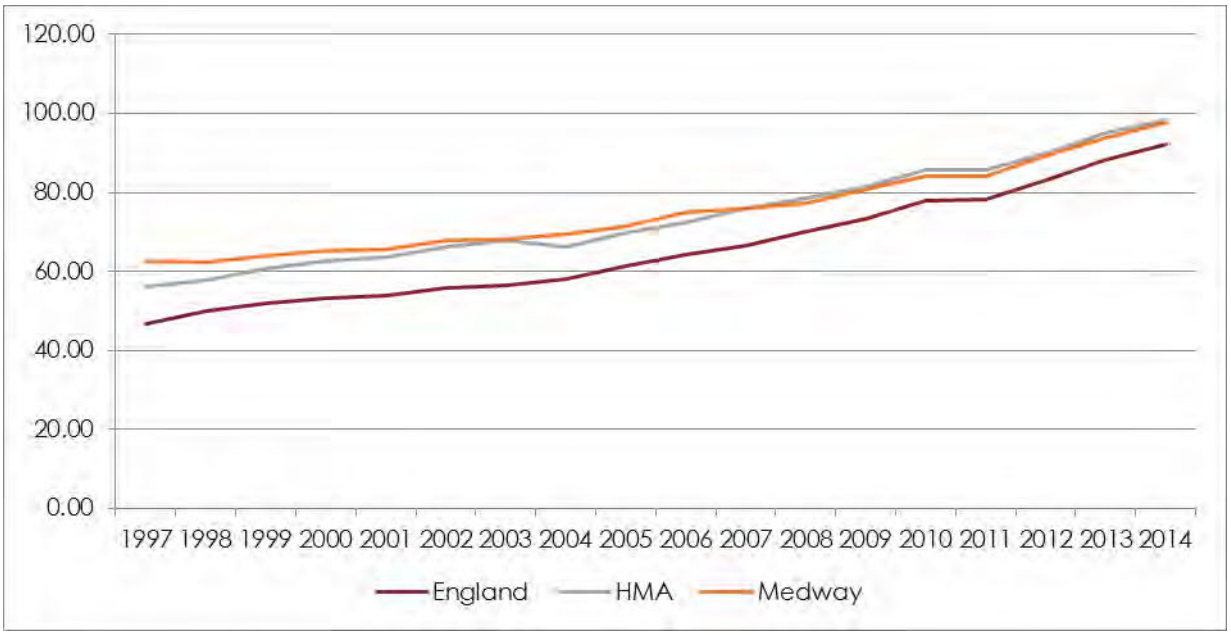


Source: CLG Live Table 702, 2014
N.B. Due to data limitations, the South East region and HMA areas cannot be included within this figure.

3.69 For registered provider (RP) weekly rents the average level in 2014 for Medway was £97.64, compared with £98.47 for the wider HMA and £92.30 for England.

3.70 The RP weekly rents for Medway and the wider HMA have tracked very closely throughout the period, in particular since 2008. These levels have been significantly above the average weekly rents for England throughout the entire period, although this gap has become smaller. In 1998 there was a difference of c. £15.80 between average Medway and average England rents. In 2013 – 14 the difference was £5.34. This indicates that average weekly rents in England have grown at a faster rate (97%) than average weekly rents in Medway (56%).

Figure 21 – Registered Provider Weekly Rents (1998 – 2014)



Source: CLG, Live Table 704, 2014

N.B. Due to data limitations, the South East region cannot be included within this figure.

3.71 It should be noted that in Medway, the MHS Homes Group is a significant property owner and provider of rented housing, referring to itself as *"the largest independent landlord in Kent, owning and managing more than 8,500 homes in Medway and beyond"*[5]. MHS is not a registered provider of affordable housing but does manage and provide properties to meet a range of needs, including meeting general market needs (through private rented stock) and also some 'affordable' needs (through shared ownership).

3.72 Rental levels for the MHS provision is not in line with specific affordable levels, with rents charged tending to be higher than those within stock owned and managed by the Council or Registered Providers. As such it does not fully address existing affordable housing needs but may provide some opportunities for those seeking private rent or those with only marginal affordable need.

3.73 Looking forward MHS have stated an aspiration to grow their portfolio through new development. Given their current operational model this is unlikely to contribute to the meeting of identified affordable housing need identified later in this report, particularly for those groups with acute needs.

Social Housing Waiting Lists

3.74 Overall, the Medway Housing Register has more than 20,000 applicants, who are self-identified as having a housing need. However, this is not a level which can be met by the Council, so

[5] http://www.mhs.org.uk/

the Council prioritises applicants accordingly and identifies Band A – D as the active housing register.

3.75 This active housing register is based on the four priority bandings as follows:

- **Band A =** People who are considered to be in reasonable preference and have been granted an additional preference;
- **Band B =** People who have a housing need and fall in to one or more of the reasonable preference categories and meet the criteria to be considered to be a local priority for Medway;
- **Band C =** People that have a housing need that places them in to a reasonable preference category but do not meet the Medway criteria for a local priority; and
- **Band D =** Cases that have a need to move and fall in to a reasonable preference but have had their priority reduced

3.76 Within the housing register, applicants are prioritised according to their housing need, which includes any medical needs which are affected by their housing situation.

Need by Band and Bedroom Requirements

3.77 Table 25 shows the number of people on Medway's Housing Register divided by banding and bedroom categories. The figures shown in this table include transfers. There are a total of 765 transfers included within these figures, which means the total on the housing register reduces from 5,119 to 4,354 when these are excluded, as shown in Table 26. There are 22 transfers within Band B and 743 within Band C.

3.78 The exclusion of transfers when considering the housing register is important in preparation for the affordable requirements calculation within this study, despite their relevance to the profile of stock required within the authority area. This is because when calculating current housing need and future housing need as part of the affordable housing need calculation, transfers have a zero net effect on housing need because they occupy an affordable property as well as releasing one for another household to occupy.

Table 25 - Housing Register by Band and Bedroom need (Including Transfers)

	Band A	Band B	Band C	Band D	Totals
1 bed	232	28	3,286	206	**3,752**
2 bed	72	36	610	106	**824**
3 bed	20	8	317	45	**390**
4+ bed	7	9	121	16	**153**
Total	**331**	**81**	**4,334**	**373**	**5,119**

Source: Medway Council, 2015

Table 26 - Housing Register by Band and Bedroom Need (Excluding Transfers)

	Band A	Band B	Band C	Band D	Totals
1 bed	232	27	3,088	206	**3,553**
2 bed	72	20	291	106	**489**
3 bed	20	5	140	45	**210**
4+ bed	7	7	72	16	**102**
Total	**331**	**59**	**3,591**	**373**	**4,354**

Source: Medway Council, 2015

3.79 Table 27 shows the number and proportion of households within each band of the housing register. This shows that the Band C has the highest proportion of those on the housing register, with 85%, followed by Band D with 7%, Band A with 6% and Band B with 2%. Only 8% of those on the register are identified as high priority at this snapshot (within the priority and urgent bands A and B), however bandings are continuously subject to change based on changing circumstances.

Table 27 - Housing Register Band Proportions Including Transfers

	Households on Housing Register	% of Total Housing Register
Band A	331	6%
Band B	81	2%
Band C	4,334	85%
Band D	373	7%
Total	**5,119**	**100%**

Source: Medway Council, 2015

3.80 Whilst Band C applicants are not classified as being of the highest priority need, and specifically do not constitute a "local priority", they are considered to be a reasonable preference category. It is also important to note that in some cases applicants can be placed

in lower priority bands whilst their circumstances are being assessed, and may then be moved into a band of 'higher priority' need.

3.81 Significant pressure is being applied to the social housing market, correlating with the economic downturn which affected employment levels and development rates. Reforms to housing benefit introduced in April 2013 (alongside other benefit reforms) have seen payments capped at £500 per week, whilst social landlords are now able to set maximum rent at 80% of open market values (on new build homes funded from 2012 to 2018 with government funding and also in relation to a percentage of existing stock). This benefit cap presents problems in relation to both the public and private sectors, however the problem is felt more severely in relation to the private sector.

3.82 The wider introduction of new policy directives, such as the benefit cap, and more general welfare reform, will fundamentally impact on the role of the social rented tenure in relation to the private rented sector. This is discussed fully in a later section.

4. Access to Housing

4.1 The operation of the housing market is dependent upon households being able to move both within and between tenures. The ability of households to exercise choice and realise their aspirations for moving is predicated upon the relationship between both the active market elements assessed above, but also income.

4.2 High property prices relative to incomes and a lack of access to mortgage products are the driving factor that limits the ability of households to enter the owner-occupier tenure. This in turn has implications for both the private rented and social rented market.

Mortgage Finance

4.3 One of the underlying drivers behind the lack of mobility in the housing market, in particular the owner-occupier market, remains constraint on mortgage finance by financial lending institutions (banks and building societies) since the 'credit crunch' in 2008, with the removal of all 100%, 95% and the majority of 90% mortgage products from the market. However, these products are being reintroduced, particularly driven by home ownership schemes such as the government backed NewBuy scheme (with a minimum 5% deposit requirement) and Help To Buy Scheme (with a minimum 5% deposit requirement and maximum 20% government loan on new build properties with a purchase price of up to £600,000).

4.4 Despite signs of recent improvement, the constraints on mortgage finance are likely to remain, at least in the short term, impacting significantly on the ability of households to purchase housing. This is particularly true of those areas where house prices are higher, with incomes on the whole continuing to show modest growth linked to the current slow economic climate and above target inflation. Government support schemes will have limited capacity to respond to this.

4.5 Table 28 below provides examples of current offers in the mortgage market. Despite the historically low Bank of England Base Rate, lenders are generally charging more to those with lower deposits to borrow. While this has always been the case it is more promoted in the current lending environment. However, there are some better rates available for lower loan to value products.

4.6 The mortgage offers with lower Loan To Value ratios require a higher initial deposit than those with a higher ratio, however, the monthly payments are significantly reduced. Other mortgage costs aside from the deposit and monthly payments must also be noted, such as survey and legal costs and mortgage set up fees, which are not included within this note's calculations.

Table 28 - UK Mortgage Comparisons

Mortgage Finance – Compare Best Mortgages Results (September 2014)					
Supplier	**Initial Interest rate**	**Subsequent Interest rate**	**Period**	**Mortgage Type**	**Loan to Value**
HSBC	0.99%	3.94%	2 year	Variable	60%
Yorkshire Building Society	1.29%	4.99%	2 year	Fixed	65%
Chelsea Building Society	3.04%	4.95%	2 year	Fixed	90%
Chelsea Building Society	1.99%	5.45%	3 year	Fixed	75%
Leeds Building Society	2.24%	5.69%	3 year	Fixed	80%
Nationwide	5.04%	3.99%	5 year	Fixed	95%
Post Office	4.89%	4.49%	5 year	Fixed	95%
TSB	3.49%	3.99%	5 year	Fixed	85%
Natwest	2.58%	4.00%	5 year	Fixed	70%
Nationwide	3.14%	3.99%	10 year	Fixed	60%
HSBC	3.79%	-	Lifetime	Tracker	90%

Source: money.co.uk - June 2015

4.7 Table 29 illustrates monthly repayment and endowment mortgage costs, for 25 year mortgages for Lower Quartile priced homes. These calculations assume:

- Lender requires a minimum deposit of 5%;
- Buyer qualifies for the standard interest rate available;
- 25 year repayment period

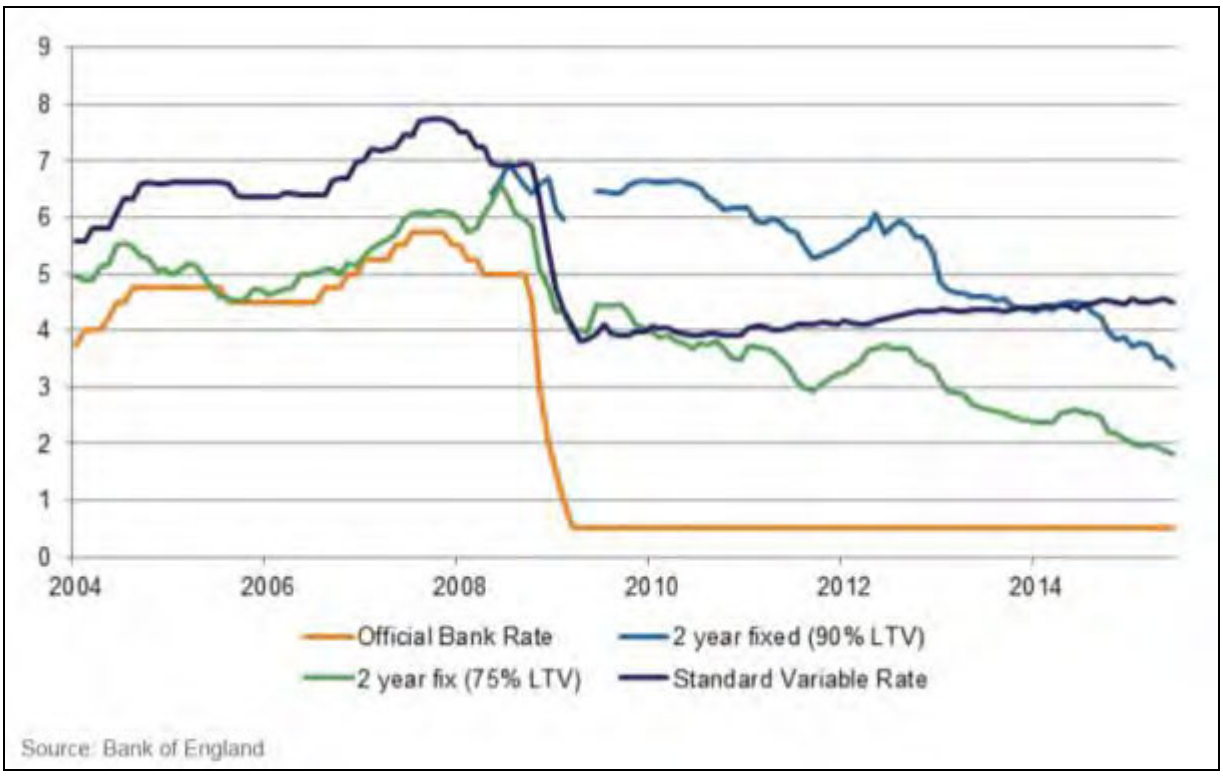
There may be certain requirements for indemnity or other payments, which are not included within the above.

4.8 The standard interest rate in this calculation is assumed to be 4%. There is variation in the snapshot of initial and subsequent interest rates shown in Table 28, which will have an influence on affordability (with higher interest rates reducing affordability levels). However, the variability and continual fluctuations evident in mortgage rates supports the appropriateness of considering an average interest rate level.

4.9 The Council of Mortgage Lenders have produced several charts tracking mortgage rates and interest rates over the period from 2004 – 2014, which are useful and relevant here.

4.10 Figure 22 below emphasises the fluctuation in fixed term mortgages. This shows that since approximately 2009 these fixed term mortgage rate trends have not reflected the static 0.5% official bank rate, whereas the standard variable rate shows a more consistent trend.

Figure 22 - Typical New Mortgage Rates Relative to Bank Rate

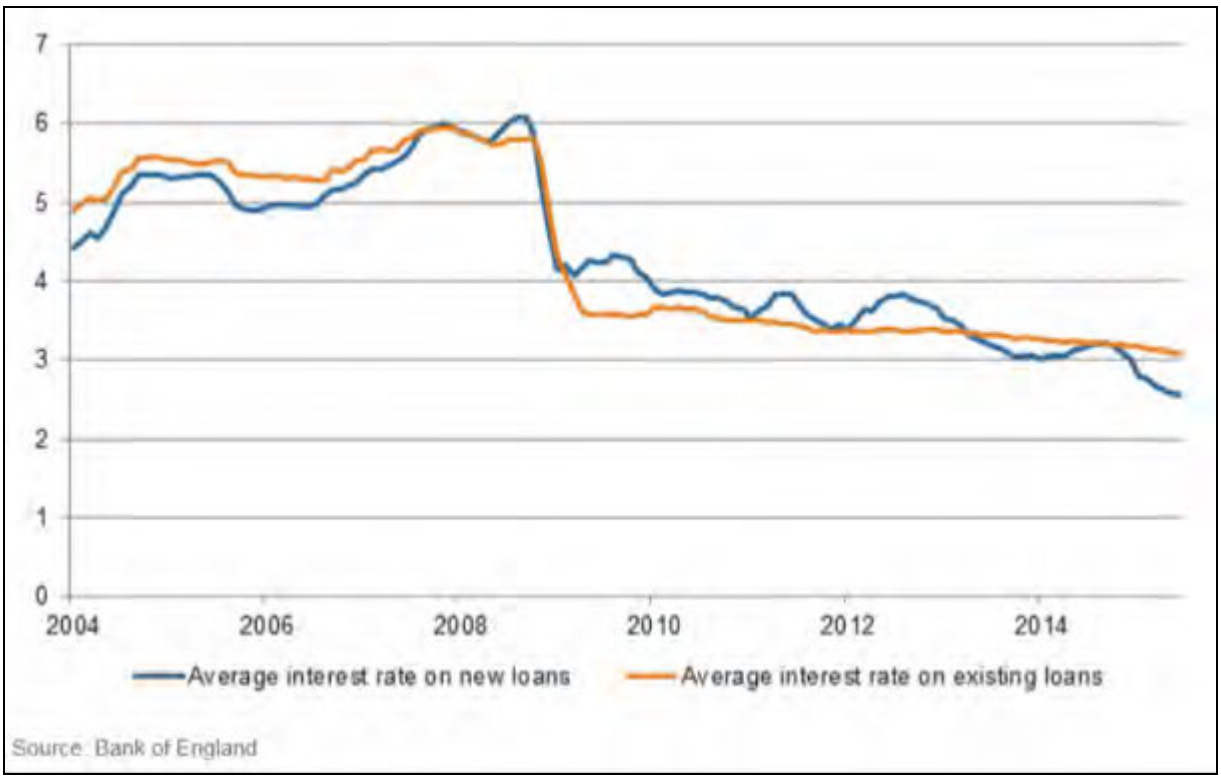


Source: Council of Mortgage Lenders (https://www.cml.org.uk/news/five-things-you-need-to-know-about-mortgage-rates/)

4.11 Figure 23 shows the trend for interest rates on new and existing loans, with significant fluctuation between approximately 2.5% - 6% over the 10 year period. This chart is based on Bank of England data, and when analysing this monthly data from 2004-2014 there is a combined average interest rate across re-mortgages and new mortgages of 4%.

4.12 This justifies the adoption of a 4% interest rate in the context of the mortgage repayments calculated within this SHMA report.

Figure 23 - Average Interest Rate on New and Existing Mortgages



Source: Council of Mortgage Lenders (https://www.cml.org.uk/news/five-things-you-need-to-know-about-mortgage-rates/)

Table 29 - Typical mortgage repayment with LQ house price purchase

Lower quartile average house price	LTV	Assumed deposit	Mortgage advance	Interest rate	Typical Repayment period	Monthly payments
£122,500	60%	£49,000	£73,500	4%	25 years	£387.96
£122,500	65%	£42,875	£79,625	4%	25 years	£420.29
£122,500	70%	£36,750	£85,750	4%	25 years	£452.62
£122,500	**75%**	**£30,625**	**£91,875**	**4%**	**25 years**	**£484.95**
£122,500	80%	£24,500	£98,000	4%	25 years	£517.28
£122,500	85%	£18,375	£104,125	4%	25 years	£549.61
£122,500	**90%**	**£12,250**	**£110,250**	**4%**	**25 years**	**£581.94**
£122,500	95%	£6,125	£116,375	4%	25 years	£614.27

4.13 The costs of servicing a typical repayment mortgage on a Lower Quartile house in Medway with a 75% LTV mortgage would be in the region of £485 per month, with the important caveat that the potential buyer would need to have access to a deposit of approximately £30,625.

4.14 The costs of servicing a typical repayment mortgage on a Lower Quartile house in Medway with a 90% LTV mortgage would be in the region of £582 per month, with the important caveat that the potential buyer would need to have access to a deposit of approximately £12,250.

4.15 The minimum deposit required to attain a mortgage of any type for the purchase of a property would be £6,125, however this comes with monthly payments in the region of £614.

Income Levels

4.16 Income levels are directly related to employment opportunities and have an important relationship with the ability of households to exercise choice in the housing market and indeed the level of need for affordable housing products. Data on gross household income levels ****inclusive or exclusive of benefits**** has been sourced from CACI.

4.17 Earnings data sourced from the Annual Survey of Hours and Earnings (ASHE) is analysed in the NK SHENA Baseline report, alongside income data sourced from CACI. Here the CACI income data is reiterated as it is most relevant to the following understanding of affordability and access to housing tenures.

4.18 In 2014 Medway households had mean and lower quartile incomes of approximately £36,906 and £15,964 respectively.

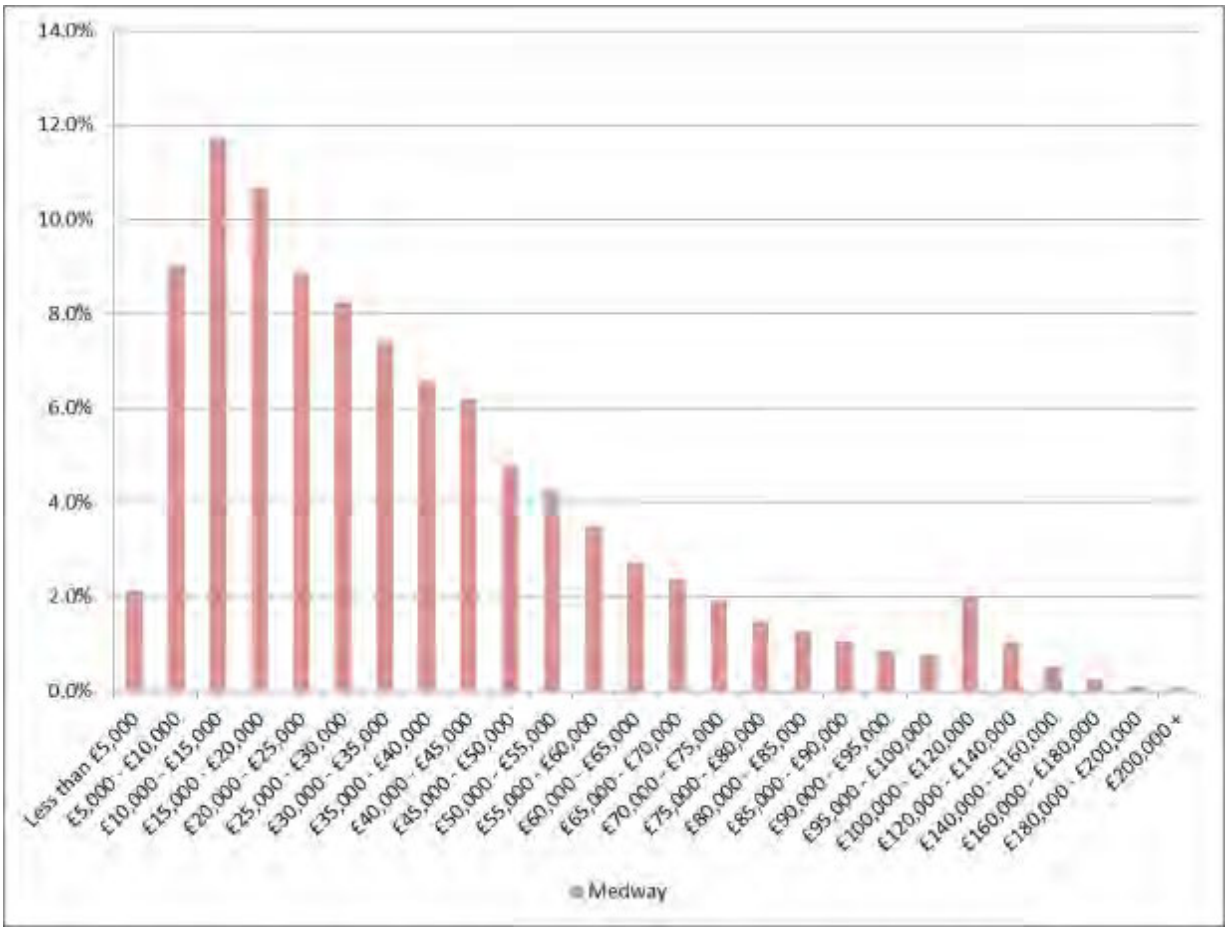
4.19 Table 30 and Figure 24 show the income distribution of Medway in £5,000 increments. For Medway the majority of households have an income towards the lower end of the income spectrum, with 33.6% of households having incomes below £20,000 per annum, 50.7% below £30,000 and 64.8% below £40,000 per annum.

Table 30 - Medway household income levels

Household Income Band	No. of Households	% of Households
Less than £5,000	2,337	2.2%
£5,000 - £10,000	9,826	9.0%
£10,000 - £15,000	12,764	11.7%
£15,000 - £20,000	11,594	10.7%
£20,000 - £25,000	9,642	8.9%
£25,000 - £30,000	8,971	8.3%
£30,000 - £35,000	8,080	7.4%
£35,000 - £40,000	7,150	6.6%
£40,000 - £45,000	6,764	6.2%
£45,000 - £50,000	5,201	4.8%
£50,000 - £55,000	4,647	4.3%
£55,000 - £60,000	3,790	3.5%
£60,000 - £65,000	2,964	2.7%
£65,000 - £70,000	2,575	2.4%
£70,000 - £75,000	2,079	1.9%
£75,000 - £80,000	1,616	1.5%
£80,000 - £85,000	1,381	1.3%
£85,000 - £90,000	1,138	1.0%
£90,000 - £95,000	950	0.9%
£95,000 - £100,000	835	0.8%
£100,000 - £120,000	2,181	2.0%
£120,000 - £140,000	1,125	1.0%
£140,000 - £160,000	568	0.5%
£160,000 - £180,000	270	0.2%
£180,000 - £200,000	116	0.1%
£200,000 +	89	0.1%
Total Households	108,654	100%

Source: CACI, 2015

Figure 24 - Medway household income levels



Source: CACI (PayCheck Report), 2015

Affordability

4.20 Assessing affordability involves comparing housing costs against the ability to pay. CLG produces annual affordability ratios for median and lower quartile earnings to house prices. The ratios are calculated by dividing average and lower quartile house prices by average and lower quartile earnings. As the ratio increases the more unaffordable property within a given area is considered to be to local people.

4.21 The median affordability ratio differs from the lower quartile affordability in that it assesses a higher level of wages against a higher cost of housing. It can therefore be viewed as a proxy for those wishing to move up the property ladder rather than those wanting to move on to it, represented by lower quartile affordability.

4.22 Whilst these affordability ratios are explained here, analysis of these affordability measures is undertaken in Section 5, Objectively Assessed Housing Need, as part of its market signals analysis.

4.23 Providing a qualitative understanding of affordability in Medway, the 2015 Medway Housing Needs Survey (HNS) asked respondents how concerned they are about their ability to pay their rent or mortgage. 10.6% of respondents indicated they are 'fairly concerned' about meeting these costs (32 respondents) and 7.6% of respondents indicated they are 'very concerned' (23 respondents). Whilst the majority are not concerned about meeting these costs, this shows a notable proportion is concerned. This proportion is likely to be reflected across the wider Medway population, and which future affordable housing provision in the Medway may need to address.

Benchmarking Access to Different Housing Tenures

4.24 The former CLG SHMA guidance (August 2007) suggests a number of critical levels to test against income in order to evaluate the extent of the issue of affordability, which are still considered useful and relevant here. The two core elements are:

- Assessing whether a household can afford to buy a home; and
- Assessing whether a household can afford to rent a home.

4.25 A series of key assumptions used in the benchmarking assessment of these elements are set out below, in line with the standardised assumptions for assessing affordability recommended in the CLG SHMA Guidance (August 2007):

- Lower Quartile house prices are utilised to represent lower market entry properties;
- An individual with a single income is considered able to buy a home if it costs 3.5 times the gross household income;
- Couples/families in dual-income households are considered able to buy a home if it costs 2.9 times the gross households income;
- A household is considered able to afford market housing in cases where the rent payable would constitute no more than 25% of their gross household income;
- 'Rent payable' is defined as the entire rent due, even if it is partially or entirely met by housing benefit;
- Local circumstances could justify variation from the application of the level of 25% of gross household income; and
- Annual social housing rents are calculated from an average taken of Registered Providers rental levels

4.26 The CLG guidance advocates an affordability multiplier of 3.5x/2.9x (or 28.6%/34.5%) household income to act as a threshold for households to access open market housing (lower

quartile owner occupation) and where the rent payable would constitute no more than 25% of their gross household income.

4.27 However, house prices in the South East can be significantly higher than the rest of the UK and this is not necessarily reflected to the same extent in household income. This should be taken into account when considering Medway's context, particularly in light of the current economic climate and mortgage finance accessibility. This results in the conclusion that in the case of Medway it should not necessarily be restrained by the figures of 25% of gross household income for rental payment and 3.5x/2.9x household income for home purchase. These national measures are still important to understand though, as they reflect the impact of housing costs on quality of life.

4.28 Whilst these figures provide useful affordability guidance, the introduction of the Planning Practice Guidance (NPPG) means they have technically been archived and replaced, with the new NPPG not specifying an affordability threshold. Therefore, there is no issue with considering a slightly higher proportion of income spend if appropriate within the context of the Medway market.

4.29 This study has applied a range of affordability sensitivities to ascertain the appropriate affordability threshold to Medway, which are:

- Affordability threshold of maximum spend on housing (purchase and rental) of 25% of household income;
- Affordability threshold of maximum spend on housing (purchase and rental) of 30% of household income; and
- Affordability threshold of maximum spend on housing (purchase and rental) of 35% of household income.

4.30 This alternative measure of ability to buy a home assumes that a bank will advance mortgage funding if the mortgage repayments represent no more than 35% of a household's gross income. Similarly rental costs' affordability are also benchmarked against 35% of household income.

4.31 The 30% and 35% sensitivities reflect the localised housing pressures and issues within the South East region and particularly Medway. National housing charity Shelter defines a 40% level of income spend for affordability[6], although this includes insurance, service charges, maintenance, repairs, taxes and cost of utilities within this housing costs indicator.

4.32 35% is a significant proportion of income to spend on housing, and whilst it should not be considered the definitive threshold to assessing need, it does represent a level of spend which

[6] **media.shelter.org.uk/home/press-releases/uk_third_least_affordable_in_europe_for_housing_costs**

some households in the authority area may be forced to adopt. It is therefore retained as a relevant affordability scenario within this analysis.

4.33 Table 31 shows benchmark values for lower quartile market entry and rental, affordable rental tenures and social rental tenures. The 2 & 3 bedroom properties within the market and affordable tenures are most relevant for consideration in Medway (based on the analysis of stock profile by number of bedrooms in the Baseline Report) and form the basis of the sensitivity analyses for benchmarking affordability.

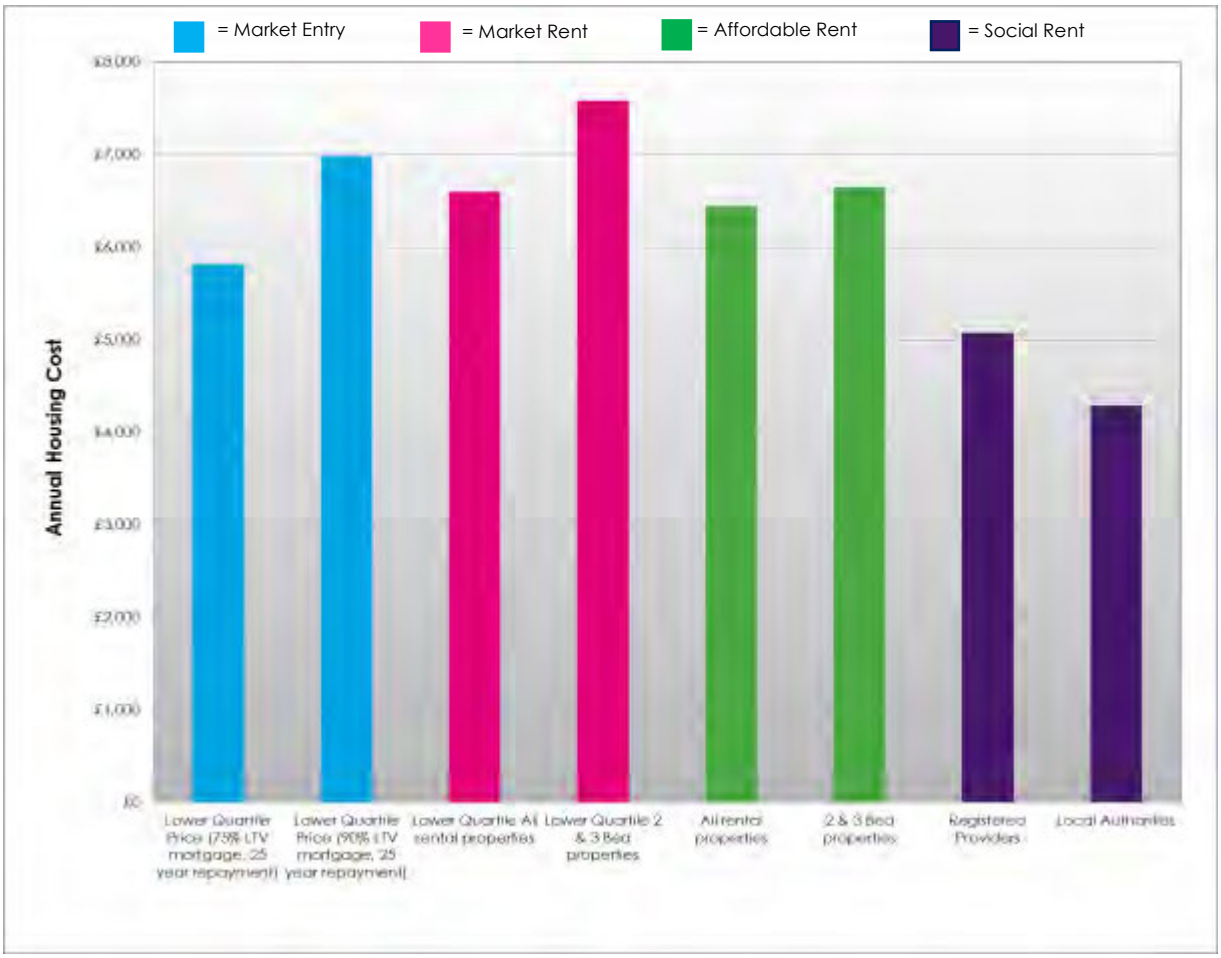
4.34 For renting 2&3 bedroom properties, the social rented tenure provide the lowest annual housing cost (£4,286 for Local Authority and £5,077 for Registered Providers). These levels are lower than for affordable and market rent. For market entry the benchmark with a 75% LTV ratio mortgage repaid over 25 years has the lowest annual cost of £5,819, however this is dependent on the ability to pay a deposit figure of £30,625. Market entry with a 90% LTV ratio mortgage repaid over 25 years has an annual cost of £6,983, dependent on the ability to pay a deposit figure of £12,250.

4.35 Having benchmarked these tenures, Table 32, Table 33 and Table 34 show the sensitivity analysis for affordability with 25%, 30% and 35% of household income applied to housing costs.

Table 31 - Medway Benchmark Property Values

	Benchmark Property Values		
	House Price	Average Monthly Rent	Annual Cost
Market Entry			
Lower Quartile Price (75% LTV mortgage, 25 year repayment)	£122,500	n/a	£5,819
Lower Quartile Price (90% LTV mortgage, 25 year repayment)	£122,500	n/a	£6,983
Market Rented			
Lower Quartile All rental properties	n/a	£550	£6,600
Lower Quartile 2 & 3 Bed properties	n/a	£632	£7,584
Affordable Rent (80% of mean average market rent)			
All rental properties	n/a	£537	£6,444
1 Bed rental properties	n/a	£438	£5,256
2 Bed rental properties	n/a	£525	£6,300
3 Bed rental properties	n/a	£588	£7,056
4 or more Bed properties	n/a	£891	£10,692
2 & 3 Bed properties	n/a	£554	£6,648
Social Rented			
Registered Providers	n/a	£423	£5,077
Local Authorities	n/a	£357	£4,286

Figure 25 - Benchmark Values for Properties of Different Tenures



Source: GVA, 2015

4.36 Under the 25% spend assumption, 58% of households in Medway can afford to purchase a house (at the LQ average house price of £122,500) assuming a mortgage with a 75% LTV ratio, requiring an annual income of £23,280. However, this also assumes the ability to pay the assumed deposit of £30,625. 49% of households can afford to purchase assuming a mortgage with a 90% LTV ratio, requiring an annual income of £27,936, and assuming payment of a £12,250 deposit.

4.37 49% of households can afford market rent for 2 & 3 bedroom properties, requiring an annual income of £26,592. Affordable rent tenures are available to 49% of households when based on 80% of mean and median market rent, to 58% of households when based on RP social rent, and to 66% when based on LA social rent. There are no additional deposit expenses for market and affordable rent (with the exception of a small proportion for market rent, with letting agent fees, holding deposits etc.).

Table 32 - Sensitivity 1a: Affordability of up to 25% of Household Income

	House Purchase 1 -75% LTV mortgage	House Purchase 2 -90% LTV mortgage	Market Rent (2 & 3 bedroom)	Affordable Rent 1 (80% of Mean market rent - £842) (2 & 3 bedroom)	Affordable Rent 2 (80% of Median market rent - £813) (2 & 3 bedroom)	Social Rent (RP)	Social Rent (LA)
Monthly payment	485	582	554	554	548	423	357
Annual payment	5,820	6,984	6,648	6,648	6,576	5,076	4,284
Max. percentage of income	25%	25%	25%	25%	25%	25%	25%
Required monthly income	1,940	2,328	2,216	2,216	2,192	1,692	1,428
Required annual income	**23,280**	**27,936**	**26,592**	**26,592**	**26,304**	**20,304**	**17,136**
CACI household income band which contains 'required annual income'	20,000 - 25,000	25,000 - 30,000	25,000 - 30,000	25,000 - 30,000	25,000 - 30,000	20,000 - 25,000	15,000 - 20,000
Number of Households within and below income band	46,163	55,134	55,134	55,134	55,134	46,163	36,521
Total number of Households	108,654	108,654	108,654	108,654	108,654	108,654	108,654
% of households who cannot afford annual payment	**42%**	**51%**	**51%**	**51%**	**51%**	**42%**	**34%**

Source: GVA, 2015

4.38 Under the 30% spend assumption, 66% of households in Medway can afford to purchase a house (at the LQ average house price of £122,500) assuming a mortgage with a 75% LTV ratio, requiring an annual income of £19,400. However, this also assumes the ability to pay the assumed deposit of £30,625. 58% of households can afford to purchase assuming a mortgage with a 90% LTV ratio, requiring an annual income of £23,280, and assuming payment of a £12,250 deposit.

4.39 58% of households can afford market rent for 2 & 3 bedroom properties, requiring an annual income of £22,160. Affordable rent tenures are available to 58% of households when based on 80% of mean and median market rent, to 66% of households when based on RP social rent, and to 77% when based on LA social rent. There are no additional deposit expenses for market and affordable rent (with the exception of a small proportion for market rent, with letting agent fees, holding deposits etc.).

Table 33 - Sensitivity 2a: Affordability of up to 30% of Household Income

	House Purchase 1-75% LTV mortgage	House Purchase 2 -90% LTV mortgage	Market Rent (2 & 3 bedroom)	Affordable Rent 1 (80% of Mean market rent - £842) (2 & 3 bedroom)	Affordable Rent 2 (80% of Median market rent - £813) (2 & 3 bedroom)	Social Rent (RP)	Social Rent (LA)
Monthly payment	485	582	554	554	548	423	357
Annual payment	5,820	6,984	6,648	6,648	6,576	5,076	4,284
Max. percentage of income	30%	30%	30%	30%	30%	30%	30%
Required monthly income	1,617	1,940	1,847	1,847	1,827	1,410	1,190
Required annual income	**19,400**	**23,280**	**22,160**	**22,160**	**21,920**	**16,920**	**14,280**
CACI household income band which contains 'required annual income'	15,000 - 20,000	20,000 - 25,000	20,000 - 25,000	20,000 - 25,000	20,000 - 25,000	15,000 - 20,000	10,000 - 15,000
Number of Households within and below income band	36,521	46,163	46,163	46,163	46,163	36,521	24,928
Total number of Households	108,654	108,654	108,654	108,654	108,654	108,654	108,654
% of households who cannot afford annual payment	**34%**	**42%**	**42%**	**42%**	**42%**	**34%**	**23%**

Source: GVA, 2015

4.40 Under the **35% spend assumption**, 66% of households in Medway can afford to purchase a house (at the LQ average house price of £122,500) assuming a mortgage with a 75% LTV ratio, requiring an annual income of £16,629. However, this also assumes the ability to pay the assumed deposit of £30,625. 66% of households can afford to purchase assuming a mortgage with a 90% LTV ratio, requiring an annual income of £19,954, and assuming payment of a £12,250 deposit.

4.41 66% of households can afford market rent for 2 & 3 bedroom properties, requiring an annual income of £18,994. Affordable rent tenures are available to 66% of households when based on 80% of mean and median market rent, and to 77% of households when based on RP and LA social rent. There are no additional deposit expenses for market and affordable rent (with the exception of a small proportion for market rent, with letting agent fees, holding deposits etc.).

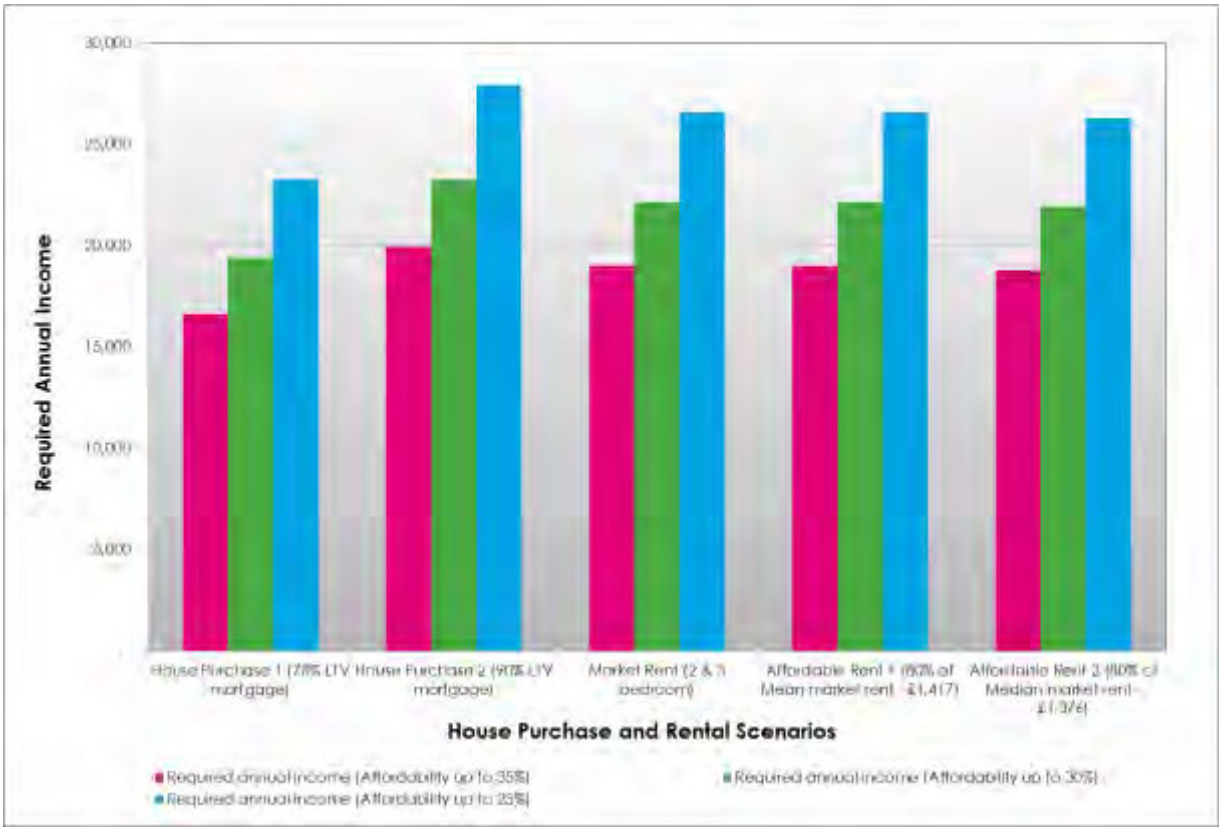
Table 34 - Sensitivity 3a: Affordability of up to 35% of Household Income

	House Purchase 1 - 75% LTV mortgage	House Purchase 2 - 90% LTV mortgage	Market Rent (2 & 3 bedroom)	Affordable Rent 1 (80% of Mean market rent - £842) (2 & 3 bedroom)	Affordable Rent 2 (80% of Median market rent - £813) (2 & 3 bedroom)	Social Rent (RP)	Social Rent (LA)
Monthly payment	485	582	554	554	548	423	357
Annual payment	5,820	6,984	6,648	6,648	6,576	5,076	4,284
Max. percentage of income	35%	35%	35%	35%	35%	35%	35%
Required monthly income	1,386	1,663	1,583	1,583	1,566	1,209	1,020
Required annual income	**16,629**	**19,954**	**18,994**	**18,994**	**18,789**	**14,503**	**12,240**
CACI household income band which contains 'required annual income'	15,000 - 20,000	15,000 - 20,000	15,000 - 20,000	15,000 - 20,000	15,000 - 20,000	10,000 - 15,000	10,000 - 15,000
Number of Households within and below income band	36,521	36,521	36,521	36,521	36,521	24,928	24,928
Total number of Households	108,654	108,654	108,654	108,654	108,654	108,654	108,654
% of households who cannot afford annual payment	**34%**	**34%**	**34%**	**34%**	**34%**	**23%**	**23%**

Source: GVA, 2015

4.42 Figure 26 illustrates the results of these three affordability analyses.

Figure 26 - Required Annual Income Benchmarks for 25%, 30% and 35% Affordability Sensitivities



Source: GVA, 2015

4.43 It is important to note that more stringent credit scoring and low savings, coupled with low incomes may increase the number of households who are technically unable to access the private owner-occupied housing market or staircase up it if already owning their own property.

4.44 Taking an alternative approach to using the same three sensitivities for maximum percentage of household income spend on housing, the monthly housing payments required for median average household income of £29,550 per year, for those with £500 per week income and for those with £350 per week income is calculated. The £500 and £350 per week income levels facilitate examination of the impact of Welfare Reform, as they represent the benefit cap levels for couples/single parents (2+ bedrooms) and single people without children (1 bedroom) respectively. These sensitivities are shown in Table 35, Table 36 and Table 37.

4.45 Under the assumption of spending up to 25% of household income on housing, households on the median average income should be paying a maximum of £616 per month on housing costs. Couples and single parents claiming £500 in benefits per week should be paying a monthly maximum of £542. Single people claiming £350 per week in benefits should be paying

a monthly maximum of £379 on housing costs. This provides an indication of the rent levels considered affordable (at the 25% level) for households on each of these income levels.

Table 35 - Sensitivity 1b: Affordability of up to 25% of Household Income

	Median Average Household Income - £29,550 per year	£500 per week Income (2+ bedrooms)	£350 per week Income (1 bedroom)
Annual Income	29,550	26,000	18,200
Monthly Income	2,463	2,167	1,517
Max. % of Income spent on housing	25%	25%	25%
Max Annual Housing Payment	7,388	6,500	4,550
Max Monthly Housing Payment	**616**	**542**	**379**

Source: GVA, 2015

N.B.£500 per week and £350 per week columns relate to benefit cap levels for couples and single parents, and single people respectively.

4.46 Under the assumption of spending up to 30% of household income on housing, households on the median average income should be paying a maximum of £739 per month on housing costs. Couples and single parents claiming £500 in benefits per week should be paying a monthly maximum of £650. Single people claiming £350 per week in benefits should be paying a monthly maximum of £455 on housing costs. This provides an indication of the rent levels considered affordable (at the 30% level) for households on each of these income levels.

Table 36 - Sensitivity 2b: Affordability of up to 30% of Household Income

	Median Average Household Income - £29,550 per year	£500 per week Income (2+ bedrooms)	£350 per week Income (1 bedroom)
Annual Income	29,550	26,000	18,200
Monthly Income	2,463	2,167	1,517
Max. % of Income spent on housing	30%	30%	30%
Max Annual Housing Payment	8,865	7,800	5,460
Max Monthly Housing Payment	**739**	**650**	**455**

Source: GVA, 2015

N.B.£500 per week and £350 per week columns relate to benefit cap levels for couples and single parents, and single people respectively.

4.47 Under the assumption of spending up to 35% of household income on housing, households on the median average income should be paying a maximum of £862 per month on housing costs. Couples and single parents claiming £500 in benefits per week should be paying a monthly maximum of £758. Single people claiming £350 per week in benefits should be paying

a monthly maximum of £531 on housing costs. This provides an indication of the rent levels considered affordable (at the 35% level) for households on each of these income levels.

Table 37 - Sensitivity 3b: Affordability of up to 35% of Household Income

	Median Average Household Income - £30,583 per year	£500 per week Income (2+ bedrooms)	£350 per week Income (1 bedroom)
Annual Income	29,550	26,000	18,200
Monthly Income	2,463	2,167	1,517
Max. % of Income spent on housing	35%	35%	35%
Max Annual Housing Payment	10,343	9,100	6,370
Max Monthly Housing Payment	**862**	**758**	**531**

Source: GVA, 2015

N.B.£500 per week and £350 per week columns relate to benefit cap levels for couples and single parents, and single people respectively.

4.48 Comparing the first set of sensitivities (1a, 2a, and 3a) with the second set (1b, 2b and 3b) provides some indication of how realistic affordability is for Medway residents with median, £500 per week and £350 per week income levels, as well as those with the median average household income level. This particularly highlights the affordability pressures faced by those claiming benefits under the Welfare Reform Act (2012).

4.49 Table 38 brings together the first and second set of sensitivities to reinforce these affordability pressures.

Table 38 - Comparator Table for Affordability Sensitivities

	% of households who cannot afford annual housing payment	Maximum monthly housing payment at this income spend level
Affordability of up to 25% of household income (1)	34% - 51%	£379 - £616
Affordability of up to 30% of household income (2)	23% - 42%	£455 - £739
Affordability of up to 35% of household income (3)	23% - 34%	£531 - £862

Source: GVA, 2015

5. Objectively Assessed Housing Need

5.1 This section of the report examines population and household projections with a view to considering what constitutes objectively assessed housing needs for Medway.

5.2 The NPPF and PPG sets out a detailed methodology for undertaking an assessment of housing need in an area. GVA has summarised some of the key requirements and statements from the PPG which provide some context as to the required approach.

National Planning Policy

5.3 As described in the introduction to this report, the NPPF describes the policy principles for OAN at paragraph 47 when it states local planning authorities should "use their evidence to ensure that their Local Plan meets the **full, objectively assessed needs for market and affordable housing in the housing market area**" (GVA emphasis).

5.4 The NPPF mandates the integration of different strategies and land uses including requiring planning authorities to "**ensure that their assessments of and strategies for housing, employment and other uses are integrated** and that they take full account of relevant market and economic signals" (GVA emphasis).[7]

*5.5 "Local planning authorities should […] assess their full housing needs, **working with neighbouring authorities where housing market areas cross administrative boundaries**. The […] Assessment should identify the scale … of housing … that the local population is likely to need over the plan period which:*

- meets household and population projections, taking account of migration and demographic change;
- **addresses the need for all types of housing, including affordable housing** …; and
- caters for housing demand and the scale of housing supply necessary to meet this demand." (GVA emphasis)[8]

5.6 Local Planning Authorities are required to have a clear understanding of housing needs in their area which they should ascertain through the preparation of a Strategic Housing Market Assessment.

[7] NPPF, paragraph 158
[8] NPPF. paragraph 159

5.7 More widely, the NPPF states that Local Plans and authorities should make every effort "to **identify and then meet the housing, business and other development needs of an area**, and respond positively to wider opportunities for growth" (GVA emphasis).[9]

5.8 It is clear from the extracts above that full objectively assessed need refers to both the need for market and affordable housing and requires a positive approach which responds to both demographic needs and to opportunities for economic growth.

National Planning Guidance

Further to the NPPF's more general prescriptions, the PPG sets out a detailed methodology for undertaking an assessment of housing need in an area. This assessment has summarised some of the key requirements and statements from the PPG which provide some context as to the required process and aid in the later assessment of the Council's approach to identifying housing needs.

What is housing need?

5.9 The primary objective of an assessment of housing needs is to identify the future quantity of housing needed.[10]

*"Need for housing in the context of the guidance refers to the scale and mix of housing … **that is likely to be needed in the housing market area over the plan period** – and should **cater for the housing demand** of the area and identify the scale of housing supply necessary to meet that demand"* (GVA emphasis).[11]

*"The assessment of development needs is an objective assessment of need based on facts and unbiased evidence. **Plan makers should not apply constraints to the overall assessment of need**, such as limitations imposed by the supply of land for new development, **historic under performance**, viability, **infrastructure**, or **environmental constraints**"* (GVA emphasis).[12]

What area should be considered?

The spatial geography of the assessment should be led by functioning housing market areas. The PPG states that:

"A housing market area is a geographical area defined by household demand and preferences for all types of housing, reflecting the key functional linkages between places where people live and work […] The extent of the housing market areas identified will vary,

[9] NPPF, paragraph 17
[10] PPG Ref. ID 2a-002-20140306
[11] PPG Ref. ID 2a-003-20140306
[12] PPG Ref. ID 2a-004-20140306

and many will in practice cut across various local planning authority administrative boundaries. Local planning authorities should work with all the other constituent authorities under the duty to cooperate".[13]

5.10 The PPG states that the starting point for an assessment of housing need should be the government published household projections.[14] Adjustments should then be made to understand and address:

- the impact of past demographic and migration trends on those projections.[15]
- future labour requirements of the area and whether there is likely to be a shortfall of working persons.[16]
- affordability and housing market demand.[17]

5.11 An assessment should also consider the full need for affordable housing.[18]

5.12 Household projections are published biennially and are based on historic data from the labour force survey, Census and mid-year population estimates ("MYE"). With regard to population they project demographic trends from the last 6 years. They are only useful if the trends on which they are based are indicative of future trends. It is therefore important to assess whether other demographic issues have affected the projections.[19] It is also useful to look at longer term trends to understand how demographic change has shifted over time.

5.13 With regard to future labour force needs, the PPG states that "*Plan makers should make an assessment of the likely change in job numbers* ***based on past trends and/or economic forecasts as appropriate*** *and also having regard to the growth of the working age population in the housing market area.* ***Where the supply of working age population that is economically active (labour force supply) is less than the projected job growth****, this could result in unsustainable commuting patterns and could reduce the resilience of local businesses. In such circumstances, plan makers will need to consider how the location of new housing or infrastructure development could help address these problems."* (GVA emphasis).[20]

5.14 As set out above, indicators or signals of how the housing market is performing should also be assessed. The PPG states that "*Appropriate comparisons of indicators [of demand] should be made. This includes comparison with longer term trends in the: housing market area; similar demographic and economic areas; and nationally. A worsening trend in any of these*

[13] PPG Ref. ID 2a-010-20140306
[14] PPG Ref. ID 2a-015-20140306
[15] PPG Ref. ID 2a-017-20140306
[16] PPG Ref. ID 2a-018-20140306
[17] PPG Ref. ID 2a-019-20140306
[18] PPG Ref. ID 2a-022-20140306 to PPG Ref. ID 2a-029-20140306
[19] PPG Ref. ID 2a-017-20140306
[20] PPG Ref ID: 2a-018-20140306

indicators will require upward adjustment to planned housing numbers compared to ones based solely on household projections."…"The more significant the affordability constraints (as reflected in rising prices and rents, and worsening affordability ratio) and the stronger other indicators of high demand the larger the improvement in affordability needed and, therefore, the larger the additional supply response should be" (GVA emphasis).[21]

How should historic under-delivery be dealt with?

5.15 The PPG cautions that past trends – including past supply, economic conditions and worsening affordability - may have artificially suppressed factors such as migration and household formation and therefore could affect future projections. The guidance states:

"The household projection-based estimate of housing need may require adjustment to reflect ***factors affecting local demography and household formation rates*** *which are not captured in past trends. For example, formation rates may have been suppressed historically by under-supply and worsening affordability of housing.* ***The assessment will therefore need to reflect the consequences of past under delivery of housing.*** *As household projections do not reflect unmet housing need, local planning authorities should take a view based on available evidence of the extent to which household formation rates are or have been constrained by supply."*[22]

Affordable housing and wider needs

5.16 The PPG states[23] that affordable housing needs should be considered in the context of the overall mix of market and affordable housing likely to be delivered in the area. Specifically "an increase in the total housing figures included in the local plan should be considered where it could help deliver the required number of affordable homes". [24]

5.17 It should be highlighted that this stipulation does hint at affordable housing adjustments being a 'policy-on' consideration as it describes likely 'delivery' considerations. However, the Planning Advisory Service Technical Advice Note 'Objectively Assessed Needs and Targets'[25] states that affordable housing needs should be a consideration when defining OAN and if the total OAN cannot deliver sufficient affordable housing to meet needs, consideration should be given to increasing it.[26] Specific reference is made to accommodating the needs of concealed and homeless households.

[21] PPG Ref ID: 2a-020-20140306
[22] PPG Ref. ID 2a-015-20140306
[23] PPG Ref ID: 2a-029-20140603
[24] PPG Ref ID 2a-029-20140306
[25] see figure 3.1 and chapter 7 of this guidance
[26] Planning Advisory Service Technical Guidance on OAN
http://www.pas.gov.uk/documents/332612/6363137/Objectively+Assessed+Need+and+Housing+Targets/f22edcc2-32cf-47f1-8e4a-daf50e4412f7

5.18 It should also be noted that affordable housing needs are not directly comparable to general housing needs, as most affordable housing needs are generated by people who are currently housed in the district (albeit inappropriate for their means and needs). Therefore, when they are appropriately housed they free up an existing property for another household. Those new households (formed from existing families living in the district or from migration) are mostly picked up as part of the demographic modelling (with the exception of homeless and concealed households) and are not additional to the total housing needs.

Summary

5.19 In summary, an assessment of housing needs must be objective and must identify demand and therefore housing need in full. It should not seek to include measures that apply restraint in any way. It should be a positive exercise, which responds to future economic change, affordability and affordable housing needs. Four broad stages to this work have been identified as required in assessing OAN;

1. Identifying the basic geographic unit through which housing needs are understood (typically the HMA or local planning authority area) (See Section 2);
2. Assessing household projections (the starting point) against other consistent demographic evidence to understand the extent to which they are up to date and appropriate indicators of future housing needs;
3. Understanding whether adjustments need to be made to take account of labour force requirements and affordability (market signals); and
4. Understanding affordable housing needs in full and the extent to which they will be met.

Latest Projections

5.20 The latest set of population projections available from the Office of National Statistics (ONS) are the 2012-based Sub-national Population Projections (SNPP). The 2012 SNPP projects forward assumptions on fertility, mortality and migration rates based on trends from the previous 6 years starting from the base year of 2012 up to 2037 (25 years).

5.21 The SNPP is not a forecast and takes no account of future government policies, changing economic circumstances or the capacity of an area to accommodate the change in population. They provide an indication of the future size and structure of the population if recent demographic trends continue. Projections become increasingly uncertain the further they are carried forward, and particularly so for smaller geographic areas such as districts.

5.22 Population projections provide a basis through which to understand future population change. Household projections provide a basis through which to understand how that population change forms households. This is because as a population changes (both in terms

of size and structure) the number of dwellings needed to house that population also changes. For example, a population with a high proportion of people in their late teens is likely to need less housing than a population with a high proportion of 60 year olds. This is because the former demographic often lives with parents or in shared houses whereas the latter is more likely to live in couples or alone. These characteristics shift over time as a result of cultural changes in the population. For example, divorce amongst 30 and 40 year olds has been increasing over time which has increased the need for housing in this demographic as when a family or couple splits up you have two households to accommodate rather than one. The probability of a person being the head of a household is called the Household Representative Rate (HRR). The greater the HRR for a given population, the more houses that will be needed to accommodate it.

5.23 The household projections contain assumptions by age and sex about how HRRs will change over time. These assumptions are built up through analysis of the Census and Labour Force Survey. The latest household projections are the 2012 Household Projections (HP).

5.24 Table 39 provides an introduction to the different projections and the assumptions they use to projection population and household change. It is noted that new projections will be published in 2016 (2014-based), however this SHMA is based on the most up to date data available at the time of writing. In addition, use of the 2014 Mid-Year Population Estimate and migration data lessons the impact of any new data.

Table 39 - National population and household projections

Projection	Features
2012-based SNPP	• Uses demographic trends from 2007 to 2012 • Long-term projection from 2012 to 2037 • Average annual **population growth** between 2012 and 2037 for Medway= **2,344** people
2012-based HP[27]	• Uses the 2012-based population projections as a base • Household formation rates trended from 1971, 1981, 1991, 2001 and 2011 Censuses and Labour Force Survey data. • Long-term projection from 2012 to 2037 • Average annual **household growth** between 2012 and 2037 for Medway = **1,270** households

Source: ONS SNPP and HP

[27] At the time of writing only the Stage 1 HRRs for the 2012 Household Projections were available and further work is on-going to develop the Stage 2 HRRs. Stage 2 HRR will provide household projections in terms of type – i.e. the number of single male households or mixed households.

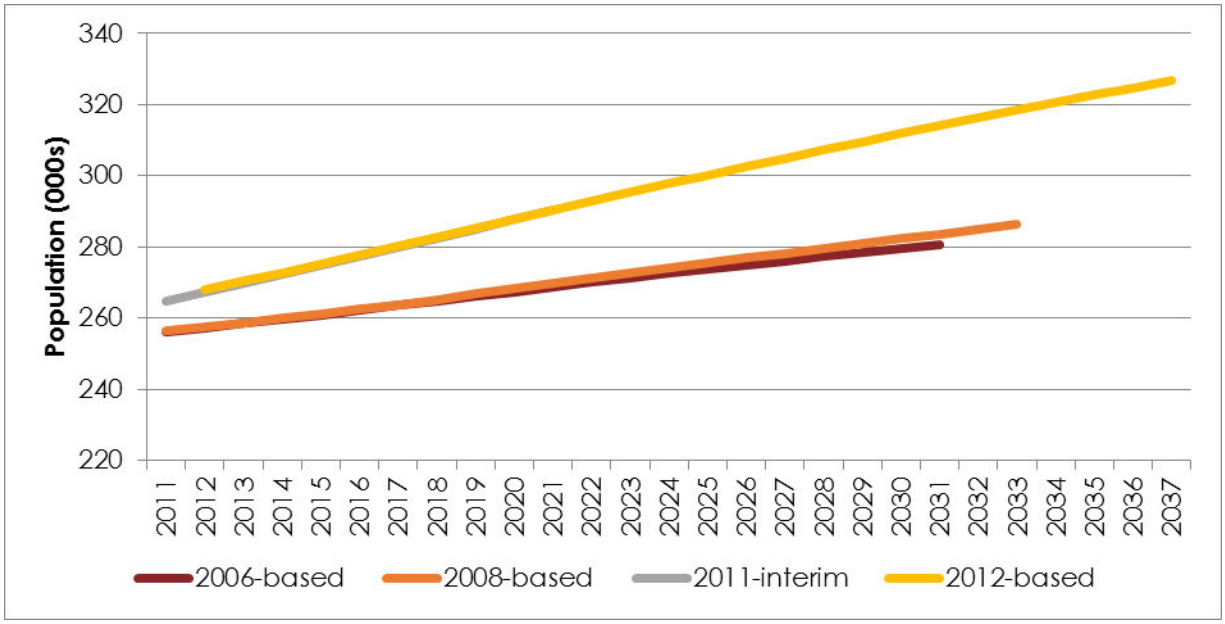
Population Projections

5.25 The latest official projections come from the ONS 2012-based SNPP. 2012-based SNPP anticipates the population of Medway will increase by 21.8% (58,600 people) to an overall population of 326,800 people in 2037. In 2012, Medway accounts for 18.1% of the total Kent county population; by 2037 this is projected to increase to 18.3%.

5.26 Figure 27 provides a comparison between the latest 2012-based SNPP and previous 2011-interim, 2008-based and 2006-based SNPP for Medway.

5.27 It would seem that recent projections (2012 and 2011-Interim) are projecting higher growth overall than historic projections (2006-based), albeit there appears to be some alignment between the 2008 SNPP and the post-Census projections. Furthermore, the starting point shows that historic projections underestimated the level of population that would be in Medway in 2011 (as identified by the 2011 Census). The 2012 SNPP anticipate the population of Medway to grow at a much faster rate than previously assumed under the 2006 and 2008 projections (but in broad alignment with the 2011 projection); equating to an average annual population growth of 2,344 people over the period 2012-2037.

Figure 27 - Comparison of recent and historic population projections for Medway



Source: ONS SNPP Series

Households

5.28 HP provide quantitative and qualitative assumptions about how the population of a given area will form households over the future period. Household projections are an amalgam of three sets of statistics; population projections (SNPP), HRR projections and projections of the level of communal establishment population (i.e. students in halls, prisoners, army barracks).

5.29 In Medway, the 2012 HP anticipate a 29% increase in households to a total of 139,900 households, or an annual growth of 1,270 households.

5.30 Figure 28 provides a comparison between the previous 2006, 2008, 2011-interim and 2012 HP for Medway between 2012 and 2037 (with variation in the dates set out). The 2008 and 2006 based projections follow a depressed trajectory compared to the 2011 and 2012 projections, with almost 10,000 households' difference by 2035. Given the analysis within Figure 28, this indicates that over time population growth has increased and the projections have been revised to show higher levels of growth.

Figure 28 - Household projections series over time

Source: DCLG HP

The OAN "Starting Point"

5.31 The starting point for an assessment of housing need is the 2012 HP. Table 40 sets out the 2012 HP for Medway and compares them to historic levels of household growth. It is clear that future household growth is projected to be significantly higher than has been observed historically. Table 40, and indeed the remainder of this report, uses the 2012 to 2037 projection period to understand future dwelling needs over the full length of the DCLG 2012 HP projection period (25 years).

5.32 Between 1992 and 2002 household growth was 599 per annum (pa) in Medway. Over the period 2002 to 2012, this had increased by 36%. Projected household growth (2012 to 2037) is anticipated to be 56% higher than household growth in the preceding decade (2002 to 2012).

Table 40 - Household growth estimates and projections

Area	Household Growth Per Annum		
	1992 to 2002	2002 to 2012	2012 to 2037
Medway	599	816	1,270

Source: DCLG 2012-based Household Projections

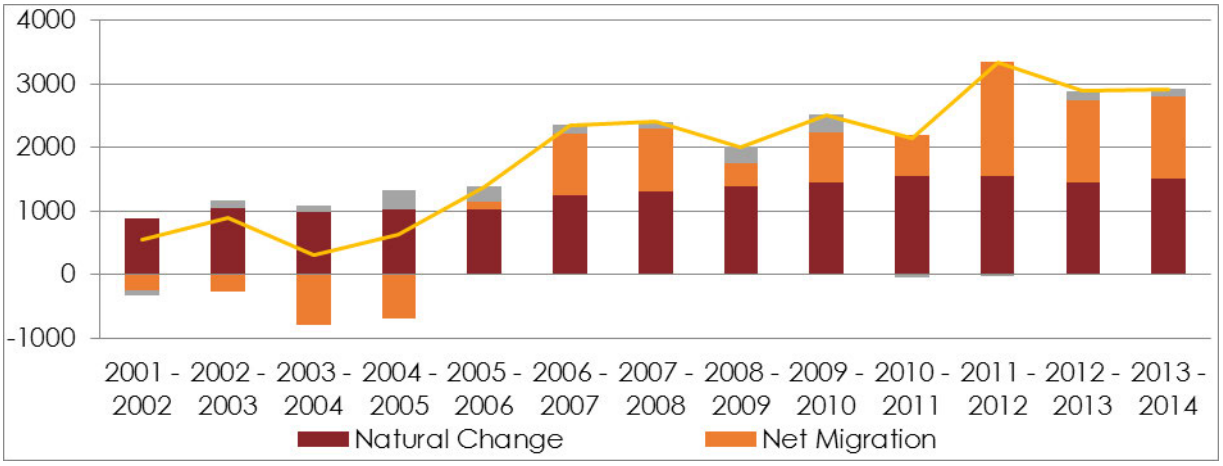
5.33 There are a number of reasons for increasing annual household growth over time. Firstly, annual population growth, as a result of higher levels of migration, has increased over time resulting in greater projected household and population growth in the future (see Figure 29).

5.34 Notably, Medway observed low population growth over the early part of the 2000s and high growth in the latter part of the 2000s. With the 2012 HP projecting forward the 6 years of population data between 2007 and 2012 (which saw significant growth through in-migration, Figure 29), it is understandable why they would be projecting such significant levels of population and household growth going forward.

5.35 The second reason for higher levels of projected household growth is the ageing population. As a population ages, the average household size becomes smaller because statistically older people live in smaller households. This means that for the same level of population growth, an older population requires more housing than a younger population. Between the 2001 and 2011 Census, the over 65 population grew by 23% in Medway compared to 6% total population growth. This shows that there has been a disproportionate level of growth in older persons which, as discussed above, will have an effect on household formation.

5.36 Thirdly, it follows that as an area becomes more populated, the level (not proportion) of population and household growth grows with it, albeit there is not an exact proportional relationship.

Figure 29 - Population change and components of change between 2001 and 2002



Source: Mid-Year Population Estimates (2001 to 2014 (ONS))

5.37 Since the 2012 SNPP was published, ONS has 'estimated' the 2013 and 2014 population using a range of administrative data to understand migration and natural change. This information is not contained within the 2012 SNPP and HP. GVA, using Popgroup software, has been able to include this updated information within the demographic projection. When the updated projection is compared to the 2012-based HP for 2012-37 (Table 40), it shows the impact of this new base population information; a slight decrease in annual growth – see Table 41.

5.38 This effect is not as expected. The MYE for 2013 and 2014 show that the population of Medway grew by over 1,000 persons more than projected and therefore one would expect that level of growth to result in higher future household growth. However, as previously discussed, household formation is a function of population size and structure and therefore the higher levels of population growth have been disproportionately in age groups (the young) and sexes (females) which former households as a lower rate.

Table 41 - Annual Household Growth 2012-37 updated to reflect 2013 and 2014 MYE

Area	Household Growth Per Annum (2012 – 2037)
Medway	1,235

Source: Mid-Year Population Estimates, Popgroup, GVA

5.39 As demonstrated by Table 40 and Figure 29, annual population and household growth has increased over time. Indeed, Figure 29 provides more year on year detail showing that this trend continued throughout the 2000s with the highest levels of growth observed in the latter part of that decade (2006 to 2011) and the next decade (2011 to 2014). As discussed above, the 2012 HP include trends principally from this period of high growth. It is therefore appropriate to consider longer term trends to ensure short term anomalies are accounted for.

5.40 GVA has therefore utilised data from the 2004 to 2014 mid-year population estimates (MYE) which provide detailed migration data by sex and single year of age over these ten years.

Table 42 shows the level of household growth forecast if long term migration trends continue from this period. Longer term trends indicate a fall in household growth of 7% in Medway compared to the shorter term trends espoused by the 2012 HP.

Table 42 - Annual Household Growth 2012-37 updated to reflect long term migration rates

Area	Household Growth Per Annum (2012 – 2037)
Medway	1,148

Source: Mid-Year Population Estimates, Popgroup, GVA

5.41 GVA has also looked at the effect that un-attributable population change ('UPC') has had on past migration[28]. UPC is the difference in 2011 between the population estimates built up from the 2001 Census (using birth, death and migration data) and that recorded by the 2011 Census. It is likely that at least part of UPC is attributable to migration being misreported and errors in the 2001 and 2011 Census. In Medway, the pre and post Census 2011 MYE showed that either past population estimates (and thus components of population change such as migration) underestimates population growth, the 2001 Census underestimates the population in 2001 or the 2011 Census overestimated the population in 2011.[29] However, the error was not uniform across all age groups with UPC showing a particular under-recording of children over-recording of young working age persons. This is important when we are thinking about housing needs because younger people live in larger households (either as a family or with friends).

5.42 Table 43 shows the age differentiation of UPC from 2001 to 2011.

Table 43 - The effect of UPC between 2001 and 2011

Ages	Number of people UPC
0-15	1016
16-24	-9
25-44	-321
45-64	2
65+	96
Total	**784**

Source: Mid-Year Population Estimates, Popgroup, GVA

NB Positive number means the MYE were less than Census, a negative number means the converse

[28]For more detail on UPC please see ONS' *'Report on Un-attributable Population Change in the 2012-based Subnational Population Projections for England.'*

[29] It is not possible to say by exactly how much as there is insufficient information to attribute UPC to migration, natural change or errors with the Census. This is confirmed by the previous footnote

5.43 When long-term migration between 2004 and 2011[30] is adjusted to take account of 100% of UPC it has the effect of reducing household growth further to 1,124 dwellings per annum in Medway as despite the UPC increasing net migration overall, it actually leads to a younger migration flow which reduces household formation. This is set out in Table 44.

Table 44 - Annual Household Growth 2012-37 updated to reflect long term migration rates and UPC

Area	Household Growth Per Annum (2012 – 2037)
Medway	1,124

Source: Mid-Year Population Estimates, Popgroup, GVA

Summary

5.44 Overall therefore the latest demographic data projects household growth of between 1,124 and 1,270 households in Medway. Longer-term (2004 to 2014) trends would seem appropriate for inclusion, given the significant fluctuations in growth which have been observed in the short term and the need to include a period representative of a longer economic cycle (i.e. ironing out the potential effects of boom and recession).

5.45 If even longer term trends are used, i.e. from the 1990s, this reduces household growth further (Table 40); however, there is insufficient quality of data to model the detailed implications of this for household growth.

5.46 It is also appropriate to consider UPC in the trends, which, as set out above, reduces annual household growth to the lower end of the range; although there is insufficient information to conclude fully if UPC a migration or Census issue. The reason for including some account of UPC is the ONS admission that UPC is likely to be due to a number of issues, with migration (domestic and international) named as one such issue. It is therefore likely that migration has been misreported to some degree.[31]

5.47 If long-term migration is unadjusted for UPC is produces household growth of 1,148 per annum. If past migration is fully adjusted for UPC is produces household growth of 1,124 per annum. Given there is no clear evidence to attribute UPC to either migration or Census error, an average of the two long term migration scenarios is set out to recognise the uncertainty with the two scenarios (1,136 households per annum)

[30] Between 2012 and 2014 UPC is not a factor as it is only calculated retrospectively following a Census (it will next be calculated in 2021).
[31] Page 3 of 2012 Sub-national Population Projections, Report on Un-attributable Population Change 2014

Converting Household growth to dwelling growth

5.48 To convert household growth to dwelling growth an allowance for vacant properties and second homes is required. To do this GVA has looked at the DCLG Live tables and 2001 and 2011 Censuses. A long term vacancy average (12 years) was taken, which equates to 3.6% in Medway. This results in the following dwelling growth, per annum, between 2012 to 2037 (see Table 45):

Table 45 – Annual Dwelling Growth Scenarios

Scenario	Growth Per Annum (2012 – 2037)	
	Households	Dwellings
2012 Household Projections	1,270	1,317
2012 Household Projections updated with 2013 and 2014 MYE	1.235	1,281
Long Term Migration	1,148	1,191
Long Term Migration UPC	1,124	1,167
Average of Long Term Migration scenarios	**1,136**	**1,179**

Demographic needs from wider area

5.49 To understand the demographic needs of the Medway Housing Market Area, GVA has modelled the future dwelling requirements of Gravesham, Maidstone, Swale and Tonbridge and Malling on the same basis as Medway. This will provide the Council with an understanding of wider housing needs for the purposes of duty to cooperate discussions across the sub-region. Using the same process as that explored above, the following results are produced – see below..

Table 46 - Household Projections range for other authorities in the HMA

Area		Growth Per Annum (2012 – 2037)	
		Households	Dwellings
Gravesham	2012 Household Projections (updated)	440	451
	Long term migration	464	476
	Long term migration (UPC)	441	453
	Average long term migration scenario	453	465
Maidstone	2012 Household Projections (updated)	844	874
	Long term migration	841	870
	Long term migration (UPC)	833	862
	Average long term migration scenario	837	866
Swale	2012 Household Projections (updated)	798	833
	Long term migration	764	798
	Long term migration (UPC)	740	773
	Average long term migration scenario	752	786
Tonbridge and Malling	2012 Household Projections (updated)	604	627
	Long term migration	616	640
	Long term migration (UPC)	607	630
	Average long term migration scenario	612	635
HMA (including Medway)	2012 Household Projections (updated)	3,921	4,066
	Long term migration	3,833	3,975
	Long term migration (UPC)	3,745	3,885
	Average long term migration scenario	3,789	3,930

5.50 Overall, the latest demographic data projects dwelling growth of 3,885 to 3,975 dwellings per annum across the wider HMA (Medway, Gravesham, Maidstone, Swale and Tonbridge and Malling). Longer-term trends and some account of UPC would again seem appropriate – albeit a full adjustment is not justified given the uncertainties. Table 45 provides a mid-point

between the two long-term migration scenarios of 1,136 households per annum or 1,179 dwellings per annum in Medway. This equates to 3,789 households per annum or 3,930 dwellings per annum at the HMA level. This is on the balance of the available evidence, an appropriate proxy for demographic needs.

5.51 It should be noted that the figures in Table 46 represent the demographic starting point and not full objectively assessed housing need. When an authority is proposing to deliver a higher level of housing than demographic projections indicate (due to economic or affordability factors), discussions should be had about the implications of this for the wider HMA in terms of future demographic trends.

Economic projections

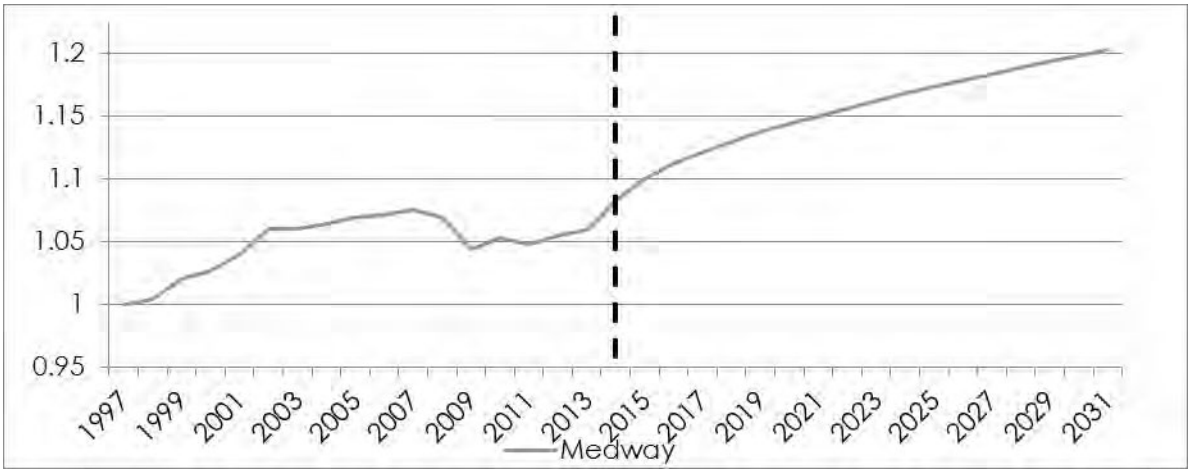
5.52 The PPG requires an OAN to include an assessment of future employment growth and labour force requirements. GVA has utilised employment growth estimates and forecasts from Experian Local Market Forecasts (Q1 2015). These forecasts provide an indication of the level of job growth likely to take place in the district. This is then translated into household growth estimates by reviewing the current and projected relationship between employment (jobs) and local labour force (people).

5.53 Figure 30 sets out past and future employment growth in Medway based on the standard Experian forecasting model (discussed below as "Sector Growth").

5.54 This model combines a range of data to inform the employment growth projection including current employment shares by sector, national growth prospects of sectors and historic performance of sectors. It therefore gives an indication of which sectors are likely to grow and by how much. The forecasts represent an estimate of 'business as usual' growth out with any major regeneration, economic development infrastructure or other intervention that may impact business growth. The dotted line delineates the employment estimate from the employment forecast.

5.55 Employment growth in Medway has been tumultuous, with a period of strong growth over the late 1990s and early 2000s, a period of slower employment growth in the 2000s and a period of recession in the late 2000s. Between 1997 and 2014, annual employment growth in Medway was 0.48%.

Figure 30 - Employment growth (workforce jobs) indexed to 1997



Source: Experian

5.56 GVA has undertaken a number of economic forecasts, looking at a range of options for future employment growth in Medway. The Medway Employment Land Needs Assessments sets out detail of the economic scenarios, however to summarise they are:

- **Sector Based Growth Scenario** – this assesses the economic potential of Medway based on sector growth set out by Experian. It assumes that London Paramount is not delivered but considers accelerated levels of growth beyond the base forecast within key economic sectors including advanced manufacturing and distribution activities.
- **Sector Growth & London Paramount Indirect Scenario** – this builds upon the 'Sector Based Growth Scenario' and then includes jobs that are forecast to arise within the Medway economy linked to the delivery of London Paramount. These jobs are considered to be the indirect economic impact of the development which will occur through enhanced supply chain opportunities for Medway businesses and the proximity of Medway to London Paramount to attract new supply chain operators to the area.
- **Sector Growth & London Paramount Total Employment Scenario** – a further scenario is considered within the Medway ELNA that seeks to understand the total employment impact of London Paramount on Medway. The previous scenario considered the indirect impact alongside wider indigenous economic growth; however it is likely a further employment impact will be experienced as Medway residents seek employment within the Resort itself. As established in the ELNA this has no impact on employment land requirements, however it does potentially influence the level of housing demand as a result of a growth in employment rates in the Medway population. Therefore, drawing on the Preliminary Environmental Impact Report prepared on behalf of London Resort Company Holdings the ELNA estimates the share of workforce jobs that could reasonably be expected to be filled by Medway residents as the Resort becomes operational.

- builds upon the 'Sectors & London Paramount Indirect Scenario' but also examines the share of London Paramount direct employment that will be taken-up by people living in Medway. This includes construction jobs, Resort jobs and hotel jobs that are generated out with the authority area but will likely require 'out-commuters' from Medway. This scenario is not considered in terms of the OAN as it will be the responsibility of Dartford to meet the needs of its indigenous employment growth, however it provides a useful consideration for Duty to Cooperate discussions on region employment and housing matters.

5.57 In line with the PPG, GVA will understand the level of household growth needed to support employment growth. To do this, GVA has employed the following assumptions which are used to understand the relationship between jobs, residents and dwellings.

Economic Assumptions

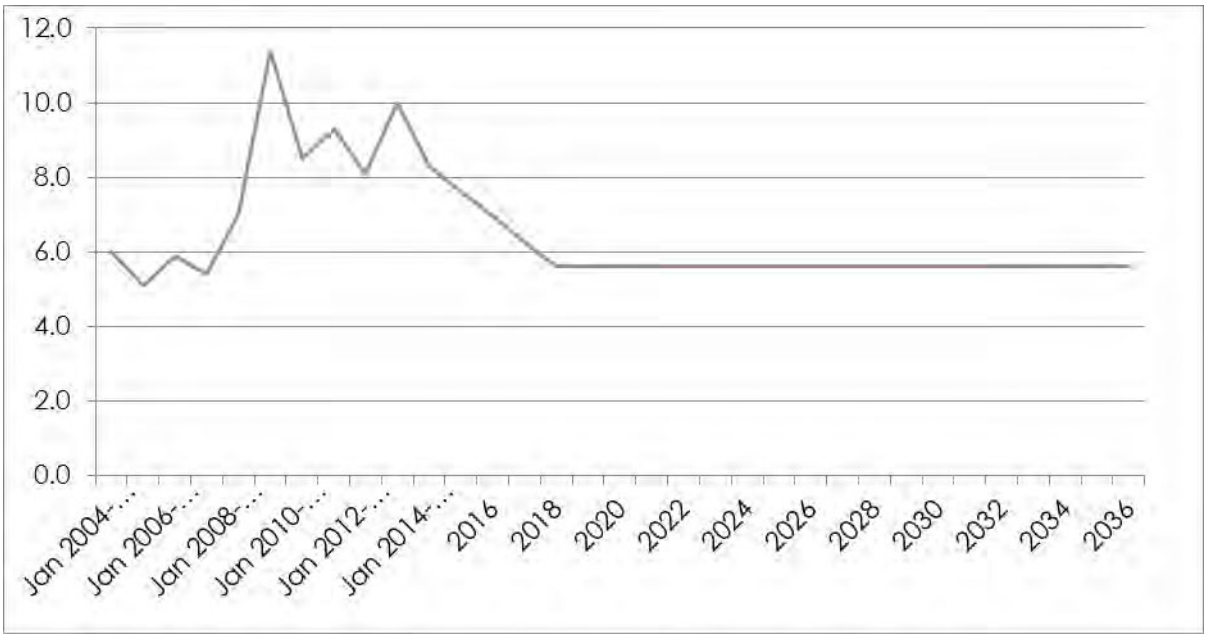
5.58 The relationship between job growth and population growth is contingent on a number of factors, specifically, the level of unemployment and economic activity in the local population, and the extent to which the working population is employed locally (commuting patterns). Once job growth has been translated into population growth, through the use of household formation rates and vacancy rates it is possible to translate this population growth into dwelling growth to inform the OAN.

Unemployment

5.59 The level of unemployment over time is important for understanding the link between population growth and job growth. For example, if a number of jobs were created in an area, and unemployment rates were historically high, it is likely that a significant proportion of those jobs would be taken by unemployed residents who are seeking employment. If on the other hand unemployment were at a historic low, more of the jobs would need to be filled by new economically active people moving / commuting into the area to work. If people move to an area for work, this creates a need for more housing.

5.60 GVA has utilised the Census (2001 and 2011) and Annual Population Survey (APS) (2001 to 2014) to understand how unemployment has changed over time and how it is likely to change in future. Figure 31 sets out the APS unemployment rates and how the model projects unemployment will return to long term averages.

Figure 31 – Unemployment (% of those economically active) from the APS



Source: Annual Population Survey

Economic Activity

5.61 The same principle applies to economically active population (which is the total number of people in work or looking for work) as unemployment. As the economically active population increases (due to a rising number of older persons supplementing their pension for example or an increasing number of women working instead of raising families full time) the pool of local labour increases, reducing the need for in-migration to support increases in the number of jobs in a local area. As highlighted above, in-migration is a key growth pressure and increasing economic activity will mean less in-migration to meet the future job growth.

5.62 Economic activity by age and sex is taken from the 2011 Census. This is projected forward using the trends with the Kent County Council KCC 'Technical Paper Activity Rate Projections to 2036' October 2011[32]. These assume that economic activity rises in line with the 2006 Labour Force Survey up to 2020, with further increases in older cohorts from 2020 to 2030. This projection is termed 'Sensitivity 1'.

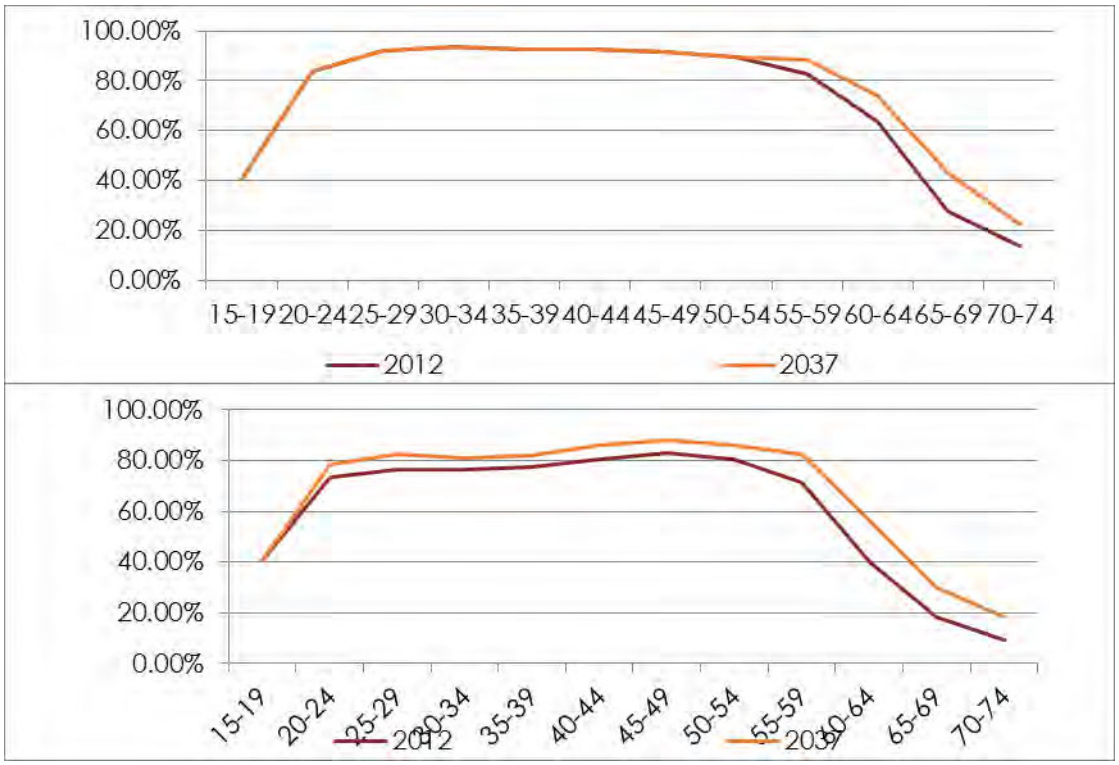
5.63 An alternative scenario has looked at a trend based economic activity projection – utilising the Censuses from 1981 to 2011 – which incorporates assumptions from Experian's Report 'Employment Activity and the Ageing Population'.[33] This has the effect of increasing

[32] See following web address for Kent County Council Economic Assumptions https://shareweb.kent.gov.uk/Documents/facts-and-figures/Economy/technical-paper-activity-rate-projections-to-2036.pdf

[33] See following web address for Experian's Economic Activity Assumptions in older persons http://economics.experian.co.uk/~/media/Files/Countries/UK%20Economic%20Forecasts/Public/Employment%20Activity%20and%20the%20Ageing%20Population.ashx

economic activity for women, in line with past trends from 1981 and increasing economic activity in older persons (males and females) significantly. Figure 32 sets out the adjustments made in this scenario. This projection is termed 'Sensitivity 2'. Both sensitivities will be assessed through this study.

Figure 32 - Sensitivity to look at increased economic activity in females and older persons



Source: ONS / Experian (Males top chart, females bottom chart)

Commuting

5.64 A commuting rate is the ratio of employed persons to employment in a given area. If an area has a high commuting rate (i.e. a ratio of more than 1 employed person for every job) this means that the area is housing workers from the surrounding area. The converse is true if the ratio is less than one. If an area has a high and stable commuting rate (because it lies adjacent to a large employment centre for example) then as the economy grows the area will have to accommodate not only indigenous job growth but also the growing number of commuters from the adjacent centre. This increases the level of housing growth needed to accommodate a given level of indigenous job growth.

5.65 In 2011 the ratio of employed persons to employment in Medway was 1.28. This means that for every 100 people working in the authority there are around 128 employed persons living in the authority – i.e. a large out-commute of the population each day. Given the relative proximity of the authority to London, there is no evidence to suggest that this commuting ratio will change going forward and it is therefore kept static for the purposes of this study.

Double Jobbing

5.66 This analysis will assume that a certain number of the jobs created over the period to 2037 will be taken up by someone who already has a job ('i.e. someone who is double jobbing). We have assumed that the percentage of the population who does this is 3.69% which is in line with latest national labour force survey (2014).

Results of Economic Scenarios

5.67 Table 47 sets out the number of houses that would be required to support the growth forecasted by the employment scenarios (described at paragraph 5.56). Table 47 compares the results of the economic scenarios with the average long-term migration scenario in Table 45. This is because, whilst there is evidence that some adjustment should made to account for UPC, there is insufficient evidence to make a full adjustment. An average of the two long-term migration scenarios is therefore used which is equivalent to a 50% adjustment. This average scenario equates to 1,136 households per annum or 1,179 dwellings per annum.

5.68 Table 47 indicates that the average long-term migration scenario (1,136 households per annum) in Medway, would be, based on Sensitivity 1, insufficient to meet the labour force requirements of the Sector Growth Scenario and the additional indirect employment likely to flow from London Paramount (Sector Growth & London Paramount Scenario).

5.69 In Medway the effect of the economic scenarios is relatively modest; with Sector Growth requiring household growth of 1,154 per annum (1.5% increase on the average long term migration scenario[34]). To achieve the greater level of employment generated by the Sectors & London Paramount Indirect Scenario generates an uplift of 2.9% from the average long-term migration scenario. As per paragraph 1.42, we have converted household growth to dwellings growth by introducing a vacancy and second home rate.

Table 47 - Annual Dwelling Growth 2012-37 Economic Scenarios and increase from demographic needs (Sensitivity 1)

Area	Economic Scenario	Growth Per Annum (2012 – 2037)		Increase from baseline demographic needs (%) (1,136 hpa / 1,179 dpa)
		Households	Dwellings	
Medway	Sector Growth	1,154	1,197	1.5%
	LP Indirect	1,169	1,213	2.9%

[34]The average of the UPC adjusted and unadjusted long term scenarios

Source: Experian, Popgroup, GVA

5.70 Paragraph 5.56 sets out three economic scenarios whereas Table 47 and Table 48 only show the results of two economic scenarios. This is because the third economic scenario (Sectors and London Paramount Total Scenario) forecasts growth in employment beyond the boundary of Medway and must therefore be considered in the context of the out-commuting patterns in Medway rather than growth in local jobs. Paragraphs 5.64 and 5.65 set out that the demographic model assumes direct employment growth (from Sector Growth and Sectors & London Paramount Indirect Scenario) in Medway is accompanied by a growth in economically active people who will commute out of the area to work. This is because the model assumes that for every 100 employed persons working in the borough there are 128 employed residents (i.e. 28 will need to find work outside Medway). If the assumption is that London Paramount will be delivered, the increase in out-commuting entailed in the Sectors London Paramount Indirect Scenario can be calculated through the model. This will allow us to understand the level of increased out-commuting that might be take place and compare this to the level of in-commuting required in the Sectors & London Paramount Total Scenario.

5.71 The Sectors & London Paramount Indirect Scenario would generate an additional 3,080 economically active people who would have to commute out of the authority for work on the basis of existing commuting rates. The Sectors & London Pararmount Total Scenario, which measures the employment draw of London Paramount on the economically active population of Medway, concludes that 1,579 jobs would be filled by Medway residents. Notwithstanding the effect of second jobbing or unemployment, over the period 2012 to 2037, there is therefore more than enough out-commuting to meet this economic scenario.

5.72 If economic activity rate Sensitivity 2 is inputted into the model it increases the level of economic activity in the general population and reduces the level of in-migration and therefore household growth required to achieve the economic scenarios. The results of this scenario are set out in Table 48. It shows that with Sensitivity 2, Medway would need to build around 1,020 dpa to achieve Sector Growth and 1,036 dpa to achieve the Sectors & London Paramount Indirect scenario (a -13.5% and -12.1% adjustment to the average long-term migration scenario respectively).

5.73 Although the overall level of population and household growth is lower for Sensitivity 2, economically active rates are higher and therefore the Sectors and London Paramount Indirect Scenario generates an additional 3,150 economically active persons. As per Sensitivity 1, there is more than enough out-commuting generated by this scenario to meet the increased labour force needs of the London Paramount resort.

Table 48 - Annual Dwelling Growth 2012-37 Economic Scenarios and increase from demographic needs (Sensitivity 2)

Area		Growth Per Annum (2012 – 2037)		Increase from baseline demographic needs (%) (1,136 hpa / 1,179 dpa)
		Households	Dwellings	
Medway	Sector Growth	983	1,020	-13.5%
	LP Indirect	998	1,036	-12.1%

Summary

5.74 The demographic scenarios (see **Table 45**) project **dwelling** growth of between 1,167 dpa and 1,317 dpa in Medway. Given the fluctuations in population growth and levels of migration, it is considered that a longer term migration perspective is justified. The extent to which UPC is accounted for is a matter of judgement. To account for it fully will reduce the annual dwelling need to the lower end of the range. Given the uncertainties, for pragmatic purposes we have taken the mid-point figure for a long term migration scenario adjusted and unadjusted for UPC. This equates to 1,179 dpa in Medway. If we compare this to the updated 2012 HP scenario, which projects dwelling growth of 1,281 dpa in Medway (1,235 households per annum) it is clear that longer term trends show much lower growth than short term trends (used by the latest household projections).

5.75 If the wider Housing Market Area is assessed, including Gravesham, Medway, Swale, Maidstone and Tonbridge and Malling, annual dwellings needs range from 3,885 to 4,066 dpa. If an average of the long-term migration scenarios is utilised, it derives a need for 3,930 dpa across the HMA.

5.76 GVA has reviewed forecast employment growth. The analysis concludes that the Sector Growth Scenario would require an increase in housing delivery of around 1.5% (above the average long-term migration scenario) on the basis of current levels of out commuting and modest increases in economic activity. If further increases in economic activity are observed (Sensitivity 2) the average long term migration scenario (1,179 dpa) would provide a greater level of population and household growth than required to meet the Sector Growth Scenario (1,020 dpa).

5.77 If London Paramount is delivered (Sectors & London Paramount Indirect Scenario), Sensitivity 1 concludes that housing delivery would need to increase by 2.9% above the average long-term migration scenario. However, if economic activity is increased further (as per Sensitivity

2), the average long-term scenario is sufficient to meet all projected employment needs (see Table 48).

5.78 Assuming that overall rates of commuting remain static, both Sectors & London Paramount Indirect sensitivities (i.e. Sensitivity 1 and 2) lead to a surplus of economically active people against the level of out-commuting required to deliver the level of employment growth from Sectors & London Paramount Total Scenario.

Table 49 - Summary of scenarios for Medway

Scenario		Annual Growth (2012 to 2037)	
		Households per annum	Dwellings per annum
Household projection (HP)		1,270	1,317
HP including 2013 and 2014 MYE		1,235	1,281
Long term migration		1,148	1,191
Long term migration UPC		1,124	1,167
Average long term migration		1,136	1,179
Sector growth	**Sensitivity 1**	1,154	1,197
	Sensitivity 2	983	1,020
LP Indirect	**Sensitivity 1**	1,169	1,213
	Sensitivity 2	998	1,036

Source: GVA / Popgroup

Market Signals

Policy Context

5.79 As set out above, the PPG provides a methodology for undertaking an assessment of full, objectively assessed housing needs as required by the NPPF; paragraph 47. The PPG informs us that Household Projections should provide the "starting point" for an estimate of housing need[35], but sets out that there are several other issues that should be taken into account, including market signals. In particular it states that:

[35] PPG ID ref: 2a-015-20140306

"The housing need number suggested by the household projections (the starting point) should be adjusted to reflect appropriate market signals, as well as other market indicators of the balance between the demand for and supply of dwellings. Prices or rents rising faster than the local average may well indicate particular market under supply relative to demand." (emphasis added)[36]

5.80 A review of appropriate market signals is therefore required to establish the relative housing demand in particular areas. The PPG goes on to state that where relative demand is high, Local Planning Authorities (LPAs) should apply:

"…an upward adjustment to planning housing numbers compared to ones based solely on household projections." (emphasis added)[37]

Scope of Assessment

5.81 To establish the relative demand within Medway this report will compare the market signals for this area to trends:

- Within other LPAs with which the Medway has a functional relationship, including Gravesham, Dartford, Maidstone, Swale, Tonbridge and Malling, Canterbury and Sevenoaks, referred to hereafter as the '*sub-region*'. It is acknowledged that this sub-region extends beyond the HMA however, this was considered necessary to pick up wider influences and relationships;
- Across the South East region; and
- Across England.

Market Signals and Data Sources

5.82 The PPG suggests a range of potential market signals for assessment, the table below identifies the market signals which have been considered by this assessment and the key data sources used.

[36] PPG ID ref: 2a-019-20140306
[37] PPG ID ref: 2a-020-20140306

Table 50 - Data collected for the market signals analysis

Market Signal	Data Source
House Prices	Median annual house prices based on Land Registry data (CLG Statistics, Table 586) Land Registry Price Paid Index
Rents	Private rental market statistics (Valuation Office Agency)
Affordability	Ratio of prices to earnings: median and lower quartiles (CLG statistics, Table 576)
Housing Market Activity	Annual property sales based on Land registry data (CLG statistics, table 588) as a percentage of dwelling stock (Census 2011)
Vacancy Rate	Vacant Dwellings data (CLG Statistics, table 615)
Overcrowding	Occupancy rating data (Census 2001 and 2011) Shelter Data Bank
Rate of Housing Delivery	Dwelling Stock Data (Census 2001 and 2011) LPA Annual Monitoring Reports

5.83 The PPG specifically states that relevant signals may include the following; land prices; house prices; rents; affordability; rates of development and overcrowding. This assessment therefore focuses on these signals. However, GVA has assessed these market signals and others where it is considered they represent an indicator of demand. The PPG also advocates land prices as an appropriate market signal for consideration. However, there is no appropriate up to date source which provides comparable data for specific LPAs regarding residential land valuation. It is therefore not included in this assessment.

Market Signals Data

5.84 The remainder of this section discusses this data insofar as it is relevant to the conclusion regarding the scale of demand relative to supply in Medway.

House Prices

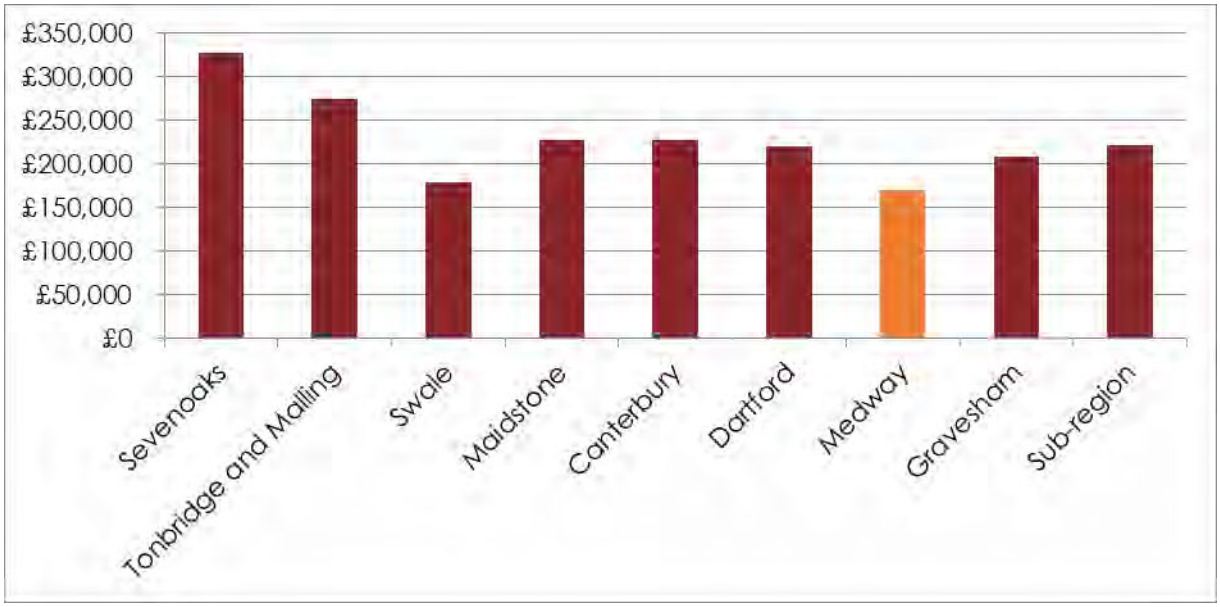
5.85 House prices and long-term trends in house prices can indicate an imbalance between the demand for and the supply of housing. Figure 33 details the most recent median price paid data available.

5.86 In 2014 the median house price across the sub-region was £221,417[38], with prices across the individual comparator authorities ranging from £170,000 in Medway to £375,500 in Sevenoaks. This indicates that there is considerable disparity in the scale of housing demand across the sub-region.

[38] Weighted average

5.87 In 2014 the median house price in Medway was the lowest of all comparator areas and 23% lower than the sub-regional median. This does not indicate market pressures in the authority

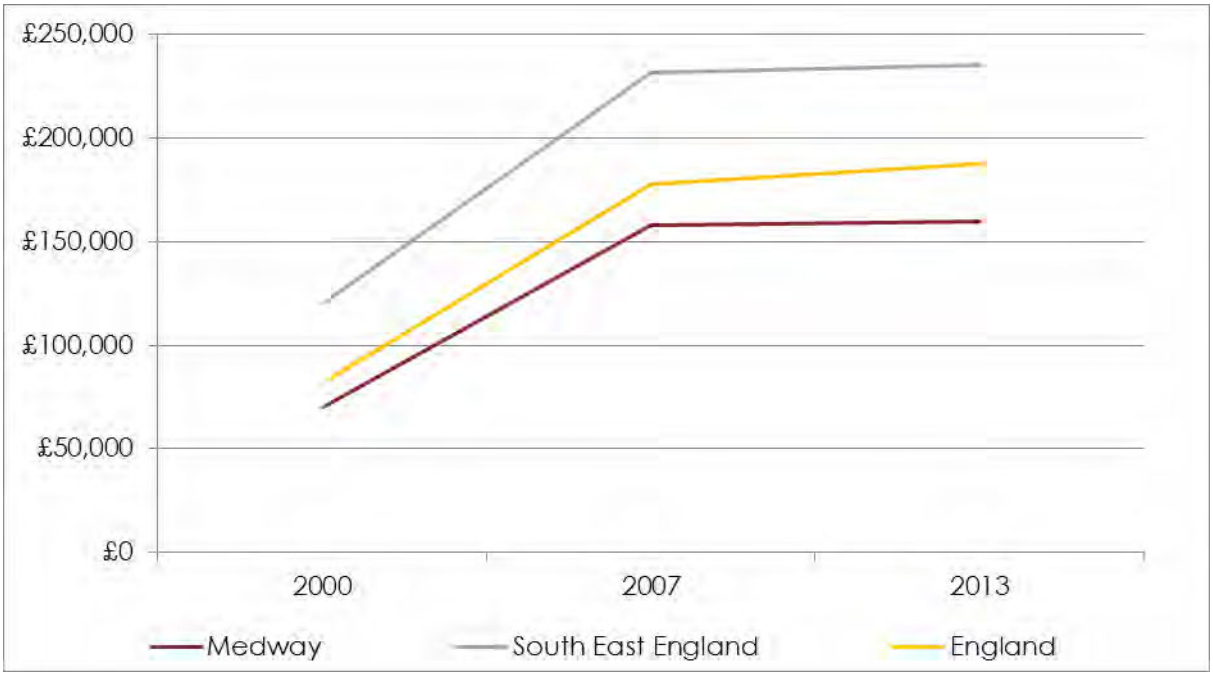
Figure 33 - Median House Prices, 2014



Source: CLG, median house prices based on Land Registry data, by district

5.88 Figure 34 profiles median house prices for Medway, the South East region and England from 2000 to 2013[39] (i.e. covering pre and post-recession periods).

Figure 34 - Median House Price Change, 2000 to 2013



Source: CLG, Median house prices based on Land Registry data, by district

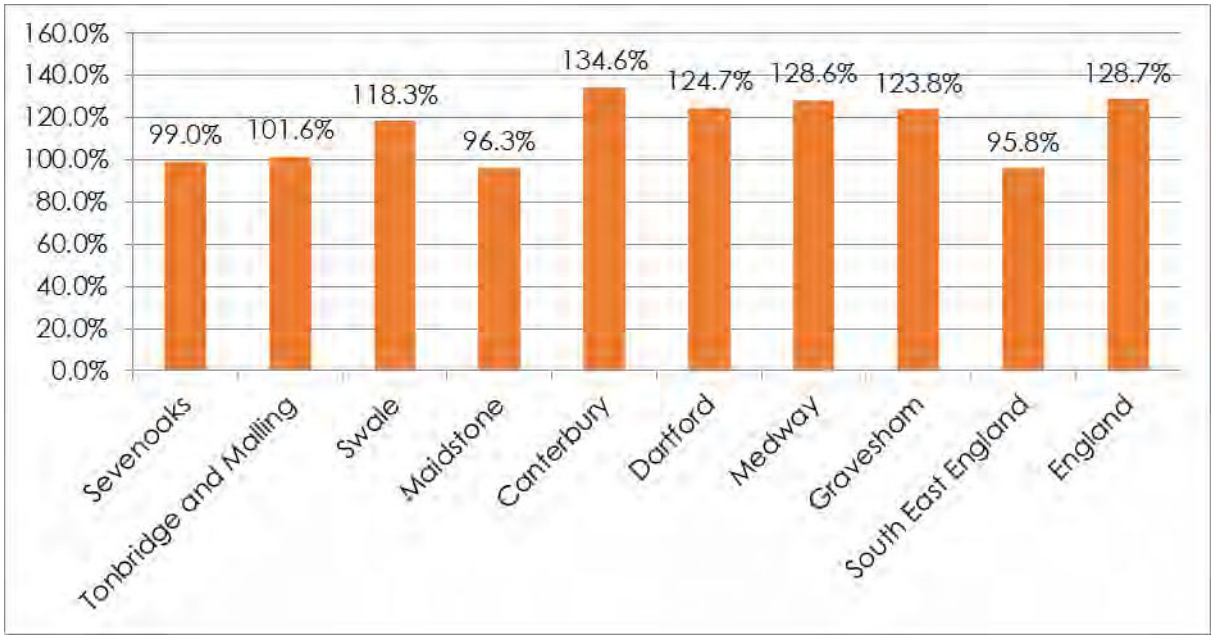
[39] 2013 is used as there is no median house price paid data available at the national or regional level for 2014

5.89 House prices in Medway increased significantly between 2000 and 2013 and broadly mirrored the national trend of significant price rises in the early 2000s, stagnation in the late-2000s; and with median house prices now recovering to pre-recession levels.

5.90 Values in Medway between 2000 and 2013 increased by 128.6% exceeding inflation in the region (96%) but in alignment with the national rate (128.7%).

5.91 Between 2000 and 2013 house prices in Medway increased at a faster rate than all but one of the sub-regional authorities (Canterbury) (see Figure 5.9).

Figure 35 Median House Price Change, 2000 to 2013



Source: CLG, Median house prices based on Land Registry data, by district

5.92 Overall, house price evidence indicates that whilst absolute median house prices in Medway are the lowest of the comparator areas, prices have experienced significant inflation when compared to neighbouring authorities (sub-region) and the South East region as a whole, albeit largely reflecting national trends.

Rents

5.93 The cost of renting is also an indicator of demand for housing in an area. Medway saw median rents increase by 8.3% between 2010 and 2014. This is compared to 13.3% in Tonbridge and Malling and 3.85% in Gravesham, with a weighted average of 8.2% in the sub-region. Notwithstanding, median rents in Medway have increased by a greater amount than regional and national rents (3.45% and 3.48% respectively). In absolute terms, rents in Medway remain the lowest at £650 per month; £110 per month less than the sub-regional average.

5.94 Lower quartile rental prices provide an indication of affordability and demand at the lower end of the market. Between 2010 and 2014, lower quartile rents in Medway increased by 10% which is the second highest increase amongst the sub-region authorities; exceeding the sub-region (7.0%[40]), region (4.3%) and England (3.3%). In absolute terms, at £550 per month, lower quartile rents in Medway are the lowest of the sub-region.

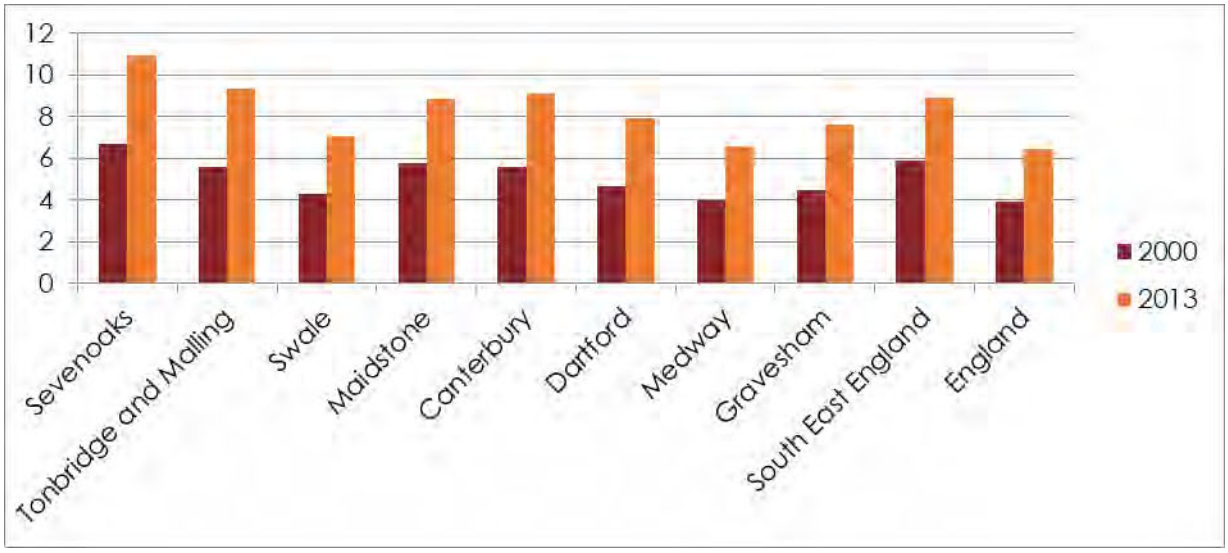
5.95 The median rental data does not provide a strong indication of demand when compared to neighbouring authorities; whilst rents have risen they have generally done so at a lower rate to that experienced across the sub-region and in absolute terms rents (median and lower quartile) are considerably lower than surrounding areas. However, notwithstanding the above it would appear that lower quartile rents are experiencing high demand and rents are generally increasing faster than regional and national rents.

Affordability

5.96 Affordability ratios provide an indication of the relative financial accessibility of an area's housing market to local workers. The affordability ratio for each comparator area is illustrated in Figure 36 which compares lower quartile house prices to lower quartile earnings and Figure 37 which compares median earnings to median house prices between 2000 and 2013.

5.97 Over the 13 year period the affordability of housing across all areas significantly worsened. In 2000 the lower quartile affordability ratio of Medway was 3.9; by 2013 this had increased by 65% to 6.5. This is a faster rate of change than experienced across the region (51%) but broadly in line with national increases (65%).

Figure 36 - Lower Quartile Affordability Ratios, 2000 and 2013

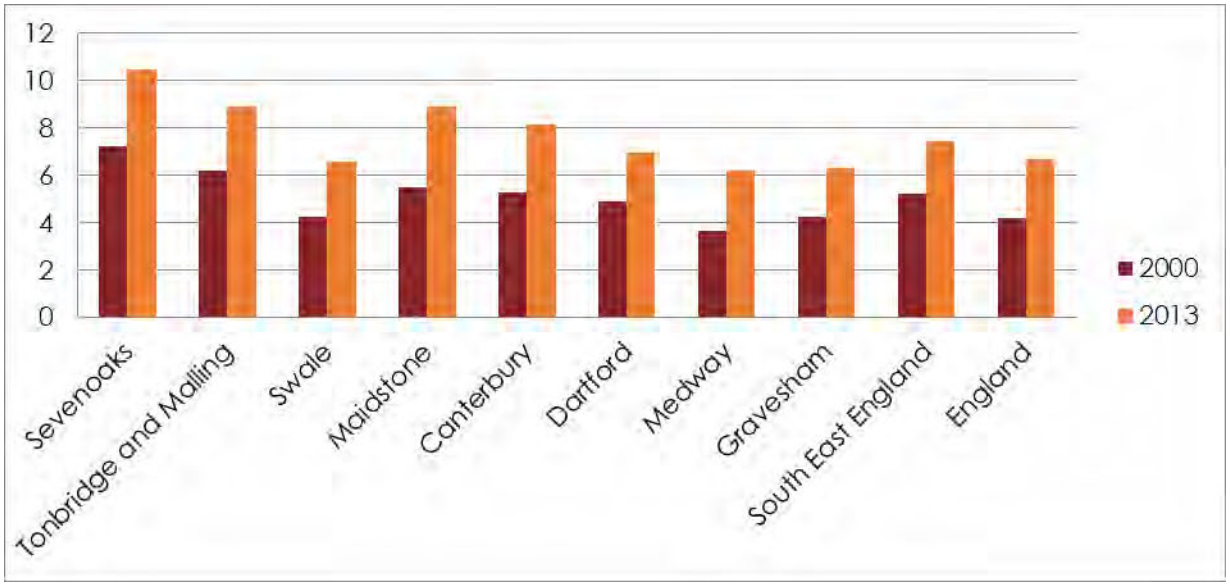


Source: CLG

[40] Weighted average

5.98 Across this period the affordability ratios for median earnings to median house prices also significantly worsened. From 2000 to 2013, Medway experienced the greatest rate of increase of the sub-region (70%) to an affordability ratio of 6.22. This is compared to 42% in the region, 60% in England and 61% in Maidstone (the nearest sub-regional authority). However, notwithstanding this Medway remains the most financially accessible district with affordability ratios well below the sub-region (7.82), region (7.45) and England (6.72).

Figure 37 - Median Affordability Ratios, 2000 and 2013



Source: CLG

Vacancy Rate

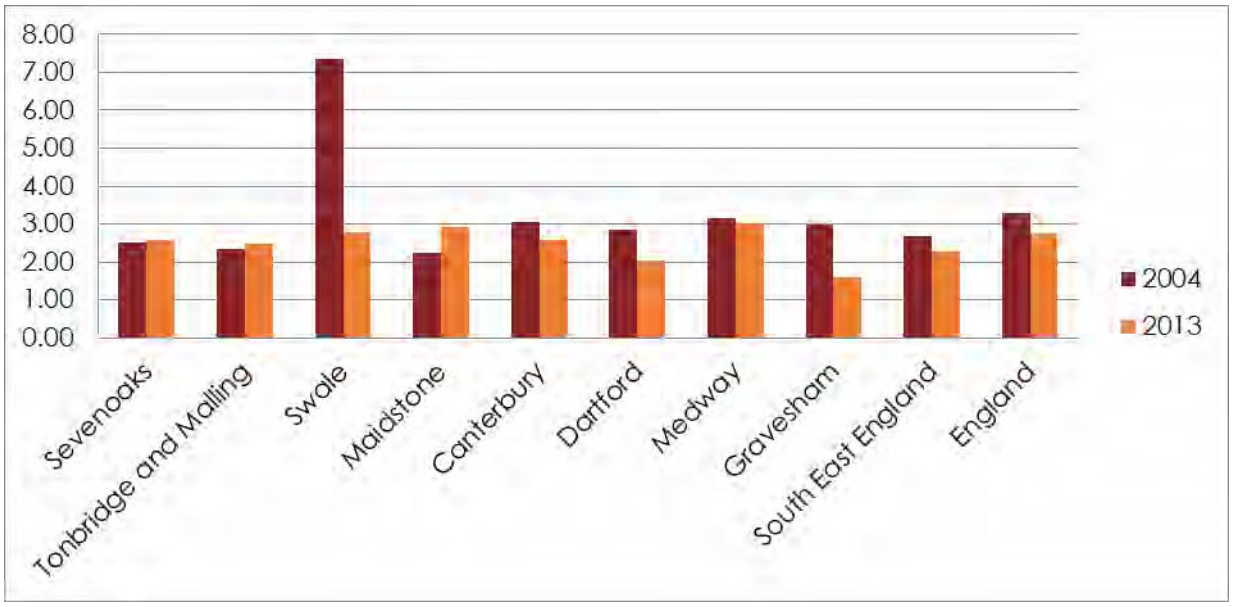
5.99 Vacancy rates of an area can indicate a mismatch between supply and demand because they can identify a surplus or shortage of available stock to meet needs. A certain level of vacancy (typically 3%) is required to ensure adequate 'churn' of housing.

5.100 Figure 38 shows the percentage change in the number of vacant properties between 2004 and 2013. It shows that there has been some variation across the sub-region with some LPAs experiencing increasing vacancy rates (by up to 31% in Maidstone), whilst the majority have experienced a decrease.

5.101 Across the sub-region as a whole the vacancy rate changed from 3.33% in 2004 to 2.60% in 2013, equating to a decrease of 22%. Across the same period, vacancy rates in Medway also decreased, by 4% to 3.03%; the highest absolute vacancy rate of all comparator areas, although not that dissimilar to the national average (2.73%). With regard to vacancy rates, there are other issues potentially at play including incentives to bring empty homes back into use (through the new homes bonus) and Council Tax arrangements for empty properties,

which penalises vacancies. Therefore, vacancy rate alone should not be used an indicator of housing market pressure in isolation.

Figure 38 - Vacancy Rates, 2004 and 2013



Source: CLG

Concealed Households

5.102 Concealed households are family units or single adults living within other households, who may be regarded as potential separate households which may wish to form given appropriate opportunity. The 2011 Census defined a concealed family as a couple or single parent family, living in a multifamily household, where the Family Reference Person (FRP)[41] is not the Household Reference Person (HRP)[42]. Each family living in a household includes a FRP identified on the basis of economic activity and age characteristics.

5.103 Indicators, including overcrowding, sharing households, homelessness and households in temporary accommodation, can demonstrate unmet need in an area. The PPG suggests that long term increases in such households can signal the requirement for increased planned housing numbers in an area.

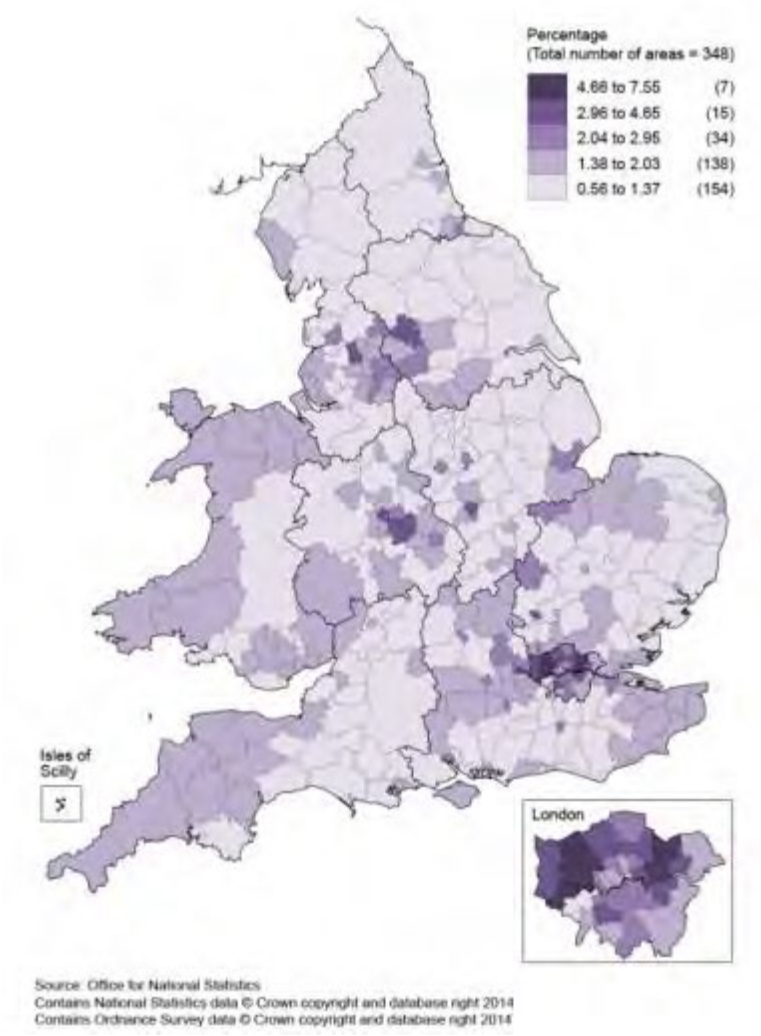
5.104 However, a degree of caution should be exercised when analysing such data as some people may choose to live in such arrangements or in more overcrowded accommodation due to cultural practices (i.e. living in extended families) or accepting of such conditions due to location or other factors.

[41] The FRP is the 'head' of the family, which is usually the oldest full time employed person in the family.
[42] The HRP is the 'head' of the households, which is usually the oldest full time employed person in the household.

5.105 The proportion of concealed families in an area may relate to cultural differences in familial ties between ethnic groups. Within England and Wales, such households are more than twice as likely to have a HRP of non-white or mixed ethnic group (24 per cent) compared with all households (11 per cent).

5.106 The twenty local authorities with the highest proportions of concealed families[43] also have high proportions of the population identifying with a non-white ethnic group including Indian, Pakistani or Bangladeshi. The high proportions of concealed families in these areas may be a result of closer familial ties in Asian cultures.

Figure 39 – Percentage of families that were concealed families in 2011 by local authority in England and Wales



Source. ONS February 2014

5.107 Table 51 sets out data on concealed families for Medway, the sub-region, region and England and how numbers have changed over time. It is clear that concealed households have

[43] See Table 2 of ONS paper 'What does the 2011 Census tell us about concealed families living in multi-family households in England and Wales'

increased significantly between 2001 and 2011 across all areas. In Medway the total change was 68%, with 13% of families under 25 year old[44] concealed. When compared with increases in the sub-region (77%), regionally and nationally (71%) concealment is not deemed to be worsening at a significant rate.

Table 51 - Concealed Families in 2001 and 2011 and by age

	Concealed FRP All (2001)	Concealed FRP All (2011)	Increase %	Concealed FRP Under 25 (2011)	Concealed FRP 25 to 34 (2011)
Canterbury	351	583	66.10%	12.17%	3.51%
Dartford	211	503	138.39%	12.45%	3.27%
Gravesham	426	767	80.05%	14.63%	6.23%
Maidstone	347	666	91.93%	11.07%	3.43%
Medway	**782**	**1,312**	**67.77%**	**13.03%**	**3.48%**
Sevenoaks	270	420	55.56%	14.10%	3.41%
Swale	342	652	90.64%	12.88%	3.69%
Tonbridge and Malling	279	430	54.12%	13.39%	2.89%
Sub-region	**3,008**	**5,333**	**77.29%**	**12.84%**	**3.68%**
South East	**23,063**	**39,465**	**71.11%**	**13.96%**	**3.75%**
England	**161,254**	**275,954**	**71.12%**	**12.76%**	**4.01%**

5.108 Overall, the market signals information in respect of concealed families does not provide strong evidence of supply led pressures in Medway.

Overcrowding

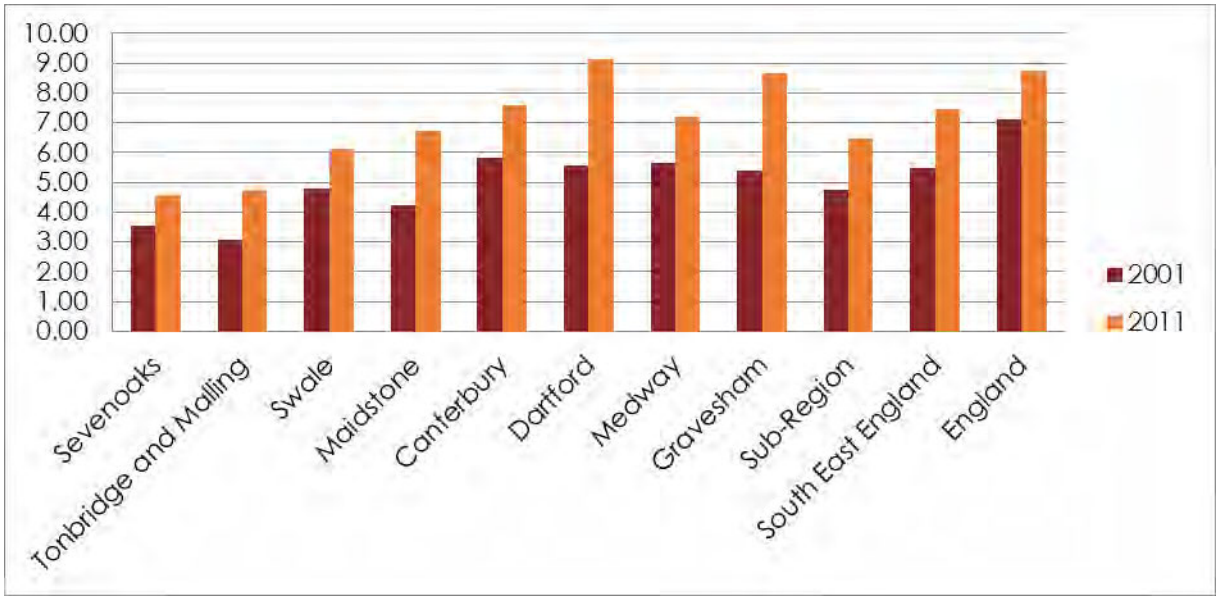
5.109 Overcrowding levels can be examined using Census data concerning the number of households with an occupancy rating of -1 or -2, i.e. households living in accommodation with one or two (or more) fewer bedrooms than required.

5.110 Current overcrowding levels in the sub-region vary significantly across the sub-region, ranging from 4.59% in Sevenoaks to 9.14% in Dartford. Between 2001 and 2011 all LPAs experienced an increase in the percentage of households living in overcrowded conditions although the rate of change was slight, ranging from 1.04% to 3.56% increase. The level of overcrowding in

[44] Measured by the 'head' of the family, which is usually the oldest male in the family.

Medway rose at a slower rate (1.55%) than that experienced at the sub-region (1.97%), region (1.99%) and nationally (1.61%).

Figure 40 - Rates (%) of Overcrowding, 2001 and 2011

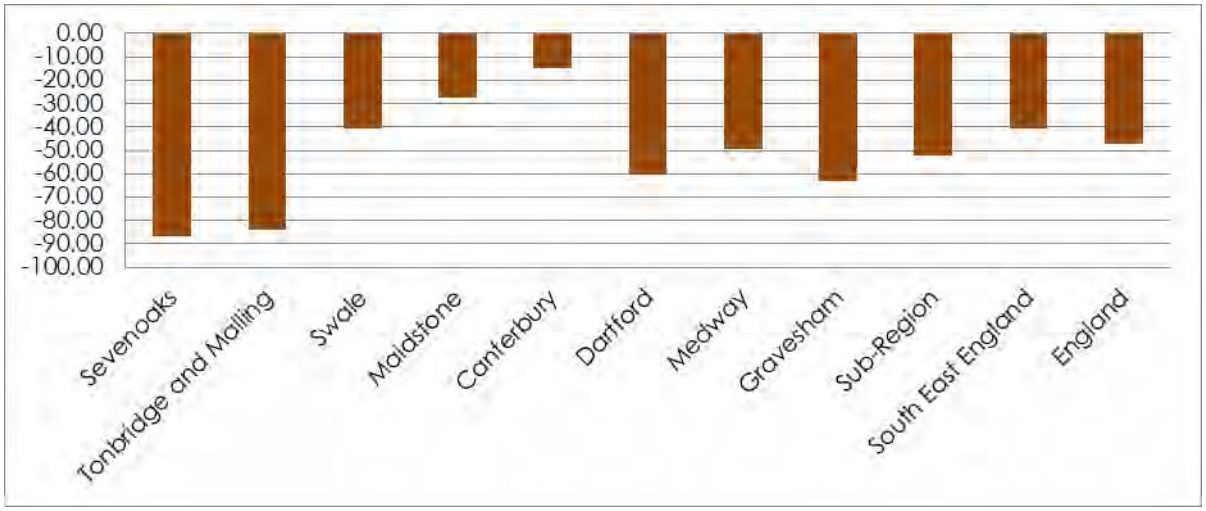


Source: Census /CLG

Homeless Households

5.111 Figure 41 illustrates the percentage change in the number of homeless households between 2005 and 2013. Across all spatial levels there has been a decline in the number of homeless households. In Medway the number of homeless households declined by 49%, a faster rate of decline than for the region and for England, although marginally slower than the sub-region average.

Figure 41 - Percentage Change in Homeless Households, 2005 to 2013

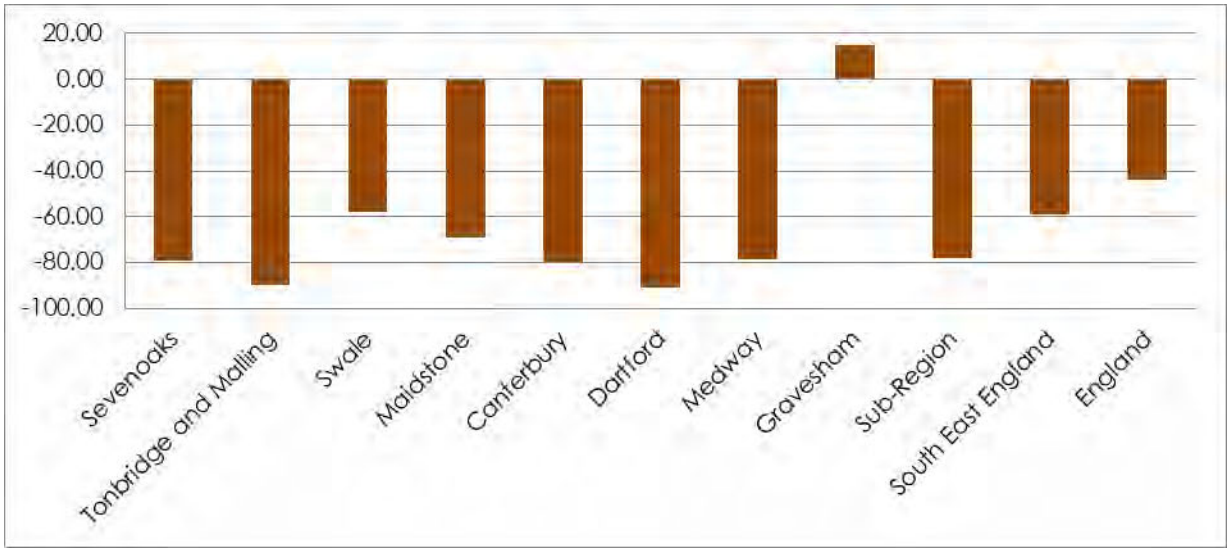


Source: Shelter/CLG

Temporary Accommodation

5.112 Figure 42 illustrates the percentage change in the number of households housed in temporary accommodation over the period 2005 to 2013.

Figure 42 - Percentage Change in Temporary Households, 2005 to 2013



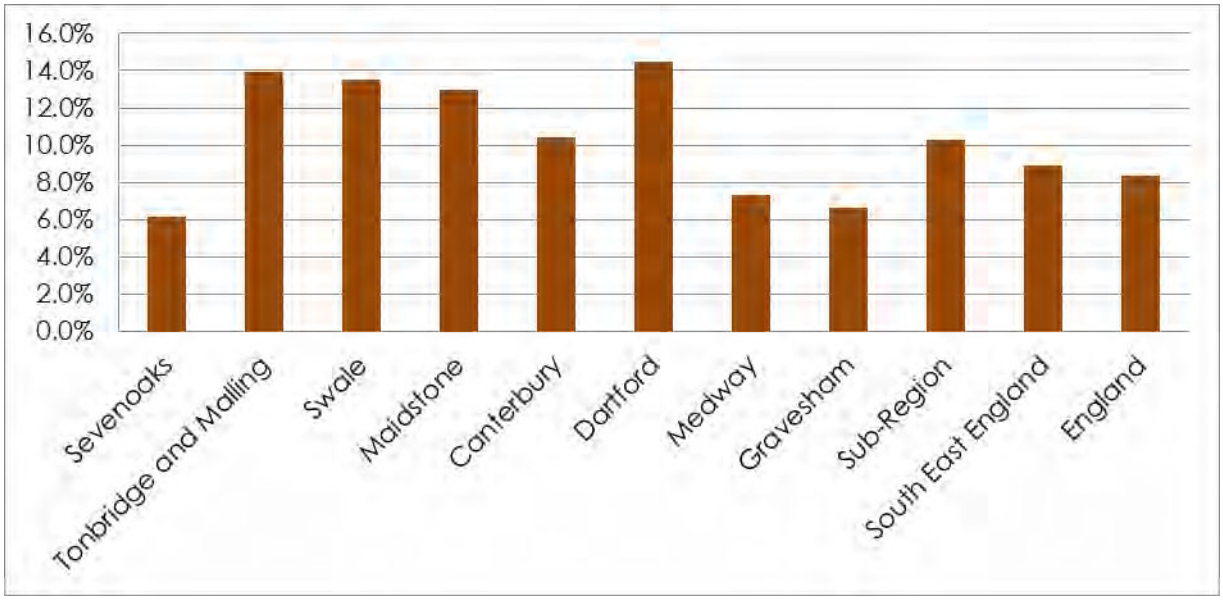
Source: CLG

5.113 Medway saw numbers of households sheltered in temporary accommodation fall by 79%. This is a faster rate of decrease than the sub-region average (-78%), South East region (-41%) and England (-44%).

Rate of Development

5.114 The rate of development is a market signal related to past housing supply. Figure 43 shows the percentage growth in total dwelling stock between 2001 and 2011.

Figure 43 - Percentage Change in Total Dwelling Stock, 2001 to 2011



Source: Census 2001 and 2011

5.115 Between 2001 and 2011 all LPAs experienced growth in total housing stock, with an average sub-regional growth of 10.3%. The rate of growth in Medway was considerably lower at 7.3%; lower also than regional and national dwelling stock rates (8.9% and 8.3% respectively).

5.116 Figure 44 illustrates the number of housing completions (net) in Medway against the plan target in force at the time, taken from the Council's Annual Monitoring Reports. It is important to note that policy requirements do not necessarily reflect 'need'. To understand what demographic projections were at the time the South East Plan, reference can be had to Kent County Council's Demographic Forecasts which are set out in Gravesham's 2012 Strategic Housing Market Assessment (Interim Update).[45] These forecasts show that between 2006 and 2026, trend based projections indicated growth of between 1,020 and 1,095 dpa. Notwithstanding this, Medway was allocated a requirement for 815 dpa over the same period in the South East Plan (Policy H1) – i.e. a requirement that was beneath demographic needs at the time.

[45] Annex 7

Figure 44 - Completion rates for Medway, 2001 to 2014

Source: Medway Council Annual Monitoring Reports

5.117 The PPG instructs that plan makers should assess housing delivery against planned levels of housing. *"If the historic rate of development shows that actual supply falls below planned supply, future supply should be increased to reflect the likely of under delivery."*[46]

5.118 Over the period 2001 to 2014, a total of 9,038 dwellings were constructed in Medway. This equates to an average of 695 dwellings per annum and results in an overall shortfall of 982 homes against Local Plan targets extant at the time. Figure 5.12 also shows year on year fluctuation with a peak of 972 dwellings built in 2009/2010 and a low of 530 dwellings completed in 2005/2006. Interestingly, completion rates have increased post-2007 with an annual average of 751 dwellings per annum built between 2007 and 2014 compared with 630 dwellings 2001-2006. Across the 12 year period, the number of completions has exceeded housing requirements only three times.

5.119 Rates of development can be a sign of demand in an unconstrained housing market; however, developments are also closely linked to the planning system and, in particular, planning policy and decisions. The housing completions data should therefore be used with an element of caution rather than a clear indicator or demand, or in the case of Medway potential lack thereof. Housing completions have repeatedly failed to meet the required rates of delivery, which may in turn have exacerbated some indicators of demand such as house price increases.

[46] PPG Ref ID: 2a-019-20140306

Summary

5.120 The PPG states that "Appropriate comparisons of indicators should be made. This includes comparison with longer-term trends (both in absolute levels and rates of change) in the: housing market area; similar demographic and economic areas; and nationally. A worsening trend in any of these indicators will require upward adjustment to planned housing numbers compared to ones based solely on household projections."[47] It is important to note that the PPG states upward adjustments should be made to planned numbers based solely on household projections (i.e. demographic indicators of housing need not economic indicators). Furthermore, the PPG is clear that any indicator can justify an increase in planned housing numbers. This report has therefore identified;

- Median house prices in Medway remain the lowest in the sub-region however they have experienced significant levels of inflation, above sub-region and regional levels;
- Whilst rents (median and lower quartile) are the lowest in the sub-region they have increased at a faster pace than experienced regionally and nationally (and in the case of lower quartile rents, faster than the sub-region);
- Housing delivery has been beneath planned levels 11 times out of 14 years leading to a cumulative undersupply of almost 1,000 dwellings over this time. Delivery between 2001 and 2011 lagged behind sub-regional, regional and national rates of housing development;
- Vacancy rates do not indicate market pressure and whilst overcrowding has increased, it has done so at a lesser rate than experienced at the sub-regional, regional and national level;
- Whilst Medway remains relatively more financially accessible when compared to neighbouring authorities, affordability has significantly worsened and at a faster rate than observed for the South East and England.

OAN Conclusions

5.121 This section of the report has explored the process laid out by the PPG with regard to OAN in Medway. It has:

- Assessed household projections, the "starting point", and looked at locally specific issues such as long term migration trends and UPC.
- It has reviewed future employment growth and assessed the extent to which demographic trends can meet anticipated job growth.

[47] PPG Ref ID: 2a-020-20140306

- And finally it has reviewed housing market signals to understand if market pressures in Medway indicate that delivery should be increased to meet demand.

5.122 Overall, the demographic scenarios explored in this report point to a need for between 1,167 and 1,317 dpa. It is concluded that longer-term migration trends should be considered and a partial (but not full) adjustment should be made to take account of UPC. This results in an average long term migration scenarios of 1,179 dpa.

5.123 This section of the report has explored a number of economic scenarios. Sector Growth sets out the growth associated with baseline economic trends and capacity in Medway. Sectors & London Paramount explores the additional effect of indirect employment in Medway associated with London Paramount. Sectors & London Paramount Total explores the additional effect that London Paramount might have in terms of drawing the economically active population of Medway to the direct employment in Dartford (where London Paramount is located). Given the uncertainties associated with London Paramount (it has yet to be given consent despite a planning application being submitted) this report will discuss a range of results.

5.124 The Sector Growth scenario indicates a need for between 1,020 and 1,197 dpa reflecting the two economic activity scenarios (Sensitivity 2 and 1 respectively). With modest increases in economic activity (Sensitivity 1) there would be a need for a modest increase in annual housing delivery (above the average long term migration scenario of 20 dwellings per annum or 1.7%). With larger increases in economic activity, reflective of past trends and the likely effect of pension reform, the average long term migration scenario would be sufficient to meet Sector Growth – i.e. there would be no justification for an increase to demographic needs to meet this economic scenario.

5.125 If London Paramount were to be delivered it would have an impact both in terms of employment levels in Medway and commuting. With regard to the former (Sectors & London Paramount Indirect), the additional growth in indirect London Paramount employment in Medway would require additional labour force, population growth and therefore household growth in the authority. This results in dwelling need for between 1,036 and 1,213 dpa depending on the economic activity sensitivity used (Sensitivity 2 and 1 respectively). As per the Sector Growth scenario, with modest increases in economic activity (Sensitivity 1) there would be a need for a modest increase in annual housing delivery to achieve the Sectors & London Paramount Indirect Scenario (above the average long term migration scenario of 34 dwellings per annum or 2.9%). With larger increases in economic activity, reflective of past trends and the likely effect of pension reform, the average long term migration scenario would be sufficient to meet Sectors & London Paramount Indirect – i.e. there would be no justification for an increase to demographic needs to meet this economic scenario.

5.126 In terms of the Sectors & London Paramount Total scenario, this assumes the same level of indigenous employment growth as the Sector Growth & London Paramount Indirect Scenario but provides an additional consideration – it calculates roughly[48] the level of workers that one might expect commuting from Medway to Dartford to work in the London Paramount resort. Sectors & London Paramount total scenario calculates that around 1,579 workers from Medway would be required. Taking both of the Sectors & London Paramount Indirect sensitivities (1,036 and 1,213 dpa) both would deliver sufficient economically active persons to meet this additional requirement for workers beyond the boundary of Medway. Notwithstanding this, there is inherent and significant uncertainty with this analysis given it is based on very specific assumptions about the historic commuting relationships in the sub-region and how these might change in response to a new regional employer. It does, however, provide a useful measure of the likely level of out-commuting generated by Medway and how this interacts with employment in the surrounding areas.

5.127 It is the conclusion of this report, that if the London Paramount resort is not delivered there would be a maximum need for 1,197 dpa. If London Paramount does come forward, it will require a maximum increase in housing of 1,213 dpa. In terms of the employment generated in Dartford at the London Paramount resort, there would be sufficient out-commuting to support Medway's possible contribution. It is, however, for Dartford (the host local authority for the London Paramount resort) to agree through the Duty to Cooperate the additional labour force which may be required from the surrounding authorities and therefore it lies beyond the direct scope of the OAN.

5.128 Given the market signals evidence, there is evidence of supply and demand imbalances that would justify an increase in housing supply above the demographic projection (average long term migration scenario 1,179 dpa). This is driven by the consideration of the following market signals factors (which were detailed earlier in this Section); house prices, rents, affordability and historic undersupply.

5.129 The PPG sets out no mechanism for adjusting OAN for market signals, but it does say that the increase should be appropriate for the scale of demand and the local context. The Sector Growth and Sectors & London Paramount Indirect scenarios (Sensitivity 1) provide modest increases above the average long-term migration scenario of 1.5% and 2.9% respectively. When compared to historic completions which averaged 695 dpa between 2001 and 2014, these scenarios are a significant increase, of 72% and 75% respectively however, when compared to the average long term migration scenario the range of increases are not considered sufficient to respond to the local market signals.

[48] A full description of the approach to this estimate can be found within Section 4 of the companion Medway Employment Land Needs Assessment (Pg 24-26)

5.130 The upper of the economic scenarios - Sectors & London Paramount Indirect (1,213 dpa) meets the requirement of the PPG in respect of demographic trends and economic growth. It would however require an increase of less than 3% above demographic trends which, given the market signals data, would seem modest. Notwithstanding, if household growth above that which can be sustained through increases in employment is planned for, it could risk further increases in out-commuting or increases in unemployment, neither of which are desirable outcomes. However, more recent demographic trends – which project short-term growth – do identify a need for around 1,280 dwellings per annum (2012 Household Projection scenario updated to reflect 2014 MYE). This scenario would lead to an increase of 8.6% above the average long-term migration scenario of 1,179 dpa) which would provide a more significant uplift.

5.131 The PAS OAN and Housing Targets Technical Advice Note (July 2015) states that where evidence suggests 'modest under-provision' or the 'signals are mixed' the projected housing need might be increased by 10%.[49] Overall the increase of 8.6% would seem appropriate in light of the mixed signals, economic and demographic data and under-provision in the authority of around 9.8%.

5.132 **An OAN of 1,281 dwellings per annum (over the 25 year projection period from 2012 – 2037) would therefore seem an appropriate balance given the evidence.**

[49] Paragraph 7.19 of this report

6. Meeting the Affordable Need of Households

6.1 The preceding Housing Trends and Objectively Assessed Housing Needs sections have considered the operation of the housing market and the housing requirement overall. This section examines the specific need for affordable housing; that is housing provided for people who are unable to access suitable homes in the open market. This includes consideration of the overall need for affordable housing and specific types of tenure.

Defining Affordable Housing Needs

6.2 'Housing need' refers to households lacking their own housing or living in unsuitable housing and who cannot afford to meet their needs in the market. It is for those in housing need (i.e. those who cannot meet their housing requirements in the private sector) that the state needs to intervene in the market to ensure all households have access to suitable housing.

6.3 Establishing an estimation of the level of current and future housing need ensures that policy aimed at providing new affordable housing is responsive to the needs of households within the authority.

6.4 Affordable housing is housing provided to eligible households who are in housing need. The National Planning Policy Framework defined affordable housing as follows:

> *"Social rented, affordable rented and intermediate housing, provided to eligible households whose needs are not met by the market. Eligibility is determined with regard to local incomes and local house prices. Affordable housing should include provisions to remain at an affordable price for future eligible households or for the subsidy to be recycled for alternative affordable housing provision.*
>
> *Social rented housing is owned by local authorities and private registered providers (as defined in section 80 of the Housing and Regeneration Act 2008), for which guideline target rents are determined through the national rent regime. It may also be owned by other persons and provided under equivalent rental arrangements to the above, as agreed with the local authority or with the Homes and Communities Agency.*
>
> *Affordable rented housing is let by local authorities or private registered providers of social housing to households who are eligible for social rented housing. Affordable Rent is subject to rent controls that require a rent of no more than 80% of the local market rent (including service charges, where applicable).*
>
> *Intermediate housing is homes for sale and rent provided at a cost above social rent, but below market levels subject to the criteria in the Affordable Housing definition above. These can include shared equity (shared ownership and equity loans), other low cost homes for sale and intermediate rent, but not affordable rented housing.*

Homes that do not meet the above definition of affordable housing, such as "low cost market" housing, may not be considered as affordable housing for planning purposes." (NPPF, Annex 2: Glossary)

Ascertaining Affordable Housing Need Utilising Secondary Data

6.5 The former CLG SHMA: Practice Guidance advocates an approach to calculating housing needs which moves away from a purely primary survey based approach to one which is based on secondary data sources. This is supported by the focus on using suggested secondary data sources within the Planning Practice Guidance (NPPG).

6.6 The approach taken in this report satisfies the requirements of SHMA Guidance in the NPPG (and from Practice Guidance) through collation and 'cleansing' of secondary data sources, including waiting list data and planned stock intervention, to produce a housing needs assessment.

Calculating Affordable Housing Need

6.7 The calculation of affordable housing need is intended to provide an estimate of the number of households and projected households who lack their own housing or live in unsuitable housing and who cannot afford to meet their housing needs in the market (NPPG Paragraph: 023 Reference ID: 2a-023-20140306).

6.8 This need is considered on an annual basis, and to meet the need over a potential 18 year plan period for the emerging Core Strategy when adopted (2017 – 2035) and the projection period (from 2012 to 2037).

6.9 The calculation involves adding together the current unmet housing need and the projected future housing need and then subtracting this from the current supply of affordable housing stock (NPPG Paragraph: 023 Reference ID: 2a-022-20140306).

6.10 There are three core considerations for understanding affordable housing need:

- **Current Housing Need (Gross Backlog):** There is a range or spectrum of 'need', from those in urgent need of housing (the priority list), to those who are living in overcrowded or substandard homes, and those who would like affordable housing but are not in urgent need of re-housing (the standard waiting list).
- **Future Housing Need (Short and Long-term need):** In the long-term, demographics, housing market trends and employment forecasts examined in the preceding section suggest that the overall demand for housing in Medway will continue to be very strong. Based on cost and income characteristics, the share of requirement for affordable housing will be significant.

- **Future Affordable Housing Supply:** There is a level of total new affordable housing stock that will become available, consisting of a combination of opportunities within the existing stock and the committed supply of new affordable housing that will be provided. There is stock which will constitute future affordable supply based on transfers and turnover of social and intermediate affordable housing. However, this must also account for the proportion of units which may be lost from the affordable supply stock.

Key Method and Datasets for the Affordable Housing Needs Calculation

6.11 The model used in the calculation of total and net affordable housing need involves four key steps:

- **Step 1: Current Affordable Housing Need;**
- **Step 2: Future Affordable Housing Need;**
- **Step 3: Future Affordable Housing Supply; and**
- **Step 4: Total and Net Affordable Housing Need**

6.12 A number of assumptions have been made to inform these steps. Although liable to change during the model period, some variables have been kept constant due to difficulty projecting change. These Include:

- A continuation of existing households falling into need;
- A continuation of the annual supply of social re-lets; and
- A continuation of the annual supply of intermediate affordable housing for re-let or resale at sub-market level.

6.13 In each step, transfers are excluded from data (as they have a nil net effect), and trends over the last three years have been used. This represents a credible and robust timeframe from which to assume continuing trends, without specifically representing boom and bust years in the housing market.

6.14 Finally, it is also assumed that there will be no local or national policy impact over the projection period that would change wage levels, employment or delivery of affordable housing, and in turn local affordability patterns.

6.15 The following sub-sections address each of these steps in further detail, identifying the sources of data and assumptions which inform the calculation steps. Following this Table 60 brings together the steps and their data inputs to calculate total affordable need over the projection period (to 2037), the plan period (to 2035) and as annualised figure over this period.

Current Affordable Housing Need (Gross Backlog)

6.16 Table 52 sets out the detail of Step 1 of the affordable housing requirements calculation, the calculation of current affordable housing need, indicating the specific data sources and assumptions for this step.

Table 52 - Affordable Housing Requirement Calculation: Step 1

Step 1 – *Current* Affordable Housing Need		
Step	**Calculation**	**Data Sources & Assumption**
1.1 Homeless households and those in temporary accommodation		Identified from Medway Council (MC) housing register; households identified as being homeless and registered on the waiting list. This figure excludes transfer tenants.
1.2 Overcrowded and concealed households		Identified from Medway Council (MC) housing register; households identified as being statutory overcrowded and registered on the waiting list. This figure excludes transfer tenants.
1.3 Other groups (other groups on the waiting list)		Identified from Medway Council (MC) housing register; All households registered on the housing waiting list across all priority bands, excluding those identified specifically as homeless and overcrowded. This figure excludes transfer tenants.
1.4 Total current housing need (gross backlog)	**= 1.1 + 1.2 + 1.3**	**GVA calculated**

6.17 For Step 1.1 the number of homeless households is sourced from those on the Council's housing register who are identified as homeless households. As shown in Table 53, there are a total of 458 households in Medway identified as being homeless and included on the housing register. This figure does not include transfers. Whilst homeless households and those in temporary accommodation do not always join the housing register (immediately, if at all), this figure is the most robust and accurate source of Medway homeless households available for Step 1.1 of the calculation.

Table 53 - Homeless Households on Housing Register (July 2015)

	Band A	Band B	Band C	Band D	Totals
Homeless: Full Duty	0	9	0	0	9
Homeless: Full Duty without a local priority	0	0	150	0	150
Homeless: Not Full Duty	0	0	0	299	299
					458

Source: Medway Council, July 2015

6.18 For Step 1.2, overcrowded and concealed households, there is one household on the housing register identified as being in statutory overcrowding. Whilst this suggests that overcrowded and concealed households may not be fully captured on the register, it is the most robust data source for this household category available, so is used to inform Step 1.2 of the calculation.

6.19 Step 1.3 is referred to as Other groups and includes the households within all four priority bands of Medway's housing register, excluding those already included as homeless households and overcrowded households in Steps 1.1 and 1.2 respectively, and those which are existing tenant transfers. As shown in Table 54, there a total of 4,354 households on the register (excluding transfers). This is reduced to 3,895 households when subtracting the figures from Steps 1.1 (458 homeless households) and 1.2 (1 overcrowded household) to avoid double-counting. This figure of 3,895 is the input for Step 1.3.

Table 54 - Housing Register (excluding transfers)

	Band A	Band B	Band C	Band D	Totals
1 bedroom	232	27	3,088	206	**3,553**
2 bedrooms	72	20	291	106	**489**
3 bedrooms	20	5	140	45	**210**
4 bedrooms	3	3	28	10	**44**
5 bedrooms	3	1	31	5	**40**
6 bedrooms	1	3	13	1	**18**
All	**331**	**59**	**3,591**	**373**	**4,354**

Source: Medway Council, July 2015

6.20 This Step 1 analysis is hence based on current unique households on the Medway Council Housing Register. These are assumed to make up the backlog of current housing need and these figures are inputted directly into the column for the potential new plan period (15 years) under the assumption that full net housing backlog is addressed by the end of the plan period.

6.21 Although there can be fluctuation in this register, it provides a snapshot from July 2015 which is the most accurate reflection of current unmet need. This is caveated by the fact that housing register figures fluctuate over the course of a year, with new households joining the register and other households leaving it. However, it provides the most accurate and robust reflection of current unmet housing need available.

6.22 Transfers are excluded from the total figure because when they take place they occupy an affordable property but also release a property for another household to occupy. This results in a zero net effect on affordable housing need.

Future Affordable Housing Need

6.23 Table 55 sets out the detail of Step 2 of the affordable housing requirements calculation, the calculation of future affordable housing need, indicating the specific data sources and assumptions for this step.

Table 55 - Affordable Housing Requirement Calculation: Step 2

Step 2 – *Future* Affordable Housing Need		
Step	**Calculation**	**Data Sources & Assumption**
2.1 New Household formation (per annum)		Additional new households formed over the projection period based on the OAN household growth figure of 1,235 households per annum (which equates to the 1,281 dwellings per annum figure). This is based on the 2012 household projections including 2013 and 2014 MYEs).
2.2 Proportion of newly emerging households unable to buy or rent	Expressed as % but figure also provided Figure = % x 2.1	Comparison of housing costs for purchase (LQ house price with 90% LTV mortgage) and for LQ rent (2&3 bedrooms – market and affordable rent). GVA calculated from CACI Paycheck (Household Income), VOA (Private Rental Costs) and CLG (LQ House Prices).
2.3 Existing households falling into need		Existing households falling into need based on the CORE data 3 year average of total new general needs and supported housing lettings, excluding transfers (existing affordable housing tenants who are already in need).
2.4 Total newly arising housing need	**= (2.1 x 2.2) + 2.3**	**GVA calculated**

6.24 For Step 2.1 estimates of new household formation in Medway over the projection period, the potential new plan period and annually is based on the Objectively Assessed Need

calculation, providing the most up to date position. The OAN indicates a figure of 1,281 dwellings per annum, which equates to 1,235 households per annum (based on the 2012 based household projections including 2013 and 2014 MYEs). This 1,235 households per annum figure is used as the input for Step 2.1. This provides the most robust basis for the number of new households in the authority area.

6.25 In relation to Step 2.2, the proportion of these newly forming households who cannot afford to meet their needs in the market is established in the section relating to affordability which compares household income bandings (using CACI Paycheck data) with housing cost thresholds for home purchase (at lower quartile prices) and market and affordable rental costs (for 2&3 bedroom properties). The base analysis considers affordability to constitute not more than 30% of income being spent on housing.

6.26 For this sensitivity, if spending of up to 30% of household income on housing is considered affordable, it was calculated that 42% of households cannot afford the annual payment for house purchase with a 90% LTV mortgage, or 2 & 3 bedroom market and affordable rental costs (for 2&3 bedroom properties), and 34% of households cannot afford the annual payment for house purchase with a 75% LTV mortgage.

6.27 The Step 2.2 output is expressed as the 42% of households who cannot afford 90% LTV mortgage home purchase and market and affordable rent (with the number of households unable to afford this figure also calculated). The 42% unaffordability level is considered as the most relevant for inclusion in Step 2.2 of this assessment because it relates to both home purchase (with a 90% LTV mortgage level) and market rent (of 2&3 bedroom properties).[50]

6.28 The data for Step 2.3 to estimate existing households falling into need is taken from CORE lettings data[51] over the 3 year period from 2011-12 to 2013-14. As shown below in Table 56, by using the data on previous accommodation type for all re-lets and new lets, this allows an estimation of the existing households falling into need, excluding those who are already in need (in the form of transfers who were previously general needs and supported housing tenants). The 3 year average of 913 households, is used as the annual figure, which is then scaled up to reach the figure over the potential future plan period (16,434 households) and over the projection period (22,825 households).

[50] The affordable housing requirements calculation table is also produced using the Step 2.2 affordability proportion of 34% who cannot afford to buy (which applies to 75% LTV mortgage home purchase, as shown in **Appendix 1**. However, this is not considered as suitable a representation of affordability in Medway considering that it does not represent the affordability for any of the rental properties. It would also require a considerable deposit, which would further reduce affordability in reality, particularly for first-time buyers.

[51] The Continuous Online Recording System (CORE) is a national information source funded jointly by the Housing Corporation and the CLG that record information on the characteristics of registered providers new social housing tenants and homes they rent and buy.

Table 56: Previous Accommodation Type of Social Re-lets and New Lets

	Previous accommodation							
	General Needs LA tenant	General Needs HA tenant	Supported housing (various)	Private sector tenancy	Owner occupied (private and low cost ownership)	Living with family or friends	Other	Total: excluding transfers
2011-12	203	303	99	221	63	0	550	**834**
2012-13	197	357	136	224	100	0	737	**1061**
2013-14	273	396	106	208	76	249	312	**845**
Average	**224**	**352**	**114**	**218**	**80**	**83**	**533**	**913**

Source: CORE, 2015 (provided by Gravesham Council)

6.29 The proportion of newly emerging households unable to buy or rent is applied to the level of new household formation (Step 2.1 x Step 2.2). This is then added to the number of existing households falling into need (Step 2.3), in order to reach the total newly arising need which constitutes Step 2.4.

Future Affordable Housing Supply

6.30 Table 57 sets out the detail of Step 3 of the affordable housing requirements calculation, the calculation of future affordable housing supply, indicating the specific data sources and assumptions for this step.

6.31 This step identifies the current stock that can be used to accommodate households in future affordable need as well as the future pipeline supply of affordable housing.

6.32 Steps 3.1 – 3.5 are used to calculate total new affordable housing stock available. Transfer applications are discounted from Steps 3.1, 3.2, 3.3 and 3.6. On this basis, for Step 3.1 the level of affordable dwellings occupied by households in need is set at zero.

6.33 Figures for surplus stock, Step 3.2, committed supply of new affordable housing, Step 3.3, and units to be taken out of management, Step 3.4, have been provided by Medway Council.

Table 57 - Affordable Housing Requirement Calculation: Step 3

Step 3 – *Future* Affordable Housing Supply		
Step	**Calculation**	**Data Sources & Assumption**
3.1 Affordable dwellings occupied by households in need		Existing tenant transfers are excluded from Steps 1, 2 and 3 as they release supply of housing, having a nil net effect.
3.2 Surplus stock		Provided by Medway Council: surplus stock figures based on empty and void properties (for 6+ months) which are likely to be brought back into use.
3.3 Committed supply of new affordable housing		Informed by Medway Council data – Committed new affordable housing for 2015/16 – 2018/19, calculated as a 3 year average
3.4 Units to be taken out of management		Medway Council data indicates no currently planned demolitions or refurbishments of currently let stock which is unlikely to be brought back into use.
3.5 Total new affordable housing stock available	**= 3.1 + 3.2 + 3.3 – 3.4**	**GVA calculated**
3.6 Annual supply of social re-lets (net)		CoRe Data three year average relets (social lettings and affordable rent for LAs and PRPs for general and supported needs). Taken as predicted annual levels in line with guidance (3 year average from 2011-12 to 2013-14).
3.7 Annual supply of intermediate affordable housing for re-let or re-sale at sub-market levels		Based on 2011 Census data, assumed 3% annual turnover of current stock. Trends assumed to be constant.
3.8 Future supply from existing affordable housing	**= 3.6 + 3.7**	**GVA calculated**

6.34 For Step 3.2 surplus stock describes current social sector properties which have been empty and void for 6+ months and are likely to be brought back into use over the potential new plan

period, although recognising that some vacancy is necessary to allow for turnover. The figure is scaled down and up as appropriate to obtain the levels for the annualised period and projection period. It is indicated that 29 currently vacant units could be brought back into use over the potential new plan period, which is then scaled to an annual figure of 2 and a figure of 40 over the projection period.

6.35 For Step 3.3 the committed supply of new affordable housing has been assessed based on the committed new affordable housing figures for Medway for the period from 2015/16 to 2018/19. As such a 3 year average, 163 units, is used as the annualised figure and this is scaled up appropriately to the level for the potential new plan period, 2,940 units, and projection period, 4,083 units.

6.36 For Step 3.4 Medway Council has indicated there are currently no planned demolitions or refurbishments of currently let stock which is unlikely to be brought back into use. Right to Buy sales are not included here as there is no LA requirement to rehouse these households (as set out in the former SHMA Practice Guidance, which still provides a useful methodological guide).

6.37 Step 3.5 combines the figures from Steps 3.1, 3.2 and 3.3, minus the units to be taken out of management from Step 3.4, to reveal the total affordable housing stock available.

6.38 Steps 3.6 – 3.8 are used to calculate the likely level of future supply from existing affordable housing.

6.39 For Step 3.6 , the annual supply of social re-lets can been estimated by calculating three year average relets from the CORE data for lettings with Registered Providers, excluding lettings to existing social tenants[52] (i.e. transfers).

6.40 As shown below in Table 58, by using the data on reason for vacancy of unit for all re-lets and new lets, this allows an estimation of the affordable unit supply based on the level of social new lets and re-lets, excluding internal transfers which does not result in the net addition of a new affordable unit. The 3 year average of 768 is used as the annual figure, which is then scaled up to the figure over the potential future plan period (13,824) and over the projection period (19,200).

[52] Existing social tenants are defined as those where there previous tenure was listed as General Needs PRP tenant, General Needs LA tenant, Owner occupation (low cost home ownership), Supported Housing (various).

Table 58 – Reason for Vacancy for Social re-lets and New lets

	Reason for Vacancy								
	New Lets	Internal Transfer	Previous tenant moved to other LA	Previous tenant moved to other HA	Previous tenant died or evicted	Property abandoned	Tenant moved to private or other accommodation	Other	Total excluding transfers
2011-12	130	151	66	132	0	49	320	**170**	**867**
2012-13	70	229	50	72	0	38	254	**170**	**654**
2013-14	88	310	0	96	0	70	294	**234**	**782**
Average	**96**	**230**	**39**	**100**	**0**	**52**	**289**	**191**	**768**

Source: CORE, 2015 (obtained by Gravesham Council)

6.41 In the absence of more appropriate data, the annual supply of intermediate housing for Step 3.7 is estimated by assuming a turnover of 3% per annum for shared ownership properties (3% x 671 units = 20) and assuming continued trends to scale this figure up for the potential future plan period (360 units) and the projection period (500 units).

6.42 The figures from Steps 3.6 and 3.7 are combined in Step 3.8 in order to provide a figure for the future supply of affordable housing from existing affordable housing.

Total and Net Affordable Housing Need

6.43 Table 59 sets out the detail of Step 4 of the affordable housing requirements calculation, the calculation of the total and net affordable housing need.

Table 59 - Affordable Housing Requirement Calculation: Step 4

Step 4 - Total and Net Affordable Housing Need		
Step	**Calculation**	**Data Sources & Assumption**
4.1 Total Affordable Housing Need	**1.4 + 2.4 – 3.5**	**GVA calculated using outputs from previous 3 steps**
4.2 Net Affordable Housing Need	**4.1 – 3.8**	**GVA calculated using outputs from previous 3 steps**

6.44 Step 4, is the final element of the assessment, bringing together the previous steps to set out an estimate of total affordable housing need and net affordable housing need for Medway over the projection period, the potential new local plan period, and as an annual requirement.

6.45 Each calculation step, culminating with the above calculations, is shown below in Table 60 and Table 61.

6.46 The assessment is undertaken using an affordability threshold of 30% of household income spent on housing for 90% LTV mortgage house purchase and 2 & 3 bedroom market and affordable rent, as these different housing options demonstrate the same unaffordability proportion of 42% (Step 2.2). As already mentioned, the affordable housing requirements calculation table is also produced based on a affordability threshold of 30% of household income spent on housing for 75% LTV mortgage house purchase, see Appendix 1.

6.47 The 30% threshold is considered to be the most realistic representation of affordability within the household income and house price context of Medway.

6.48 Those figures which are underlined in the below tables represent the input figures, which have been divided or multiplied to scale them to the other two time periods. For example; a directly inputted annualised figure is multiplied by 18 to obtain the potential new local plan period figure and 25 to obtain the projection period figure.

Table 60 - Affordable Housing Need Requirement Calculations (affordability threshold of 30% household income housing spend for 90% LTV mortgage house purchase and 2&3 bedroom market and affordable rent)

Step	Comments	Projection Period (2012–2037)	Potential New Plan Period (2017-35)	Annual	Source
Step 1 – *Current* Housing Need					
1.1 Homeless households and those in temporary accommodation	Homeless households identified as such on Council's Housing Register	636	458	25	Identified from Medway Council (MC) housing register; households identified as being homeless and registered on the waiting list. This figure excludes transfer tenants.
1.2 Overcrowded and concealed households	Statutory overcrowded households identified as such on Council's Housing Register	1	1	0	Identified from Medway Council (MC) housing register; households identified as being statutory overcrowded and registered on the waiting list. This figure excludes transfer tenants.
1.3 Other groups	All other households on Council's Housing Register	5,410	3,895	216	Identified from Medway Council (MC) housing register; All households registered on the housing waiting list across all priority bands, excluding those identified specifically as homeless and overcrowded. This figure excludes transfer tenants.
1.4 Total current housing need (gross backlog)	**1.1 + 1.2 + 1.3**	**6,047**	**4354**	242	**GVA calculated**
Step 2 – *Future* Housing Need					
2.1 New Household formation (gross)	OAN household growth figure	30,875	22,230	1,235	OAN household growth figure (based on 2012 based household projection scenario including 2013 and 2014 MYEs)
2.2 Proportion of newly emerging households unable to buy or rent	Those unable to buy at LQ prices or rent privately based on income levels	42% 28,100 x 42% = 11,802	42% 20,232 x 42% = 8,497	42% 1,124 x 42% = 472	GVA calculated from CACI Paycheck (Household Income), ONS (Private Rental Costs) and CLG (LQ House Prices)
2.3 Existing households falling into need	Households falling into need based on recent trends	22,825	16,434	913	CORE data – 3 year average of total new general needs and supported housing lettings (not existing affordable tenants)
2.4 Total newly arising housing need	**= (2.1 x 2.2) + 2.3**	**35,793**	**25,771**	**1,432**	**GVA calculated**

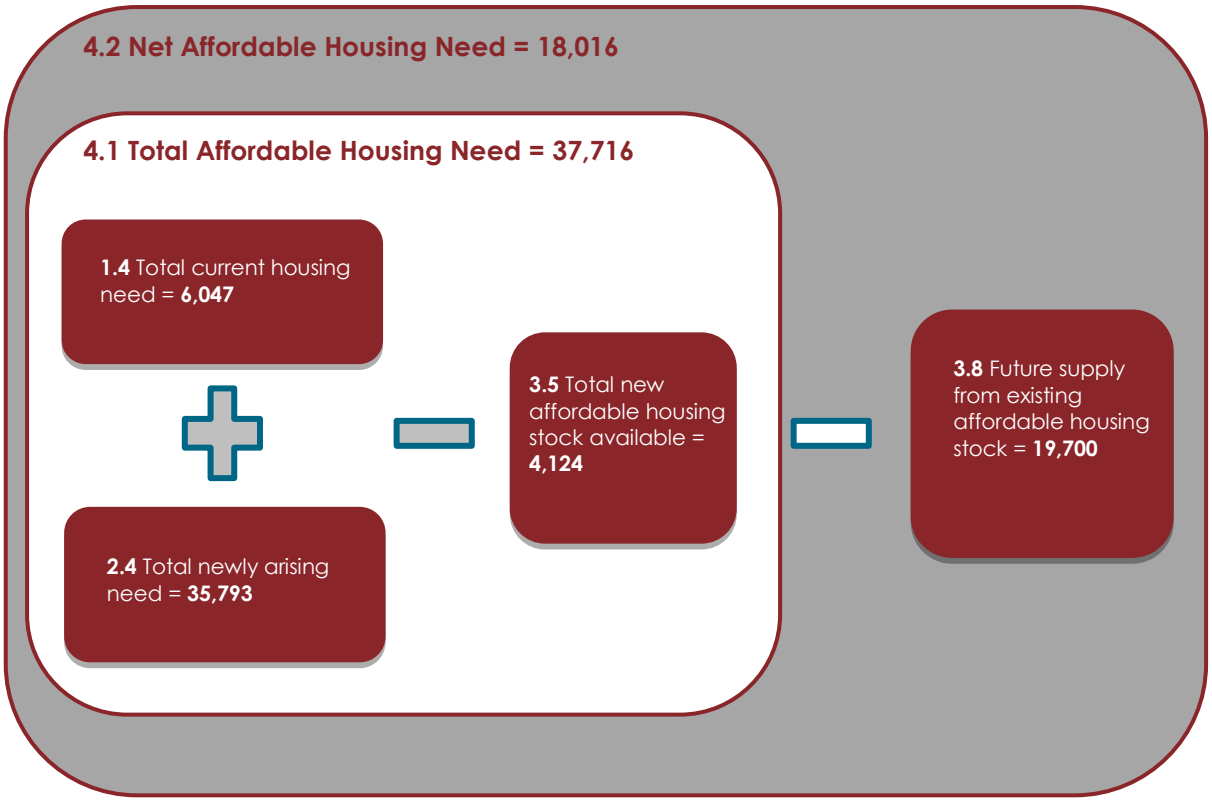
Step 3 – *Future* Affordable Housing Supply					
3.1 Affordable dwellings occupied by households in need	Assume zero	0	0	0	Transfers are excluded from Stages 1, 2 and 3 as they release supply of housing, having a net nil effect
3.2 Surplus stock	Current vacant stock that could be brought back into use	48	29	2	Provided by MC - based on empty and void properties (for 6+ months) which are likely to be brought back into use
3.3 Committed supply of new affordable housing	Pipeline supply through planning system	4,083	2,940	163	Medway data - Committed new affordable housing for 2015/16 - 2018/19: 3 year average
3.4 Units to be taken out of management	Housing currently let which is due to be demolished or refurbished	0	0	0	Medway Council indicates there are no demolitions or refurbishments of currently let stock which is unlikely to be brought back into use. Right to Buy sales are not included here as there is no LA requirement to rehouse these households.
3.5 Total new affordable housing stock available	**3.1 + 3.2 + 3.3 – 3.4**	**4,124**	**2,969**	**165**	**GVA calculated**
3.6 Supply of social re-lets (net)	LA and HA sector re-lets (general and supported needs) excluding transfers	19,200	13,824	768	CORE Data - 3 year average relets (social lettings and affordable rent for LAs and PRPs for general and supported needs). Taken as predicted annual levels in line with guidance (3 year average from 2011-12 to 2013-14).
3.7 Supply of intermediate affordable housing for re-let or re-sale at sub-market levels	3% turnover of shared ownership properties being taken up by new tenants	500	360	20	GVA calculated based on applying 3% turnover to 2011 Census data (671 shared ownership households recorded)
3.8 Future supply from existing affordable housing	**3.6 + 3.7**	**19,700**	**14,184**	**788**	**GVA calculated**

Table 61 - Total Affordable and Net Affordable Housing Need

Step 4 – *Bringing the Evidence Together*					
4.1 Total Affordable Housing Need	**1.4 + 2.4 – 3.5**	**37,716**	**27,156**	**1,509**	**GVA calculated**
4.2 Net Affordable Housing Need	**4.1 – 3.8**	**18,016**	**12,972**	**721**	**GVA calculated**

6.49 Figure 45 brings together the affordable housing need calculation figures from the above tables, to show a more simplified version of the calculation, using the figures for the 25 year projection period.

Figure 45 - Affordable Housing Need Calculation Diagram (with projection period figures)



6.50 A more detailed breakdown of this calculation and the resulting proportion of housing that will need to be affordable over the projection period (as a proportion of new household formation and OAN) is as follows:

- **New household formation (all tenures) = 30,875**
- Affordable housing need backlog = 6,047
- Gross newly arising affordable need = 35,793
- **Total affordable need = 6,047 + 35,793 = 41,840**
- New affordable housing supply = 4,124
- Future supply from existing affordable stock = 19,700
- **Total affordable supply = 4,124 + 19,700 = 23,824**
- **Net Affordable Housing Need = Total affordable supply (23,824) – Total affordable need (41,840) = -18,016**

6.51 This identifies an affordable housing requirement of 18,016 households over the projection period. Considering the other scenario columns in the calculation table above, this equates to an affordable housing requirement of 12,972 households when considered over the 2017 - 2035 potential future Local Plan period, and an affordable housing requirement of 721 households as an annualised figure. This assumes the entire backlog is cleared by the end of the respective time periods.

6.52 Allowing for Medway's 3.2% vacancy rate (which adequately facilitates housing market churn) this identifies an **affordable requirement of 18,592 dwellings** over the projection period (2012 – 2037), 13,387 dwellings over the potential future Local Plan period (2017 – 2035), and 744 dwellings annually.

6.53 The housing needs analysis should therefore be regarded as evidence that in Medway, '**need' for affordable housing is greater than the currently identified 'supply' of affordable housing over the projection period, the potential future Local Plan period, and on an annual basis.**

6.54 Over the assessed projection period (2012 -2037) the calculated need for 18,592 affordable dwellings (744 dpa) constitutes 58% of the total number of dwellings required to deliver the OAN figure of 1,281 dwellings per annum.

6.55 On the basis of the Council's current affordable housing policy target of 25 - 30% the OAN of 1,281 dwellings per annum would be insufficient to deliver the identified affordable need of 744 dwellings per annum. This could justify the consideration to increase the housing requirement.

6.56 However, the continued use of this target will be subject to viability considerations, with references to the NPPG (Paragraph 029, Reference ID: 2a-029-20140306). It should also be guided by the affordable housing viability testing being undertaken as part of this SHENA.

Affordability Driver for Moving Home

6.57 The HNS asked respondents about needing to move to a different home, to which 3.6% of respondents (18 residents) indicated they need to move.

6.58 Of the respondents who indicated they need to move, 35% said this was not possible for their household, the top reason for which was that they **cannot afford to because other properties are too expensive** (61%).

6.59 The substantial caveat to this analysis is the small sample size, where the 61% of households who need to move but cannot do so for affordability reasons actually only equates to 5 households. However, it is significantly above the next most popular reason for not being able to move when needing to do so (personal reasons – 13.7%).

6.60 Affordability therefore seems to present the main barrier to accessing a new home for these respondents, for those who are indicated to be in current need to move. This is likely to be representative of the wider authority area, and therefore provides qualitative support for the significant affordable housing requirement levels identified above.

7. The Role of Affordable Housing in Meeting Need

7.1 Having established overall need above, the following sub-section considers the role of different types of affordable housing in meeting that need.

7.2 As identified in the previous Section, the National Planning Policy Framework defines three types of affordable housing: intermediate, affordable rent and social rent, each of which can play an important role in meeting housing need.

Intermediate Housing

7.3 Intermediate housing products can provide an important role in bridging the gap between social renting and owner-occupation, some of which allow households to 'staircase' towards owner-occupation by renting alongside acquiring equity in their property.

7.4 The former CLG SHMA Guidance cites that the number of households whose needs could be met by intermediate affordable housing is likely to fluctuate, reflecting the changing relationship between market rents, social rents and incomes alongside the variance in intermediate products available. It is important to note that the term 'intermediate' covers a broad range of products, with the following included within the wider definition:

- New build HomeBuy;
- Open market HomeBuy;
- Social HomeBuy;
- Intermediate Rent;
- Shared Equity / Ownership; and
- Armed Forces Home Ownership Scheme (Equity Loan)

7.5 The new Starter Homes Policy and its impact on affordability is also considered.

Affordability of Intermediate Dwellings

7.6 The earlier analysis of household income data from CACI in Section 3 provided an indication of the income profile of households. This demonstrated that based on a maximum housing spend of 30% of household income on housing, 42% of households cannot access the open market (with a 90% LTV ratio mortgage) or afford market or affordable rental property (based on 2 & 3 bedrooms), 34% of households cannot access the open market (with a 75% LTV ratio mortgage) and cannot afford RP social rental property, and 23% cannot afford LA social rental property.

7.7 As an example of an intermediate housing product, the following figure reviews the level of equity share (in an intermediate property) that could be afforded by households in Medway, with the upper limit of analysis constrained by the average lower quartile house price of £122,500. This cost indicated for this intermediate affordable housing includes both rental and mortgage payment elements.

7.8 The nature of this tenure means that purchasers can buy a percentage of their house typically ranging from 25% to 75% which is paid for via mortgage. The remaining percentage is then rented at market level.

7.9 Using the same assumptions as those outlined for Lower Quartile market housing (i.e. 90% Loan To Value ration mortgage, 25 year repayment period and 4% interest rate) and Lower Quartile average market rent for 2 & 3 bedroom properties in earlier analysis, the actual costs for these properties ranges from approximately £7,133 - £7,434 per annum, as shown below in Table 62.[53]

7.10 This means that minimum household earnings of £23,778 - £24,779 per annum or above are required to access this type of intermediate housing. The need for a deposit, credit ratings and moving costs may prohibit some households accessing this tenure, even at this level of income.

7.11 Comparing this to the income profile of residents in Medway, this suggests that approximately 34% – 43% of households could not afford a 25%, 50% or 75% equity share in a lower quartile value property. This indicates that the intermediate housing market does not create a significant opening of the housing market to households who would otherwise not be able to purchase their own property outright.

[53] This analysis is also undertaken for a 75% LTV ratio mortgage with a 25 year repayment period and 4% interest rate, in Appendix 2.

Table 62 - Cost of Intermediate Affordable Housing in Medway (for property with LQ £122,500 market value)

Equity Share	Equity Value	Loan Amount (75% LTV ratio)	Monthly Mortgage Repayment Costs	Annual Mortgage Repayment Costs
25%	£30,625	£27,563	£145	**£1,746**
50%	£61,250	£55,125	£291	**£3,492**
75%	£91,875	£82,688	£436	**£5,237**

Rental Proportion	LQ Monthly Market Rent	Monthly Rental Costs	Annual Rental Cost	Total Annual Housing Costs (Mortgage and Rental)	Required Earnings to assume Affordable (up to 30% of household income
75%	£632	£474	£5,688	**£7,434**	**£24,779**
50%	£632	£316	£3,792	**£7,284**	**£24,279**
25%	£632	£158	£1,896	**£7,133**	**£23,778**

Source: CACI, Money Advice Service, GVA, 2015

7.12 The affordability of shared ownership can also be considered by demonstrating the income levels required to access shared ownership for 25%, 50% and 75% equity shares, with assumed 2.85% rental charges on remaining unsold equity (based on an example model of shared ownership operated by Two River Housing in Medway[54]). This is shown for maximum household income spend levels of 25%, 30% and 35% in Table 94, Table 95 and Table 96.

7.13 Under the assumption of spending up to 25% of household income on housing (Table 94), shared ownership with a 25% equity share would require an annual income of £17,457. A 50% equity share would require an annual income of £20,949. A 75% equity share would require an annual income of £24,441.

7.14 Therefore, 66% of households can afford 25% equity share, and 58% of households can afford 50% and 75% equity share intermediate housing.

[54] http://www.tworivershousing.org.uk/custom-content/uploads/2015/02/Shared-Ownership-a-guide.pdf

Table 63 - Sensitivity 1c: Income Levels Required to Access Shared Ownership with Maximum Spend of 25% of Household Income

	Intermediate (25% equity share)	Intermediate (50% equity share)	Intermediate (75% equity share)
Annual mortgage repayment costs	£1,746	£3,492	£5,237
Monthly mortgage repayment costs	145	291	436
Value of remaining unsold equity	£91,875	£61,250	£30,625
Rental charge at 2.85% of unsold value - Annual cost	£2,618.44	£1,745.63	£872.81
Rental charge at 2.85% of unsold value - Monthly cost	£218.20	£145.47	£72.73
Total annual housing payment	£4,364.26	£5,237.27	£6,110.27
Total monthly housing payment	£363.69	£436.44	£509.19
Max. percentage of income	25%	25%	25%
Required annual income	**£17,457.03**	**£20,949.06**	**£24,441.09**
Required monthly income	**£1,454.75**	**£1,745.76**	**£2,036.76**
CACI household income band which contains 'required annual income'	£15,000 - £20,000	£20,000 - £25,000	£20,000 - £25,000
Number of Households within and below income band	36,521	46,163	46,163
Total number of Households	108,654	108,654	108,654
% of households who cannot afford annual payment	**34%**	**42%**	**42%**

7.15 Under the assumption of spending up to 30% of household income on housing (Table 95), shared ownership with a 25% equity share would require an annual income of £14,548. A 50% equity share would require an annual income of £17,458. A 75% equity share would require an annual income of £20,368.

7.16 Therefore, 77% of households can afford 25% equity share intermediate housing, 66% of households can afford 50% equity share intermediate housing and 58% of households can afford 75% equity share intermediate housing.

Table 64 - Sensitivity 2c: Income Levels Required to Access Shared Ownership with Maximum Spend of 30% of Household Income

	Intermediate (25% equity share)	Intermediate (50% equity share)	Intermediate (75% equity share)
Annual mortgage repayment costs	£1,746	£3,492	£5,237
Monthly mortgage repayment costs	145	291	436
Value of remaining unsold equity	£91,875	£61,250	£30,625
Rental charge at 2.85% of unsold value - Annual cost	£2,618.44	£1,745.63	£872.81
Rental charge at 2.85% of unsold value - Monthly cost	£218.20	£145.47	£72.73
Total annual housing payment	£4,364.26	£5,237.27	£6,110.27
Total monthly housing payment	£363.69	£436.44	£509.19
Max. percentage of income	30%	30%	30%
Required annual income	**£14,547.53**	**£17,457.55**	**£20,367.58**
Required monthly income	**£1,212.29**	**£1,454.80**	**£1,697.30**
CACI household income band which contains 'required annual income'	£10,000 - £15,000	£15,000 - £20,000	£20,000 - £25,000
Number of Households within and below income band	24,928	36,521	46,163
Total number of Households	108,654	108,654	108,654
% of households who cannot afford annual payment	**23%**	**34%**	**42%**

7.17 Under the assumption of spending up to 35% of household income on housing (Table 96), shared ownership with a 25% equity share would require an annual income of £12,469. A 50% equity share would require an annual income of £14,964. A 75% equity share would require an annual income of £17,458.

7.18 Therefore, 77% of households can afford 25% and 50% equity share intermediate housing, and 66% of households can afford 75% equity share intermediate housing.

Table 65 - Sensitivity 3c: Income Levels Required to Access Shared Ownership with Maximum Spend of 35% Household Income

	Intermediate (25% equity share)	Intermediate (50% equity share)	Intermediate (75% equity share)
Annual mortgage repayment costs	£1,746	£3,492	£5,237
Monthly mortgage repayment costs	145	291	436
Value of remaining unsold equity	£91,875	£61,250	£30,625
Rental charge at 2.75% of unsold value - Annual cost	£2,618.44	£1,745.63	£872.81
Rental charge at 2.75% of unsold value - Monthly cost	£218.20	£145.47	£72.73
Total annual housing payment	£4,364.26	£5,237.27	£6,110.27
Total monthly housing payment	£363.69	£436.44	£509.19
Max. percentage of income	35%	35%	35%
Required annual income	**£12,469.31**	**£14,963.61**	**£17,457.92**
Required monthly income	**£1,039.11**	**£1,246.97**	**£1,454.83**
CACI household income band which contains 'required annual income'	£10,000 - £15,000	£10,000 - £15,000	£15,000 - £20,000
Number of Households within and below income band	24,928	24,928	36,521
Total number of Households	108,654	108,654	108,654
% of households who cannot afford annual payment	**23%**	**23%**	**34%**

7.19 Overall the evidence suggests some potential for intermediate forms of affordable housing to contribute towards meeting housing needs in Medway, however there are limitations to this potential. With a maximum spend of 30% of household income on housing, 58% - 77% of households could afford shared ownership depending on the degrees of equity share, leaving 23% - 42% of households who would still be unable to access housing through a shared ownership product.

Starter Homes Scheme

7.20 The Starter Homes Scheme was launched by the Government in February 2015 with the aim of supporting young (under 40) first time buyers onto the property ladder, through discounted

housing (with a 20% discount on the market price). Interest in the scheme is registered through the Home Builders Federation at http://www.new-homes.co.uk/starter-homes/[56].

7.21 Table 66 shows an extract of the HBF starter homes register as of 6th October 2015. This shows the general interest in the identified Kent locations. The general Kent location has the highest level of interest (533), followed by Maidstone (208), Dartford (197), Ashford (162), Tonbridge (107), Sevenoaks (95) and Rochester (87).

7.22 This data should be treated with caution as interest is likely to be considerably influenced by where Starter Homes developments are being proposed or delivered with many people potentially only aware of the SHS when specific developments are 'visible' in their area, therefore some areas where people may be interested in Starter Homes may not feature strongly in the table as schemes are not being proposed here.

7.23 The Government set out the following information in their press release about the scheme:

"The move is the latest major push from the government to get Britain building and help hardworking young people secure the dream of home ownership with potential discounts of around £100k per house.

With average house prices for first time buyers in England standing at around £218,000, a new Starter Home could save young first time buyers across the country an average of £43,000- helping to get them onto the housing ladder.

The plans will allow young first time buyers the opportunity to secure a new Starter Home at a 20% discount to the market price.

Thanks to changes in planning policy, builders that develop commercial and industrial land that is either unusable or surplus for the new starter homes will be able to save on costs by freeing them from the requirement to provide affordable housing. In return, they will have to offer the homes at a minimum 20 per cent discount to the market price to first-time buyers under 40.

The country's leading home builders and councils have already have said they would consider bringing forward land to develop the new homes from this year, and from Monday, will be able to start submitting their plans to get work started and pass the savings onto home buyers as soon as possible."[57]

[55] http://www.new-homes.co.uk/starter-homes/

[56] http://www.new-homes.co.uk/starter-homes/

[57] https://www.gov.uk/government/news/young-first-time-buyers-can-register-online-for-100000-cut-price-homes

Table 66 - HBF Starter Home Register Extract

Location	Starter Home Interest (number)
Ashford, Kent	162
Broadstairs and St Peter's, Kent	20
Chatham, Kent	**48**
Cranbrook, Kent	6
Dartford, Kent	197
Deal, Kent	18
Dover, Kent	22
Edenbridge, Kent	9
Faversham, Kent	**17**
Folkestone, Kent	44
Gravesend, Kent	91
Hythe, Kent	11
Kent,	533
Maidstone, Kent	208
Margate, Kent	12
Minster, Kent	6
New Romney, Kent	2
Northfleet, Kent	4
Northfleet, Kent,	2
Paddock Wood, Kent	3
Queenborough-in-Sheppey, Kent	3
Ramsgate, Kent	23
Rochester, Kent	**87**
Royal Tunbridge Wells, Kent	43
Sandwich, Kent	3
Sevenoaks, Kent	95
Sittingbourne, Kent	50
Snodland, Kent	3
Southborough, Kent	1
Strood, Kent	**10**
Swanley, Kent	23
Swanscombe and Greenhithe, Kent	10
Tenterden, Kent	3
Tonbridge, Kent	107
West Malling, Kent	19
Westerham, Kent	3

Source: Gravesham Borough Council, 6 October 2015

7.24 Whilst this scheme differs from shared ownership in that those who purchase through the scheme will own their property outright, in affordability terms it provides a similar level of opportunity as intermediate housing. A deposit on the property is still required and the household will still require a mortgage (in the majority of cases). Therefore, there are likely to

be similar monthly housing repayments required as for a household with 75% equity share in an intermediate property.

7.25 Considering this, the scheme could provide some potential in contributing towards meeting housing needs in Medway, however this is heavily caveated by the location of these new starter home properties. Their delivery is reliant on development being brought forward by homebuilders on unusable/surplus commercial and industrial land, where the relevant planning policy changes are applicable. As such, they should not currently be considered a reliable source of affordable housing for young people in Medway.

The Affordable Rent Model

7.26 Affordable rent housing is controlled so that rent does not exceed 80% of the local market rent (including service charges where applicable).

7.27 In February 2011, the Homes and Communities Agency (HCA) published a Framework setting out the details of the new Affordable Homes Programme of investment, inviting Registered Providers (RPs) to put forward proposals for £2.2bn of funding (out of the overall £4.5bn funding pot) for affordable housing during the 2011-15 Spending Review period.

7.28 The Affordable Rent model is key to this programme – providing a more flexible form of affordable housing that enables Registered Providers to increase revenues and reduce the level of Government grant subsidy and investment in affordable homes. As part of the funding offer, Registered Providers (RP) have the flexibility to convert a proportion of their social rented homes to Affordable Rent as part of a package agreed by the HCA.

7.29 The final product includes the following parameters:

- The capping of affordable rent at 80% of market rent, overriding the Retail Price Index (RPI) + 0.5% maximum annual rent increase (which is required to rebase the rent every time a new tenancy agreement is completed), ensuring that the rent set at the beginning (or renewal) of a tenancy does not exceed 80% of market rent and remains affordable; and
- Move away from every social tenancy being for life, regardless of the households' particular circumstances (although these tenancies will still be available). Instead, the Government wishes to encourage affordable rent on fixed term tenancies to contribute to cohesive communities. Tenancies for Affordable Rent properties must be for a minimum period of two years, however providers will have the flexibility to offer longer tenancies, including lifetime tenancies.

7.30 Since then, the HCA published an Affordable Homes Programmes 2015 to 2018 prospectus (in January 2014) which is indicated to "have much in common" with the 2011 – 2015 Affordable Homes Programme. It aims to increase the supply of new affordable housing (affordable rent and affordable home ownership), maximise new affordable home delivery through available grant funding and bidder's contributions, build homes which address social housing needs (i.e. 2 & 3 bedroom properties) and encourage unused capacity to be developed and brought into use. [58]

7.31 The 2015 – 2018 Affordable Homes Programme has national capital grant funding of £2.9billion (outside London) over the three year period, and the January 2014 prospectus sought bids for £1.7billion of this total. This initial bidding round secured the allocation of more than half of the available funding. The remaining c.£800 million is available through a Continuous Market Engagement process, for which bidding remains open until all funding has been allocated, with regular updates being published.[59]

Affordability of Affordable Rent Dwellings

7.32 Table 67 shows the cost differentials between average open market rent and affordable rent if set at 80%, 70% and 60% of average open market rent. It also shows the earnings requirements for these rents, again considering a maximum housing spend of up to 30% of household income.

Table 67 - Cost Differential - Open market and Affordable Rent Levels in Medway

Annual Costs	Mean Average Private Rent	Affordable Rent 80%	Affordable Rent 70%	Affordable Rent 60%
All	£8,052	£6,442	£5,636	£4,831
1 Bedroom	£6,576	£5,261	£4,603	£3,946
2 & 3 Bedroom	£8,308	£6,647	£5,816	£4,985
Earnings Requirement				
All	£26,840	£21,472	£18,788	£16,104
1 Bedroom	£21,920	£17,536	£15,344	£13,152
2 & 3 Bedroom	£27,694	£22,155	£19,386	£16,616

Source: VOA, 2014

7.33 According to CLG (Table 704) an average Social Rent (Registered Provider) in Medway currently costs c.£5,288 per annum. The differential in cost between this social rent and

[58] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/343896/affordable-homes-15-18-framework.pdf
[59] https://www.gov.uk/government/collections/affordable-homes-programme-2015-to-2018-guidance-and-allocations

affordable rent tenure varies across different bedroom sizes. For 1 bedroom units the annual social rent cost is very similar to the annual cost for 80% affordable rent. For 2 & 3 bedroom units, and considering all unit sizes, the annual social rent cost falls between the 70% and 60% affordable rent levels. 70% and 60% affordable rent levels both provide a more affordable solution than social rent for 1 bedroom properties, and 60% affordable rent is also more affordable for 2&3 bedroom properties.

7.34 This suggests that there is potential for products of this kind to 'plug' a gap in the rental market between those who require traditional social affordable housing and those who could afford to rent on the open market.

7.35 Based on the average annual private rental costs for 2 & 3 bedroom properties shown above (£8,308), all affordable rent products (at 80%, 70% and 60% of market rent) offer a significantly cheaper alternative to Mean Average Private Rent for 2 & 3 bedroom properties.

7.36 Table 68 uses the CACI Paycheck data to show the affordability of Affordable Rent housing set at 60%, 70% and 80% of market rent for different housing types (by bedroom numbers). Considering 2 & 3 bedroom properties, 34% of households could not afford this tenure for the 60% and 70% affordable rent levels and 42% of households could not afford this tenure for the 80% affordable rent level.

7.37 This means that for 2 & 3 bedroom properties at the 60% and 70% affordable rent tenures, the proportion of households unable to afford housing is the same as for shared ownership with a maximum spend of 30% of income on housing at the 50% and 75% equity share levels (34%). Therefore these affordable rent levels do not increase the proportion of households who can afford to access housing. For 2 & 3 bedroom properties at the 80% affordable rent level, there is a lower proportion of households able to access housing than for shared ownership options with a maximum income spend of 30% (42% for affordable rent compared with 34% and 23% for shared ownership). The households unable to access a property through shared ownership or affordable rent would continue to require a social rented property.

7.38 Considering the similarities evident in affordability between shared ownership and affordable rent tenures, there could be a case for the greater benefit of the affordable rent tenure for local residents because it doesn't require them to access or finance a large deposit.

Table 68 - Proportion of Households Unable to Afford Affordable Rent Housing at Different Levels

Tenure	Type	Annual Costs	Annual Earnings Requirement	Households Earning less than Requirement[60]	% of Households Earning less than Requirement
Affordable Rent 60%	All	£4,831	£ 16,104	36,521	34%
	1 Bedroom	£3,946	£ 13,152	24,928	23%
	2 & 3 Bedroom	£4,985	£ 16,616	36,521	34%
Affordable Rent 70%	All	£5,636	£ 18,788	36,521	34%
	1 Bedroom	£4,603	£ 15,344	36,521	34%
	2 & 3 Bedroom	£5,816	£ 19,386	36,521	34%
Affordable Rent 80%	All	£6,442	£ 21,472	46,163	42%
	1 Bedroom	£5,261	£ 17,536	36,521	34%
	2 & 3 Bedroom	£6,647	£ 22,155	46,163	42%

Source: VOA, CACI, 2015

7.39 Overall, the evidence suggests some potential for affordable rent forms of affordable housing to contribute towards meeting housing needs, particularly when in combination with shared ownership at varying equity levels. However, given that this does not meet the affordability requirements of all households, there remains a requirement for the continued provision of lower-cost social rented products.

Social Rent

7.40 Social rent is a low rent tenure which aims to provide secure tenancies for low income households, who are struggling to afford housing. Rental caps are placed on these properties in order to retain the affordability of this tenure[61].

7.41 In Medway Kent Homechoice is the service through which households must register to apply for social housing (provided by the Council or a housing association):

"Kent Homechoice is the service for all council and housing association homes in Kent. Social housing is provided at low rents to those who are most in need or struggling with their housing costs.

[60] This requirement figure must be caveated by the fact that the requirement figure includes all households within the £5,000 interval band in which the earnings requirement falls (as CACI data is presented in £5,000 bands) and does not take account of where the requirement sits within this £5,000 band.

[61] http://england.shelter.org.uk/campaigns/why_we_campaign/Improving_social_housing/what_is_social_housing

The Kent Homechoice scheme allows you to express your interest in properties in Medway which you may be eligible for. There are not enough social housing properties for the number of people registered on the scheme. This means that it could take a significant amount of time for you to be re-housed and many applicants will never be offered social housing."[62]

7.42 However, it is indicated by Medway Council and Kent Homechoice that there is a shortage of local authority and housing association properties in the authority area, and people on the housing register may have to wait a long time to be rehoused, or may not even be offered social housing.[63] This suggests that this social tenure does not currently provide a reliable affordable housing solution for low income households in Medway.

7.43 The limited supply of social rent homes in the authority area are assigned in line with Medway's Housing Allocations Policy[64].

7.44 In 2015 the Government set new guidance on rent setting for social housing, which came into effect from April 2015. In response to this, Medway's HRA Rent Setting Policy[65] will calculate rents based on property condition and location (30% influence), local earnings (70% influence) and property size measured by bedroom numbers (bedroom factor applied). In cases where an existing social rent household has an income exceeding £60,000 (taxable) 'Fairer rent' will be charged at 80% of market rent.

Affordability of Social Rent Dwellings

7.45 As discussed in Section 3 above, average local authority (LA) and registered provider (RP) weekly rents have been steadily increasing over the period from 1998 to 2014. In 2014 LA average weekly rent was £82.44 and RP average weekly rent was £97.64. This equates to annual housing costs of approximately £4,286 for LA social housing and £5,077 for RP social housing.

7.46 Table 69 below identifies the affordability of RP and LA social rent properties in Medway, based on the affordability sensitivity analysis undertaken earlier in Section 4 of this Report.

7.47 This shows that based on average monthly rents of £423 pcm for RP and £357 for LA properties, spending 30% of household income on housing costs, 34% of Medway households cannot afford RP rent and 23% of households cannot afford LA rent.

[62] http://www.medway.gov.uk/housing/applyforsocialhousing.aspx
[63] http://www.medway.gov.uk/housing/applyforsocialhousing.aspx
[64] http://www.medway.gov.uk/pdf/Housing%20Allocations%20Policy.pdf
[65] http://www.medway.gov.uk/pdf/hra%20rent%20setting%20policy.pdf

Table 69 - Affordability of Social Rent Tenures in Medway

Income Spend	% of households who cannot afford annual housing payment	
	RP Rent (£423 pcm)	LA Rent (£357 pcm)
40% of household income	23%	23%
35% of household income	23%	23%
30% of household income	**34%**	**23%**
25% of household income	42%	34%

Source: GVA

7.48 Overall, social housing can therefore provide a more affordable opportunity to access housing than the other forms of affordable housing (intermediate housing and affordable rent), and contribute to meeting affordable housing need. However this is heavily caveated by the availability of social rent properties in Medway, which at present is significantly below their demand level.

7.49 It should also be noted that this suggests that 23% - 34% of households in Medway will not be able to access any form of affordable housing, considering that social rent offers the lowest housing payment levels of all the affordable housing tenures. This indicates that this proportion of households will require income support to contribute to their housing payments.

7.50 However, this is based on the assumption that these households do not spend more than 30% of their income on their monthly housing payments, where in reality some households are likely to exceed this level in order to access housing. This is true for the consideration of affordability of each of the affordable tenures, where the proportion of income spend may in many cases exceed 30%.

7.51 Based on the 2011 Census, the tenure distribution in the authority area demonstrates some misalignment with what the resident population can afford. Comparison of the proportion of households that can afford each tenure type with the 2011 tenure distribution, show in Table 70, suggests that many households are currently occupying tenure which does not match their affordability level.

Table 70 - Tenure Distribution by Affordability and 2011 Census Split

Tenure	Annual Costs	Annual Earnings Requirement at 30%	% of Households that Can Afford Tenure	2011 Tenure Distribution
LQ Rental (2 & 3 bedroom)	£7,587	£25,288	49%	16%
LQ Purchase (75% LTV mortgage) - 2 & 3 bedroom	£5,820	£19,400	66%	65%
Intermediate Housing (25% equity share) - 2&3 bedroom	£4,070	£13,567	77%	1%
Social Rent (PRP) - average	£5,077	£16,924	66%	17%

Source: GVA, CACI, 2014 & Census 2011

7.52 It is difficult to accurately assess how house prices and the financial requirements of households to obtain mortgage credit will change. These are important informing influences on the future distribution of market and non-market housing required.

Need for affordable housing by different sizes of property

7.53 The housing register provides information on property size requirement, by number of bedrooms, for each household considered within each band of need for affordable housing. Analysis shown in Table 71 identifies the greatest demand across all bands for 1 bedroom properties, followed by 2 bedroom properties. The exception to this is the requirement for 36 2 bedroom units in Band B, which is slightly higher than the requirement of 28 for 1 bedroom units in the same band. The lowest demand level across all bands is for properties with 4+ bedrooms.

7.54 In terms of actual number of households the requirement for 2 bedroom housing ranges across bands from 36 to 610 households, alongside the above requirement for 1 bedroom properties which ranges across bands from 28 to 3,286 households. In total (when combining all bands) 824 households (16%) require 2 bedroom housing and 3,752 households (73%) require 1 bedroom housing. This reinforces the need for both single person and couple households as well as the need for family sized units.

Table 71 - Estimated Size Requirement for Affordable Housing (Housing Register Including Transfers)

	Estimated Size of Affordable Housing Required			
	1 Bedroom	2 Bedrooms	3 Bedrooms	4+ Bedrooms
Housing Register Band A	232 (5%)	72 (1%)	20 (0%)	7 (0%)
Housing Register Band B	28 (1%)	36 (1%)	8 (0%)	9 (0%)
Housing Register Band C	3,286 (64%)	610 (12%)	317 (6%)	121 (2%)
Housing Register Band D	206 (4%)	106 (2%)	45 (1%)	16 (0%)
All Bands	**3752 (73%)**	**824 (16%)**	**390 (8%)**	**153 (3%)**

Source: Medway Council, 2015

7.55 There is some variation evident in the size specific affordable housing requirement when considering high and lower priority households, where high priority households are within bands A and B and lower priority households are in bands C and D, as shown below in Table 72. This indicates that the greatest affordable need is for 1 and 2 bedroom units to meet the needs of lower priority groups. The lowest need is for 3 and 4+ bedroom units in the high priority groups.

Table 72 - Estimated Size Requirement for Affordable Housing by Band Priority (Housing Register Including Transfers)

	Estimated Size of Affordable Housing Required			
	1 Bedroom	2 Bedrooms	3 Bedrooms	4+ Bedrooms
High Priority Bands (A & B)	260 (5%)	108 (2%)	28 (1%)	16 (0%)
Lower Priority Bands (C & D)	3,492 (68%)	716 (14%)	362 (7%)	137 (3%)
All Priority Levels	**3,752 (73%)**	**824 (16%)**	**390 (8%)**	**153 (3%)**

Source: Medway Council, 2015

7.56 An appropriate level for the future distribution of affordable units could include approximately 74% 1 bedroom properties, 16% 2 bedroom properties, 8% 3 bedroom properties and 2% 4+ bedroom properties. This takes into account the combination of factors including; faster turnaround of smaller properties in comparison to larger properties, and potential for increasing demand for smaller homes with an ageing population and the presence of student households within the area's population, and importantly also projects forward size specific requirement trends currently identified from the Council's Housing Register. A general preference to live in a home larger than requirement and the difficulty in accessing larger family homes which have a much slower turnaround than smaller properties is considered, however these requirements do not require prioritisation within the context of Medway. This is

particularly the case considering the disincentives for under-occupation, which is not encouraged in allocations policy, and which is affected by the Housing Benefit cap.

7.57 As such, the 1 bedroom percentage is increased by 1% compared to the level of need indicated by the housing register data, the 2 and 3 bedroom percentages are maintained, and the 4+ bedroom percentage is reduced by 1% to reflect the lower level of demand for this property size.

7.58 These approximations represent a possible broad distribution for size based housing requirement, but this is by no means a set indication of how affordable units should definitively be distributed, considering that demand may vary depending on specific location in the authority area and the relevant context of current supply and demand.

7.59 When looking at some of the requirements of specific groups, the recommended size requirements should be adopted to reflect their specific requirements, as outlined in the following section.

Need for different affordable housing types

7.60 To provide an indication of the potential distribution of need among affordable housing tenures, the affordability of each (shared ownership, affordable rent and social rent) is considered.

7.61 Table 73 shows the proportion of households who can afford different tenures in Medway drawn from previous analysis undertaken in this Report. To account for the range in affordability for certain tenures three affordability scenarios are set out; the mid-point, the lower range, and the higher range.

7.62 As a general principle, the proportion of the total population which can afford a particular tenure increases as the cost of it reduces. In this case, 58% of Medway households can afford market housing. This analysis shows that 58 – 66% of Medway households can afford affordable rent, 58% at 80% of market rent (the upper range), and 66% at 70% and also 60% of market rent (the mid-point and lower range respectively).

7.63 Using the same approach, 66 – 77% of Medway households can afford shared ownership, 66% with 50% and 75% equity share (the mid-point and upper range respectively), and 77% with 25% equity share (the lower range). Between 66 – 77% of Medway households can afford social rent, 66% for the RP rent (the upper range) and 77% for the LA rent (the lower range), with the mid-point being calculated as the average between these two proportion and 77% for the LA rent (the upper range).

Table 73 - Affordability of housing tenures in Medway

Housing Tenure	Households who can afford tenure	Affordability Scenarios			Households who cannot afford tenure
		Mid Point	Lower Range	Upper Range	
Market housing	58%	58%	58%	58%	42%
Affordable rent	58% - 66%	66%	66%	58%	34% - 42%
Shared ownership	66% - 77%	66%	77%	66%	23% - 34%
Social rent	66% - 77%	72%	77%	66%	23% - 34%

7.64 Table 74, Table 75 and Table 76 use these affordability scenario proportions to set out the potential affordable tenure distribution. For each scenario, it is assumed that 58% of households can afford market housing. The distribution of affordable tenures is then established for the balance of households that cannot afford market housing.

Table 74 - Affordable Tenure Distribution: Mid-point Scenario

	Households that can afford tenure	Tenure distribution (all tenures)	Distribution within affordable tenure
All households	100%		
Market housing	58%	58%	
Affordable Rent	66%	28%	**66%**
Shared Ownership	66%	9%	**22%**
Social Rent	72%	5%	**12%**

Table 75 - Affordable Tenure Distribution: Lower Range Scenario

	Households that can afford tenure	Tenure distribution (all tenures)	Distribution within affordable tenure
All households	100%		
Market housing	58%	58%	
Affordable Rent	66%	28%	**66%**
Shared Ownership	77%	11%	**26%**
Social Rent	77%	3%	**8%**

Table 76 - Affordable Tenure Distribution: Higher Range Scenario

	Households that can afford tenure	Tenure distribution (all tenures)	Distribution within affordable tenure
All households	100%		
Market housing	58%	58%	
Affordable Rent	58%	24%	**58%**
Shared Ownership	66%	12%	**28%**
Social Rent	66%	6%	**14%**

7.65 From this analysis, an indicative split for the types of affordable housing products, for those households in affordable housing need, is as follows:

- **Affordable Rent: 58% - 66%**
- **Shared Ownership: 22% - 28%**
- **Social Rent: 8% - 14%**

7.66 It should be noted that between 23% - 34% of households in Medway (depending on the scenario considered) would be deemed as not being able to afford any of the affordable housing products. This proportion of households id incorporated into the distribution for social rent (the most affordable of the affordable tenures), however it means that some households will require income support in order to access a social rented home.

Impact of Welfare Reforms

7.67 The impact of the Welfare Reform Act 2012 is an important consideration for housing affordability, and access within Medway. The three relevant aspects of this reform are Housing Benefit, the Benefit Cap and the Universal Credit System.

Housing Benefit

7.68 In the HNS when asked about meeting their housing costs, 8.65% of respondents (43) indicated they receive some form of help to meet these costs. This consisted of 5.5% partly meeting rent with Housing Benefit (28 respondents), 2.63% fully meeting rent with Housing Benefit (13 respondents), 0.3% receiving help with their mortgage from family and friends (2 respondents) and 0.1% receiving help with mortgage payments through the Benefits Agency.

7.69 Therefore, of these respondents, 8.1% (41) are fully or partially reliant on Housing Benefit in order to pay their housing costs.

7.70 The Welfare Reform Act 2012 introduced Housing Benefit rules on size criteria for those living in the social rented sector. With effect from 1 April 2013, it sees a cut in benefit for any working-age household considered to have a spare bedroom, and therefore be 'under-occupying'. This takes the form of a fixed percentage cut of 14% for those with one extra bedroom and 25% for those with two or more extra bedrooms[66].

7.71 This has been assessed by the Government as being likely to create an average £14 per week loss, and an average loss of up to £16 per week for Housing Association tenants. The DWP suggests it is likely to affect 660,000 people claiming housing benefits, a proportion of 31% of all social housing tenants who claim housing benefits.[67]

7.72 As a result of this benefit change there could be an increased level of demand for smaller properties, particularly 1 and 2 bedroom units. This could increase the pressure on the supply of these smaller properties and in certain circumstances, could also displace households to different parts of the authority area, or beyond the authority area based on supply availability and affordability.

Benefit Cap

7.73 The Benefit Cap is set at the average (median) net earnings for a working household, reflecting a total cap figure of £26,000 (however, it should be noted that the summer budget 2015 announcement indicated that the household benefit cap will be reduced to £23,000 in London and £20,000 in the rest of the country). The cap levels are currently set at £500 per week for couples (with/without children) and single parents, and £350 per week for single adults without children. In relation to the £500 per week figure, no allowance is made for the number of children in the family. There are also no considerations made for housing type or tenure[68].

7.74 The cap could cause difficulties for larger families claiming benefits, who live in areas of the authority area with higher rent. This could even cause movement within the authority area from the more expensive to less expensive housing areas. This could further accentuate affordability and housing accessibility pressures within the authority area.

[66] https://www.gov.uk/housing-benefit/what-youll-get
[67] Housing Benefit: Size Criteria for People Renting in the Social Rented Sector (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/220154/eia-social-sector-housing-under-occupation-wr2011.pdf)
[68] https://www.gov.uk/benefit-cap

Universal Credit

7.75 The Universal Credit (UC) system has been described by the National Housing Federation (NHF) as the biggest change in the welfare system in a generation[69]. It will provide both in and out of work support through one single payment, with the aim of simplifying the benefit system and increasing employment incentives for part-time and unemployed people[70].

7.76 The system is being rolled out in stages throughout the UK. It is scheduled to be introduced in Medway in Autumn 2015[71] and should be in place throughout the UK by the end of 2017. The new UC benefit will provide a single monthly payment (through the Department for Work and Pensions) for low income residents of working age, replacing income support, income related job seeker's allowance, income related employment support allowance, housing benefit and working tax/child tax credit.

7.77 As a result of this change, Medway residents who claim this benefit could experience budgeting issues, because the increasing payment intervals from once a week to once a month will require budgeting over a longer time period, which can be more difficult.

7.78 One of the most significant implications of this change is the removal of the option for housing benefit to be paid directly to the claimant's landlord, with support now automatically going directly to claimants. NHF research suggests that the majority of social housing tenants prefer for their housing benefit to be paid directly to their landlord. As well as having further budgeting and financial management implications for Medway residents who are claiming this benefit, there is also a danger that this particular aspect of change could act as a form of further discouragement for private landlords to accept tenants who are claiming benefits.

7.79 Another consequence of the change is the increased demand that could be seen for social housing in the short term, which will further increase pressure on supply, particularly in combination with the other aspects of Welfare Reform.

Key findings

7.80 The purpose of this section has been to calculate and analyse affordable housing need in Medway. The key findings are as follows:

- There is an affordable housing requirement of 16,850 households over the projection period (2012 – 2037), which equates to 12,132 households over the potential future Local Plan period (2017 – 2035) and 674 households as an annualised requirement

[69] http://www.housing.org.uk/policy/welfare-reform/universal-credit/
[70] https://www.gov.uk/universal-credit
[71] http://www.mhs.org.uk/support/universal-credit/

figure. This assumes the entire affordable need backlog is cleared by the end of the respective time periods.

- Allowing for Medway's 3.2% vacancy rate (which adequately facilitates housing market churn) this identifies an affordable housing requirement of 17,389 dwellings over the projection period (2012 – 2037), 12,521 dwellings over the potential future Local Plan period (2017 – 2035), and 696 dwellings annually.
- The housing needs analysis should therefore be regarded as evidence that in Medway, 'need' for affordable housing is greater than the currently identified 'supply' of affordable housing over the projection period, the potential future Local Plan period, and on an annual basis.
- Affordable housing will be required to be tackled by a range of measures including; new affordable home delivery, up-skilling targets for the labour market, targeted advice on housing benefits, understanding the role of suitable market stock to house those in affordable need, adaptation and maintenance of existing stock, and housing management measures (including bringing empty homes back into use and tackling the issue of under-occupation).
- Based on current household income and mortgage finance, the future provision of shared ownership affordable housing will have a role in meeting affordable housing needs (considering 25%, 50% and 75% equity share), albeit with limitations. Particularly, it could help to free up stock in other affordable tenures. In Medway's case there is similarity between the affordability of intermediate and affordable rent tenures to its residents (dependent on specific equity share and affordable rent levels), with a reliance on the social rent tenure to provide affordable housing for those unable to access shared ownership/affordable rent properties.
- Considering the affordability of different affordable housing products for Medway residents, an indicative split for affordable housing provision is as follows:
  - **Affordable Rent: 58% - 66%**
  - **Shared Ownership: 22% - 28%**
  - **Social Rent: 8% - 14%**
- It should be noted that between 23% - 34% of households in Medway (depending on the scenario considered) would be deemed as not being able to afford any of the affordable housing products. We have assumed that these households could be incorporated into the provision of social rent (as this represents the most affordable tenure), however this would only be achievable if income support was provided.

- Considering Welfare Reforms the Housing Benefit change, Benefit Cap and Universal Credit System could all have an impact on the affordability and accessibility of housing in Medway. The Housing Benefit Cut could increase the level of demand for smaller properties, increasing the pressure on their supply. The Benefit Cap could further increase the affordability and accessibility pressures for affordable housing, particularly for larger families claiming benefits. The Universal Credit System could cause budgeting issues for Medway claimants, could act as a form of further discouragement for private landlords to accept housing benefit claimants as tenants, and could put short term pressure on social housing supply, particularly in combination with the other aspects of Welfare Reform.

8. Housing Requirements for Specific Groups

8.1 This section considers the housing requirements of specific groups whose housing needs might differ from the majority of the population in Medway. The following specific groups pertinent to Medway, are considered in greater detail within this section:

- **Older Persons** - The national trend of an ageing population means this group is important to consider. Older person households exhibit particular requirements and needs that require consideration, such as adaptations and support in the home to remain living independently.
- **Groups with Specific Support Needs** – Analysis is undertaken of the longer-term projections from the Projecting Adult Needs and Service Information System (PANSI) for a range of mental and physical disabilities, and the propensity for such conditions in Medway;
- **Younger Person Households** – The number of households in the 15 – 24 and 25 – 34 age groups are anticipated to increase by 5% and 13% respectively, 2013 – 2033. The younger age group also formed a significant proportion of inward and outward migration into Medway in 2013.
- **Black and Minority Ethnic (BME) Groups** - Ethnic diversity in Medway has increased between the 2001 and 2011 Censuses, supported by the influence of international migration to population growth. 2011 Census data shows that minority (non-white) ethnic groups made up approximately 10% of the Medway population, which is higher than the average for Kent and the majority of neighbouring HMA local authorities (with the exception of Gravesham and Dartford). Increasing diversity could have housing implications, particularly affecting size requirements considering the propensity for multi-generational households within certain ethnic minority groups.
- **Rural Households** – Qualitative analysis of housing trends in the rural wards in Medway is undertaken using the results of the HNS. This helps to understand variations in rural housing needs compared to urban areas.

8.2 The specific needs of each of these groups, together with their potential implications for housing requirements, is based on the analysis of available secondary data, and supported further by the relevant primary qualitative data from the HNS. Full analysis of the HNS results is set out in Appendix 2 of this report.

8.3 Due to a lack of robust available data there are certain specific groups that have not been reviewed in this assessment, but are important to identify as they may require consideration in

relation to future specific housing requirements. These groups include gypsies and travellers, self-build groups and house boat and mobile home park residents.

8.4 The needs of Gypsies and Travellers is considered in the Gypsy, Traveller and Travelling Showpeople Accommodation Assessment (2013) produced by the Salford Housing & Urban Studies Unit.

Self-build Groups

8.5 Self-build groups are difficult to quantify. Medway Council does not currently have a register of possible self-builders and/or sites reserved for self-build but it does intend to address this issue in its forthcoming local plan.

8.6 Self-build housing is becoming a growing part of the sector, reflected by the fact that organisations are looking to co-ordinate and monitor self-build activity. The Self Build Portal[72] has been set up in response to this, as explained on the Planning Portal:

"Research shows that more than half the population would like to build their own home at some stage in their lives. A website designed to help them turn that dream into a reality is now available.

The site is the result of a joint initiative between Government and the custom build housing industry. It provides encouragement and impartial advice to people who want to build their own home to suit their family's needs. It forms part of the Government's Housing Strategy to bring about a custom build housing revolution.

The site includes an interactive guide to self-build - where users can key in details of their own situation (how much money they have, where they want to build, the size of house they want and various other things) and the guide will automatically calculate whether it's feasible. If not they can adjust their circumstances until they can realistically get their self-build project under way.

The site also has practical information about how to find a plot of land, where to get a self build mortgage, the different types of construction methods you can use, and a host of other issues."[73]

8.7 The Local Self Build Register[74] has been set up to allow potential self-builders to register their interest in self-building, in order for local councils to understand the demand for this type of housing in their authority area. In relation to Medway Council, this site provides the opportunity to register interest, and will be updated with details on self-building in Medway as and when they are available[75].

[72] http://www.selfbuildportal.org.uk/
[73] http://www.planningportal.gov.uk/permission/commonprojects/selfbuildhomes/
[74] http://localselfbuildregister.co.uk/
[75] http://localselfbuildregister.co.uk/localauthorities/medway-council/

8.8 Another self-build related website, Custom Build Homes (Buildstore)[76] indicates 147 expressions of interest for Custom Build in the Medway authority area.

8.9 The Council should monitor the level of interest being expressed for self-build housing in the area, and consider how this type of housing could be incorporated into its housing strategy, and encouraged, going forward.

Houseboats

8.10 It is acknowledged that Medway has c.550 Houseboats, the locations of which are shown in Figure 46 below. These households may have specific requirements which differ from other household types within the Authority area, for example relating to access to local facilities and services and the suitability of current locations.

Figure 46 – Houseboats in Medway

8.11 The current location of canal boat communities may be impacted by any long term plans the Council has for strategic riverside development and redevelopment. This could result in the relocation of canal boat settlements. However, it could also consolidate particular canal boat clusters by improving the range of facilities and services that they have access to, and improving the quality of the local environment for these houseboat residents.

[76] http://custombuildhomes.co.uk/

Mobile Home Parks

8.12 There are a number of park homes in Medway, including Beckenham Park, Hoo Marina Park, and Allhallows Park, which should be acknowledged. Many of these parks are located in or near the Hoo Peninsula.

8.13 They provide a specific group of housing stock which can help to meet the need for lower cost housing in the authority area. However, this is caveated by the fact that their rural location, often in areas where other forms of development is restricted, means that these households often do not benefit from wider service provision.

8.14 These parks tend to only provide a certain type and quality of stock, are often marketed specifically to older person households, and also often contain stock which is let out as holiday homes as well as permanent homes.

8.15 As for houseboats, these park home households may have specific requirements which differ from other household types in the authority area.

Older Person Households

8.16 Ageing population is a national characteristic, and will also be a specific characteristic of population growth over the projection period in Medway, as shown in previous sections of this Report.

8.17 Using the demographic baseline scenario (derived from the 2012 SNPP and 2011 HHP detailed), Table 77 shows the age specific change in households over the period from 2012 to 2037. This shows a total growth of 28,699 households over the 25 year period. Whilst there is a projected growth across all age bands, the most significant growth is anticipated in the 65+ age demographic. Growth is particularly marked in the 85+ household age band, which is projected to increase by 7,410 households (154%) over the 25 years from 2012 to 2037, albeit involving fewer households than most other categories in absolute terms. The 75-84 household age band has the second highest predicted growth level at 74%.

8.18 The data informing Table 77 is from the Stage 1 release of the latest 2012 household projections used in this SHMA (released 27th February). The Stage 2 release for this data is not yet available, and there is no indication of when it will be released. This data would facilitate further breakdown of the projected households where the head of household is 65+ to consider the potential make-up and nature of the ageing population. However, whilst providing further insight into the ageing population's households, the understanding and findings emerging from the current older person households based on the Stage 1 data release is informative and robust. This is especially the case when it is combined with the

Housing Needs Survey qualitative data, and the POPPI data considering the requirements for support services for older person households. Therefore, an accurate understanding of the potential future housing needs for the older proportion of the Medway population is achieved in this SHMA, without the requirement of the Stage 2 informed analysis.

Table 77 - Age Distribution of Projected Household Growth (2012 - 2037)

Household Age Band	Demographic Baseline Scenario			
	Number of households 2012	Number of households 2037	Difference 2012 – 2037	% Change
0-14	0	0	0	0%
15-24	4,166	4,387	221	5%
25-34	16,292	18,343	2,051	13%
35-44	20,767	23,752	2,985	14%
45-54	22,333	24,285	1,951	9%
55-59	9051	10,897	1,846	20%
60-64	8,815	9,806	991	11%
65-74	14,438	22,004	7,566	52%
75-84	8,980	15,583	6,602	74%
85+	2,924	7,410	4,486	153%
Total	***107,768***	***136,466***	***28,699***	***27%***

Source: GVA/ ONS SNPP

8.19 35.4% of respondents in the HNS indicated their household includes someone aged 60+ (178 respondents). Of these households, 11.6% live in homes that have been adapted for an elderly member (21) and 0.3% live in homes that have been purpose-built for an elderly member (1). This shows that the majority of households including a 60+ member have not had any special adaptations to accommodate the potential needs of this age group. This could constitute a potential unmet housing need, the possible details of which are considered in further detail below.

8.20 The majority of people are likely to continue to live in their family home as they get older. However as revealed from the HNS, the majority of these homes are unlikely to have been built to consider the changing needs of people as they get older. This being said, in many instances simple alterations such as widening doors and providing sloped access will be sufficient to meet a person's needs.

8.21 This is supported by findings from the HNS, which identified that of the small proportion of homes containing a 60+ member which have been adapted or purpose–built (11.9% = 22 households), the most common adaptation was to handrails/grab rails (70% = 15 households), followed by bathroom adaptations (43.6% = 9 residents). The least common adaptation was wheelchair adaptations.

8.22 Relevant literature discusses the specific design of homes in order to make them adaptable to changing needs. The Lifetime Homes Standard promoted by the Joseph Rowntree Foundation is an example by which the new developments can be judged adaptable[77].

8.23 With the increasing need to house ageing residents living as couples there will be a greater need for 2+bed adapted / custom built accommodation. This is distinct from the traditional forms of retirement accommodation. As a result this should see a move away from bedsit and small 1 bed units to two, or even three bedroom units. This size of accommodation is increasingly viewed as the optimum accommodation size for senior residents which provide flexibility of space to allow for visitors/carers. However, in the social sector it should be acknowledged that under current allocations policy such elderly couples would only be entitled to 1 bedroom.

8.24 This should be tempered with policies which encourage the down-sizing of properties in the elderly population. This will release capital for the owners as well as much needed larger properties for other residents, to facilitate flexibility and churn in Medway's housing market. Such a policy will only work if preference is given to housing in areas where people would be willing to live. Practically, as well as financially, this is often in the areas where services are closer and land less expensive.

8.25 In relation to understanding where households would be willing to live, the HNS provides insight into the current rural-urban distribution by age of respondent, as shown below in Table 78.

8.26 If assuming these respondents are happy with their current location, and are willing to live in the same location in the future, this would suggest that there is a slightly higher preference for location in rural areas from older person households 66+, compared to the younger ages. This would require the location of smaller units in the rural area, as well as the urban area (where they tend to be more prevalent) to facilitate older residents to downsize whilst continuing to live in the rural area.

[77] Lifetime homes incorporate 16 design criteria which can be universally applied to new homes. This lifetime homes standard promotes flexibility and adaptability in living environments for all situations. More information is available at: http://www.lifetimehomes.org.uk/pages/lifetime-homes.html

Table 78 - Age-specific Urban and Rural Distribution of Current Households

	Urban Area	Rural Area
16 - 24	5.51%	4.16%
25 – 44	33.31%	34.09%
45 -65	39.22%	38.83%
66 – 75	12.15%	11.45%
75 +	9.81%	11.46%

Source: Medway HNS 2015

8.27 The report 'Last Time Buyers' by Legal & General, in conjunction with the Centre for Economics and Business Research (CEBR), provides an important insight into the problems being faced by older person households seeking to downsize in the UK housing market, epitomised by the statistic that "almost a third of older homeowners considered downsizing in the last five years; only 7% actually did". The report highlights that "there are 3.3 million homeowners who are aged over 55 and looking to downsize in future". These homeowners termed as 'last time buyers' are calculated to be "sitting on £820 billion of property wealth and 7.7 million spare bedrooms". There a number of reasons why this downsizing is not happening, including "a lack of suitable alternatives, high asking prices and the potential tax burden when they do try to downsize" in combination with personal reasons such as deciding to wait and not wanting to leave their long term home. The lack of suitable alternative housing is considered one of the key factors preventing downsizing from happening, with a requirement for suitable 2/3 bedroom properties near facilities to help alleviate this issue, amongst other tax regime, stamp duty and equity release approaches.[78]

8.28 In terms of the age trends in downsizing, the Legal & General report highlights that whilst it has been shown that a large number of over 55s consider downsizing over 50% seem to decide to wait until they are 70+ to downsize, with 25% deciding to wait until they are 80+.[79]

8.29 Research undertaken by Shelter, detailed in the factsheet 'Older people and housing', indicates that the housing needs of older people can change regardless of specific age trends due to issues including decreasing mobility, illness, and the illness / death of a partner. Such circumstances and changing needs result in either moves to smaller or specialist

[78] Legal & General - Last Time Buyers: http://www.legalandgeneralgroup.com/_pdfs/press-release/LTB_Front_Cover_Report_Final.pdf
[79] Legal & General - Last Time Buyers: http://www.legalandgeneralgroup.com/_pdfs/press-release/LTB_Front_Cover_Report_Final.pdf

accommodation, or staying in the same home but with the need for home adaptations, and/or care and support in order to do so.[80]

8.30 Respondents in the HNS were asked which older persons' housing options they would consider, if relevant now or in the next 5 years – the choices were sheltered accommodation, extra care housing, residential care homes, continue to live in current home with support when needed, buying a property in the open market, renting a property from a private landlord and renting from a Housing Association. Excluding those who would not consider any of these housing options now or in the next 5 years, 'continuing to live in current home with support when needed' was the most popular option considered by 30.8%% of all residents (155 residents). This suggests that elderly residents in Medway may prefer to remain in their home with adaptations and/or support, than move into a form of sheltered accommodation or care home.

8.31 As well as adaptations of existing homes and the design of new homes, the ageing population will require coordinated support services. The Projecting Older People Population Information (POPPI) service[81] provides further information on older persons housing needs at a local authority level. This data has now been updated and is based on updated population projections released by the ONS on 29 May 2014, based on 2012 based population projections. The projections extend to 2030.

8.32 The POPPI data identifies that the demographic shift towards an ageing population is likely to lead to an increase in demand for both housing and schemes that offer an element of care.

8.33 Table 79 shows Medway's projected needs for social care for older people (65+). This shows that in 2014, 13,277 people aged 65 and over were unable to manage at least one self-care activity on their own, 4.8% of the total 2014 Medway population (based on 2014 mid-year estimates). This is projected to grow to 20,686 by 2030 (55.8%). This would constitute 6.6% of the total projected Medway population in 2030 (using the 2012 based SNPP). This shows an increase in older people who are unable to manage at least one self-care activity as a proportion of the current and projected total population.

8.34 In 2014 16,150 people aged 65 and over were unable to manage at least one domestic task on their own, 5.9% of the total 2014 Medway population (based on 2014 mid-year estimates). This is projected to grow to 25,256 by 2030 (56.4%). This would constitute 7.7% of the total projected Medway population in 2030 (using the 2012 based SNPP). This also shows an

[80] Shelter, 2007 - Older people and housing: https://england.shelter.org.uk/__data/assets/pdf_file/0013/41440/factsheet_older_people_and_housing_may_2007.pdf

[81] This service is part of the Institute of Public Care and is managed by Oxford Brookes University and supported by Extra Care Charitable Trust. More information is available at: http://www.poppi.org.uk/

increase in older people who are unable to manage at least one domestic task on their own as a proportion of the current and projected total population.

8.35 It should be noted that growth in both of these social care categories can be accommodated in a person's present environment, so it is not likely to have such significant implications for new stock requirements, and may be more influential on the requirement for home adaptations.

Table 79 - Projected Needs of Older People (65+): Social Care for Medway (2014 – 2030)

Social Care	2014	2015	2020	2025	2030	Change 2014 - 2030
Living in a Care Home (with or without nursing)	994	1,023	1,184	1,458	1,736	742 (74.6%)
Unable to manage at least one domestic task on their own	16,150	16,554	18,869	21,960	25,256	9,106 (56.4%)
Unable to manage at least one self-care activity on their own	13,277	13,607	15,445	17,951	20,686	7,409 (55.8%)

Source: POPPI 2015

8.36 In the HNS, when respondents with a 60+ member were asked about the level of care those older members currently required, the majority indicated no care is required (85% = 152 respondents), 6.2% indicated a requirement for a low level of care (11 respondents), 5.4% indicated a requirement for a medium level of care (10 respondents) and 1.2% indicated a requirement for a high level of care (2 respondents). This does not reflect the requirements identified in the POPPI data due to the small sample size of respondents with a 60+ member living in the household. However, it does suggest there is a greater need for low and medium level care, which could be more easily accommodated within the existing home, than a high level of care, which may be more difficult to accommodate within the existing home and require alternative forms of housing stock.

8.37 As identified by Shelter, sheltered or retirement housing and retirement villages both offer alternative accommodation options for older people who require more care than they can receive staying in their home, but which do not require moving to a traditional care home, which is a more costly option providing a very high level of care and support and a loss of independence. Generally, sheltered or retirement housing helps residents to retain independence and privacy in their own unit, but with the comfort of an alarm system and communal social areas, as well as meal provision and personal care support in extra care sheltered housing options. Retirement Villages are very similar to sheltered and retirement housing, often in a typical 100 unit community, with purpose built units that often have owner-

occupation or part ownership tenure options. In contrast, care homes provide communal accommodation, with a high level of personal and medical care for residents. This type of accommodation is either run by non-profit / charity organisations, or profit driven organisations, with some residents' costs sometimes required to be paid fully or in part by social services and the NHS.[82]

Groups with Specific Support Needs

8.38 Whilst there is no single data source which enables a thorough assessment to be made of households with specific needs, this analysis draws on longer-term projections of need from the Projecting Adult Needs and Service Information System (PANSI). This dataset has now been updated using population projection data released by the ONS on 29 May 2014 based on 2012 based population projections. The projections extend to 2030. This analysis is also supplemented by relevant qualitative Housing Needs Survey (HNS) analysis.

8.39 The Projecting Adult Needs and Service Information system developed by the Institute of Public Care (IPC) for the Care Services Efficiency Delivery Programme (CSED) provides projections of future numbers of households with physical and learning disabilities. These households, alongside others, are likely to require some form of support within their properties. This therefore provides a useful indication of the levels of demand on existing stock and future requirements to deliver new suitable properties and/or adaptations.

8.40 As shown in Table 80, the POPPI dataset suggests that between 2014 and 2030 the number of individuals aged 65+ in Medway predicted to have learning difficulties is anticipated to rise by 47.1%. This is compared with the projected total Medway population increase of 14% over the period from 2014 – 2030 (based on the 2012 SNPP). This shows that the anticipated proportional increase in those aged 65+ with learning difficulties is significantly above the projected overall population increase.

Table 80 - People Forecast to have Learning Disabilities Aged 65+ in Medway (2014 - 2030)

	2014	2015	2020	2025	2030	Change 2014 - 2030
Learning Disability	867	887	995	1,114	1,275	408 (47.1%)

Source: POPPI, 2015

8.41 The PANSI system suggests that the total number of individuals aged 18-64 with a learning disability will marginally increase in Medway by 7.6% overall, as shown below in Table 81. This

[82] Shelter, 2007 - Older people and housing: https://england.shelter.org.uk/__data/assets/pdf_file/0013/41440/factsheet_older_people_and_housing_may_2007.pdf

anticipated proportional increase in those aged 18-64 with learning disabilities is significantly below the projected overall population increase (14% from 2014 – 2030).

Table 81 - Forecast Total Population aged 18 – 64 with Learning Disabilities in Medway (2014 - 2030)

	2014	2015	2020	2025	2030	Change 2014 - 2030
Learning Disability	4,126	4,161	4,276	4,357	4,439	313 (7.6%)
Moderate or Severe Learning Disability	940	948	974	996	1,020	80 (8.5%)
Moderate or Severe Learning Disability & Living with Parent	361	363	367	373	386	25 (6.9%)
Severe Learning Disability	251	253	259	265	273	22 (8.8%)

Source: PANSI, 2015

8.42 PANSI also provides projections on the change in population with both moderate and serious physical disabilities, as shown in Table 82. The PANSI data suggests that the total number of individuals aged 18-64 with a moderate physical disability or a serious physical disability will increase in Medway by 9.2% and 11.6% overall respectively. This anticipated proportional increase in those aged 18-64 with moderate and serious physical disabilities is below the projected overall population increase (14% from 2014 – 2030).

Table 82 - Forecast Total Population aged 18-64 with Physical Disabilities in Medway (2014 - 2030)

	2014	2015	2020	2025	2030	Change 2014 - 2030
Moderate Physical Disability	12,883	13,024	13,613	13,988	14,063	1180 (9.2%)
Serious Physical Disability	3,747	3,793	4,009	4,168	4,180	433 (11.6%)

Source: PANSI, 2015

8.43 Adults with physical disabilities require different levels of care depending on the severity of their disability. Individuals with a moderate personal care disability can perform tasks such as getting in and out of bed, dressing, washing and feeding with some difficulty. A severe personal care disability can mean that the task requires someone to help.

8.44 As shown in Table 83, the number of individuals with moderate or serious personal care disabilities is predicted to increase by 2030 for the 18-64 age range, by 10.6%. This anticipated

proportional increase in those aged 18-64 with moderate or serious personal care disabilities is below the projected overall population increase (14% from 2014 – 2030).

Table 83 - Forecast Total Population aged 18 – 64 with Moderate or Serious Personal Care Disability in Medway (2014 – 2030)

	2014	2015	2020	2025	2030	Change 2014 - 2030
Moderate or Serious Personal Care Disability	7,641	7,733	8,162	8,439	8,448	807 (10.6%)

Source: PANSI, 2015

8.45 On this basis it is likely that the overall capacity of suitable stock will need to continue to grow in Medway in order to meet needs, with careful consideration of housing requirements at a strategic level.

8.46 The above analysis indicates particular increase in the level of the 65+ population with learning disabilities (projected increase of 47.1% from 2014 – 2030). This is likely to translate into a requirement for increased in-home care support, as well as increased care home provision where the combination of learning disability and age mean it is no longer feasible for the appropriate care to be provided at home.

8.47 Increases are also evident in the level of the 18-64 population with moderate physical disability (9.2% increase), serious physical disability (11.6% increase) and moderate or serious personal care disability (10.6% increase). In housing terms some 18 – 64 adults with learning or personal care disabilities may live with older parents, who will absorb their specific housing requirements in the form of an additional required room and potential in home adaptation. However, as many of these adults get older, it is likely that parents / carers may no longer be able to cope with their needs, and that the level of care / support they require may increase, resulting in the requirement for increased care home provision.

8.48 In the HNS 20.5% of respondents (103 respondents) indicated that someone in their household has a long term illness, health problem or disability that limits their daily activity or work. Of these respondents, the most common disability amongst adults is 'physical disability' (59% = 88 residents), with 11% being wheelchair users (17) and 48% non-wheelchair users (71). The most common disability amongst children is 'mental health problem' (35% = 3 residents), which has less obvious adaptation implications, followed by 'physical disability: not in a wheelchair' (28% = 2 residents).

8.49 This suggests implications for the housing needs of these households in terms of access and/or adaptations, particularly considering the adult disability levels. Only 6.3% of the households with a disabled member have had some form of home adaptation to accommodate their

needs, and only 0.3% have had their home purpose-built. This indicates that the majority of disabled people in Medway are not living in a home which has been adapted or designed to suit their needs. This emphasises the potential need for adaptations/purpose-built homes in Medway going forward, particularly considering the forecast increase in physical disabilities from the PANSI data analysed above. However, it should be noted that when all respondents (504) were asked if they require any form of home adaptations in the next 5 years, the majority indicated they did not.

8.50 In terms of care, 4.2% of respondents (21 respondents) in the HNS indicated having members of their household who require care or support to enable them to stay in their home. Of these respondents, 47% said they lacked sufficient space to accommodate an overnight carer if needed. This suggests potential implications for the size of home appropriate for Medway residents who require in home care, however not as pronounced as the potential adaptation requirements identified for residents with physical disabilities.

Younger Person Households

8.51 Nationally the private rented sector has undergone a period of significant expansion over recent years and now plays an important role in the operation of the housing market offering an alternative to owner-occupation and the social rented sector.

8.52 One of the key drivers traditionally for this tenure has been younger households (i.e. households making their first moves to form new households, either post further education or once they have a sufficiently rewarding form of employment). Whilst the private rented sector has expanded beyond this group in recent years to house families and older persons who are being priced out or who are ineligible for other tenures, understanding this particular young demographic is important.

8.53 Table 84 shows the age distribution of projected household growth, 2012 – 2033. The 15-24 age group and the 25-34 age group are anticipated to increase by 5% and 13% respectively.

Table 84 - Age Distribution of Projected Household Growth (2012 - 2037)

Household Age Band	Demographic Baseline Scenario			
	Number of households 2012	Number of households 2037	Difference 2013 – 2033	% Change
0-14	0	0	0	0%
15-24	4,166	4,387	221	5%
25-34	16,292	18,343	2,051	13%
35-44	20,767	23,752	2,985	14%
45-54	22,333	24,285	1,951	9%
55-59	9051	10,897	1,846	20%
60-64	8,815	9,806	991	11%
65-74	14,438	22,004	7,566	52%
75-84	8,980	15,583	6,602	74%
85+	2,924	7,410	4,486	153%
Total	*107,768*	*136,466*	*28,699*	*27%*

Source: GVA/ ONS SNPP

8.54 As with the analysis of Older Person Households, the data informing Table 84is from the Stage 1 release of the latest 2012 household projections used in this SHMA (released 27th February). The Stage 2 release for this data is not yet available, and there is no indication of when it will be released. This data would facilitate further breakdown of the projected households where the head of household is aged 15-34 to consider the potential make-up and nature of the younger population. However, whilst providing further insight into the younger population's households, the understanding and findings emerging from the Stage 1 data release is informative and robust. This is especially the case when it is combined with the Housing Needs Survey qualitative data, and ONS age-specific migration data. Therefore, an accurate understanding of the potential future housing needs for the younger proportion of the Medway population is achieved in this SHMA, without the requirement of the Stage 2 informed analysis.

8.55 The age specific in and out migration trends for Medway (as detailed in Section 2) are detailed again in Table 85 below. The highest proportion of in-migration and out-migration occurred in the 16 – 29 age group (both 40%), followed by the 30-44 age group (23% and 22% respectively). This suggests a labour migration driver for these moves in the working age population.

Table 85 - 2013 Age-specific in and out migration into Medway

	In - migration		Out - migration	
Age band	Number of People	% of New Residents	Number of People	% of New Residents
0-15	1,960	17%	1,760	16%
16-29	4,710	40%	4,270	40%
30-44	2,730	23%	2,360	22%
45-59	1,380	12%	1,340	13%
60+	870	7%	950	9%
Total	**11,650**	**100%**	**10,680**	**100%**

Source: ONS, 2014

8.56 In the HNS respondents were asked whether any members of their household are likely to set up their own home in the next 5 years. 25% of respondents (112) indicated they expected some members to form a new household (16.9% to form 1 household, 7.6% to form 2 households, and 0.6% to form 3 households). Of newly forming households identified by these respondents, 92.7% (140 new households) are expected to be formed by 16+ children living at home with their parents. 46.9% of the identified newly forming households are within the 16-24 age group and 50.3% are within the 25-44 age group.

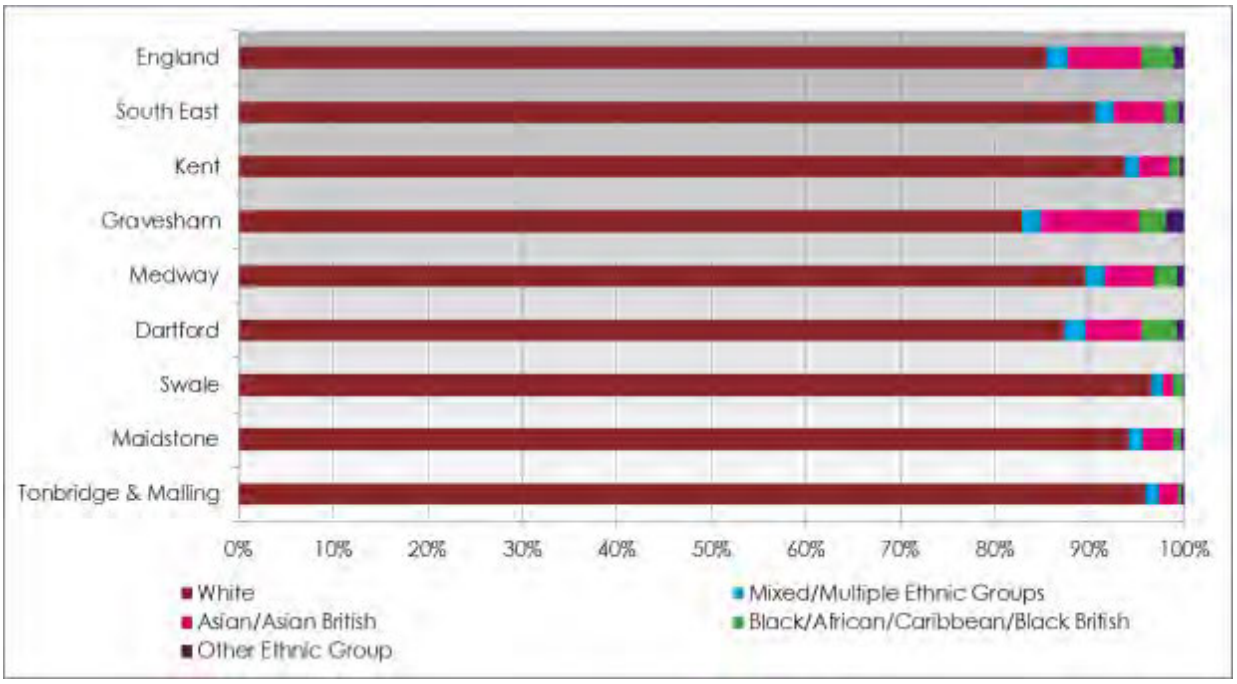
8.57 This suggests a significant proportion of potential newly forming younger person households in the next 5 years in Medway. However, the survey does not identify the certainty in which these new households expect to form, so it cannot provide any indication of perceived barriers or challenges to achieving this new household formation i.e. affordability, or any specific future housing solutions to address this.

Black and Minority Ethnic Groups

8.58 Considering 2011 Census data, minority (non-white) ethnic groups made up approximately 10% of the Medway population. The Asian / Asian British population is the most significant of these groups making up 5% of the population, followed by the Black/African/Caribbean/ Black British group making up 3% of the population.

8.59 The proportion of minority groups in Medway's 2011 Census population, benchmarked against the proportions for the HMA, the South East and England & Wales is shown in Figure 47 and Table 86. This shows that the presence of minority ethnic groups in Medway is less pronounced than at a national level, but largely in line with the regional South East Level. It also shows that the proportion of ethnic minorities in Medway is higher than Kent, and the majority of neighbouring HMA local authorities (with the exception of Gravesham and Dartford).

Figure 47 - Population and Ethnicity for Minority (non-white) ethnic groups (2011)



Source: Census, 2011

Table 86 – Ethnic Composition of population (2011)

	White	Mixed/Multiple Ethnic Groups	Asian/ Asian British	Black/African/ Caribbean/ Black British	Other Ethnic Group	Total
England	85%	2%	8%	3%	1%	100%
South East	91%	2%	5%	2%	1%	100%
Kent	94%	2%	3%	1%	0%	100%
Medway	**90%**	**2%**	**5%**	**3%**	**1%**	**100%**
Gravesham	83%	2%	10%	3%	2%	100%
Dartford	87%	2%	6%	4%	1%	100%
Swale	97%	1%	1%	1%	0%	100%
Maidstone	94%	2%	3%	1%	0%	100%
Tonbridge & Malling	96%	1%	2%	0%	0%	100%

Source: Census 2011

8.60 Ethnicity focussed analysis of the HNS results has been undertaken by separating those respondents classified as BME households, and comparing the analysis of these specific households to overall trends. 12.2% of respondents (61 respondents) are identified as being BME households.

8.61 The analysis and stock profiles identified in this sub-section reflect the distribution and trends from the 61 BME respondents (12.2%) included in the survey, so will not necessarily apply across the whole authority area. However, it provides a useful indication of the trend that may be observed across the authority.

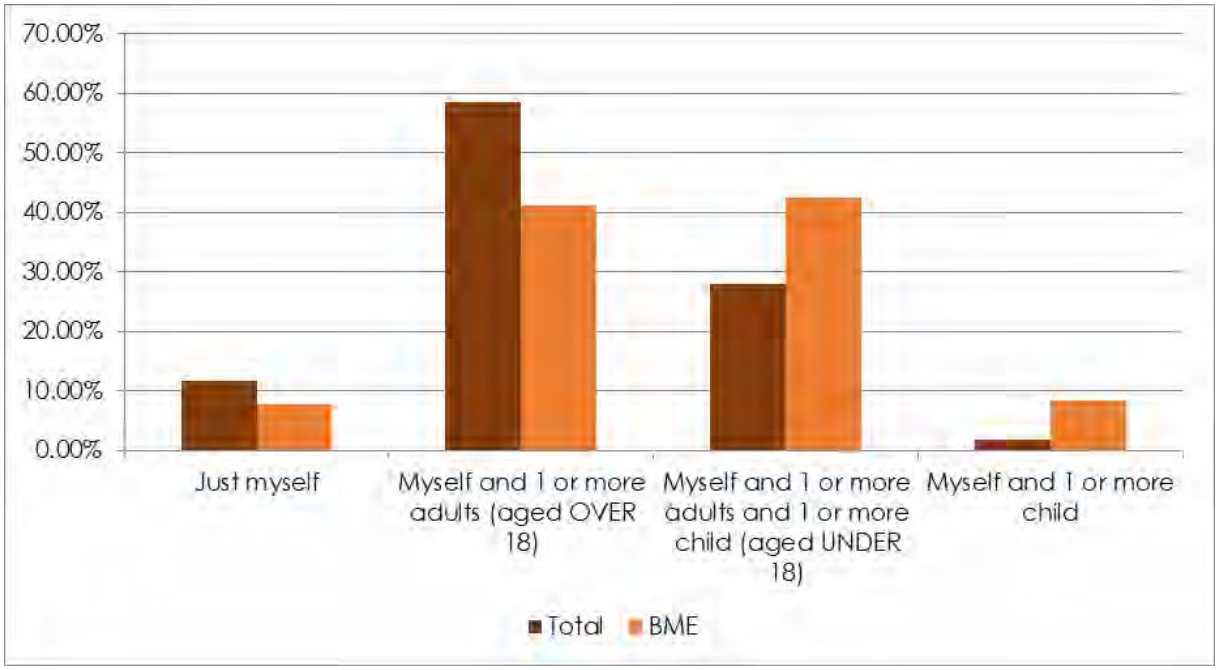
8.62 No definitive recommendations are drawn from this analysis, due to the relatively small sample size reducing its reliability. Any potential future issues or actions identified must be caveated with the reliability of the survey sample size, and should be considered more broadly with the secondary data based conclusions and recommendations.

BME Household Composition

8.63 Single person households constitute 7.9% of BME respondents. Households with 1 adult and 1 or more children constitute 8.4% of BME respondents. Households with 2 or more adults (all aged over 18) constitute 41.3% of BME respondents. Households with 2 or more adults and 1 or more children (aged under 18) constitute 42.4% of BME respondents.

8.64 Figure 48 below shows this BME distribution compared with all survey respondents. There is variation evident in each household category of the distribution. BME respondents constitute a smaller proportion of single person and 2 or more adult households, and a larger proportion of 2 or more adult and 1 or more children, and 1 adult and 1 or more children households. This suggests that when compared with all Medway households, generally BME households are larger in size, tend to contain more children, and are also likely to have a greater tendency towards accommodating multiple generations.

Figure 48 - Medway Household Composition for BME Respondents and All Survey Respondents



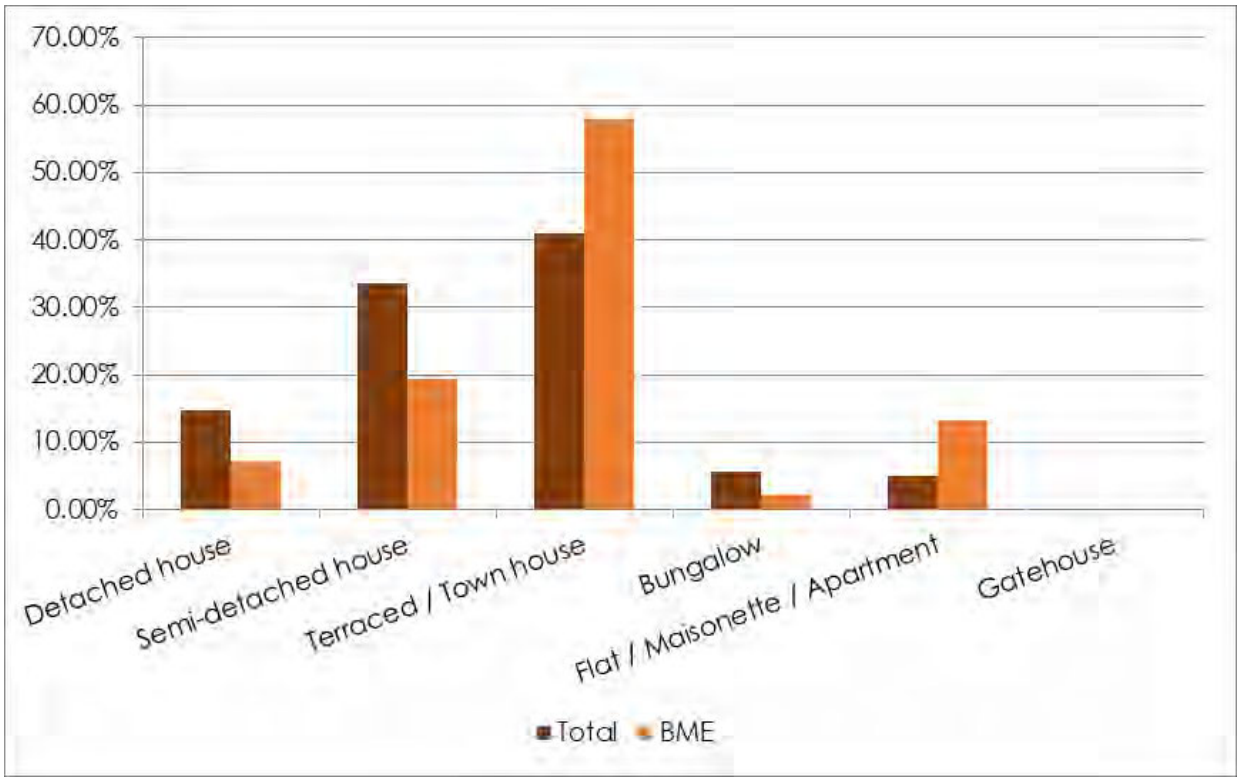
8.65 Of those respondents with 2 or more adults in the household (51 respondents), 50% have 3 or more adults, and 18.1% live with a son, daughter, brother or sister. This provides potential evidence of multi-generation households. This could potentially be caused by affordability issues preventing households from accessing properties that meet their size requirements, and/or the formation of new households. However, certain ethnic groups often have a greater tendency to form multi-generational households, so affordability may have no influence here. This is explored further below.

Stock Type

8.66 As shown below in Figure 49, a higher proportion of BME respondents occupy terraced stock (56%) compared to the proportion occupied by all respondents (41%). A higher proportion of BME respondents also occupy flatted stock (13.2%) compared to the proportion occupied by all respondents (5%). A lower proportion of BME respondents occupy detached stock (7.1%), semi-detached stock (19.4%) and bungalow stock (2.3%) compared to the proportions occupied by all respondents (14.8%, 33.6% and 5.6% respectively).

8.67 The comparison of stock type distribution between BME respondents and all respondents highlights the propensity for BME residents to occupy terraced and flatted stock, which tends to be smaller in floorspace terms. When considering this in combination with the analysis of BME household composition, it suggests that these BME respondents may be living in overcrowded households. This is explored further below, when analysing the adequacy of current homes.

Figure 49 - Medway Property Type for BME Respondents and All Survey Respondents



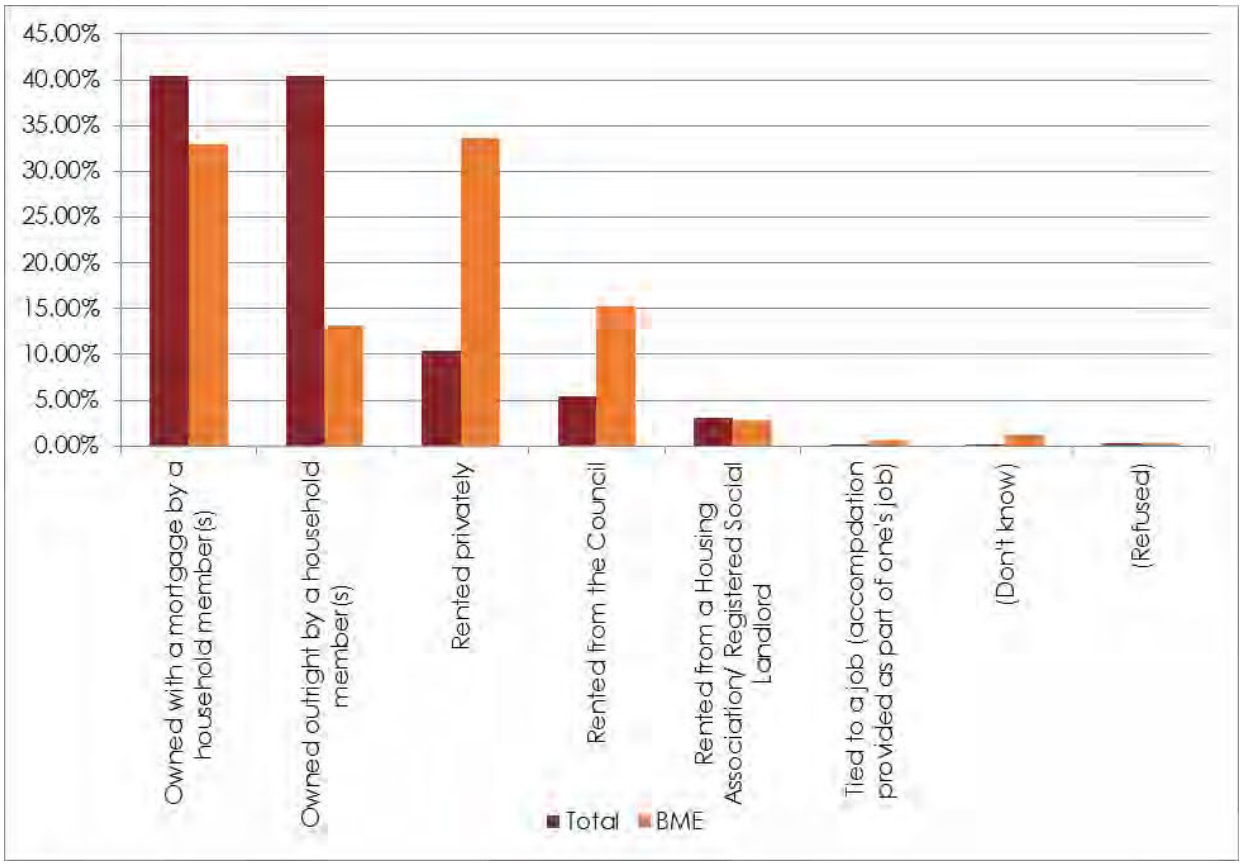
Stock Tenure

8.68 Figure 50 shows significant distinction in property tenure proportions when comparing BME respondents with all respondents. Only 46.1% of BME respondents own their home (13.2% outright and 32.9% with a mortgage), compared to 80.8% of all respondents who own their home (40.4% outright and 40.4% with a mortgage). The distinction in outright ownership (13.2% of BME respondents compared to 40.4% of all respondents) is particularly significant.

8.69 As would be expected considering the differences in home ownership proportions, the proportion of BME respondents renting a home is substantially above that for all respondents. 15.2% of BME respondents are renting from the Council, compared to 5.4% of all respondents, and 33.7% of BME respondents are renting privately, compared to 10.3% of all respondents.

8.70 This could reflect affordability issues being faced by the BME respondents, which could tie in with the potential multi-generational households/inability to form new households/ overcrowding identified above.

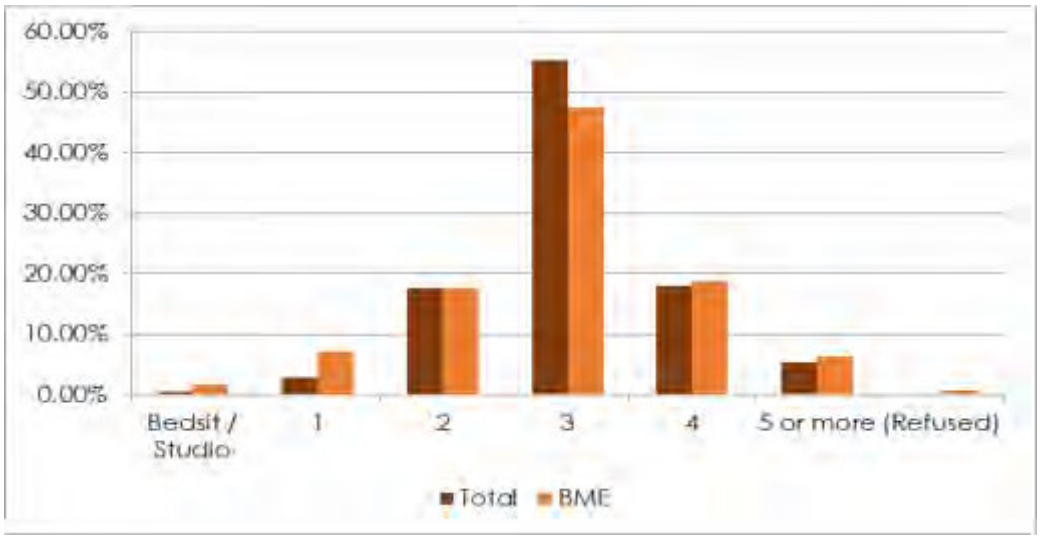
Figure 50 - Medway Property Tenure for BME Respondents and All Survey Respondents



Stock Size

8.71 Figure 51 below shows a very similar distribution of the stock size occupied by BME respondents and all respondents. The only significant difference is in the proportion of 3 bedroom units which are occupied by 47.5% of BME respondents compared to 55.3% of all respondents.

Figure 51 - Medway Stock Size for BME Respondents and All Survey Respondents



Stock Adequacy and Affordability

8.72 When BME respondents were asked whether their current home is adequate for their needs, 11.8% indicated their home is not adequate, compared to 7.8% of all respondents.

8.73 For the proportion of respondents who indicated their home is not adequate, there is significant variation evident in the reasons stated by the BME respondents compared to all respondents. The most striking distinction, and most relevant considering the other elements of this BME analysis, is that 59.1% of BME respondents find their home inadequate due to an 'insufficient number of bedrooms', compared to only 13.7% for all respondents.

8.74 This provides further potential evidence of the overcrowded nature of these BME respondent's households, which emphasises potential affordability pressures acting on BME residents in Medway, and their potential need for larger homes with more bedrooms. However, this must again be caveated by the fact that certain ethnic groups may make a lifestyle choice to live in households containing multiple generations.

8.75 Considering affordability more specifically, 64% of BME respondents indicated they receive no help with their housing costs, compared to 54.7% for all respondents. This contradicts the view that BME households are facing greater affordability pressure than other Medway residents. However, 19.9% of BME respondents indicated they meet their rent fully or partly with Housing Benefit, compared to only 8.1% of all respondents. This does suggest potential affordability pressures for Medway's BME residents.

8.76 When respondents were asked about their concern with meeting their housing costs, 36% of BME respondents indicated they are 'very concerned' or 'fairly concerned', compared to 18.2% for all respondents. 30.6% of BME respondents indicated they are 'not concerned at all', substantially below this indication from 51.8% of all respondents.

8.77 Traditionally BME households face constrained housing choices, which can be due to factors such as comparatively poor labour market position and ties to specific neighbourhoods dominated by certain types of housing. This analysis suggests that affordability may be a more acute issue for BME households than for the White ethnic groups living in Medway, which is potentially contributing to overcrowding. As already discussed, this overcrowding may also be caused by the propensity for certain ethnic groups to have multiple generations living in the same household. Regardless of motivations for this however, there are obvious implications for stock size and type requirements, and overcrowding levels.

8.78 Whilst the BME group does not constitute a substantial enough part of the population to necessarily make changes to this assessment's size-specific affordable housing

recommendations, Medway Council should consider potential approaches to increasing BME group access to affordable homes, which are larger in relation to bedroom number.

Rural Households

8.79 The HNS was undertaken across all Medway wards, using a weighted sampling approach to replicate the demographic profile of the authority area. Comparative analysis between rural and urban areas has been undertaken by assigning each ward with rural or urban status. The main rural wards in Medway have been identified as Cuxton and Halling, Peninsula and Strood Rural. All other wards are defined as being urban in the context of this analysis. Respondents from the identified rural wards constitute 11.5% of the total survey sample, and urban respondents constitute 88.5% of the total survey sample.]

8.80 The analysis and stock profiles identified in this sub-section reflect the distribution and trends from the 504 respondents sampled in the survey, so will not necessarily apply across the whole authority area. However, it provides a useful indication of the trend that may be observed across the authority.

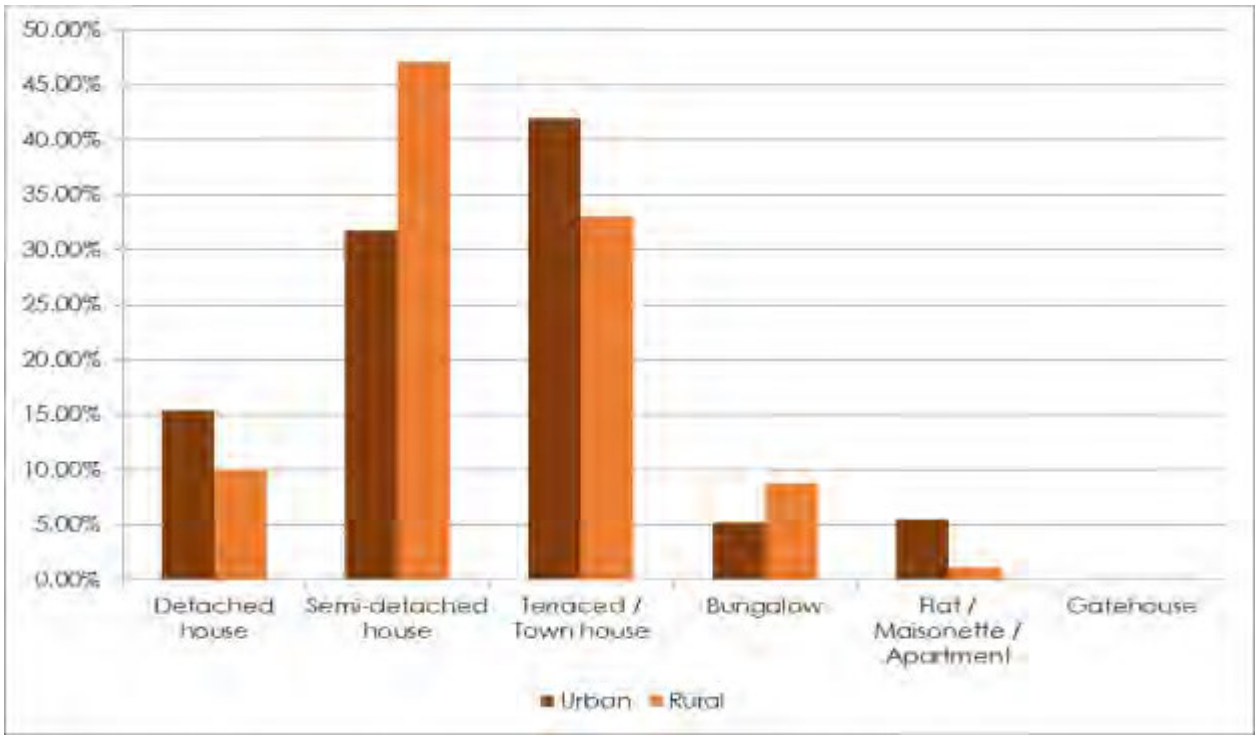
8.81 No definitive recommendations are drawn from this analysis, due to the relatively small sample size reducing its reliability. Any potential future issues or actions identified must be caveated with the reliability of the survey sample size, and should be considered more broadly with the secondary data based conclusions and recommendations.

Stock Type

8.82 As shown below in Figure 52, there is a higher proportion of semi-detached and bungalow stock occupation by rural respondents (47.1% and 8.8%) compared to urban respondents (31.8% and 5.5%). There is a lower proportion of detached, terraced and flatted stock occupation by rural residents (9.9%, 33.1% and 1.2%) compared to urban residents (42%, 15.4% and 5.5%).

8.83 The different stock type occupation profiles in the rural and urban areas suggest that certain types of stock may need to be prioritised in these areas in the future, in order to provide residents with equal opportunity and access to the full range of stock options, across the range of price points. For example; it may be beneficial to deliver more terraced and flatted stock in the rural area, which tends to offer more affordable housing options.

Figure 52 - Medway Property Type by Rural and Urban Location



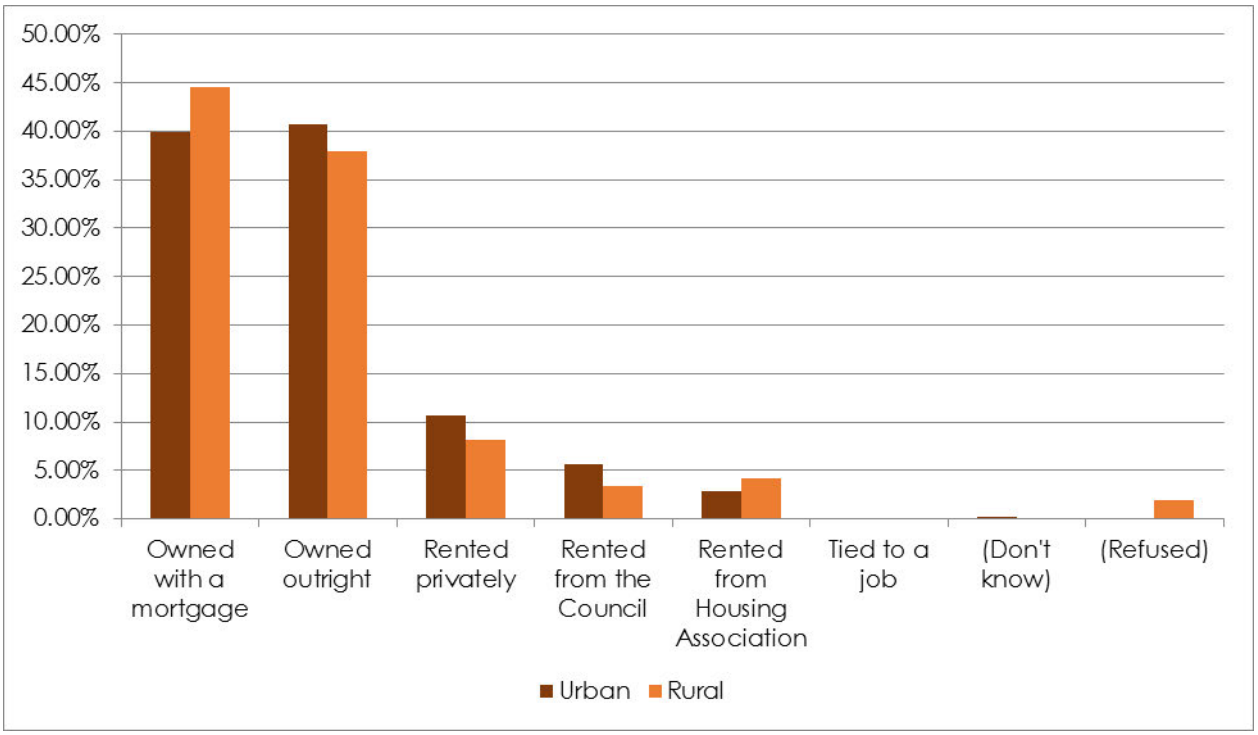
Stock Tenure

8.1 Figure 53 shows very similar trends in home ownership overall; 82.4% in rural areas and 80.6% in urban areas. However, within this, there is a slightly higher proportion of home ownership with a mortgage in rural areas (44.5% compared to 40% in urban areas), and a slightly lower proportion of home ownership without a mortgage in rural areas (37.9% compared to 40.7% in urban areas).

8.2 There are lower proportions of private renting and Council renting in rural areas (8.1% and 3.3% respectively) compared to urban areas (10.6% and 5.6% respectively), but a slightly higher proportion of Housing Association renting in rural areas (4.2%) than urban areas (2.9%).

8.3 Despite some variation, the tenure profiles for rural and urban areas show a level of comparability, which does not suggest a need to promote any radical tenure variations in the rural or urban parts of Medway going forward.

Figure 53 - Medway Property Tenures by Rural and Urban Location

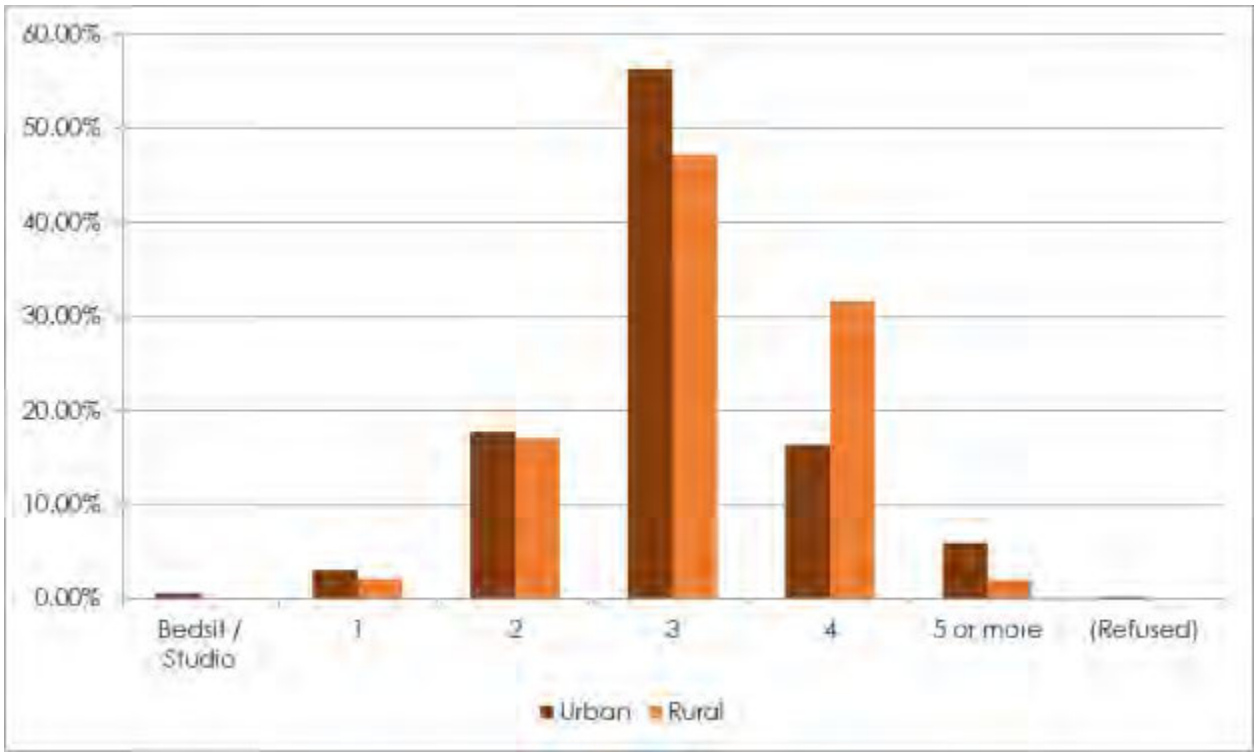


Stock Size

8.4 Figure 54 below shows that rural areas have a significantly higher proportion of 4 bedroom stock (31.6%) compared to urban areas (16.4%). Urban areas have a higher proportion of stock by all other bedroom numbers, particularly for 3 bedroom stock which constitutes 47.2% of the rural stock profile compared to 56.3% of the urban stock profile.

8.5 There is some variation evident in the stock size profile identified by rural and urban respondents. The most significant finding from these distributions is the significantly higher proportion of 4 bedroom units in rural compared to urban areas. This suggests a potential requirement to increase the delivery of this stock size in urban areas, and control future delivery of this stock size in rural areas. This would increase the similarity in stock size distribution, and therefore the accessibility to the full range of stock sizes, between rural and urban areas in Medway.

Figure 54 - Stock Size by Rural and Urban Location



Adequacy and Affordability

8.6 When respondents were asked whether their current home is adequate for their needs, a much lower proportion of rural respondents indicated their home is inadequate (1.9%), compared to respondents in urban areas (8.5%). However, this is based on a very small sample size, where the 1.9% equates to only 1 rural respondent. This means that it is not possible to compare the reasons for inadequacy between rural and urban respondents.

8.7 Despite the small sample size, the significance of the difference in proportion between rural and urban residents suggests that households in the rural parts of Medway may have lesser housing needs than those living in the authority's urban areas.

8.8 In terms of affordability, 71.9% of rural respondents indicated they receive no help with their housing costs (rent/mortgage), compared to 52.4% or urban respondents. A lesser proportion of rural respondents indicated they meet their rent in full with Housing Benefit (1%) compared to urban respondents (2.8%), and a lesser proportion of rural respondents meet their rent in part with Housing Benefit (1.2%) compared to urban respondents (6.1%).

8.9 When respondents were asked about their concern with meeting their housing costs, a higher proportion of rural respondents indicated they are 'not concerned at all' (35.9%) compared to urban respondents (30.2%). 10.4% of rural respondents indicated they are 'very concerned' or 'fairly concerned' about meeting their housing costs, compared to 10.9% of urban respondents.

8.10 This analysis suggests that affordability may be a less acute issue for rural Medway households, than for urban households. The most notable potential housing implications for rural areas in Medway may relate to improving the range of stock type and size distribution to ensure rural residents have the opportunity to access all housing types and tenures.

Key Findings

8.11 The purpose of this section has been to consider the housing requirements of specific groups whose housing needs might differ from the majority of the population. The key findings are as follows:

- **Older person households (65+)** are projected to grow at a significant level over the projection period; from 27,261 in 2013 to 42,247 in 2033. This is a total growth of 14,986 (55%).

  The majority of older person households will continue to live in their family home, possibly with adaptations. The provision of new homes specifically designed to be adaptable will help improve choice and flexibility. This should be complemented with further policy which encourages the downsizing of properties in older age groups

  The HNS analysis identifies that the majority of households with someone aged 60+ have not had any special adaptations to accommodate the potential needs of this age group. However, of those that have been adapted for an elderly member (11.6%), the most common adaptations are fairly small/minor, and therefore can be fairly easily accommodated and implemented in the home.

  The HNS analysis suggested that elderly residents in Medway may prefer to remain in their home with adaptations and/or support, rather than moving into sheltered accommodation/a care home. This supports the focus on supporting choice and flexibility by facilitating the adaptability of homes where possible.

- **For Groups with Specific Support Needs**, projected increases from 2014 to 2030 in the number of people with learning and physical disabilities and personal care disabilities suggest the likelihood that the overall capacity of suitable stock will need to continue to grow in Medway in order to meet needs. There is projected to be a 47.1% increase in those aged 65+ with learning disabilities, a 9.2% increase in those aged 18-64 with a moderate physical disability, a 11.6% increase in those aged 18-64 with a serious physical disability and a 10.6% increase in those aged 18-64 with a moderate or serious personal care disability. This will require careful consideration at a strategic level.

  The HNS analysis suggests potential future requirements for more adaptable and purpose-built stock to accommodate households containing someone with a physical disability. It suggests there is not currently a very high proportion of these households

with home adaptations or living in purpose built homes, however this does not establish whether those without adaptations have expressed a desire for them.

- **Younger person households (15 – 34)** are projected to see a positive growth in the total number of households; 5% in the 15-24 age group and 13% in the 25-34 age group (5%).

  Data shows a high proportion of inward and outward migration is amongst younger households. This suggests a labour migration driver for these moves in the working age population.

  It is identified from the HNS that of the households likely to form over the next 5 years, the vast majority (92.7%) are expected to be formed by 16+children living at home with their parents. 46.9% are within the 16-24 age group and 50.3% are within the 25-44 age group. This suggests a significant proportion of potential newly forming younger person households in the next 5 years in Medway. However, the survey does not identify the certainty with which these new households are likely to form, so it cannot provide any indication of perceived barriers or challenges to achieving this new household formation i.e. affordability or appropriate stock availability

  In 2011 **BME (non-white) groups** made up 10% of the population in Medway, of which 5% are Asian / Asian British and 3% are Black/African/Caribbean/ Black British. This proportion is largely in line with the regional South East Level and is higher than Kent as a whole and the majority of neighbouring HMA local authorities (with the exception of Gravesham and Dartford).

  HNS analysis suggests that compared to all Medway households, BME households may often be larger in size, contain more children, have a greater tendency towards accommodating multiple generations and may also be overcrowded (in relation to required bedroom numbers). Affordability issues could be preventing households from accessing properties that meet their size requirements, and/or the formation of households, however this can also reflect the propensity of certain ethnic groups for large, multi-generational households. In light of this analysis, potential approaches to increasing BME group access to affordable and more appropriately sized homes should be considered, and explored in further detail.

- **Rural Households** are considered through the primary HNS data. They are defined as being rural when located within the main rural wards of Cuxton and Halling, Peninsula and Strood Rural, constituting 11.5% of the total HNS sample.

  Compared to urban respondents, there is a higher proportion of semi-detached and bungalow stock occupied by rural survey respondents, lower proportions of private and Council renting, and a higher proportion of 4 bedroom stock. Rural respondents seemed happier with the adequacy of their current home than urban respondents. Whilst the reliability of this analysis must be caveated by the relatively small sample size

on which it is based, it suggests potential rural specific considerations for the Council, such as delivering more terraced and flatted stock to offer more stock variation and affordable choice, and focussing more on delivering smaller stock (1-3 bedrooms)/controlling the delivery of 4 bedroom units to balance the size distribution.

Significantly more rural respondents indicted receiving no help with their housing costs (rent/mortgage), and a higher proportion of rural respondents indicated they have no concern about meeting their housing costs than urban respondents. This suggests that affordability may be a less acute issue for rural Medway households, than for urban households.

8.12 It is evident that the specific housing requirements for older person households, younger person households, specific support needs groups, BME households and rural households, as well as more difficult to quantify groups such as self-build groups, gypsies and travellers and the houseboat community, should be considered in Medway's future housing strategy.

8.13 As considered above, it is recommended that this strategy includes support for increasing the proportion of smaller units (1 and 2 bedrooms). This will help to provide the appropriate stock for younger person households and those entering the market. It will also facilitate stock churn by providing more units appropriate for older person households looking to downsize, and freeing up larger units for families and BME groups. However, as well as focussing on encouraging the appropriate size of units, there should be a focus on delivering flexible homes which are suitable for adaptations to support in home care if required.

8.14 Self-building opportunities should be encouraged within the authority area where there is interest, particularly as this could help households to accommodate in home care and other care/disability related requirements where relevant. In terms of gypsies and travellers and the houseboat community, this SHMA is not in a position to provide supported recommendations for these households, which would require further research and monitoring.

8.15 Affordability is another key finding emerging from this analysis for many of the specific groups, however this is not something which can necessarily be easily influenced by the Council within their housing strategy.

9. Conclusions

Core Output 1: Estimates of current dwellings in terms of size, type, condition, tenure

9.1 The total number of dwellings in Medway has increased from 102,578 in 2001 to 110,107 in 2011. This is an increase of 7,529 dwellings, equating to a 7% increase over the ten year period.

9.2 Of the current stock within Medway 14% is detached, 29% is semi-detached, 41% is terraced, 15% is flatted and 1% is Caravan or other stock type. Medway has the lowest proportion of detached stock within the HMA. The proportion is also low when compared to national (22%) and regional South East levels (28%). Medway has the highest proportion of terraced stock within the HMA; 9% above Gravesham and Swale, which have the second highest proportion at 32%. The proportion of semi-detached stock is largely in line with comparable areas, whilst the proportion of purpose built flatted stock is low.

9.3 The 2011 Census identified the following composition in Medway's housing stock; 10% 1 bed, 25% 2 bed, 49% 3 bed, 13% 4 bed and 3% 5 bed. This represents a higher proportion of 3 bed properties when compared with England (41%), South East (39%) and Kent (40%). This is also the highest proportion in the HMA, where excluding Medway, proportions range from 42% (Maidstone) to 47% (Gravesham). The proportion of other stock sizes within Medway is largely in line with comparable areas.

9.4 Based on the very basic proxy of households with central heating, Medway has a high overall stock quality at 96.8%. There is therefore no obvious concern with basic stock quality raised from analysis.

9.5 Of Medway's current stock at the 2011 Census, approximately 70% is owner occupied, 15% is private rented, 13% is social rented and 1% is shared ownership. Within the context of the wider HMA, this demonstrates a high proportion of owner occupation, with proportions ranging from 65% in Gravesham to 71% in Tonbridge and Malling. The figure for England is 63%. With regards to other tenures, Medway's proportions are similar to those within the wider HMA.

Core Output 2: Analysis of past and current housing market trends, including balance between supply and demand in different housing sectors and price/affordability. Description of key drivers underpinning the housing market

9.6 The 2011 Census identified that 263,925 people live in Medway. This was updated to 274,015 people in the latest ONS 2014 mid-year population estimates (an increase of 10,090 people).

9.7 Considering the components of change over this period (2001 – 2014) using ONS mid-year estimates data, natural change (fertility exceeding mortality) was the most significant contributor to Medway's population growth over 2001 – 2014, contributing 16,407 people. Domestic migration had an overall negative contribution to population change (-1,995 people), however over the past 3-4 years domestic migration has become a positive net contributor. Medway has the strongest links in terms of inward and outward population flows with Swale (1,978 total moves), Maidstone (1,903 total moves), Gravesham (1,324 total moves) and Tonbridge and Malling (1,295 total moves).

9.8 The 2011 Census identified 106,209 households and 110,107 household spaces in Medway. Comparing the 2001 and 2011 household and household spaces figures, there has been a growth of 6,409 households (6%) and 7,231 household spaces (7%), which equates to an annual growth figure of approximately 640 households and 723 household spaces.

9.9 In Medway between 2001 to 2013, 8,459 dwellings were constructed, which equates to an average completions rate of 705 dwellings per annum. Considering this, the SHMA's OAN range of 1,175 dwellings per annum (based on demographic needs) to 1,213 dwellings (based on economic driven needs) would suggest a significant increase of 72% above the average past completions rate.

9.10 An indicator of the imbalance between supply and demand for affordable housing in the authority area is shown in the size of the housing register in Medway, with 4,354 households registered (excluding transfers).

9.11 House price transactions and rental activity represent a direct indicator of activity within the housing market. The average house price for all stock types in Medway is £198,400 (based on 2015 Land Registry data). Within this, the lowest average price is for flatted stock at £136,109, compared with the highest average price for detached stock at £324,902.

9.12 The overall average sale price for the authority area masks variation across Medway's sub-markets. There is a difference of £35,241 (20%) between the average price in Chatham (£180,229) and the average price in Rochester (£215,470). Chatham consistently had the lowest house prices across all stock types, and Rochester consistently had the highest.

9.13 The Lower Quartile house price has grown by 231% in Medway between 1996 and 2012, from £37,000 to £122,500. This growth is high when compared to the wider HMA (218%), Kent (222%) for Kent and England (205%).

9.14 Considering the Private Rented Sector, the mean average cost of renting 2 and 3 bedroom properties in Medway (reflecting a typical standard unit) is £692 pcm. This is £95 (14%) lower than the wider HMA average (£797) and £178 (25%) lower than the South East average (£868).

9.15 Income levels are a key determinant of the ability of households to exercise choice in accessing housing and the level of need for affordable housing products. In 2014 Medway households had Mean and Lower Quartile Incomes of approximately £36,906 and £15,964 respectively.

9.16 In affordability terms, based on the authority area's household income distribution (where 50.8% of Medway households earn less than £30,000 per year) and an assumed spend of up to 30% of household income on housing costs, 66% of households in Medway can afford to purchase a Lower Quartile house with a 75% LTV mortgage, and only 58% of households can afford to purchase a Lower Quartile house with a 90% LTV mortgage or afford 2&3 bedroom market and affordable rent.

9.17 At the 30% housing spend level, households on the median average household income (£29,550) should be paying a maximum of £739 per month. Those claiming benefits of £500 per week should be paying a maximum of £650 per month and those claiming benefits of £350 per week should be paying a maximum of £455 per month.

9.18 It is clear that some households face significant issues in terms of market entry and mobility in Medway. Affordability issues mean that purchasing a property is outside the means of a substantial proportion of Medway households.

Core Output 3: Estimate of total future number of households, broken down by age and type where possible

9.19 Section 4 calculated the objectively assessed need range and figure for Medway over the projection period from 2012 to 2037. One of the outputs of this process is household projections for Medway over this period, based on different scenarios including a demographic baseline and economic growth scenario (as explained fully in Section 4). The household projection scenarios for the demographic baseline scenario and the economic growth scenario are presented here by age and by household type to understand the upper and lower range estimates for future households in Medway.

9.20 For the demographic scenario Table 87 shows the projected future households to 2037 by household age group. There is an increase of 28,699 households over the projection period, from 107,768 in 2013 to 136,466 in 2033. The largest household growth over the period is in the 85+ age group, followed by the 75-84 age group and the 65-74 age group at 153%, 74% and

52% respectively. The smallest increases are anticipated in the 15-24 (5%), 25-24 (13%) and 45 – 54 (9%).

9.21 Table 88 shows the projected future households to 2037 by household category for the economic scenario. The projected household figures for the demographic baseline and economic scenario indicate the estimated range of the total number of future households in Medway by the end of the projection period (2037). The estimated range of total overall household growth is between 136,446 households and 137,001 households.

Table 87 - Demographic Scenario Household Projections by Age Group (2012 - 2037)

Households by Age Group	Households		Change in Households	
	2012	2037	2012-2037	%
0-14	0	0	0	0%
15-24	4,166	4,387	221	5%
25-34	16,292	18,343	2,051	13%
35-44	20,767	23,752	2,985	14%
45-54	22,333	24,285	1,951	9%
55-59	9051	10,897	1,846	20%
60-64	8,815	9,806	991	11%
65-74	14,438	22,004	7,566	52%
75-84	8,980	15,583	6,602	74%
85+	2,924	7,410	4,486	153%
Total	***107,768***	***136,466***	***28,699***	***27%***

Source: GVA/ ONS SNPP

Table 88 - Economic Scenario Household Projections by Age Group (2012 - 2037)

Households by Age Group	Households		Change in Households	
	2012	2037	2012-2037	%
0-14	0	0	0	0%
15-24	4,166	4,566	400	10%
25-34	16,292	18,819	2,527	16%
35-44	20,767	24,147	3,380	16%
45-54	22,333	24,299	1,965	9%
55-59	9,051	10,732	1,681	19%
60-64	8,815	9,634	819	9%
65-74	14,438	21,732	7,293	51%
75-84	8,980	15,539	6,558	73%
85+	2,924	7,534	4,610	158%
All Age Groups	**107,768**	**137,001**	29,233	27%

Source: GVA/ ONS SNPP

9.22 The data informing Table 87 and Table 88 is from the Stage 1 release of the latest 2012 based household projections used in this SHMA (released 27th February). The Stage 2 release for this data is not yet available, and there is no indication of when it will be released. This data would facilitate further breakdown of the projected households considering their associated size requirement.

Core Output 4: Estimate of current number of households in housing need

9.23 Section 5 provides the assessment of housing need to identify the current backlog of households in need. This relies on utilising the most up to date snapshot of need from Medway's housing register and the most up to date Council data on the number of accepted homeless households for the year. It involves 3 steps which as accurately as possible consider; homeless households and those in temporary accommodation, overcrowded and concealed households and other need groups.

9.24 There are a total of 458 households in Medway identified as being homeless and currently included on the Housing Register. This figure does not include transfers. The 458 households figure is assigned to the potential future Local Plan period (2017 – 2035), which equates to 636

households over the projection period (2012 – 2037) and 25 homeless households as an annualised figure. Whilst homeless households and those in temporary accommodation do not always join the housing register (immediately, if at all), this figure is the most robust and locally accurate indication of Medway homeless households.

9.25 One household currently on the Medway Housing Register is identified as being in statutory overcrowding. Whilst this suggests that overcrowded and concealed households may not be fully captured on the register, it is the most appropriate data source for this household category, a very difficult to identify housing group.

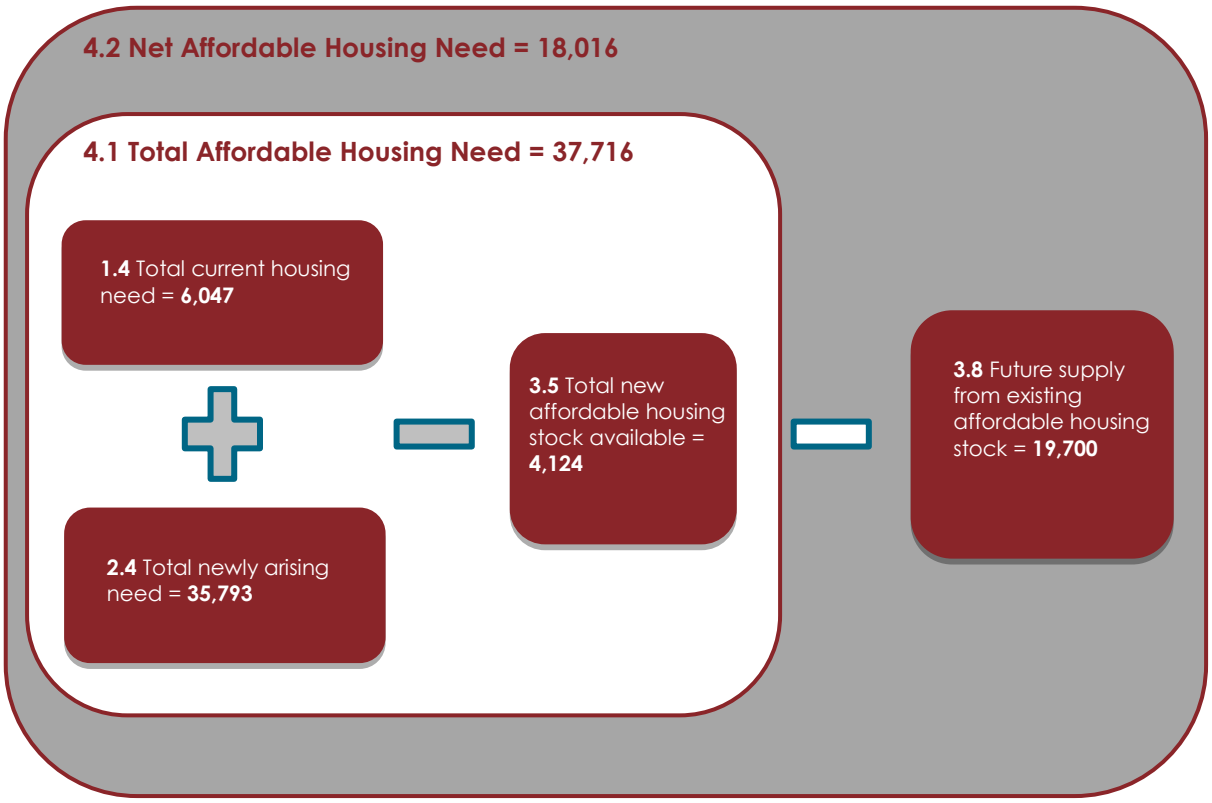
9.26 Other need groups are assessed to include all groups in housing need, excluding those who are homeless and in temporary accommodation, and in overcrowded and concealed households. This includes the households within all four bands of Medway's Housing Register. Transfers are excluded from the total figure because they release supply of housing and therefore have a nil net effect, as are homeless and overcrowded households to avoid double counting.

9.27 Overall, combining the three figures discussed above this gives a total current housing need figure in Medway of 6,047 over the projection period, 4,354 over the potential future Local Plan period, and 242 as an annualised need figure. These levels of need are assumed to be addressed fully and evenly over each of the respective time periods.

Core Output 5 & 6: Estimate of future households that will require affordable housing and market housing

9.28 The calculation steps with outputs for the requirement of affordable housing in Medway over the projection period (2012 – 2037) are shown below in Figure 55. This identifies total affordable housing need of 36,550 over the projection period, which equates to net affordable housing need of 16,850.

Figure 55 - Affordable Housing Need Calculation Diagram (with figures)



9.29 A more detailed breakdown of this calculation and the resulting proportion of housing that will need to be affordable over the projection period (as a proportion of new household formation and OAN) is as follows:

- **New household formation (all tenures) = 30,875**
- Affordable housing need backlog = 6,047
- Gross newly arising affordable need = 35,793
- **Total affordable need = 6,047 + 35,793 = 41,840**
- New affordable housing supply = 4,124
- Future supply from existing affordable stock = 19,700
- **Total affordable supply = 4,124 + 19,700 = 23,824**
- **Net Affordable Housing Need = Total affordable supply (23,824) – Total affordable need (41,840) = -18,016**

9.30 This identifies an affordable housing requirement of 18,016 households over the projection period. Considering the other scenario columns in the calculation table above, this equates to an affordable housing requirement of 12,972 households when considered over the 2017 - 2035 potential future Local Plan period, and an affordable housing requirement of 721

households as an annualised figure. This assumes the entire backlog is cleared by the end of the respective time periods.

9.31 Allowing for Medway's 3.2% vacancy rate (which adequately facilitates housing market churn) this identifies an **affordable requirement of 18,592 dwellings** over the projection period (2012 – 2037), 13,387 dwellings over the potential future Local Plan period (2017 – 2035), and 744 dwellings annually.

9.32 The housing needs analysis should therefore be regarded as evidence that in Medway, '**need' for affordable housing is greater than the currently identified 'supply' of affordable housing over the projection period, the potential future Local Plan period, and on an annual basis.**

9.33 Over the assessed projection period (2012 -2037) the calculated need for 18,592 affordable dwellings (744 dpa) constitutes 58% of the total number of dwellings required to deliver the OAN figure of 1,281 dwellings per annum.

9.34 On the basis of the Council's current affordable housing policy target of 25 - 30% the OAN of 1,281 dwellings per annum would be insufficient to deliver the identified affordable need of 744 dwellings per annum. This could justify the consideration to increase the housing requirement.

9.35 However, the continued use of this target will be subject to viability considerations, with references to the NPPG (Paragraph 029, Reference ID: 2a-029-20140306). It should also be guided by the affordable housing viability testing being undertaken as part of this SHENA.

9.36 In qualitative terms, support for the significant affordable housing requirement levels identified, comes from the indication from the HNS that of the 3.6% of all respondents who need to move, 35% are not able to do this, with affordability cited as the main reason for this (61%).

Need for different affordable housing types

9.37 In Section 7, the affordability of each affordable housing type to Medway households (calculated earlier in this Report) is used to provide an indication of the potential distribution of need between these affordable housing types. This is summarised in Table 89 below.

9.38 Whilst this does not set a definitive recommendation, an indicative split for meeting affordable need throughout the provision of different types of affordable housing product is as follows:

- **Affordable Rent: 58% - 66%**
- **Shared Ownership: 22% - 28%**
- **Social Rent: 8% - 14%**

Table 89 - Summary Table of Indicative Affordable Housing Distribution

	Households that can afford tenure	Tenure distribution (all tenures)	Affordable tenure distribution
All households	100%		
Market housing	58%	58%	
Affordable Rent	58% - 66%	24% - 28%	**58% - 66%**
Shared Ownership	66% - 77%	9% - 12%	**22% - 28%**
Social Rent	66% - 77%	3% - 6%	**8% - 14%**

9.39 It should be noted that between 23% - 34% of households in Medway (depending on the scenario considered) would be deemed as not being able to afford any of the affordable housing products. This proportion of households is incorporated into the distribution for social rent (the most affordable of the affordable tenures), however it means that some households will require income support in order to access a social rented home.

Core Output 7: Estimate of the size of market and affordable housing required

9.40 It is difficult to definitively indicate the future size requirements for market housing, which will be influenced by changes in demographic characteristics, income, mortgage availability, market affordability and a range of other national, regional and local factors.

9.41 The Housing Needs Survey (HNS) asked respondents about needing to move to a different home, to which 3.6% of respondents (18 respondents) indicated they need to move. Respondents who said their household needed to move home were asked why, with second and third most cited reasons being; 'home is too small' (30.9%) and 'home is too big' (23.6%). This suggests a current mismatch in the size of property being occupied by these respondents, which could reflect an authority wide trend. However, it does not help in addressing this mismatch and identifying an appropriate size-specific distribution.

9.42 HNS analysis of respondents who indicated some members of their household are likely to form a new household in the next 5 years (25% = 112) indicates that 50.2% of potential new households are likely to need a 2 bedroom property, 19.3% are likely to need a 1 bedroom property, 14.4% are likely to need a 3 bedroom property and 1.2% are likely to need a 4 bedroom property. Whilst the reliability of this must be caveated by the small sample size, it does provide a useful indication of the potential need for 1, 2 and 3 bedroom properties. This should be considered alongside the size specific indications from secondary data detailed below.

9.43 The most robust approach to considering the potential size-specific market housing requirements is to consider current size specific distribution. The 2011 Census data presented in the North Kent SHENA Baseline Report, and shown below in Table 90, sets this out. However, it should be noted this relates to all households in Medway, so is not specific to market housing.

Table 90 - Housing Stock by Number of Bedrooms (%)

Area	1 bedroom	2 bedrooms	3 bedrooms	4 bedrooms	5+ bedrooms
England	12%	28%	41%	14%	5%
South East	12%	26%	39%	17%	6%
Kent	11%	28%	40%	15%	5%
Medway	**10%**	**25%**	**49%**	**13%**	**3%**

9.44 This shows that for Medway, the proportion of 1 bedroom, 2 bedroom and 4 bedroom units are all comparable to the regional and national levels, although tending to be slightly lower. The proportion of 3 bedroom units is significantly above the regional and national comparators. The proportion of 5+ bedrooms is below the levels of the regional and national comparators.

9.45 These variations would suggest that if the Council wishes to align its stock size distribution with the national, and particularly regional distributions, it would need to prioritise the delivery of 5+ bedroom units and to a lesser extent 1, 2 and 4 bedroom units, and control the delivery of 4 bedroom units. However, this is not necessarily the approach to taken, as local distinctiveness in stock distribution is not assumed here to be negative. It can be reflective of / responsive to particular distinctions in demographic profile, for example.

9.46 It seems more appropriate that Medway Council seeks to follow a similar size distribution in its market housing delivery as is currently evident in all housing stock for the District (approximately 10% 1 bed, 25% 2 bed, 49% 3 bed, 13% 4 bed and 3% 5+ bed), unless information becomes available which would suggest otherwise. The delivery of different sizes of market housing will in the most part be led by the market itself. It should also be considered that higher and lower proportions in market housing, to regional and national comparators, could be counteracted by differing proportions within the distribution of affordable housing.

9.47 The size-specific distribution of affordable housing can be considered in more detail using the indication of need by bedroom size recorded within the Council's housing register, as set out below.

9.48 Examination of Medway's housing register in Section 5 shows that the largest demand for affordable housing is for 1 bedroom properties (3,752 households - 73%), followed by 2 and 3 bedroom properties (834 households - 16% and 390 households - 8% respectively). The smallest demand is for 4+ bedroom properties (153 households – 3%).

9.49 An appropriate level for the future distribution of affordable units could include approximately 74% 1 bedroom properties, 16% 2 bedroom properties, 8% 3 bedroom properties and 2% 4+ bedroom properties. This takes into account the combination of factors including; faster turnaround of smaller properties in comparison to larger properties, and potential for increasing demand for smaller homes with an ageing population and the presence of student households within the area's population, and importantly also projects forward size specific requirement trends currently identified from the Council's Housing Register. A general preference to live in a home larger than requirement and the difficulty in accessing larger family homes which have a much slower turnaround than smaller properties is considered, however these requirements do not require prioritisation within the context of Medway. This is particularly the case considering the disincentives for under-occupation, which is not encouraged in allocations policy, and which is affected by the Housing Benefit cap.

9.50 As such, the 1 bedroom percentage is increased by 1% compared to the level of need indicated by the housing register data, the 2 and 3 bedroom percentages are maintained, and the 4+ bedroom percentage is reduced by 1% to reflect the lower level of demand for this property size.

9.51 These approximations represent a possible broad distribution for size based housing requirement, but this is by no means a set indication of how affordable units should definitively be distributed, considering that demand may vary depending on specific location in Medway and the relevant context of current supply and demand.

Core Output 8: Estimate of household groups who have particular housing requirements e.g. families, older people, key workers, black and minority ethnic groups, disabled people, young people, etc.

9.52 This SHMA analysis has highlighted that the demographic and economic profile of Medway has undergone change since the 2001 Census, and change is likely to continue over the projection period. The active housing market is likely to react and in part feed back into these changes.

9.53 The analysis in Section 6 considers specific groups which could have particular future housing requirements, and in some cases represent the prominent and dynamic parts of Medway's changing profile.

9.54 The groups examined are set out below, alongside the key conclusions emerging from the analysis:

9.55 **Older Person Households** – In line with regional and national trends, Medway is projected to experience an increase in the number and proportion of the population aged 65+, increasing by approximately 14,989 (55%) over the projection period (2013 – 2033). Growth is particularly marked in the 85+ household age band, which is projected to increase by 3,641 households (120%) over the 20 years from 2013 to 2033, albeit involving fewer households than most other categories in absolute terms. The 75-84 household age band has the second highest predicted growth level at 56%.

9.56 The POPPI data identifies that from 2014 to 2030 the number of older people living in a care home is projected to increase by approximately 75%. The number of those unable to manage at least one domestic task on their own and is projected to increase by 56.4% and the number unable to manage at least one self-care activity on their own is projected to increase by 55.8%. This highlights the importance of providing appropriate retirement and adapted/custom build accommodation which is suitable for housing ageing residents living in a couple as well as single person households (2 – 3 bed units). This should be tempered with policies encouraging downsizing of the elderly population into smaller properties, releasing capital for owners as well as much needed larger stock for other residents. This will facilitate flexibility and churn in Medway's housing market, but will be dependent on a focus in parts of the authority area which are both desirable and affordable for new residents.

9.57 The HNS analysis identifies that the majority of households with someone aged 60+ have not had any special adaptations to accommodate the potential needs of this age group. However, of those that have been adapted for an elderly member (11.6%), the most common adaptations are fairly small/minor, and therefore can be fairly easily accommodated and implemented in the home.

9.58 The HNS analysis suggested that elderly residents in Medway may prefer to remain in their home with adaptations and/or support, rather than moving into sheltered accommodation/a care home. This consolidates the focus on supporting choice and flexibility by facilitating the adaptability of homes where possible.

9.59 **Groups with Specific Support Needs** – The PANSI data shows that projected increases from 2014 to 2030 in the number of people with learning and physical disabilities and personal care disabilities suggest the likelihood that the overall capacity of suitable stock will need to continue to grow in Medway in order to meet needs. There is projected to be a 47.1% increase in those aged 65+ with learning disabilities, 7.6% increase in those aged 18-64 with learning disabilities, a 9.2% increase in those aged 18-64 with a moderate physical disability, a 11.6% increase in those aged 18-64 with a serious physical disability and a 10.6% increase in those aged 18-64 with a moderate or serious personal care disability. This will require careful consideration at a strategic level;

9.60 The HNS analysis suggests potential future requirements for more adaptable and purpose-built stock to accommodate households containing someone with a physical disability. It suggests there is not currently a very high proportion of these households with home adaptations or living in purpose built homes, however this does not establish whether those without adaptations have expressed a desire for them.

9.61 **Younger Person Households** – Medway is projected to experience an increase of 831 (4%) people between the age of 15 and 34 over the projection period (2013 – 2033). The 15-24 age group will increase by 43 people (1%) over the period and the 25-34 age group will increase by 788 people (5%) over the period.

9.62 This justifies the need for Medway Council to consider the specific housing requirements of younger person households as does the need to retain some of the young demographic in the future within Medway's labour market (with there being a net out-migration of 4,270 people in the 16-29 age group from Medway in 2013, accounting for 40% of total net out-migration). The focus on meeting the needs of younger person households ties in very closely with the national, regional and authority level issue of affordability. An increasing difficulty in home purchase and increasing private rental levels is resulting in increased sharing in this demographic, beyond just the traditional student household sharers. Medway Council will need to prioritise younger households within the overall approach to meeting affordable housing needs in Medway.

9.63 It is identified from the HNS that of the households likely to form over the next 5 years, the vast majority (92.7%) are expected to be formed by 16+ children living at home with their parents. 46.9% are within the 16-24 age group and 50.3% are within the 25-44 age group. This suggests a significant proportion of potential newly forming younger person households in the next 5 years in Medway. However, the survey does not identify the certainty of which these new households are likely to form, so it cannot provide any indication of perceived barriers or challenges to achieving this new household formation i.e. affordability or unavailability of appropriate stock types and sizes.

9.64 **Black and Minority Ethnic Groups** – Ethnic diversity in Medway has increased between the 2001 and 2011 Censuses, supported by the influence of international migration to population growth. 2011 Census data shows that minority (non-white) ethnic groups made up approximately 10% of the Medway population, which is higher than the average for Kent and the majority of neighbouring HMA local authorities (with the exception of Gravesham and Dartford). Increasing diversity could have housing implications, particularly affecting size requirements considering the propensity for multi-generational households within certain ethnic minority groups

9.65 HNS analysis suggests that compared to all Medway households, BME households may often be larger in size, contain more children, have a greater tendency towards accommodating multiple generations and are also often overcrowded (in relation to required bedroom numbers). Affordability issues could be preventing households from accessing properties that meet their size requirements, and/or the formation of households, however this can also reflect the propensity of certain ethnic groups for large, multi-generational households. In light of this analysis, potential approaches to increasing BME group access to affordable and more appropriately sized homes should be considered.

9.66 **Rural Households** are considered through the primary HNS data. They are defined as being rural when located within the main rural wards of Cuxton and Halling, Peninsula and Strood Rural, constituting 11.5% of the total HNS sample.

9.67 Compared to urban respondents, there is a higher proportion of semi-detached and bungalow stock occupied by rural survey respondents, lower proportions of private and Council renting, and a higher proportion of 4 bedroom stock. Rural respondents seemed happier with the adequacy of their current home than urban respondents. Whilst the reliability of this analysis must be caveated by the relatively small sample size on which it is based, it suggests potential rural specific options for the Council, such as delivering more terraced and flatted stock to offer more stock variation and affordable choice, and focussing more on delivering smaller stock (1-3 bedrooms) and controlling 4 bedroom stock delivery, to balance the size distribution.

9.68 Significantly more rural respondents indicated receiving no help with their housing costs (rent/mortgage), and a higher proportion of rural respondents indicated they have no concern about meeting their housing costs than urban respondents. This suggests that affordability may be a less acute issue for rural Medway households, than for urban households.

9.69 Due to a lack of robust available data there are certain specific groups that have not been reviewed in this assessment, but are important to identify as they may require consideration in relation to future specific housing requirements. These groups include gypsies and travellers, self-build groups and students

9.70 **Gypsies and Travellers** – This group does not have a significant influence on Medway's housing requirements. Consideration of their specific needs is made in in the Gypsy, Traveller and Travelling Show people Accommodation Assessment (2013) produced by the Salford Housing & Urban Studies Unit.

9.71 **Self-build groups** – This group is difficult to quantify. Medway Council does not currently have a register of possible self-builders and/or sites reserved for self-build but it does intend to

address this issue in its forthcoming local plan. It is suggested that the Council may find it useful to undertake a survey with local residents (possibly part of any wider upcoming surveys) to understand the local need and ambition for self-build housing, and to create a register of interest for this type of housing.

Future Monitoring

9.72 In order for the findings of the assessment to continue to inform and help shape policy, it will be necessary for Medway Council to monitor changes in the housing market and the underlying demographic, economic and market drivers examined in this assessment. Changes to the assumptions will have an impact on the projections of objectively assessed need and affordable housing requirements

9.73 The figures presented within this report are based upon up-to-date data and information, largely utilising the 2011 Census, which is the most comprehensive and reliable recent data available. Evidence of marked deviation from the future trends and assumptions presented will need to be taken into account in the development of strategy and policy approaches.

9.74 This SHMA has also utilised a range of other secondary data sources. This information will continue to be refined and updated by data providers such as the ONS, CLG, CACI, Rightmove, Zoopla and Land Registry. The use of secondary data sources makes monitoring a simpler process with a regular update examining changing trends constituting an important exercise for Medway Council.

Appendix I
Affordable Housing Need Requirement Calculations: 30% affordability for 75% LTV mortgage house purchase and 2&3 bedroom Affordable Rent

Table 91 - Affordable Housing Need Requirement Calculations (affordability threshold of 30% household income housing spend for 75% LTV mortgage house purchase and 2&3 bedroom RP social rent)

Step	Comments	Projection Period (2012–2037)	Potential New Plan Period (2017-35)	Annual	Source
Step 1 – *Current* Housing Need					
1.1 Homeless households and those in temporary accommodation	Homeless households identified as such on Council's Housing Register	636	458	25	Identified from Medway Council (MC) housing register; households identified as being homeless and registered on the waiting list. This figure excludes transfer tenants.
1.2 Overcrowded and concealed households	Statutory overcrowded households identified as such on Council's Housing Register	1	1	0	Identified from Medway Council (MC) housing register; households identified as being statutory overcrowded and registered on the waiting list. This figure excludes transfer tenants.
1.3 Other groups	All other households on Council's Housing Register	5,410	3,895	216	Identified from Medway Council (MC) housing register; All households registered on the housing waiting list across all priority bands, excluding those identified specifically as homeless and overcrowded. This figure excludes transfer tenants.
1.4 Total current housing need (gross backlog)	**1.1 + 1.2 + 1.3**	**6,047**	**4,354**	242	**GVA calculated**
Step 2 – *Future* Housing Need					
2.1 New Household formation (gross)	Lower range projected household growth figure from OAN calculation	30,875	22,230	1,235	Lower range OAN household growth figure based on demographic baseline scenario from Section 4 (long term migration rates and UPC)
2.2 Proportion of newly emerging households unable to buy or rent	Those unable to buy at LQ prices or rent privately based on income levels	34%	34%	34%	GVA calculated from CACI Paycheck (Household Income), ONS (Private Rental Costs) and CLG (LQ House Prices)
		28,100 x 34% = 9,554	20,232 x 34% = 6,879	1,124 x 34% = 382	
2.3 Existing households falling into need	Households falling into need based on recent trends	22,825	16,434	913	CORE data – 3 year average of total new general needs and supported housing lettings (not existing affordable tenants)
2.4 Total newly arising housing need	**= (2.1 x 2.2) + 2.3**	**33,323**	**23,992**	**1,333**	**GVA calculated**

Step 3 – *Future* Affordable Housing Supply					
3.1 Affordable dwellings occupied by households in need	Assume zero	0	0	0	Transfers are excluded from Stages 1, 2 and 3 as they release supply of housing, having a net nil effect
3.2 Surplus stock	Current vacant stock that could be brought back into use	40	29	2	Provided by MC - based on empty and void properties (for 6+ months) which are likely to be brought back into use
3.3 Committed supply of new affordable housing	Pipeline supply through planning system	4,083	2,940	163	Medway data - Committed new affordable housing for 2015/16 - 2018/19: 3 year average
3.4 Units to be taken out of management	Housing currently let which is due to be demolished or refurbished	0	0	0	Medway Council indicates there are no demolitions or refurbishments of currently let stock which is unlikely to be brought back into use. Right to Buy sales are not included here as there is no LA requirement to rehouse these households.
3.5 Total new affordable housing stock available	**3.1 + 3.2 + 3.3 – 3.4**	**4,124**	**2,969**	**165**	**GVA calculated**
3.6 Supply of social re-lets (net)	LA and HA sector re-lets (general and supported needs) excluding transfers	19,200	13,824	768	CORE Data - 3 year average relets (social lettings and affordable rent for LAs and PRPs for general and supported needs). Taken as predicted annual levels in line with guidance (3 year average from 2011-12 to 2013-14).
3.7 Supply of intermediate affordable housing for re-let or re-sale at sub-market levels	3% turnover of shared ownership properties being taken up by new tenants	500	360	20	GVA calculated based on applying 3% turnover to 2011 Census data (671 shared ownership households recorded)
3.8 Future supply from existing affordable housing	**3.6 + 3.7**	**19,700**	**14,184**	**788**	**GVA calculated**

Table 92 – Total Affordable and Net Affordable Housing Need

Step 4 – *Bringing the Evidence Together*					
4.1 Total Affordable Housing Need	**1.4 + 2.4 – 3.5**	**35,246**	**25,377**	**1,410**	**GVA calculated**
4.2 Net Affordable Housing Need	**4.1 – 3.8**	**15,546**	**11,193**	**622**	**GVA calculated**

Appendix II
Affordability of Intermediate Dwellings: Additional Analysis

Affordability of Intermediate Dwellings: Additional Analysis

9.1 Replicating the analysis of the affordability of intermediate dwellings set out in Section 7, this additional analysis considers the affordability based on the assumption of accessing Lower Quartile market housing with a 75% LTV ratio mortgage, 25 year repayment period and 4% interest rate, alongside the Lower Quartile average market rent for 2&3 bedroom properties from earlier analysis.

9.2 This shows that the actual cost for these properties ranges from approximately £6,264 - £7,140 per annum, as shown below in Table 93.

9.3 This means that minimum household earnings of £20,880 - £23,800 per annum or above are required to access this type of intermediate housing. The need for a deposit, credit ratings and moving costs may prohibit some households accessing this tenure, even at this level of income.

Table 93 - Cost of Intermediate Affordable Housing in Medway (for property with LQ £122,500 market value)

Equity Share	Equity Value	Loan Amount (75% LTV ratio)	Monthly Mortgage Repayment Costs	Annual Mortgage Repayment Costs
25%	£30,625	£22,969	£121	**£1,452**
50%	£61,250	£45,938	£242	**£2,904**
75%	£91,875	£68,906	£364	**£4,368**

Rental Proportion	LQ Monthly Market Rent	Monthly Rental Costs	Annual Rental Cost	Total Annual Housing Costs (Mortgage and Rental)	Required Earnings to assume Affordable (up to 30% of household income
75%	£632	£474	£5,688	**£7,140**	**£23,800**
50%	£632	£316	£3,792	**£6,696**	**£22,320**
25%	£632	£158	£1,896	**£6,264**	**£20,880**

Source: CACI, Money Advice Service, GVA, 2015

9.4 Comparing this to the income profile of residents in Medway, this suggests that approximately 33.6 – 42.5% of households could not afford a 25%, 50% or 75% equity share in a lower quartile value property. This indicates that the intermediate housing market does not create a

significant opening of the housing market to households who would otherwise not be able to purchase their own property outright.

9.5 The affordability of shared ownership can also be considered by demonstrating the income levels required to access shared ownership for 25%, 50% and 75% equity shares, with assumed 2.85% rental charges on remaining unsold equity (based on an example model of shared ownership operated by Two River Housing in Medway[83]). This is shown for maximum household income spend levels of 25%, 30% and 35% in Table 94, Table 95 and Table 96.

9.6 Under the assumption of spending up to 25% of household income on housing (Table 94), shared ownership with a 25% equity share would require an annual income of £16,281.75. A 50% equity share would require an annual income of £18,598.50. A 75% equity share would require an annual income of £20,963.25.

9.7 Therefore, 66% of households can afford 25% equity share and 50% equity share intermediate housing, and 58% of households can afford 75% equity share intermediate housing.

[83] http://www.tworivershousing.org.uk/custom-content/uploads/2015/02/Shared-Ownership-a-guide.pdf

Table 94 - Sensitivity 1c: Income Levels Required to Access Shared Ownership with Maximum Spend of 25% of Household Income

	Intermediate (25% equity share)	Intermediate (50% equity share)	Intermediate (75% equity share)
Annual mortgage repayment costs	£1,452	£2,904	£4,368
Monthly mortgage repayment costs	121	242	364
Value of remaining unsold equity	£91,875	£61,250	£30,625
Rental charge at 2.85% of unsold value - Annual cost	£2,618.44	£1,745.63	£872.81
Rental charge at 2.85% of unsold value - Monthly cost	£218.20	£145.47	£72.73
Total annual housing payment	£4,070.44	£4,649.63	£5,240.81
Total monthly housing payment	£339.20	£387.47	£436.73
Max. percentage of income	25%	25%	25%
Required annual income	**£16,281.75**	**£18,598.50**	**£20,963.25**
Required monthly income	**£1,356.81**	**£1,549.88**	**£1,746.94**
CACI household income band which contains 'required annual income'	£15,000 - £20,000	£15,000 - £20,000	£20,000 - £25,000
Number of Households within and below income band	36,521	36,521	46,163
Total number of Households	108,654	108,654	108,654
% of households who cannot afford annual payment	**34%**	**34%**	**42%**

9.8 Under the assumption of spending up to 30% of household income on housing (Table 95), shared ownership with a 25% equity share would require an annual income of £13,568.13. A 50% equity share would require an annual income of £15,498.75. A 75% equity share would require an annual income of £17,469.38.

9.9 Therefore, 77% of households can afford 25% equity share intermediate housing, and 66% of households can afford 50% equity share and 75% equity share intermediate housing.

Table 95 - Sensitivity 2c: Income Levels Required to Access Shared Ownership with Maximum Spend of 30% of Household Income

	Intermediate (25% equity share)	Intermediate (50% equity share)	Intermediate (75% equity share)
Annual mortgage repayment costs	£1,452	£2,904	£4,368
Monthly mortgage repayment costs	121	242	364
Value of remaining unsold equity	£91,875	£61,250	£30,625
Rental charge at 2.85% of unsold value - Annual cost	£2,618.44	£1,745.63	£872.81
Rental charge at 2.85% of unsold value - Monthly cost	£218.20	£145.47	£72.73
Total annual housing payment	£4,070.44	£4,649.63	£5,240.81
Total monthly housing payment	£339.20	£387.47	£436.73
Max. percentage of income	30%	30%	30%
Required annual income	**£13,568.13**	**£15,498.75**	**£17,469.38**
Required monthly income	**£1,130.68**	**£1,291.56**	**£1,455.78**
CACI household income band which contains 'required annual income'	£10,000 - £15,000	£15,000 - £20,000	£15,000 - £20,000
Number of Households within and below income band	24,928	36,521	36,521
Total number of Households	108,654	108,654	108,654
% of households who cannot afford annual payment	**23%**	**34%**	**34%**

9.10 Under the assumption of spending up to 35% of household income on housing (Table 96), shared ownership with a 25% equity share would require an annual income of £11,629.82. A 50% equity share would require an annual income of £13,284.64. A 75% equity share would require an annual income of £14,973.75.

9.11 Therefore, 77% of households can afford 25%, 50% and 75% equity share intermediate housing.

Table 96 - Sensitivity 3c: Income Levels Required to Access Shared Ownership with Maximum Spend of 35% Household Income

	Intermediate (25% equity share)	Intermediate (50% equity share)	Intermediate (75% equity share)
Annual mortgage repayment costs	£1,452	£2,904	£4,368
Monthly mortgage repayment costs	121	242	364
Value of remaining unsold equity	£91,875	£61,250	£30,625
Rental charge at 2.75% of unsold value - Annual cost	£2,618.44	£1,745.63	£872.81
Rental charge at 2.75% of unsold value - Monthly cost	£218.20	£145.47	£72.73
Total annual housing payment	£4,070.44	£4,649.63	£5,240.81
Total monthly housing payment	£339.20	£387.47	£436.73
Max. percentage of income	35%	35%	35%
Required annual income	**£11,629.82**	**£13,284.64**	**£14,973.75**
Required monthly income	**£969.15**	**£1,107.05**	**£1,247.81**
CACI household income band which contains 'required annual income'	£10,000 - £15,000	£10,000 - £15,000	£10,000 - £15,000
Number of Households within and below income band	24,928	24,928	24,928
Total number of Households	108,654	108,654	108,654
% of households who cannot afford annual payment2	**23%**	**23%**	**23%**

9.12 Overall the evidence suggests some potential for intermediate forms of affordable housing to contribute towards meeting housing needs in Medway, however there are limitations to this potential. With a maximum spend of 30% of household income on housing, 66% - 77% of households could afford shared ownership depending on the degrees of equity share, leaving 23% - 34% of household who would still be unable to access housing through a shared ownership product.

Appendix III
2015 Medway Housing Needs Survey: Analysis Report

1. Introduction

1.1 In February 2015 NEMS Market Research Ltd., a registered member of the Market Research Society (MRS), was commissioned by Medway Council to carry out the 2015 Medway Housing Needs Survey. This formed part of the Strategic Housing Needs and Economic Needs Assessment being undertaken jointly by Medway Council and Gravesham Borough Council.

1.2 The Survey was designed to understand the housing needs across the Medway authority area, to feed into Medway's Strategic Housing Market Assessment (SHMA). The Survey utilised a 'mixed-methodology approach', with the majority of interviews being conducted over the phone (approximately 80%), supplemented by face-to face interviewing (approximately 20%). This was in order to overcome, as far as possible, the limitations associated with telephone surveys in reaching three key groups; private renters, BME groups and student households. To counter this, door to door interviews were targeted in specific areas of the authority area known for a prevalence of these groups

1.3 A total of 504 interviews were distributed proportionally across the 22 Medway wards, using a weighted sampling approach. This replicates the demographic profile of the authority area.

1.4 The analysis of the data collected from these 504 respondents should consist of a sample which is broadly representative of the wider authority area. Trends identified from the data should therefore reflect trends which would be observed across the wider population. Identified issues, and resultant future focus areas/recommendations drawn out in the SHMA Report, should therefore be generally applicable to the whole Medway authority.

1.5 This Report brings together the key findings from the Medway HNS, which support and feed into the SHMA analysis. It focuses on the following key areas:

- **General Housing Needs**
- **Moving Expectations**
- **Affordability**
- **Emerging Households**
- **Disability, Adaptations & Care**
- **Older People**
- **BME Households**
- **Rural Households**

1.6 It should be noted that much of the analysis in this appendix report is based on a small minority of residents who indicated they have a specific housing need (i.e. those households

that include a disabled person, those who feel their house is not adequate etc.). Small sample sizes reduce the reliability of data, since the responses of a small number of interviewees can influence overall trends. Whilst meaningful trends can be identified from the data to inform potential areas of focus and recommendations for Medway Council going forward, this sample size caveat must be applied.

Sample

1.7 As indicated above, the total sample size in Medway was 504 people. Of these respondents, 49.74% were male and 50.26% were female.

1.8 The following tables (Table 97, Table 98 and Table 99) show the composition of the interview sample, in terms of stock type, size and tenure. These have been compared to Census results, to illustrate how representative the sample is and where there may be limitations.

Table 97 – Medway HNS – Stock Type

Property Type	%	Census
Detached house	14.81%	14%
Semi-detached house	33.56%	29%
Terraced / Town house	40.98%	41%
Bungalow	5.62%	n/a
Flat / Maisonette / Apartment	4.99%	15%
Mobile/park home, Caravan or Temporary Structure	0.00%	1%
Other	0.05%	0%

1.9 Whilst Table 97 above shows that the proportion of households living in detached, semi-detached and terraced stock is approximately in line with Census data, it should be noted that the Census does not have a separate category for 'bungalow'. The survey sample therefore over represents households living in house / bungalow stock. This is also illustrated by the under-representation of flatted stock (c. 5% vs. 15%).

Table 98 – Medway HNS – Stock Size

Number of Bedrooms	%	Census
Bedsit / Studio	0.56%	0%
1	2.92%	10%
2	17.64%	25%
3	55.26%	49%
4	18.12%	13%
5 or more	5.41%	3%
(Refused)	0.10%	n/a

1.10 Table 98 above shows that the survey sample under-represents households living in smaller stock (0-2 bedrooms) when compared to Census data (c.21% vs. 35%) and over represents households living in larger stock (3 – 5 bedrooms) (79% vs. 65%).

Table 99 – Medway HNS – Property Tenure

Number of Bedrooms	%	Census
Owned with a mortgage by a household member(s)	40.41%	70%
Owned outright by a household member(s)	40.40%	
Rented privately	10.34%	15%
Rented from the Council	5.36%	13%
Rented from Housing Association/ Registered Social Landlord	3.00%	
Shared Ownership, Shared Equity etc	0.00%	1%
Tied to a job (accommodation provided as part of one's job)	0.08%	0%
Other	0.00%	1%
(Don't know)	0.16%	0%
(Refused)	0.25%	0%

1.11 Table 99 above shows that when compared to Census data, the survey sample over represents owner-occupiers and under-represents households living in rented tenures (private and social).

2. General Housing Needs

2.1 This section summarises the responses to questions concerning the general housing needs of respondents. This includes whether they feel their home is suitable and adequate, and whether they have a need to move.

2.2 This analysis facilitates an understanding of the Medway housing market and whether the authority's current stock is meeting the needs of its households. This type of qualitative data is insightful, as it is not something which can be gained from the secondary data used to inform the SHMA.

Suitability

2.3 Respondents were asked about the suitability of their current home, which relates to their broad perceptions of the home they are living in, and whether it provides them appropriate accommodation.

2.4 When asked whether their home is suitable for their needs. 96.4% of respondents feel that it is. The remaining 3.6% do not feel this is the case. Therefore, there should be no major issues relating to the suitability of current Medway stock for its residents.

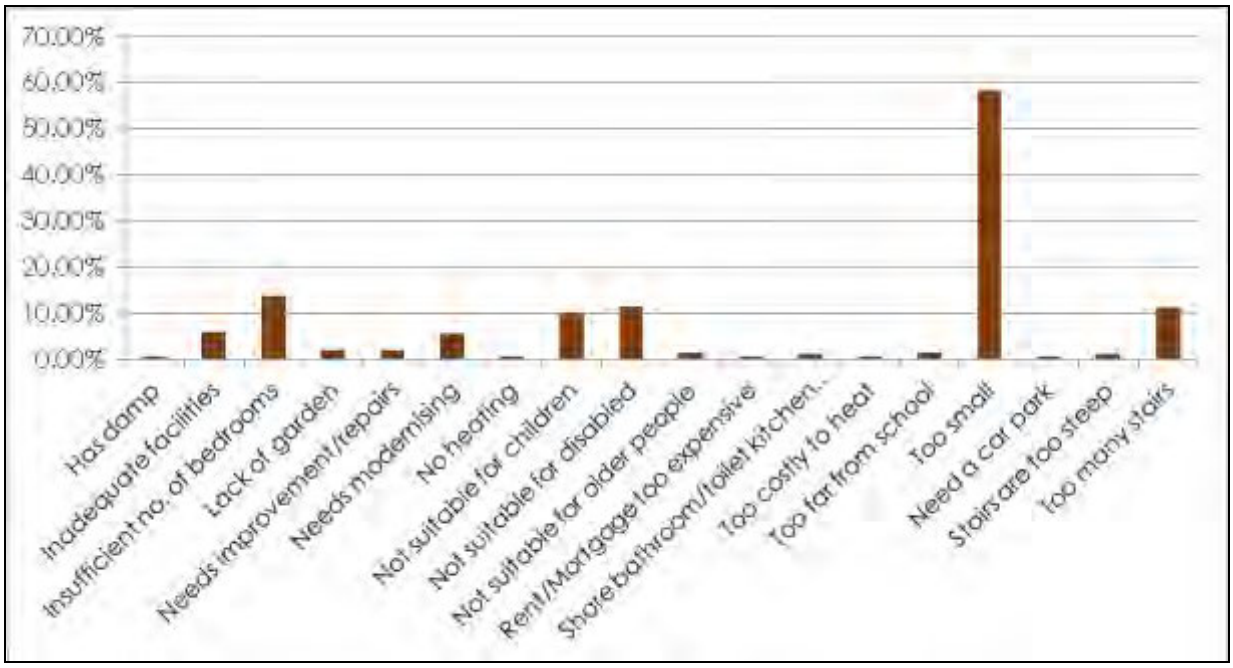
Adequacy

2.5 Residents were then asked about the adequacy of their current home, which aimed to gain a more specific understanding of whether their current home provides for their household needs[84]. This examined particular characteristics which caused respondents to state that their home is inadequate for their needs.

2.6 When asked whether their home is adequate for their needs. 92.24% of respondents indicated that it is, and the remaining 7.76% indicated that it is not.

[84] It should be noted that the question of suitability and adequacy were independent from each other, and respondents could answer yes to suitability and no to adequacy

Figure 56 – Reasons why home is inadequate for needs of household



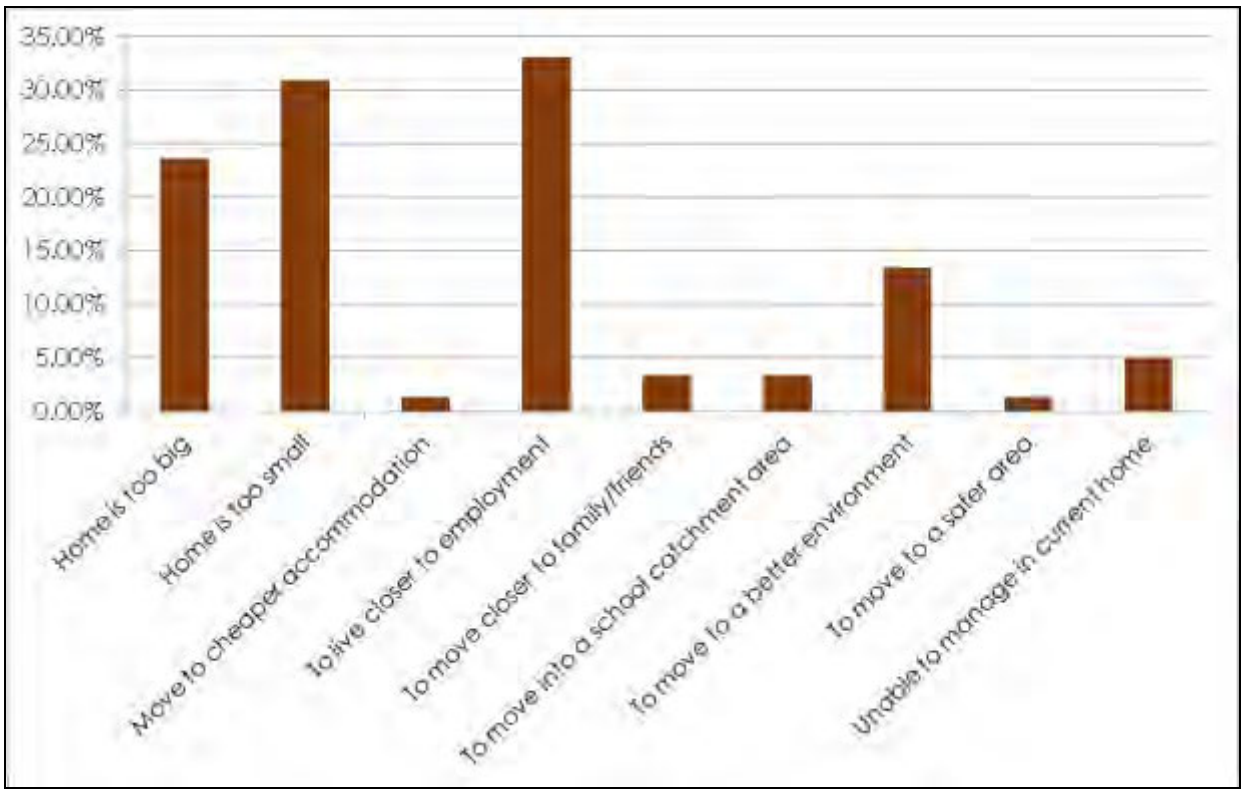
2.7 Respondents who indicated their home is not suitable for the needs of their household were asked to provide reasons why. As shown above in Figure 56, the most commonly cited reason was 'too small' (58.20%), followed by an 'insufficient number of bedrooms' (13.74%) and 'not suitable for disabled.' (11.61%) Other popular reasons were 'too many stairs' (11.20%) and 'not suitable for children. (10.09%)

2.8 This suggests that there may be a misalignment of stock size (in terms of both floorspace and number of bedrooms) to Medway resident's needs. This could be due to the size-specific distribution of stock not matching with the size-specific needs of residents. However, it could also reflect under-occupancy and over-occupancy trends.

Needing to Move

2.9 Respondents were asked whether their entire household needs (rather than wants) to move to a different home. 3.59% of respondents replied 'yes' and were asked to provide a reason. Figure 57 below shows that the most commonly cited reason was 'to live closer to employment' (33.11%). The second most commonly cited reason was 'home is too small' (30.87%) followed by 'home is too big' (23.60%) and 'to move to a better environment' (13.42%).

Figure 57 – Medway HNS – Why households need to move home



2.10 The indication of homes being too small or too large compared to respondents needs, supports the suggestion of overcrowding and under-occupation in Medway. This is comparable with the above finding relating to the adequacy of respondent's current home.

2.11 Respondents were then asked when they needed to move. As shown below in Table 100, the vast majority (87%) indicated a need to move in 0-2 years, with the largest proportion (62%) needing to move 'within a year'.

2.12 This suggests a fairly immediate need for alternative housing which more appropriately suits the respondent's housing requirements, particularly in relation to stock size.

Table 100 – Medway HNS – When does your household need to move?

When Need to Move	%
Now	19.60%
Within a year	61.68%
1-2 years	6.21%
3-5 years	7.89%
Over 5 years	4.63%

2.13 Of the 3.59% of respondents indicating their household needs to move (18 respondents), 34.91% (6 respondents) reported that it was not possible to do so and provided the following reasons:

- Cannot afford to (other properties too expensive) – 61.15%
- Personal reasons – 13.64%
- Lack of suitable accommodation in area wanted – 6.73%
- Employment (work locally) – 6.72%
- Lack of suitable accommodation of type wanted – 2.47%
- (Refused) – 9.32%

2.14 Taking this as a representation of a wider trend across the authority, it is interpreted that affordability provides the key barrier for households that need to move but are unable to do so. However, this must be caveated by the sample size on which it is based.

2.15 Respondents who stated their entire household needed to move home were asked whether they could afford a home suitable for their needs in the Medway authority area. 62.70% stated that they could not. 8.06% replied 'maybe'.

2.16 These components of the analysis provide evidence of affordability pressures acting on Medway households, which contributes to the justification of the affordable housing requirement figures set out in the SHMA report. Medway Council should consider potential approaches towards addressing affordability issues, particularly through the encouragement of affordable housing delivery.

3. Moving Expectations

3.1 As previously discussed, 3.59% of respondents stated that their entire household needs (rather that wants) to move to a different home. These respondents were asked for further information regarding their moving expectations. Responses are detailed below, however it should be noted that this analysis is based on a small sample size comprising c. 18 people.

Where

3.2 Table 101 below shows that the majority of households that need to move do not know where they are likely to move to (38.19%). Where a destination is known, Chatham is indicated to be the most likely destination (30.86%).

Table 101 – Where likely to move (those whose households need to move)

Where Likely to Move	%
Chatham	30.86%
Gillingham	8.51%
Herne Bay	1.25%
Medway	5.36%
Northall	3.31%
Rainham	1.29%
Rochester	7.85%
Waldersdale	3.41%
(Don't know / varies)	38.19%

Type of Property

3.3 Table 102 below shows that of the respondents indicating their household needs to move, the highest proportion (43.33%) are likely to move to semi-detached houses, followed by 29.76% to bungalows.

Table 102 – Type of property likely to move to

Type of Property Likely to Move to	%
Semi-detached house	43.33%
Detached house	0.00%
Terraced house	17.00%

Flat / Maisonette / Apartment	0.00%
Bedsit / Studio / Room Only	0.00%
Ground floor property	4.56%
Bungalow	29.76%
Supported housing	0.00%
Other	0.00%
Caravan or temporary structure	5.36%
(Don't know)	0.00

Size of Property

3.4 Table 103 below shows that of the respondents indicating their household needs to move, the highest proportion (64.54%) are likely to move to two bed properties, followed by 18.74% of respondents likely to move to a three bed property.

Table 103 – Size of Property likely to move to

Size of Property Likely to Move to (no. of bedrooms)	%
1	3.31%
2	64.54%
3	18.74%
4	8.07%
5	5.36%
6	0.00%
7 or more	0.00%
(Don't know)	0.00%

Tenure of Property

3.5 Table 104 below shows that of the respondents indicating their household needs to move, 8.51% expect to own / buy a property with a mortgage. 21.91% expect to do this mortgage free, whilst 9.76% expect to rent from the Council. The largest group, 40.95%, expect to rent from a landlord / agency.

Table 104 – Tenure of Property likely to move to

Tenure of Property Likely to Move to	%
Own / buy it (with mortgage)	8.51%
Own / buy it (mortgage free)	21.91%
Rent from a Housing Association	10.21%
Rent from a landlord / agency	40.95%
Rent from relative / friend	3.31%
Rent from the Council	9.76%
Don't know	5.36%

3.6 This analysis of moving expectations focussing on location, property type, size and tenure, shows that the properties respondents perceived they would be most likely to move to have 2 and 3 bedrooms and are terraced, bungalow or semi-detached properties. The greatest expectation in terms of tenure is for private rental, rather than home ownership or social renting. This seems to reflect the fact that respondents are acknowledging the reality of their housing situation, rather than their aspirations, which would be expected to show a higher indication of home ownership. This could be the result of affordability issues related to home ownership, such as the need for a substantial deposit, credit availability, and the affordability of monthly payments.

3.7 The location of a future property does not seem to be the key priority, considering the proportion of respondents who indicated they don't know where they are likely to move.

4. Affordability

Housing Benefit

4.1 Respondents were asked how their household meets its housing costs, including whether they receive any help in meeting them. Table 105 below shows that a total of 8.57% of respondents (43 respondents) received some help in meeting their housing costs. The majority of help received was in meeting rent though housing benefit; 2.63% had their rent fully met by housing benefit, 5.50% had their rent partially met.

Table 105 - Household Costs – Help received towards housing costs

When Need to Move	%
Owned outright - no mortgage costs	32.42%
Rent met in full with Housing Benefit	2.63%
Live rent free (e.g. tied accommodation)	1.03%
No help received with rent / mortgage	54.65%
Rent met in part with Housing Benefit	5.50%
Help with mortgage payments (through Benefits Agency)	0.14%
Help with mortgage (family or friends)	0.31%
(Refused)	4.18%

Concern about affordability

4.2 Respondents were asked how concerned they are about their ability to pay their rent or mortgage. The results, detailed below, show that the majority are not concerned, or not really concerned (76.69%). 18.21% however were either 'very' or 'fairly' concerned;

- Very concerned – 7.64%
- Fairly concerned – 10.57%
- Not really concerned – 24.94%
- Not concerned at all – 51.75%
- Refused – 5.09%

4.3 This analysis suggests that affordability pressures are being felt by households in Medway, resulting in reliance on income support in order to meet housing costs. This emphasises the importance of future affordable housing delivery in the authority area.

5. Emerging Households

5.1 Respondents were asked whether any members of their household are likely to set up their own home in the next 5 years. 25.02% responded yes (16.89% expecting one new household to form, 7.58% expecting two new households to form and 0.55% expected three new households to form). 92.67% of new households were expected to be formed by adult children living at home with their parents.

5.2 The detailed responses relating to emerging households are set out in the tables below.

Age

5.3 Table 106 shows the age of households that respondents indicated are likely to emerge in the next 5 years. The majority of these households are in the 25-44 age bracket (50.27%), followed by the 16-24 age bracket (46.86%).

Table 106 – Age of Emerging Households

Age of Emerging Household	%
16-24	46.86%
25-44	50.27%
45-65	3.30%
66-75	0.00%
75+	0.00%
(Refused)	0.67%

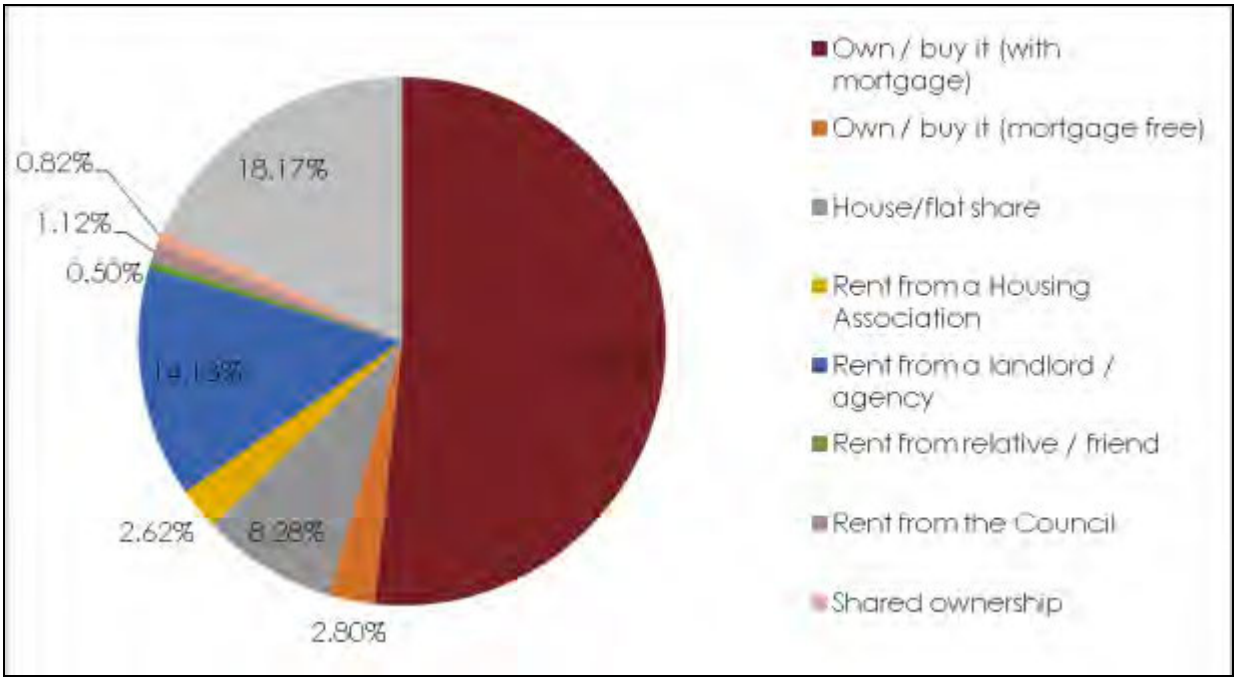
Composition

5.4 In terms of emerging household composition, respondents indicated that the majority of emerging households in the next five years are expected to be either single (26.97%) or couples (29.20%). 4.33% are anticipated to be families, and the remainder indicated they don't know what the composition of the newly forming household will be.

Tenure

5.5 With regards to the likely tenure of emerging households, Figure 58 below demonstrates that respondents indicated the largest proportion of emerging households are expected to own or buy their property with a mortgage (52%). 1% are expected to rent from the Council and 14% privately from a landlord / agency. 18% do not know and 8% are planning to house/flat share.

Figure 58 – Emerging Households – Likely tenure



Type of Property

5.6 Table 107 below shows that respondents indicated that the property type for the majority of emerging households is unknown (31.42%). 26.57% are expected to move to a flat/maisonette, 31.05% to a terraced house, and 9.66% to a semi-detached house.

Table 107 – Emerging Households – Type of Property

Emerging Households – Type of Property	%
Semi-detached house	9.66%
Detached house	0.80%
Terraced house	31.05%
Flat / Maisonette	26.57%
Bungalow	0.74%
(Don't know)	31.42%

Size of Property

5.7 Table 108 below shows that the largest proportion of emerging households are likely to need a 2 bed property (50.17%). 14.43% are likely to need a 3 bed, and 19.29% a one bed. 15.18% do not know what size of property they are likely to need.

Table 108 – Emerging Households – Property Size

Emerging Households – Bedroom No.	%
1	19.29%
2	50.17%
3	14.43%
4	1.18%
5	0.00%
6	0.00%
7 or more	0.00%
(Don't know)	15.18%

6. Disability, Adaptations and Care

Sample

6.1 20.51% of respondents reported that they or another adult in their household has a long term illness, health problem or disability that limits daily activity or work. 3.87% of respondents said that there is a child (aged 15 or under) in their household within this category.

6.2 The most common adult disability identified by respondents was 'physical disability' (59%), with 11% being wheelchair users, and 48% not being wheelchair users. This has implications for housing needs in terms of access and adaptations. 10% of adults indicated as having a disability were also identified as having a mental health problem.

Table 109 – Medway HNS – Nature of disability - Adult

Nature of Disability	%
Physical disability: wheelchair user	11%
Physical disability: not in wheelchair	48%
Learning disability	2%
Mental health problem	10%
Visual Impairment	1%
Hearing Impairment	2%
Arthritis	2%
Breathing / lung problems	1%
Cancer	2%
Chronic Fatigue Syndrome	1%
Diabetes	5%
Epilepsy	1%
Heart problems	6%
Kidney problems	1%
Multiple Sclerosis	1%
Muscular Dystrophy	1%
Parkinson's Disease	1%
Spina bifida	1%
Stroke	3%
(Refused)	4%

6.3 The most common child disability identified by respondents was 'mental health problem' (35%) followed by 'physical disability: not in wheelchair' (28%) and 'heart problems' (23%).

Table 110 – Medway HNS – Nature of disability - Child

Nature of Disability	%
Physical disability: not in wheelchair	28%
Learning disability	15%
Mental health problem	35%
Heart problems	23%

Adaptations and improvements

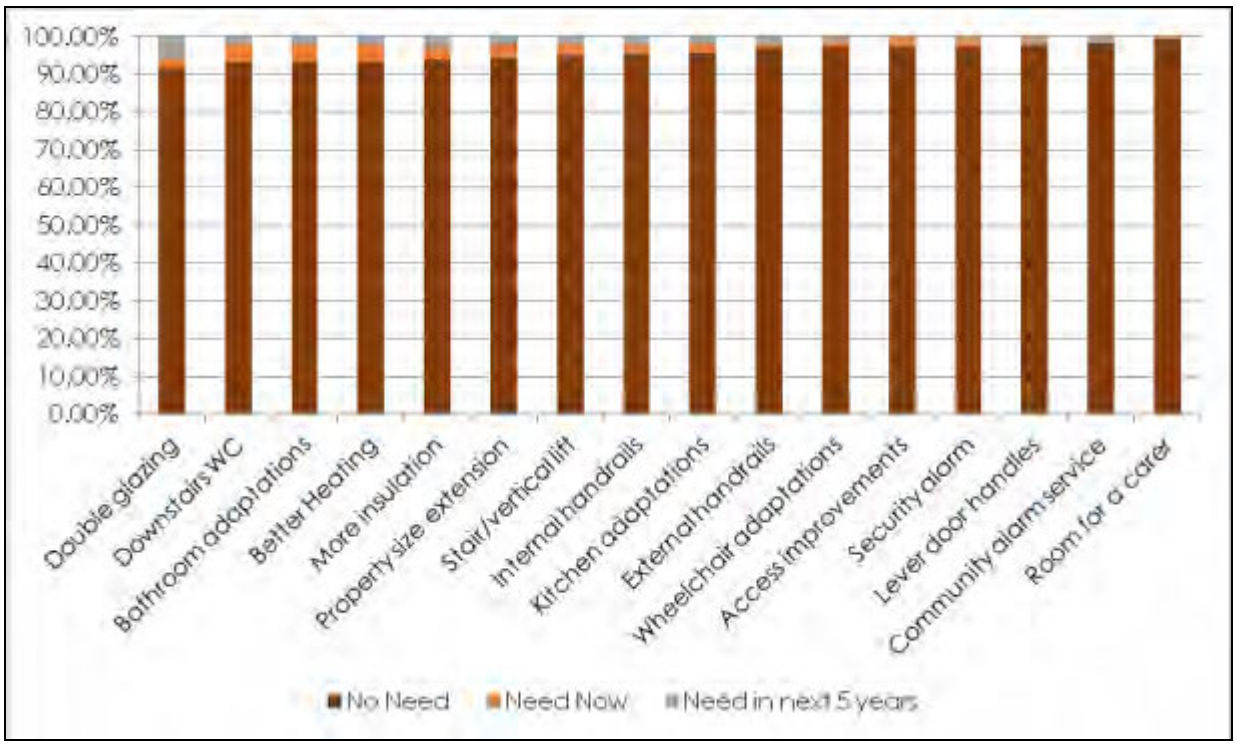
6.4 Of those respondents with a disabled member in the households (adults and/or children), 6.29% (32 respondents) have had their home adapted to accommodate the needs of that member, whilst 0.33% (2 respondents) have had their home purpose built. Therefore, the vast majority of households with a disabled member have no special adaptations, indicating a potential unmet housing need.

6.5 All respondents were asked whether they anticipate needing any home improvements / adaptions over the next 5 years. Figure 59 below shows the details of the requirements identified from these responses. It shows that the vast majority of respondents do not anticipate any requirements. Amongst those that do, the most common needs are;

- Double glazing (2.82% 'now', 5.64% in the next 5 years)
- Downstairs WC (5.12% 'now', 1.86% in the next 5 years)
- Bathroom Adaptations (4.69% 'now', 2.12% in the next 5 years)
- Better Heating (4.51% now, 2.18% in the next 5 years)
- More insulation (3.12% now, 3.16% in the next 5 years)

6.6 This identifies heating and energy efficiency as one of the key reasons amongst those commonly cited for requiring improvements/adaptations.

Figure 59 – Household needs – next 5 years



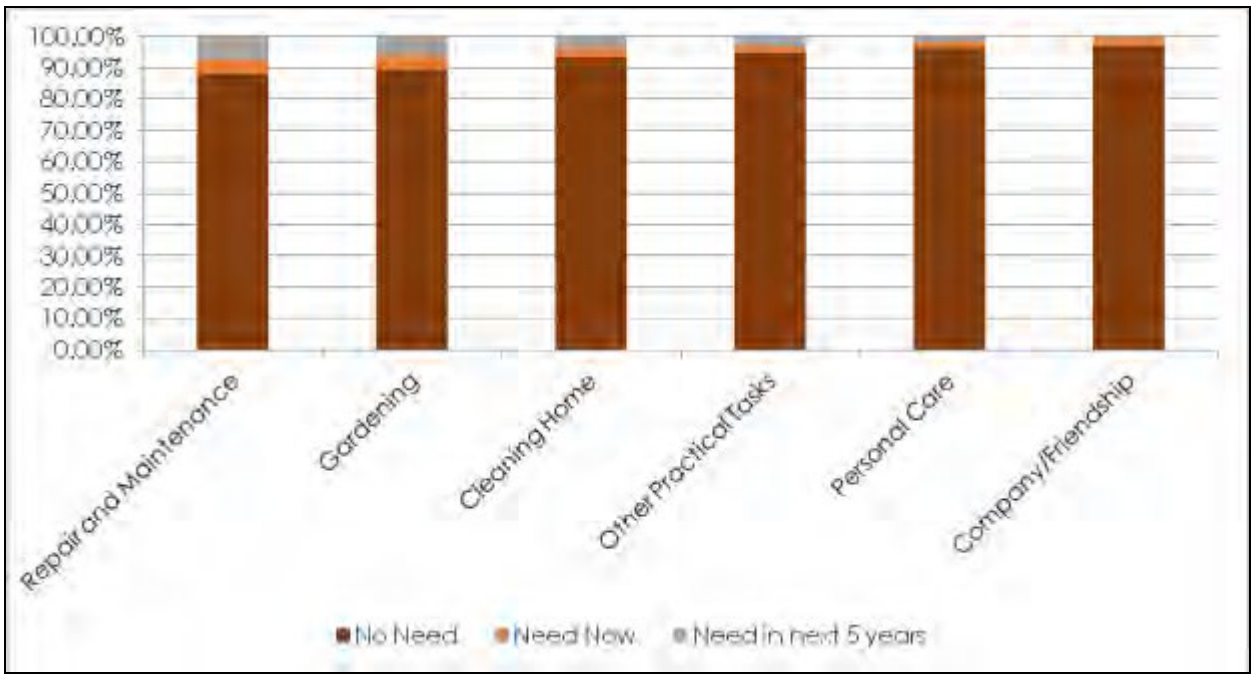
Care

6.7 4.18% of respondents indicated their household has members who require care or support to enable them to stay in their home (21 respondents). Of this proportion, 46.9% (10 respondents) reported there is not sufficient space in their home for a carer to stay overnight if this was needed.

6.8 All respondents were asked whether they anticipate any members of their households requiring assistance / care requirements over the next 5 years. Figure 60 below details the response. It shows that the majority of respondents do not anticipate such requirements. The majority of anticipated needs are for practical, rather than social / personal care, as shown below:

- Repairs and maintenance (4.46% 'now', 7.44% in the next 5 years)
- Help with gardening (4.72% 'now', 6.04% in next 5 years)

Figure 60 – Household Needs – next 5 years



6.9 The proportion of households containing one or more members affected by disability suggests implications for the housing needs of these households, particularly in relation to adaptations and improvements / facilitating in-home care.

7. Older People

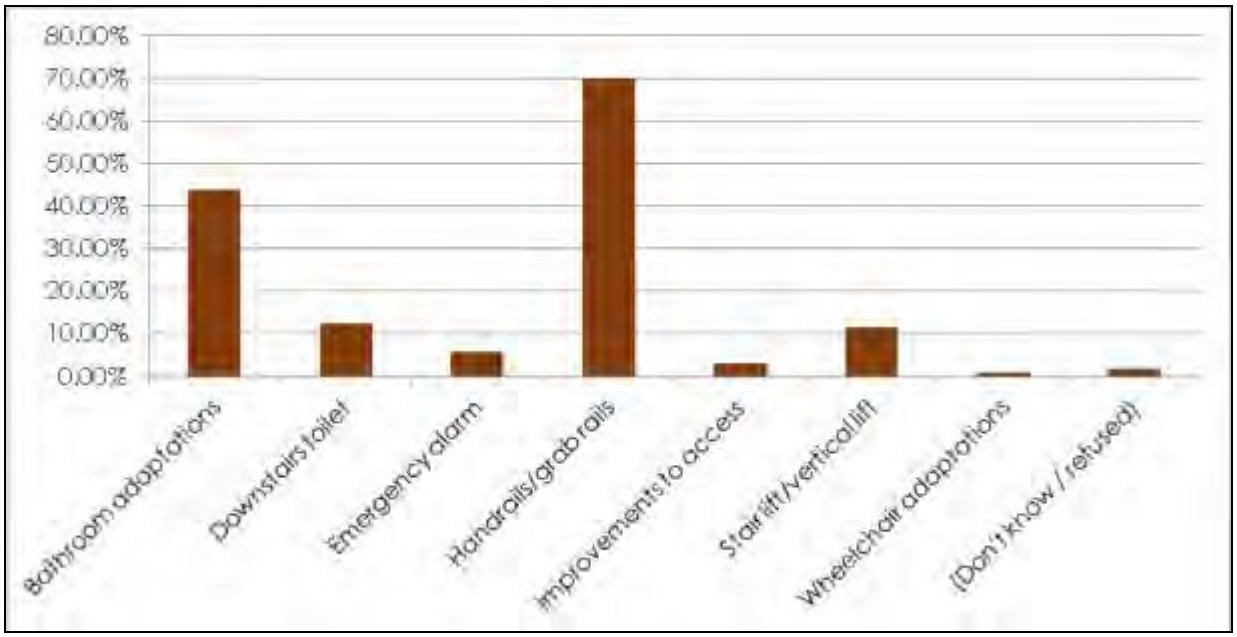
7.1 This section examines the needs of older people. Nationally, there is a trend of an ageing population, making this an important group to consider. Older person households may exhibit particular requirements and needs that require consideration, such as adaptations and support in the home to remain living independently.

Adaptations

7.2 35.38% of respondents (178 respondents) indicated their household includes someone aged 60 or over, a significant proportion of the overall sample. Of these households, 11.62% (21 respondents) live in homes that have been adapted for a person regarded as being elderly (aged 60+) and 0.32% (1 household) live in homes that have been purpose built for this age group. Therefore, the vast majority of households that include at least one older member live in homes with no special adaptations to accommodate the potential needs of this age group. This indicates a possible unmet housing need, which the Council should consider.

7.3 Those respondents who indicated their home has been adapted or purpose built for the elderly, were asked about the kind of adaptations that have taken place. The responses are detailed in Figure 61 below and show the most common adaptation to be handrails / grab rails (69.95%) followed by bathroom adaptations (43.63%), downstairs toilet (12.48%) and stair lift / vertical lift (11.56%). The least common adaptation was wheelchair adaptations (1.04%).

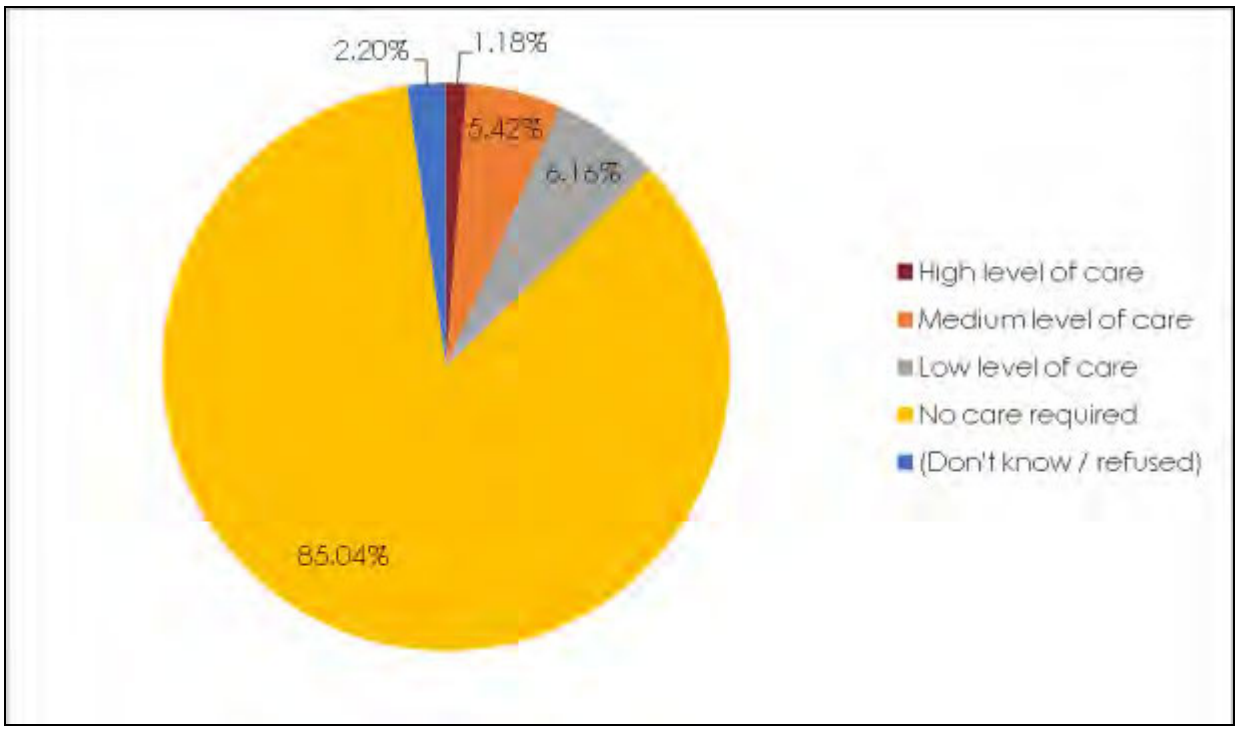
Figure 61 – Housing adaptations for elderly households



Care

7.4 Respondents with household members aged 60+ were asked about the level of care those older members currently require as a result of being elderly. The majority (85%) indicated there is no care requirement, and only 7% indicated a requirement of medium or high levels of care, as illustrated in Figure 62 below.

Figure 62 – Level of care required as a result of being elderly

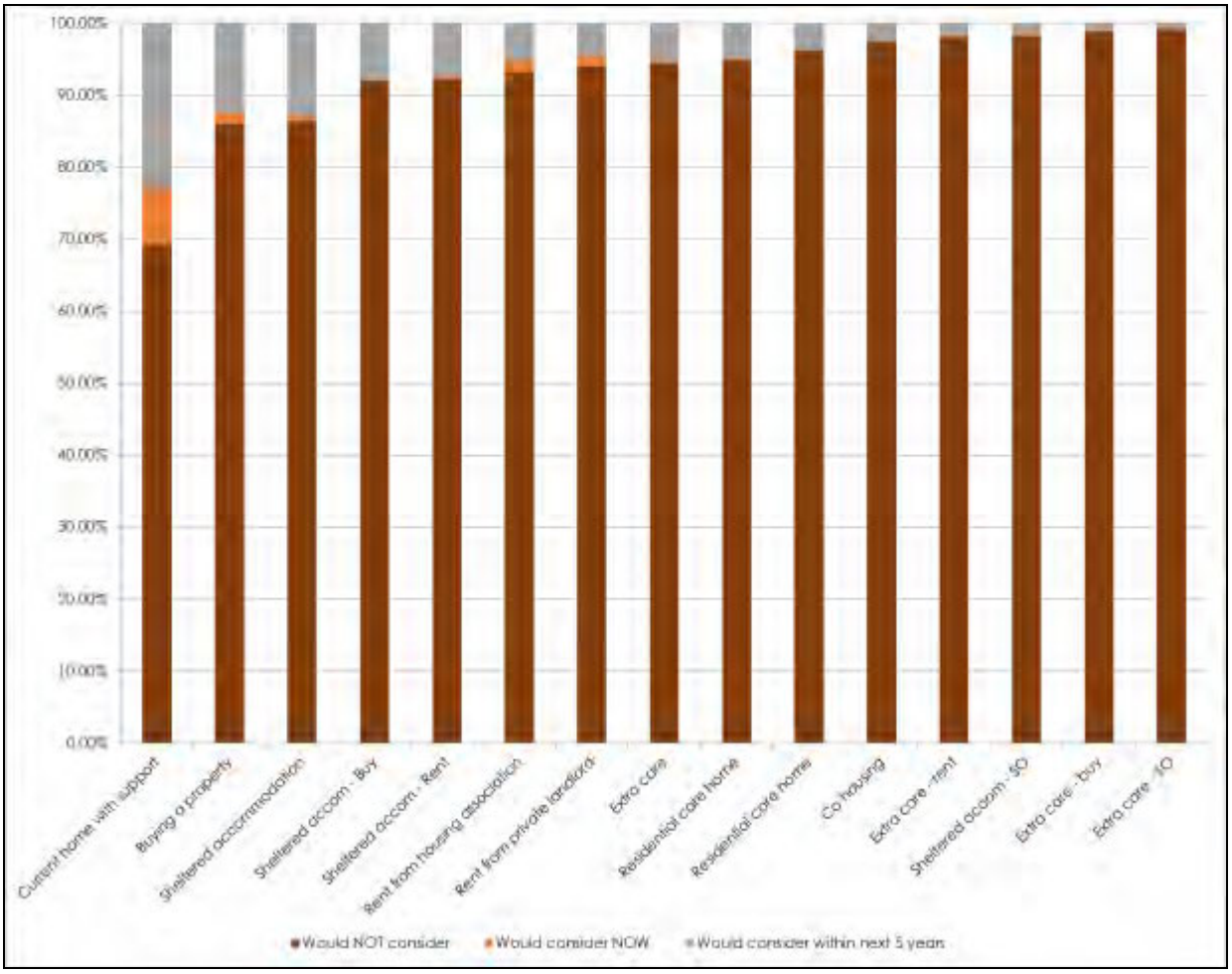


Housing Options

7.5 All respondents were asked which older persons' housing options they would consider, if relevant now or in the next 5 years – the choices were sheltered accommodation, extra care housing, residential care homes, continuing to live in current home with support when needed, buying a property in the open market, renting a property from a private landlord, and renting from a Housing Association. Excluding those who would not consider any of these housing options now or in the next 5 years, 'continuing to live in current home with support when needed' was the most popular option considered by 30.8% of all residents (155 residents).

7.6 The results are shown below in Figure 63. After 'continuing to live in current home with support when needed', the second most popular option is buying a property (1.58% consider now, 12.40% within next 5 years), followed by sheltered accommodation (0.59% consider now, 12.92% within next 5 years). The least popular options were residential care home, co-housing, extra care (rent, buy and shared ownership) and sheltered accommodation (shared ownership).

Figure 63 – Elderly housing options that would consider in next 5 years



7.7 This analysis suggests that elderly residents in Medway may prefer to remain in their home with adaptations and / or support, rather than moving into a form of sheltered accommodation or care home. This is something Medway Council may need to consider in terms of how this can be reflected and facilitated in future housing delivery.

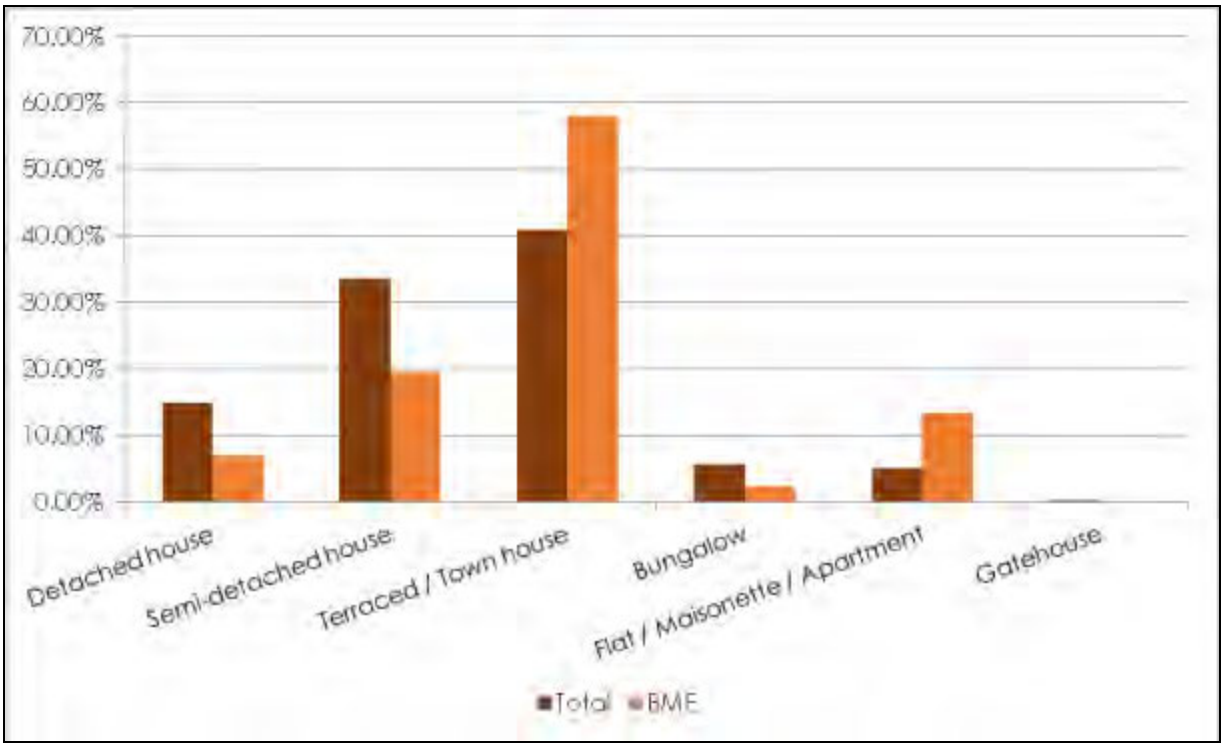
8. Black and Minority Ethnic (BME) Households

8.1 Ethnicity focussed analysis of the results has been undertaken by separating respondents classified as BME households (with at least one BME member), and comparing the analysis of these households to overall household trends.

Type of Property

8.2 Figure 16 below shows that a higher proportion of respondents in a BME household occupy terraced housing, 57.97%, compared to 40.98% of all respondents. BME residents are also more likely to live in a flat, with 13.24% compared to 4.99%, and significantly less likely to live in a bungalow, semi-detached house or detached house. This implies that BME households are more likely to live in smaller accommodation.

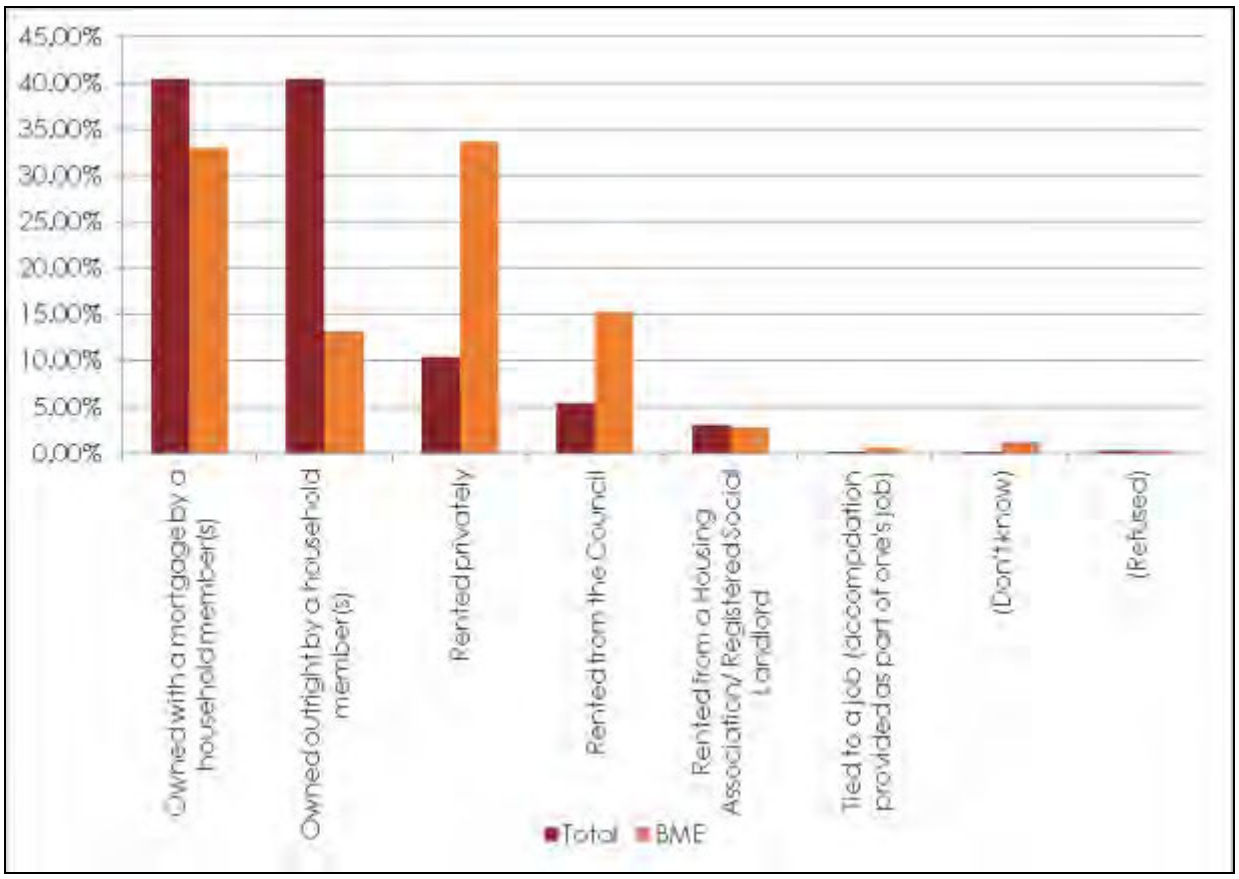
Figure 16 – Property type for BME residents and overall



Tenure

8.3 Figure 17 shows that respondents in BME households are more likely to rent privately (33.65% compared to 10.34% overall) and rent from the Council (15.24% compared to 5.36%). They are significantly less likely to own outright (13.20% compared to 40.40%) and also less likely to own with a mortgage (32.94% compared to 40.41%).

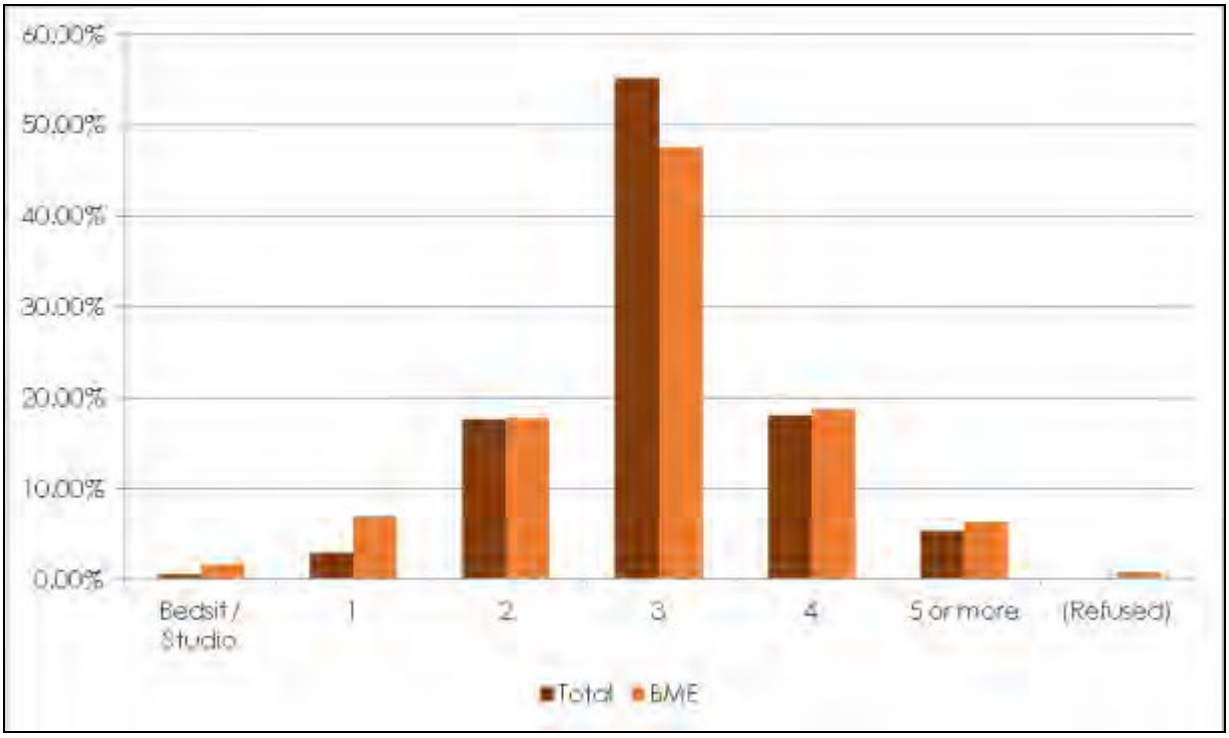
Figure 17 – Tenure for BME residents and overall



Size of Property

8.4 Figure 18 below shows that respondents in a BME households are slightly more likely to live in a 1 bedroom property (7.08% compared to 2.92% overall), as well as less likely to live in a 3 bedroom property (47.54% compared to 55.26% overall). The other categories do not exhibit any major differences.

Figure 18 - Household Size for BME residents and overall

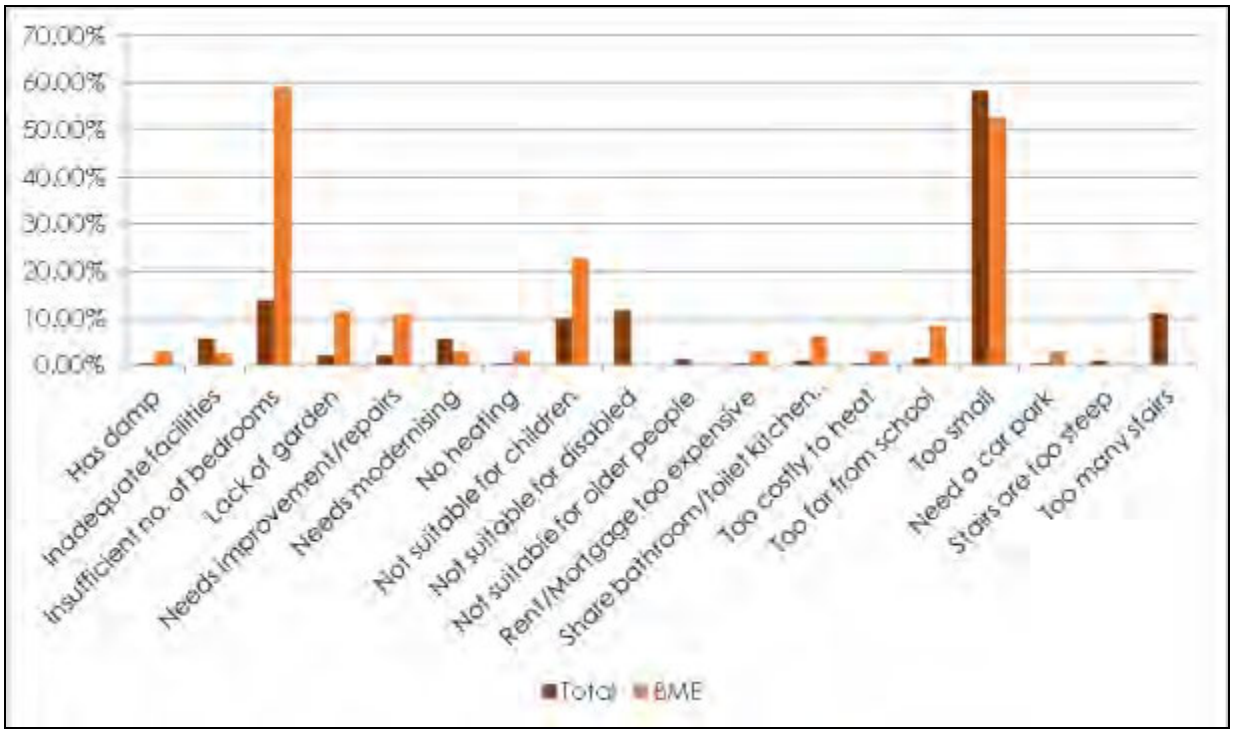


Adequacy

8.5 When asked whether their current home is adequate for their needs, a higher proportion of respondents in a BME household (11.80%) responded 'no' compared to all respondents (7.76%). Figure 19 shows that there are significant differences in the reasons behind these responses. The most striking difference is that 59.08% of BME residents find their home inadequate owing to an insufficient number of bedrooms, compared to only 13.74% overall. This is potentially linked to issues surrounding overcrowding, and may also reflect the tendency for certain ethnic groups to live in multi-generational households.

8.6 Further differences are evident in the suitability of the home for children (22.93% of BME residents compared to 10.09% of all residents), as well as minor differences across all categories.

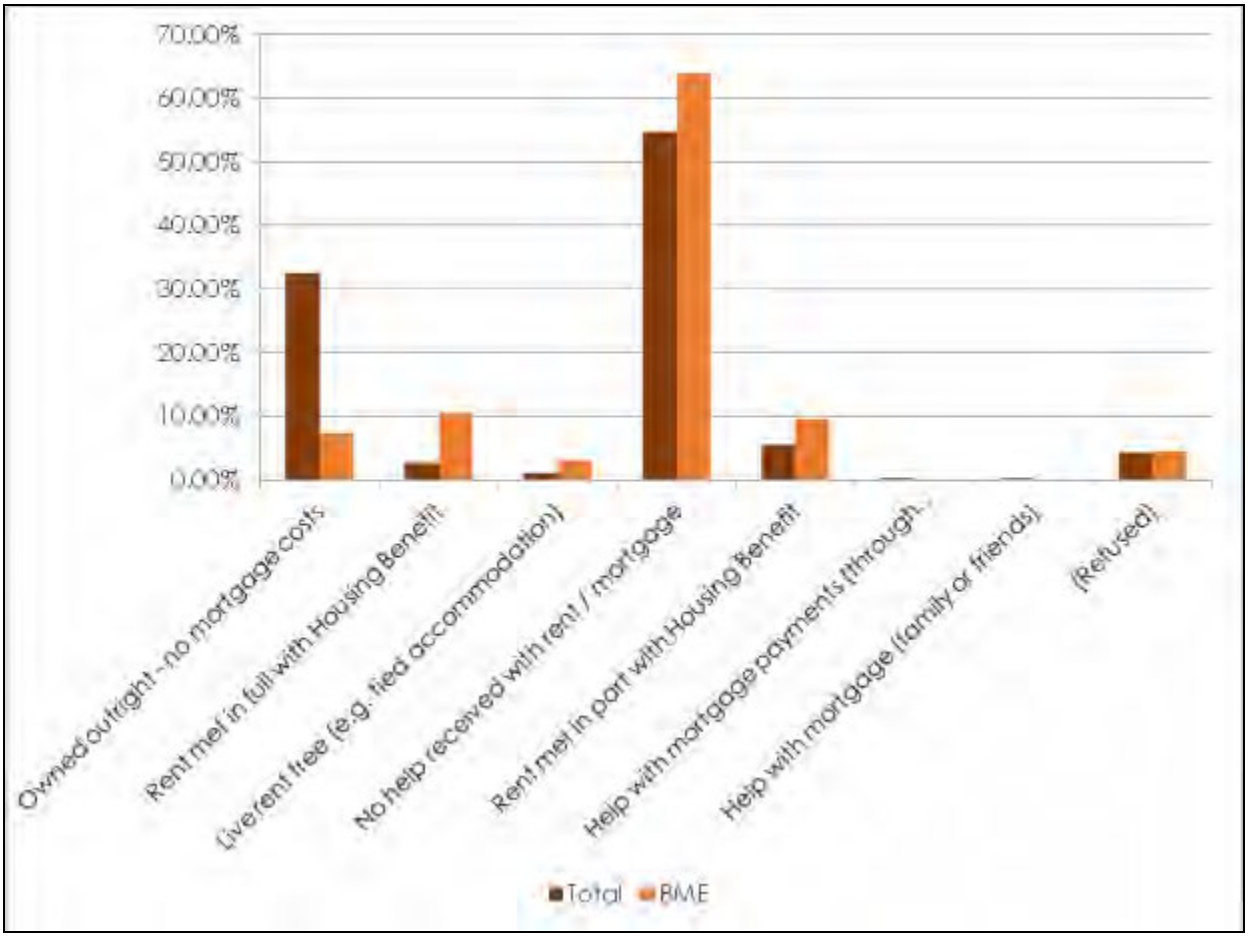
Figure 19 – Reasons for inadequacy of home for BME residents and overall



Affordability

8.7 Figure 20 shows that a lower proportion of respondents in BME households own their house outright. Respondents in a BME household are more likely to receive help with their rent, in the form of Housing Benefit, or living rent free. Interestingly, they are also more likely to not receive help with their rent at all (64.00% compared to 54.65% overall), although this may be owing to a larger proportion of non-BME households owning their home outright.

Figure 20 - Help received with housing costs



8.8 Table 16 shows that respondents living in a BME household are more likely to be 'very concerned about meeting their housing costs (8.67% of BME respondents) compared to all respondents (7.64%), fairly concerned about meeting their housing costs (27.35% of BME respondents compared to 10.57% of all respondents), and not really concerned about meeting their housing costs (28.85% of BME respondents compared to 24.94% of all respondents). Respondents living in a BME household are also considerably less likely to be not concerned at all (30.60% of BME respondents compared to 51.75% of all respondents).

Table 16 – Concern with meeting housing costs

Level of Concern	Total	BME
Very concerned	7.64%	8.67%
Fairly concerned	10.57%	27.35%
Not really concerned	24.94%	28.85%
Not concerned at all	51.75%	30.60%
(Refused)	5.09%	4.53%

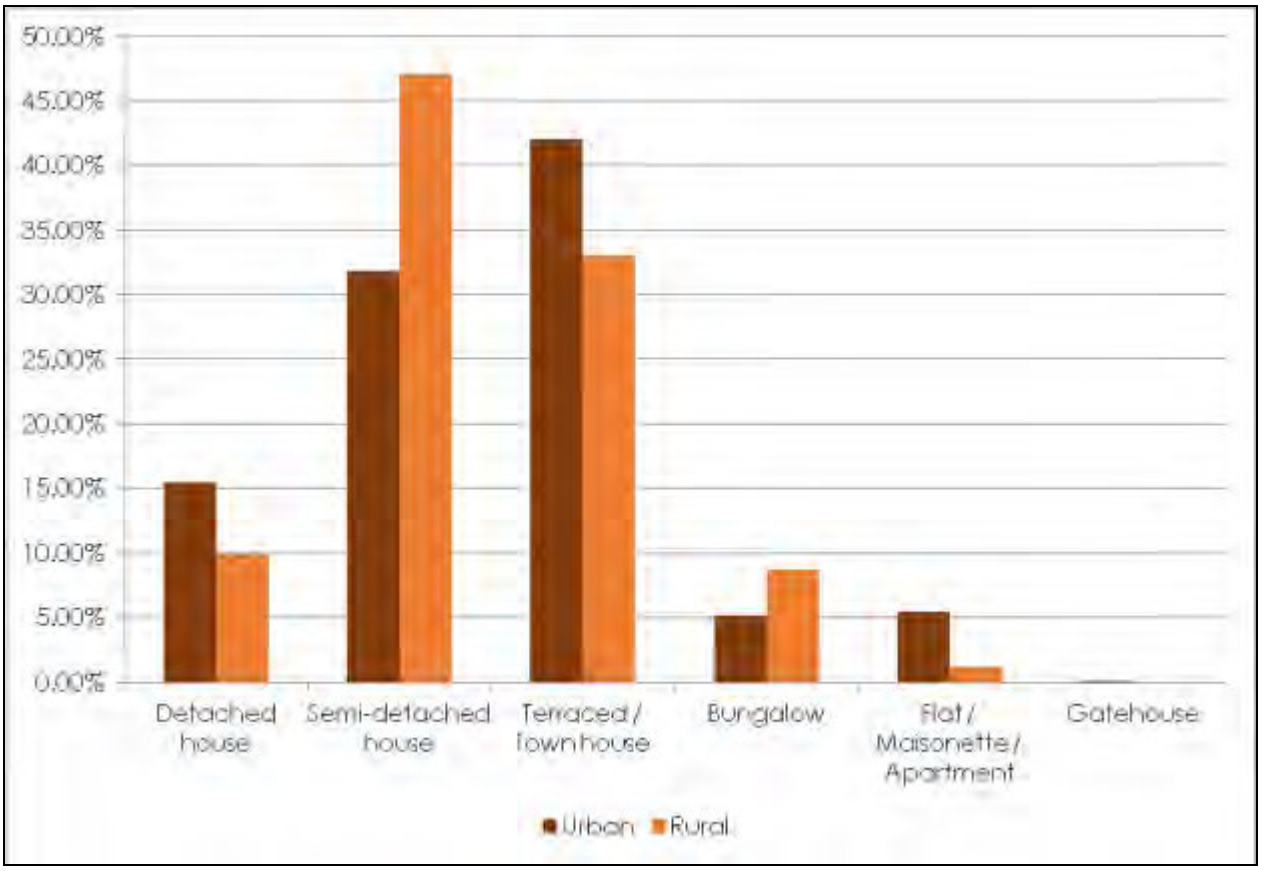
9. Rural Households

9.1 The HNS was undertaken across all Medway wards, using a weighted sampling approach to replicate the demographic profile of the authority area. Comparative analysis between rural and urban areas has been undertaken by assigning each ward with rural or urban status. The main rural wards in Medway have been identified as Cuxton and Halling, Peninsula and Strood Rural. All other wards are defined as being urban in the context of this analysis.

Sample

9.2 Figure 64 below shows that a higher proportion of rural respondents are living in semi-detached and bungalow housing, and a lower proportion of rural respondents are living in detached houses, terraced houses, flats and gatehouses, compared to respondents living in urban areas. The most significant difference is within semi-detached stock, with 47.08% of respondents occupying this stock in rural areas, and 31.80% of respondents occupying this stock in urban areas.

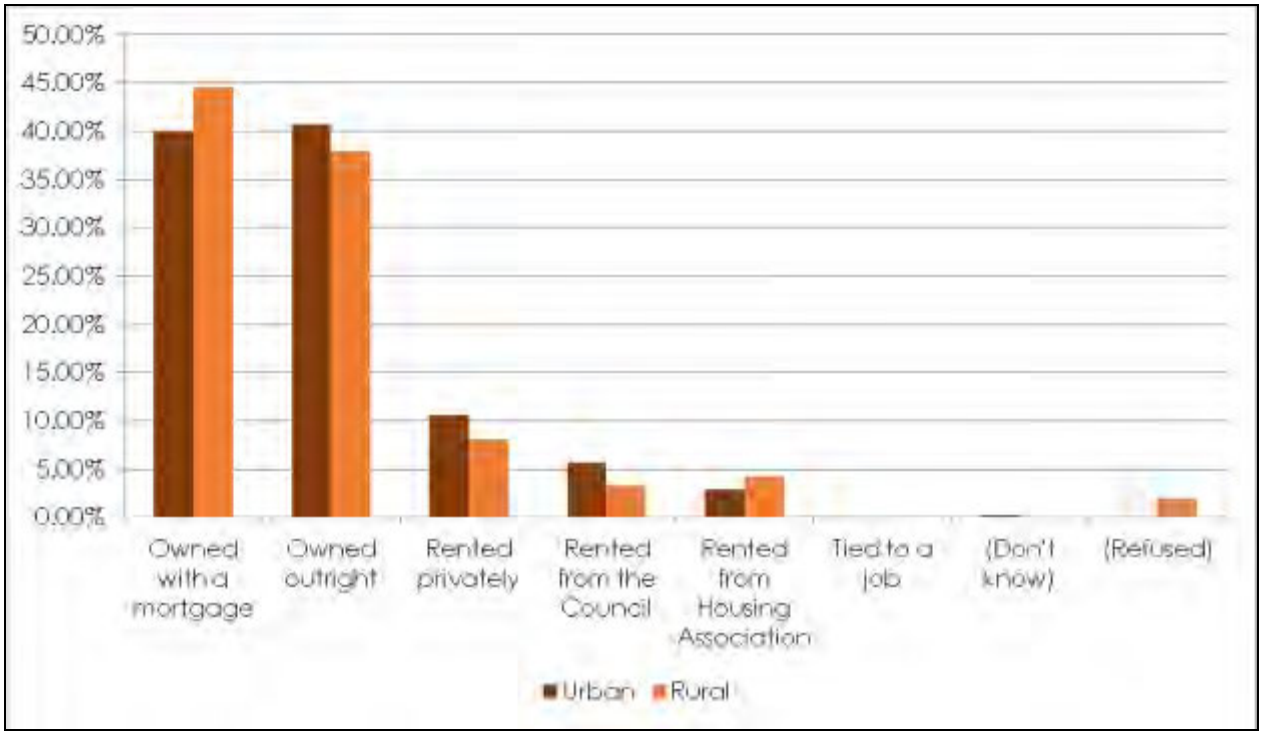
Figure 64 – Property type by rural and urban locations



9.3 Figure 65 shows that there are higher proportions of home ownership with a mortgage from respondents in rural areas (urban – 39.87%, rural - 44.53%), and lower proportions of home

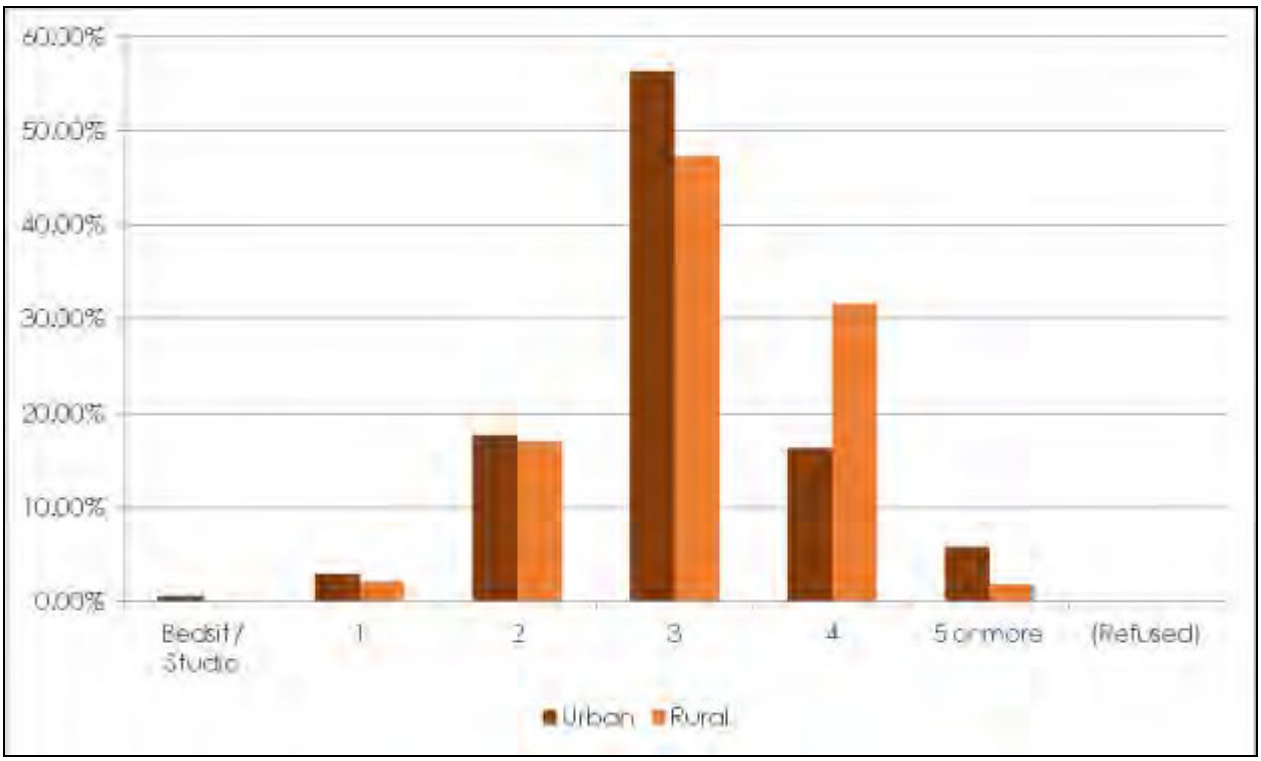
ownership without a mortgage from respondents in rural areas, compared to those in urban areas (urban – 40.73%, rural – 37.90%). Overall, home ownership of respondents in both areas is very similar (urban – 80.6%, rural – 82.43%). In rural areas there are lower proportions of households who rent privately (urban – 10.62%, rural – 8.13%) and households that rent from the council (urban – 5.62%, rural – 3.34%).

Figure 65 – Tenure by rural and urban locations



9.4 Figure 66 below shows that respondents in rural areas have a significantly higher proportion of 4 bed properties (31.62% compared to 16.36%) than respondents in urban areas. Rural respondents have lower proportions across all other stock sizes.

Figure 66 - Household Size by rural and urban locations



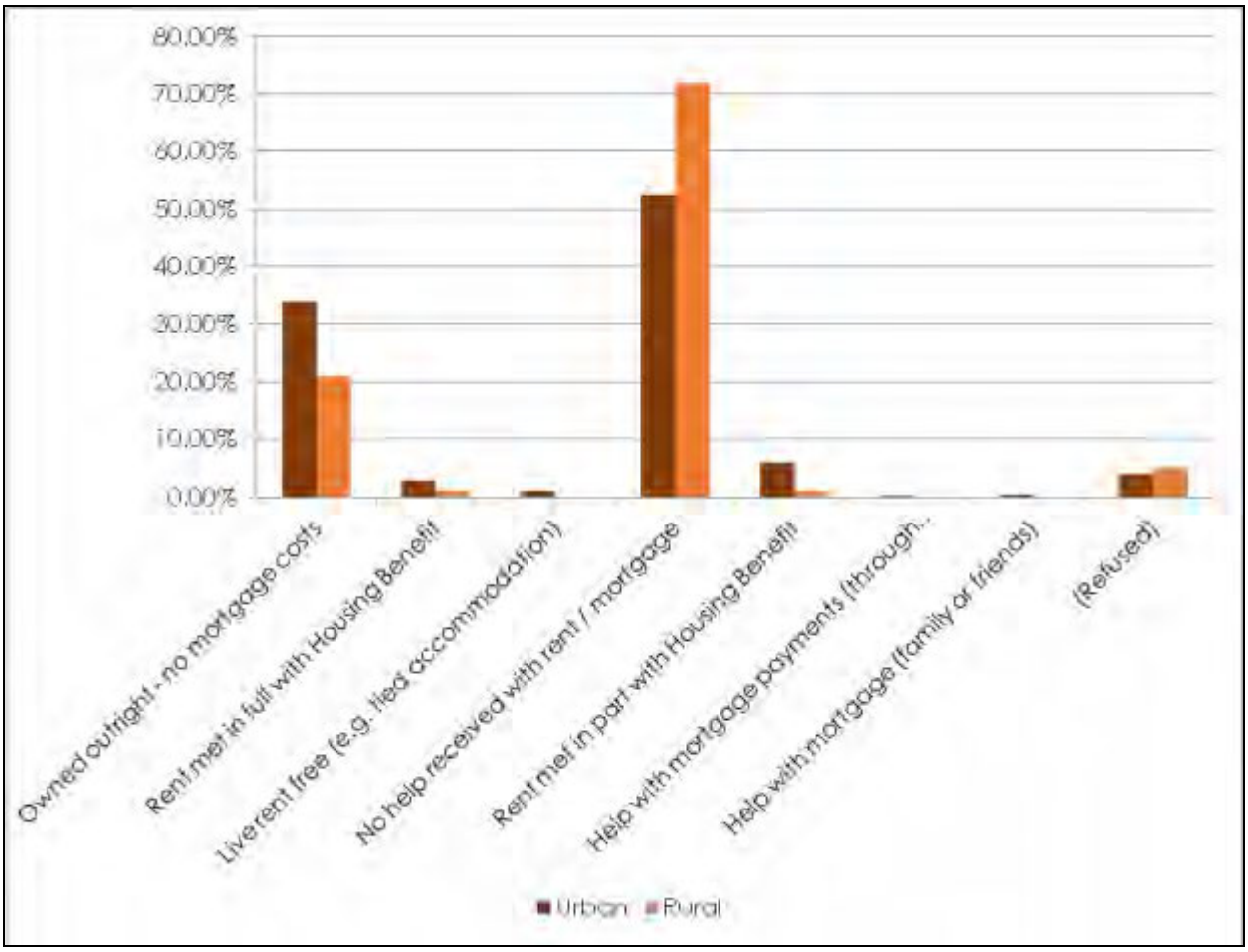
Adequacy

9.5 When asked whether their current home is adequate for their needs, a lower proportion of rural respondents responded 'no' (1.91%), compared to urban respondents (8.53%). It should be noted however, that because of the small sample size, this equates to 1 respondent in rural locations who deemed there current accommodation to be inadequate. Because of this low sample, it is not possible to compare the reasons why rural and urban households find their homes inadequate. The difference in percentage however is significant, suggesting potentially lower housing need in rural areas compared to urban areas.

Affordability

9.6 Figure 67 shows that a lower proportion of respondents living in rural areas own their home outright (with no mortgage costs). However, rural respondents were also less likely to receive help towards their housing costs (rent / mortgage) through housing benefits, or from family and friends.

Figure 67 - Help received with housing costs



9.7 Table 111 shows that respondents living in rural areas are less likely to be 'very concerned' about meeting their housing costs (1.94% compared to 4.89% of urban respondents). Rural respondents are also more likely than urban respondents to be 'not concerned at all' (35.93% compared to 30.18%). This would suggest that affordability pressures are less acute for households in Medway's rural areas.

Table 111 – Concern with meeting housing costs

Level of Concern	Urban %	Rural %
Very concerned	4.89%	1.94%
Fairly concerned	6.02%	8.46%
Not really concerned	15.05%	13.45%
Not concerned at all	30.18%	35.93%
(Refused)	3.13%	2.33%

10. Conclusion

10.1 This analysis of the key findings from the Medway HNS highlights the following key trends:

Housing Needs

- 7.76% of respondents felt that their household is not suitable for their needs. The most commonly cited reason was 'too small' (58.20%), followed by an 'insufficient number of bedrooms' (13.74%) and 'not suitable for disabled' (11.61%). Other popular reasons were 'too many stairs' (11.20%) and 'not suitable for children' (10.09%). This identifies a potential misalignment in the current size specific stock distribution compared to residents size needs.

- 3.59% of respondents reported that they need (as opposed to just want) to move. Of this sample, 34.9% are unable to do so, with the main barrier being affordability issues.

Moving Expectations

- The majority of respondents who need to move to a different home indicated they do not know where they are likely to move to (38.19%). Following this, Chatham is the most popular expected destination, identified by 30.86% of respondents.

- The highest proportion of respondents needing to move, indicated they are likely to move into a semi-detached house (43.33%) or a bungalow (29.76%).

- The highest proportion of respondents needing to move indicated they are likely to move into a two bedroom property (64.54%), followed by a three bedroom property (18.74%).

- The highest proportion of respondents needing to move, indicated they expect to rent from a landlord / agency (40.95%), followed by 21.91% of respondents who expect to own or buy a property outright (without a mortgage).

Affordability

- A total of 8.57% received some help with their housing costs; the majority of which constitutes receiving housing benefits to help meet rental / mortgage costs.

Emerging Households

- 25.02% of respondents indicated one or more members of their household are likely to set up their own home in the next 5 years. Of these households, 92.67% are expected to be formed by adult children living at home with their parents.
- Respondents indicated that the majority of households expected to emerge in the next 5 years are within the 25-44 age bracket (50.27%), followed by the 16-24 age bracket (46.86%).
- Respondents indicated that the majority of households expected to emerge in the next 5 years are expected to be either couples (29.20%) or single (26.9%).
- Respondents indicated that the majority of households expected to emerge in the next 5 years are expecting to own or buy their property with a mortgage (52%), followed by 18% who do not know what tenure their household will have, 14% who expect to rent privately from a landlord / agency, 8% who are planning to flat / house share, and 1% who expect to rent from the Council.

Disability, Adaptations & Care

- Respondents indicated that the most common disability amongst adults is 'physical disability' (59% of households), with 11% being wheelchair users, and 48% not using wheelchairs. The vast majority of households with a disabled member have no special adaptations, indicating a potential unmet housing need.
- 35.38% of respondents indicated someone living in their households is aged 60 or over. The vast majority of these households live in homes that have not been specially adapted to accommodate the potential needs of this age group. This indicates a potential unmet housing need.

Older Person Households

- Respondents indicated that the substantially most popular housing option for older people is remaining in their current home with support. The least popular options were residential care home and co-housing. This may have implications for supporting the flexibility and adaptability of future homes to facilitate receiving in-home care and support.

BME Households

- Respondents living in BME households indicated a higher proportion of renting privately and from the Council, compared to the general survey sample including all respondents. BME households are also significantly less likely to own their property.

- Respondents living in BME households indicated a slightly higher proportion of occupation of 1 bedroom properties.

- A higher proportion of BME respondents indicated they feel their home is inadequate. There are significant differences in the reasons behind this response when compared to the wider population. The most striking difference is that 59.08% of BME respondents find their home inadequate owing to an insufficient number of bedrooms, compared to only 13.74% overall. This is potentially linked to issues surrounding overcrowding, however it could also reflect the tendency for certain ethnic groups to live in larger multi-generational households.

- Further differences are evident in the suitability for children (22.93% of BME residents compared to 10.09% overall), as well as minor differences across all categories.

- Respondents in BME households are also more likely to receive help with their rent, in the form of Housing Benefit, or living rent free, and are more likely to be concerned to some degree with their housing costs, when compared to all households in the sample.

Rural Households

- A lower proportion of respondents living in rural areas indicated that their home is not adequate for their needs (1.91%) when compared to urban respondents (8.53%).

- Respondents living in rural areas indicated they are more likely to receive help towards their housing costs through housing benefit, or from family and friends. This could suggest that rural households have more acute affordability issues. However, respondents living in rural areas also indicated they are less likely to be 'very concerned' about meeting their housing costs (1.94%) compared to urban respondents (4.89%), and more likely to be 'not concerned at all' (35.93%) compared to urban respondents (30.18%). This suggests rural households have less acute affordability issues.

10.2 This analysis sets out the key housing findings based on the raw HNS data. It is incorporated throughout the SHMA report to supplement and add additional insight into the current and likely future housing issues for residents in Medway. The implications of the HNS survey findings are detailed within the relevant sections of the SHMA.

Medway Authority Monitoring Report 2018

1st April 2017 — 31st March 2018

Volume 1 - Main Report

December 2018

Medway Council
Serving You

RFI3964 - Annex B

Executive Summary 2017/2018

DEMOGRAPHY

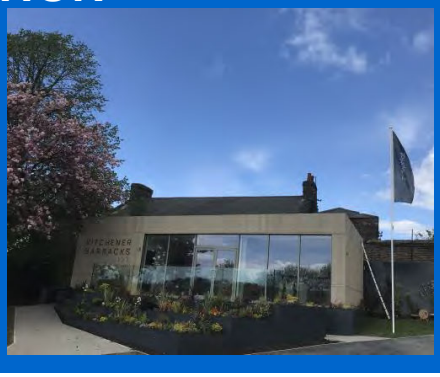
The latest mid-year estimate indicates that:

the population of Medway reached 277,616 in June 2017

This is 659 persons (0.2%) above the revised 2016 mid-year figure. The latest annual growth rate while significant has continued to slow compared to the rates of growth seen over the past five years.

REGENERATION

Demolition of Kitchener Barracks has been completed and work has commenced on the construction of 302 residential units. Marketing office shown right.



HOUSING COMPLETIONS

Figures were up on last year's completions: In 2017/18 there were:

680 housing units completed

88% were on previously developed land

19% were affordable

HOUSE PRICES

Property prices have **increased by 47% since March 2013**

Average property prices in Medway are now higher than the national amount, but remain below the local level in Kent and the South East.

NEW EMPLOYMENT FLOORSPACE

93.7%

of employment floorspace completed this year was on Previously Developed Land down on last year's figure of 98.7%

Due to demolitions of major employment sites such as Civic Centre Strood, Quayside Chatham Maritime and All Secure Canal Road Strood, there was a net loss of over 25,000sq.m.

UNEMPLOYMENT

The Job Seekers claimant rate has remained at its lowest levels since 2001 in Medway, staying at 1.4% in March 2018

However, this remains above both the National and Kent rates at 1.1% and the South East rate at 0.7%.

ECONOMIC PRODUCTIVITY

Medway's economy is worth just under **£5.2bn**

up on the previous year by 2.9%. This is the 5th year of productivity growth for Medway.

EMPLOYMENT RATE

In 2018 the employment rate in Medway rose for the fourth year, standing at 78%.

The Medway employment rate continues to stand above the national level at 74.8.

EDUCATION – GCSE ATTAINMENT

A new grading system has been introduced using scores from 1-9 rather than A*-C. This scoring system was first used in 2017;

the average attainment 8 score for Medway was 44.6 compared to the national score of 45.7.

NEW RETAIL FLOORSPACE

Gross retail completions were up over 40% from last year.

The largest amount of new A1 floor space was delivered from the redevelopment of the B&Q site at Strood Retail Park and from the retail units at Gillingham Business Park.

ENVIRONMENT – GREEN FLAG AWARDS

The winners of the Green Flag award are announced each year in July during 'Love Parks' week.

In 2017/18 all seven sites received the Green Flag award.

HERITAGE AT RISK REGISTER

Currently Medway has 15 entries on the Heritage at Risk register, this is down from a high of 18 in 2015.

The number has reduced through work with the owners to undertake repairs and improvements. Other sites, such as Fort Amherst, have benefitted from Heritage Lottery Funding to help undertake a number of improvements and repairs.

MORTALITY

In 2017 the death rate remains lower than it was in 2014 and 2015 although still higher than the South East and the national level generally.

The male death rate in Medway fell to its lowest rate since 2013 and is now lower than females, which although has risen since last year, is not as high as it was in 2014.

LIFE EXPECTANCY

For 2014-16 life expectancy has risen marginally.

However, it is consistently lower than the average age for England.

TRANSPORT – TRAFFIC FLOWS

CAR JOURNEYS

Medway continues to see a lower rate of growth in car usage over vehicle usage.

Over the longer term car and vehicle journeys in Medway has grown at a slower rate in comparison to Kent and the South East and England.

BUS PASSENGER JOURNEYS

In 2016/17 8.7 million bus passenger journeys were made in Medway.

Medway has seen a slight drop in bus usage over the past four years, although nationally there has been a bigger fall in usage.

PORT CARGO TRAFFIC

Medway Ports are ranked 15th out of the top 30 busiest UK major ports

(dropping 2 places from last year) – with the cargo handled representing 1.8%.

Medway Ports cargo tonnage is down on last year, but similarly all traffic in England and Wales has generally fallen. The decline for all ports has also been notable since 2014.

PLANNING APPLICATIONS RECEIVED

1,489 planning applications were received in 2017/18

This is an increase of just over 2% from the previous year.

On average, nearly 95% of these were determined within the statutory or the agreed timeframe.

APPEALS During the year 2017/18, 55 appeals against the Council's decisions were determined. The Planning Inspectorate dismissed 83% of these appeals.

Introduction

Medway has changed significantly over the past few decades, with regeneration and new infrastructure contributing to the development of a modern city. The council is preparing a new Local Plan to manage Medway's growth up to 2035. The emerging plan is being developed in the context of pressures on the housing market and key services, a rising population, and it aims to direct growth in line with respect for the area's natural and built environment. The council is committed to securing the investments in upgrading the area's infrastructure to ensure that growth does not overstretch the capacity of services.

The council has produced a new regeneration strategy, Medway 2035, aligned with the ambitions of the emerging Local Plan. This is published alongside this Authority Monitoring Report. It promotes our key regeneration sites and the council's priorities for achieving a vibrant, successful and attractive waterfront university city.

This Authority Monitoring Report is produced on an annual basis to provide an overview of the context of development in Medway. It gives details of economic, social and environmental data to measure how Medway is performing as an area, and understanding its needs. It is a key mechanism for the Council's Planning Service in assessing the progress being made towards achieving its goals for economic growth, protecting the natural and historic environment, and meeting the needs of its communities. It provides information for the council and those interested in Medway to assess how we are performing in meeting the aims of our local plan, and our ambitions for sustainable development. It is a reference point in identifying the key issues that the new local plan must address to secure successful growth.

The Council has followed the established protocol for producing this Monitoring Report on an annual basis in December for the preceding financial year. This report provides monitoring information and statistical data for the period April 2017 – March 2018, with references to previous years for comparison purposes. The report has been informed by data gathered from planning applications determined at 31st March 2018. The sections on Planning Context, Duty to Cooperate, and Development and Delivery take account of information available up to November 2018.

The report is presented in three volumes. This is Volume 1 of the report which provides an overview of the key indicators of development and contextual issues in Medway. This includes short reports on the progress made in preparing the new Local Plan, and how the council has engaged with other authorities in planning for cross border strategic matters through the duty to cooperate. It also outlines the council's work in supporting development in Medway, and its actions to promote housing delivery and investment locally.

Detailed data on development statistics, such as the supply of land for housing and employment uses, is set out in Volume 2. This forms an important aspect of the evidence base for key planning measures, such as defining the authority's position on housing land supply and monitoring detailed changes in land use that inform policy in the new Local Plan.

Volume 3 is the Medway Local Aggregate Assessment for 2017, which specifically considers the supply of minerals for the aggregates sector and supports the strategic planning for industrial minerals. This is prepared in conjunction with the regional Aggregates Working Group.
These reports are available at:

http://www.medway.gov.uk/planningandbuilding/planningpolicy/authoritymonitoringreport.aspx

Planning Context

This section of the report considers updates in policy up to November 2018. This extends beyond the standard reporting period of April 2017 to March 2018, to take account of key changes in government planning policy and guidance that are relevant to the preparation of the Medway Local Plan.

The most significant development in this period was the publication of the revised NPPF in July 2018. This was accompanied by a number of updates to planning practice guidance. These included Build to rent, Community Infrastructure Levy, Consultation and pre-decision matters, Planning application fees, and Viability. Of particular relevance for Medway's local plan, the government published updated guidance on Local Plans, Plan-making and Housing and economic land availability assessment in September 2018. These provided further details on the requirements for cooperation on strategic planning matters, and the preparation of statements of common ground as part of the plan making process. Government also published a technical consultation on updates to national planning policy and guidance in October 2018. This signalled the government's intention to revise its proposed Standard Method for calculating Local Housing Need. The updated policy and guidance confirmed government's support for local plans to manage development in order to boost the delivery of housing, in line with its agenda for delivering 300,000 homes a year by the mid 2020s. The proposed changes break the link with the latest population and household projections.

The council has considered the requirements and implications arising from new policy and guidance. The new local plan will be prepared in this context. There are also wider implications that will impact on development management, and the Planning Service is preparing to respond pro-actively. We have set out our existing and planned actions in the Delivering Development section below.

Medway Local Plan

Medway Council is preparing a new Local Plan covering the period up to 2035. The focus of work over the last year has been consultation on the Development Strategy stage, and assembling a comprehensive evidence base. The Planning Service is now working on the production of the draft plan. In line with the updated guidance issued by government in Housing Need Assessment, September 2018, the council is to rebase the local plan to cover the period 2018-2035.

Local Development Scheme

The programme and timetable for the preparation of the new Medway Local Plan is set out in the Local Development Scheme. The council has prepared an updated Local Development Scheme, which is being presented to Cabinet for approval in December 2018, alongside this Authority Monitoring Report. The updated programme responds to the council's work on a Housing Infrastructure Fund bid. This ambitious bid seeks to secure investment in strategic upgrades to infrastructure and services. There are clear links between the HIF growth programme and the local plan development strategy. The draft plan will be informed by the outcome of the HIF bid.

The document sets out the programme for the production of the new Medway Local Plan. The new plan will comprise of strategic level policies, including provision for waste and minerals; targeted development management policies; land allocations

and a policies map. On adoption it will replace the saved policies of the Medway Local Plan 2003.

Key milestones for Medway Local Plan

Stage	Date
Regulation 18 – Issues and Options consultation	Jan-Feb 2016
Regulation 18 – Development Options consultation	Jan-May 2017
Regulation 18 – Development Strategy consultation	March-June 2018
Regulation 19 – Publication of draft plan	Summer 2019
Submission of plan for examination	December 2019
Adoption (determined on outcome of Examination)	2020

The council consulted on a Development Strategy document in Spring 2018. This provided four scenarios on how Medway could approach meeting its development needs. They reflected:

- Meeting housing need of 29,500 homes, in line with the council's evidence base of Objectively Assessed Needs
- Investment in infrastructure to unlock growth, reflecting the potential that could be achieved through a successful HIF bid
- Meeting the government's target of 37,000 homes as identified as the Local Housing Need, using the promoted Standard Method
- Consideration of development within parts of the designated SSSI land at Lodge Hill.

All scenarios followed a broad strategy for urban regeneration, focused development around a small rural town on the Hoo Peninsula, and wider growth distributed across suburban and rural areas. The document also set out draft policies and approaches to manage growth in Medway.

Over 350 written responses were received to the consultation, together with over 11,000 representations made in support of a national campaign to object against development on SSSI land at Lodge Hill. The council has analysed the responses to consider the matters raised. Copies of the representations and a summary of the issues raised and a breakdown of the consultation responses are set out in a report published on the council's website at:

https://www.medway.gov.uk/info/200149/planning_policies/519/future_medway_local_plan/1

Local Plan Evidence Base

The council is now preparing the content of the draft plan for publication in 2019. A broad evidence base informs the plan. Details of evidence base documents are available on the council's website at:

https://www.medway.gov.uk/info/200149/planning_policy/519/future_medway_local_plan/2

The Planning Service is continuing to develop the technical evidence base. This has included a number of key work streams over the last year.

Medway Retail and Commercial Leisure Assessment Part 2 (March 2018)

Following the completion of the North Kent SHENA Retail & Commercial Leisure Assessment 2016, the Council identified some issues that required additional research. Further work was commissioned to inform the preparation of retail strategy and policy formulation including the role of town centres, impacts on and from neighbouring centres, and consideration of the distribution of identified need for retail floor space. This research was published in support of the Development Strategy consultation in Spring 2018.

The report is available on the council's website at:

https://www.medway.gov.uk/downloads/file/2613/medway_retail_and_commercial_leisure_assessment_-_part_2

Strategic Land Availability Assessment (SLAA)

The purpose of a Strategic Land Availability Assessment (SLAA) is to identify the supply of land in Medway that is 'suitable', 'available' and 'deliverable' for development. The council has kept its information on land availability under review in preparing the new Local Plan, to ensure that its work is informed by an understanding of all options to deliver growth in Medway. An updated Strategic Land Availability Assessment was published in July 2018. This is available to view at:

https://www.medway.gov.uk/downloads/file/2988/medway_strategic_land_availability_assessment_2018

In early 2018, the council contacted registered owners of land in areas with regeneration potential to determine the availability of potential sites. The council also contacted all landowners and developers promoting land in Medway to collate further information on sites to assess viability and deliverability, and how any constraints may be addressed. This information has been used in the detailed site selection work informing the proposed allocations in the draft plan.

Strategic Transport Assessment

The Strategic Transport Assessment (STA) forms a key part of the transport evidence base. Given pressures on the existing transport networks and the scale of development needs, it is essential to demonstrate that growth can be delivered sustainably in locations and sites identified as allocations in the draft plan.

The STA establishes strategic infrastructure needs and mitigation measures required for each site allocation. Initial work provided a high-level assessment of the scenarios presented in the Development Options and Development Strategy consultations. Further stages have been carried out to more detail to inform site selection work. This work will incorporate a complementary assessment of the associated vehicle emissions within Medway's adopted Air Quality Management Areas. Further information will be published with the draft plan.

Gypsy and Traveller Accommodation Assessment

In 2017, the Council commissioned Opinion Research Services (ORS) to produce a Gypsy, Traveller and Travelling Showpeople Accommodation Assessment (GTAA), in line with the Planning Policy for Traveller Sites. The GTAA covers the plan period, so that appropriate provision can be made to address needs. The council commissioned this work jointly with Gravesham Borough Council. Although two

separate reports were produced, the joint commission provided for a consistent approach in determining needs for specialist gypsy and traveller accommodation.

The report is available to view at:

https://www.medway.gov.uk/downloads/file/3371/gypsy_traveller_and_travelling_showpeople_accommodation_assessment

Green Belt Review

Land in the western edge of Medway forms part of the metropolitan Green Belt around London. In preparing the new Local Plan, the council has carried out an assessment of the Green Belt locally. This work is published for comments in early 2019. An updated version will be produced for publication of the draft plan in 2019.

Medway's Heritage

The council published a Heritage Asset Review in November 2017 to provide a comprehensive overview of the built heritage of Medway. Its purpose is to review and assess the historic environment in Medway to provide a strategic, evidence-based framework that underpins the emerging Medway Local Plan. The Medway Heritage Asset Review can be downloaded from the Medway Council website:

https://www.medway.gov.uk/download/downloads/id/2368/heritage_asset_review_2017.pdf

The council has continued to develop its evidence base to promote a strong role for heritage in Medway's future growth. The council met with key heritage stakeholders to consider the findings of the Heritage Asset Review. This helped to identify key themes and ambitions, which were developed into a draft Medway Heritage Strategy. This has been published for consultation in early 2019 and is available on the Local Plan evidence base webpage:

https://www.medway.gov.uk/downloads/file/3478/draft_medway_heritage_strategy_

Infrastructure Planning

The development of Medway is dependent on infrastructure improvements to provide the capacity to serve the needs of the area's growing population. The council published an Infrastructure Position Statement in January 2017, to set out the baseline condition of infrastructure and service across Medway. As the council prepares the draft plan, it is producing infrastructure planning documents to demonstrate how upgraded services will be delivered to support sustainable growth.
The council is bidding to the government's Housing Infrastructure Fund for strategic scale investments to unlock the growth potential of the area, and to support the delivery of the Local Plan. This includes significant transport upgrades, social and environmental infrastructure. The bid will be submitted in March 2019, with the outcome anticipated in May 2019. The development work on the Local Plan is informed by the content of the HIF investment programme.

The council has engaged with infrastructure and service providers as part of the preparation of the draft plan, and is working with neighbouring authorities on strategic infrastructure matters. These include consideration of the impacts of the Lower Thames Crossing. Medway Council has also liaised with Kent County Council in updating the Kent and Medway Growth and Infrastructure Framework.

Community Infrastructure Levy (CIL)

The Council is updating its evidence base on infrastructure needs as part of the preparation of the Local Plan, as outlined above. In advance of the adoption of the plan, the council has reviewed its Developer Contributions and Obligations Guide. This sets out the requirements on developments to ensure that the impacts of growth on services are adequately mitigated. The revised Supplementary Planning Document was adopted in May 2018. This is available to view at:

https://www.medway.gov.uk/downloads/file/2745/medway_guide_to_developer_contributions_and_obligations_2018

The council has not progressed the implementation of CIL in advance of the new Local Plan. Updates to the NPPF and associated government policy documents and publications have confirmed the importance of securing infrastructure upgrades in line with wider development. The council is considering the implications of the government's response to the earlier consultation on developer contributions. It also recognises the updated requirements for viability assessment in relation to plan making. The council is carrying out further work on infrastructure planning and delivery as part of the preparation of the draft plan. This will be accompanied by a viability assessment that considers the impact of the plan's proposed policies and ability to deliver the development strategy promoted in the plan.

Development Briefs and Masterplans

Medway has a well established urban regeneration programme and much of the development in the last year has taken place on brownfield sites such as Gillingham Waterfront and Temple Marsh. The council recognises that regeneration sites can be complex to develop. The council supports measures that can provide greater certainty to the market. It has led on the preparation of supplementary planning documents to promote available development opportunities and set out additional guidance on design. Further information is available on the council's website at:

https://www.medway.gov.uk/info/200149/planning_policy/146/current_planning_policies/4

In the last year, the council adopted a development brief for **Strood Waterfront**. This promotes the ambitions for growth opportunities on strategic sites in Strood, that could transform the centre and waterfront sites. The council is delivering infrastructure improvements, such as flood defence works, to enable development. The development brief is available to view at:

https://www.medway.gov.uk/info/200177/regeneration/462/regeneration_in_strood/2

In June 2018, the council adopted a **Chatham Interface Land** development brief to update guidance on a key regeneration site that sits on the boundary of Chatham Historic Dockyard and Chatham Maritime. This promotes opportunities for residential led mixed use development. The development brief is available to view at:

https://www.medway.gov.uk/info/200149/planning_policy/607/chatham_interface_land_development

The council is working with partners, including Tonbridge and Malling Borough Council to bring forward a successful high quality business park near Rochester Airport, known as **Innovation Park Medway**. In Autumn 2018, the council consulted

on a draft masterplan for the site. Further details are available on the council's website:

https://www.medway.gov.uk/info/200177/regeneration/738/innovation_park_medway

As part of the evidence base for the new Local Plan, and wider regeneration aims, the council has commissioned work to produce town centre masterplans and delivery strategies for Chatham, Gillingham and Strood. The council recognises the significant structural changes that have been taking place in town centres over recent decades, and that there are new opportunities for redevelopment in some locations. The purpose of the documents was to help identify such opportunities and how the centres could form a greater part of Medway's regeneration programme in coming years. The council has also commissioned a Hoo Development Framework to set out key principles and potential approaches in planning a rural town on the Hoo Peninsula. The council has worked with a range of stakeholders on initial stages of work on the masterplans and development framework. It intends to hold further engagement in 2019 that can be used to inform the content of the draft plan.

Neighbourhood Plans and Neighbourhood Development Orders

In June 2015, a Neighbourhood Area was designated in Cliffe and Cliffe Woods for the purpose of preparing a Neighbourhood Plan. This was the first in Medway. The neighbourhood planning group has continued to work on collating its evidence base over the last year, and has employed a planning consultant to support the preparation of the draft neighbourhood plan. The parish council anticipates that it will consult on the draft plan in 2018, before submitting it to Medway Council for the latter parts of the process. More information is available on the parish council's website at:

http://www.cliffeandcliffewoods-pc.gov.uk/community/cliffe-and-cliffe-woods-parish-council-12909/ccw-neighbourhood-plan/

In the last year there has been increased interest from local communities seeking to develop their own Neighbourhood Plan. In August 2018, a second Neighbourhood Area was designated for the parish of High Halstow. The neighbourhood planning group has carried out a number of consultation events with residents to identify key issues and define objectives for the plan. Further details are available on the parish council's website at:

http://www.highhalstow-pc.gov.uk/community/high-halstow-parish-council-13291/neighbourhood-plan/

A further application for the designation of a Neighbourhood Area was submitted by the parish of Hoo St Werburgh in October 2018, and the confirmation of the designation is expected in December 2018. The Arches Local community group has also informed the council of its intention to define an area for its Neighbourhood Plan, and set up a Neighbourhood Forum. These are likely to be confirmed in early 2019.

The groups are working to different timetables for the preparation of their Neighbourhood Plans. There are no current or proposed Neighbourhood Development Orders in Medway.

Medway's Planning Service supports the work of the neighbourhood planning groups locally. Officers have attended steering group meetings, presented at public meetings, participated in consultation workshops and events, and provided materials and information to the local groups. The council will continue to work with

neighbourhood planning groups to coordinate work on the two tiers of plan making that will form the development plan for Medway.

The council has set out how it will support the preparation of neighbourhood plans in Medway in the updated Statement of Community Involvement published in December 2018.

Local Aggregate Assessment

In line with the requirements of the National Planning Policy Framework and government guidance in the Planning Practice Guidance on the Managed Aggregate Supply System, the Council has prepared a Local Aggregate Assessment summary covering operations and sales in 2017. This provides an assessment of the demand and supply for aggregate minerals to meet local and wider strategic needs, and any environmental and economic constraints that may influence this. The key information collected for 2017 is set out in Volume 3 of this Monitoring Report. To be consistent with the monitoring period and the regional approach, the document is titled 2017, although it has been produced in 2018, as part of the Authority Monitoring Report.

The Medway Local Aggregate Assessment 2017 has been reviewed by members of the South East England Aggregates Working Party (SEEAWP), and its content agreed.

The Local Aggregate Assessment representing Volume 3 of the AMR is available to view at:

http://www.medway.gov.uk/planningandbuilding/planningpolicy/authoritymonitoringreport.aspx

Duty to Cooperate

From the outset of its work in preparing a new Medway Local Plan, the council has built in the need to meet the 'duty to cooperate', as integral to a legally compliant development plan. The duty to cooperate requires the council to *'engage constructively, actively and on an ongoing basis'* with other Local Planning Authorities and Public Bodies to address *'strategic matters'*. In particular the duty to cooperate requires the Council to work with neighbouring authorities, including Kent County Council, to address strategic issues that *'cross administrative boundaries'* for example the provision of infrastructure or meeting housing needs.

The government has provided details on the requirements for the production of Statements of Common Ground that provide greater clarity on the strategic cross border matters being considered, and how local planning authorities are approaching these issues.

Medway Council has collaborated with neighbouring authorities, where there have been opportunities, in the preparation of evidence base documents. The council jointly commissioned work with Gravesham Borough Council on a North Kent Strategic Housing and Economic Needs Assessment, and more recently on a Gypsy and Traveller Accommodation Assessment.

Plan Making

The council has continued to engage with neighbouring authorities both at key stages in plan making, and on an ongoing basis in relation to strategic projects, and through sub-regional working groups and committees.

The council published the Regulation 18 Development Strategy consultation document in Spring 2018 for comments. It identified a number of strategic issues of relevance to the Medway Local Plan. Representations made at Regulation 18 consultations have confirmed the range of cross border matters are broadly understood as set out in section 2 of the Development Strategy document, 'Medway in 2035 – Vision and strategic objectives for the Local Plan'. These include Medway's location in the Thames Gateway regeneration corridor, commuting links and migration patterns, health provision, and environmental matters. Strategic developments, such as the proposed Lower Thames Crossing, Ebbsfleet Garden City and the London Entertainment resort on the Swanscombe peninsula are noted.

The council held a number of specific meetings with neighbouring local planning authorities, and wider statutory consultees in relation to the Development Strategy consultation. These meetings were in addition to the consideration of formal representations made to the Regulation 18 consultations. Information on the meetings is provided in a report summarising the consultation programme and outcomes. This is available on the council's website at:

https://www.medway.gov.uk/info/200149/planning_policy/519/future_medway_local_plan/3

The council has also sought further engagement from utilities bodies in planning for infrastructure needs to support growth in Medway. In addition to the Development Strategy consultation and the review of the Guide to Developer Contributions and Obligations, the council held bespoke meetings with services and targeted information requests.

In meeting with neighbouring planning authorities, the council has discussed the potential implications and issues arising from its emerging Local Plan, and also those of plans being progressed locally. This has included responses to the consultation on the draft Tonbridge and Malling Local Plan and the Regulation 18 consultation on the Gravesham Site Allocations and Development Management Policies document.

Engagement with neighbouring authorities and other public bodies takes place through a variety of different established forums and processes:

- *Consultations & Representations*
  Officers monitor publications and consultations by neighbouring authorities and other public bodies, making formal representations where appropriate.

- *Regular Partnership and Project Meetings*
  Regular liaison meetings take place with our neighbours through the Kent Planning Officer Group and the Kent Planning Policy Forum both of which take place every other month. As well as providing a formal forum for debate, these meetings also provide an important opportunity for sharing information and holding discussions with officers from neighbouring authorities. Medway is a member of the Wider South East group of local authorities that provides a mechanism for engagement and information exchange in relation to strategic planning matters in London. The review of the London Plan has been a key matter for consideration in assessing potential implications for the local area.

  Waste and minerals are of particular significance to strategic planning. The Council is an active member of the South East England Aggregates Working Party (SEEAWP) and the South East Waste Planning Advisory Group (SEWPAG). These provide a basis for exchange of information on minerals and waste planning matters, and in establishing consistent and coordinated approaches to minerals and waste planning. SEEAWP has a role in the production of the annual Local Aggregates Assessment (LAA), and has provided a formal sign off for Medway's LAA.

  On environmental issues, the council participates in the North Kent Environmental Planning Group, which seeks to develop an evidence base and integrated best practice in planning for the internationally important estuaries and marshes of the Thames, Medway and Swale. A dedicated Management Board with representatives of councils and voluntary organisations across north Kent has been set up to oversee the implementation of the North Kent Strategic Access Management and Monitoring scheme. This works on a strategic approach to managing and mitigating the potential impact resulting from recreational disturbance to the Special Protection Areas of the Thames, Medway and Swale estuaries and marshes.

  The council is also a member of the Kent Downs Area of Outstanding Natural Beauty Joint Advisory Committee, which has been responsible for the preparation of a joint AONB Management Plan, adopted by all member councils, including Medway. In addition, Medway Council participates in work coordinating planning for the natural environment, such as Local Nature Partnerships.

  Medway has worked with Kent County Council on the planning and investments in broadband infrastructure, and engaged in the 2017 review of the Kent and Medway Growth & Infrastructure Framework. This is now being progressed into proposals for a digital resource to support infrastructure planning and lobbying for resources.

Medway Council is a member of the Thames Gateway Kent Partnership which coordinates regeneration work across north Kent. This has been used as a structure to discuss and coordinate responses to the proposals for the Lower Thames Crossing east of Gravesend.

The council is working with Tonbridge and Malling Borough Council on cross border planning issues for Innovation Park Medway.

Delivering Development

This section provides information on delivery rates in Medway, and what the council is doing to promote and support sustainable development.

There are signs of increased confidence in development in Medway. People can see the transformation of the urban waterfront taking place in areas like Gillingham Pier and Rochester Riverside. A greater range of companies are now building homes in Medway. There are a range of sites available for development across Medway. Rates of housebuilding are increasing year on year.

The government's ambitions are to boost rates of housebuilding to 300,000 homes a year by the mid 2020s. It has amended Planning legislation to promote the development of housing, has set challenging local housing needs targets for councils, and it is introducing a Housing Delivery Test. The test will measure what developers are building in Medway, and will have a number of implications for the local planning authority, including the potential weakening of planning powers.

Development in Medway

Rates of housing delivery have been increasing in Medway over the past three years. There is progress on key regeneration sites, but there is also growth in smaller urban sites and in suburban and rural locations. In advance of the new Local Plan, and the challenges set by government to boost housebuilding, the council has granted planning permission for a number of greenfield sites, outside of current Local Plan development boundaries, to increase housing land supply. The impact of the council's actions can be clearly seen in the statistics for projected development set out in this AMR. In 2014/15, only 6% of consented development not yet built was on greenfield sites. In this year's report, we can see that 26% of future development of homes in Medway are planned to be on greenfield sites. This provides for a diverse mix of sites to attract different sectors of the housing market.

The council is preparing the new Local Plan to address the significant uplift in housing needs, and is also seeking means to encourage the delivery of consented schemes in Medway. We have carried out an iterative process of Strategic Land Availability Assessment to identify suitable and available sites for development. We have sought further information from developers and land promoters on how existing constraints may be mitigated to provide for sustainable development. The new plan will also consider the range and mix of housing needs, to ensure that there is a balanced housing offer to meet the communities' needs. The Planning Service is promoting higher density schemes in suitable locations, well connected to transport options, where more efficient use could be made of land. The council has also contacted land owners in potential redevelopment areas to make them aware of opportunities through the Local Plan, and determining if there are further sites that could be made available for development.

There are a complex range of factors that influence the operation of the housing market; many of which are outside of Planning, such as the availability of skilled labour and materials. The council is committed to a coordinated approach to promote the delivery of its ambitions for Medway's successful growth. The local planning authority has reviewed government policy updates and wider publications, such as the Letwin Review, to take account of factors that it could influence through its Planning service and wider corporate work. The current trajectory of housing sites to be built in Medway by 2035 provides for over 8,000 homes. The council encourages

measures that bring forward their delivery. Government is particularly concerned to boost housing supply in areas of high demand. Although Medway's housing market is more affordable than surrounding areas, it is still considered to be an area of high demand. The government's focus is not just on delivering planning permissions, but finding ways to unblock delays to commencement and then to speed up actual delivery. Medway is committed to contributing to these actions where possible.

The government has identified market saturation issues, where there is a limited choice of housing types delivered by a small number of housebuilders. Achieving greater diversity in the market is seen as a means of addressing this constraint. Medway has in recent years been reliant for significant development on a small number of volume housebuilders, in particular Countryside (St Mary's Island and Horsted Park), Bellway (Bells Lane, Hoo), Redrow (St Andrew's Park, Halling) and Berkeley (Victory Pier, Gillingham). In the last year, over 50% of housing development took place in three wards where these developers were active – Gillingham North, Rochester South and Horsted, and Cuxton and Halling. However, over the past year we have also seen increased interest in Medway with a number of other volume house builders and SME's entering the market, as well as Redrow, Bellway and Countryside (in particular) maintaining their interest. Newer sites include Redrow (Mierscourt Road, Temple Waterfront and High Halstow*[1]), Countryside (Rochester Riverside), Persimmon (Otterham Quay Lane *), Bellway (BAE at Hoo and Chatham Driving Range*), McCullough Homes (Bakers Field, Rainham), Peel (Chatham Waters), Esquire (Street Farm, Hoo), Wimpey (Stoke Road, Hoo*), Abbey Homes (Peninsula Way, Chattenden and Darland Farm, Capstone*). In addition we have seen growth in provision of modular homes with Kitchener Barracks (TopHat) and Peacock Rise, Walderslade (Ene group). We also have new entries to the Medway market progressing permissions for sites - Leander Homes (Mitre service station, Rochester), Linden Homes (Berengrave Lane, Rainham), Jones Homes (Stoke Road, Hoo), Quinn Estates (Bardell Wharf, Rochester). In addition mhs homes continue their regeneration programme, redeveloping areas of poor social housing in their ownership including adjacent to Chatham centre and at Corporation Street in Chatham.

Role of Medway Council

The council is taking a lead in bringing forward development land, through infrastructure investments, such as flood defence works in Strood, to enable the construction of hundreds of new homes. It is creating a positive policy environment that supports growth, through its partnership work on leading regeneration sites such as Rochester Riverside, and providing certainty to the market through development briefs and masterplans. Our work on the masterplan and Local Development Order for Innovation Park Medway sets the framework for a modern business park attracting quality jobs to Medway.

The council maintains an ongoing and constructive dialogue with developers, to share an understanding of the issues and opportunities in Medway's development. The Planning Service holds annual forums with major developers, and a separate meeting with planning agents. These cover updates in the service, implications of policy changes, and we encourage developers and consultants to raise issues that could feed into improvements in our service. The Head of Planning has expanded this dialogue through a series of breakfast meetings between neighbouring local planning authorities and developers on key topics. Issues raised in the last year have included affordable housing and build out rates. Many of the roundtable discussions

[1] * Planning applications

consider potential constraints to delivering development. The council also organised joint meetings with developers, local planning authorities and the Chief Planner at MHCLG to discuss deliverability.

The Planning Service has established a new post of Implementation Officer, with the purpose of strengthening the understanding of the development sector in Medway, and specifically following up on schemes where development is delayed in coming forward. A process has been established to monitor and encourage the implementation of planning consents for housing development sites including those with less than 5 units. This includes contacting the applicant and establishing the reasons for any delay in implementation or non-implementation of the consent. The responses are being analysed and categorised to determine if there are any common causes for delay and working towards ways of overcoming these.

Planning officers also consult with developers annually to check the projections on phasing for development. This information is then used to produce the development trajectory data in this AMR.

Through the engagement work with the development sector, the council has gathered information on delays in building out consented schemes. SMEs advise that for smaller sites, subject to there being few pre commencement conditions that they could be on site quickly. Volume housebuilders advise that on large sites, initial development is slow as they start by doing necessary infrastructure works, such as establishing access. The council has not received information that developers are deliberately 'landbanking' on consented schemes. The issue may apply to land without planning permission. Pre commencement conditions were an area of concern but the council promotes the use of Planning Performance Agreements. These build in time to agree conditions and then agreement for submitting and clearing conditions.

The council has reviewed and resourced the development management process to ensure its effectiveness in securing sustainable development. The Planning Service makes good use of pre-application processes and Planning Performance Agreements, which are supported by applicants. Figures for the proportion of planning applications determined within time are high and have increased over the last year, with 85% of major applications determined in time, and 90% of minor applications. The council has reviewed standard conditions to consider if there are implications for any unnecessary delays to delivery. The Planning Service is using the income from the increase in planning fees to resource in the team, to make permanent temporary staff, and to increase staff in validation, landscape, urban design, empty properties and implementation.

The council recognises that viability can be an issue with brownfield sites, and has an 'open book' approach to review development contributions where appropriate. The new Local Plan will be supported by a Viability Assessment. Work commissioned on town centre masterplans has included delivery strategies to consider constraints to development and viability issues.

The Planning Service has reviewed its processes to identify areas that could speed up the delivery of sustainable development. The council has introduced a standard template form for the Strategic Access Management and Monitoring Scheme that addresses requirements on developments under the Habitats Regulations. The bird mitigation contributions process has been streamlined, but delays can arise with external statutory consultees. The authority is working with Natural England on managing appropriate assessment of relevant sites.

The council has welcomed the use of modern methods of construction as a possible means of speeding up the delivery of housing. Together with schemes being built in Medway, the council is seeking opportunities to secure a modular construction facility in Medway to support the local housing market.

The council has been advised by developers that there is an issue with the supply of materials and this links to materials conditions. The council notes that developers would like to have a range of materials agreed which allows them flexibility and ability to adapt to delays/shortages. This is given consideration.

The council promotes training opportunities in the construction sector, with courses available at the further and higher education providers in Medway, and the University Technical College. We promote apprenticeships in construction schemes, such as Rochester Riverside. This provides both career opportunities for local people and helps to address resourcing issues in the construction sector.

Medway Council promotes the area's regeneration as a corporate priority. We publish Medway 1, that celebrates the successes of development locally and promotes further opportunities. The council launches each edition with an invited audience of key stakeholders in commercial and development sectors to boost confidence in Medway and sustain dialogue. You can view the publication at: http://medway1.com

The Planning Service works in collaboration with other services to promote and deliver successful growth. The council's Regeneration Delivery service has secured investment in infrastructure to enable and promote development to deliver our regeneration ambitions. The Regeneration Delivery team includes dedicated staff working on external funding bids, regeneration project delivery, inward investment and economic development. Our refreshed regeneration strategy, Medway 2035, has been produced in close alignment to the Local Plan. Updated development briefs and masterplans provide certainty to the market on key regeneration opportunities and our expectations. The council works successfully in partnership with government agencies, such as Homes England, developers and housing providers to bring forward sites. We have a well established programme for our waterfront regeneration sites, and are extending our work to direct attention to the town centres. Work commissioned for Chatham, Gillingham and Strood centres will inform the Local Plan.

The council is working on an ambitious bid to secure £170m for infrastructure improvements through the Housing Infrastructure Fund, to enable delivery of the Local Plan. The bid includes strategic transport improvements, including the introduction of new passenger rail services, and a package of social and environmental investments to enable the delivery of a rural town on the Hoo Peninsula.

The council has established the Medway Development Company to directly deliver development. It is progressing schemes on brownfield sites, delivering new homes, making better use of land and contributing to market confidence on Medway's future growth. The council is contributing its own land to a development portfolio and is working through One Public Estate to bring forward further opportunities for the redevelopment of underused public sector land assets. The council has also the ability to use its Compulsory Purchase Order powers to assist with land assembly. It is recognised that these brownfield sites are extremely challenging, with a number of considerations to be addressed, including flood risk, contamination, heritage, ecology, loss of parking provision. The council's work on development briefs supports planning the delivery of such complex sites.

Development and Regeneration

Medway is a leading conurbation in the south east and has a high profile regeneration programme that is transforming redundant brownfield sites. This is most notable in the Chatham Maritime area and the wider urban waterfront areas. However there are also clear signs of redevelopment in more central areas, as an important component of establishing Medway's contemporary urban character. The council champions this growth that is delivering investment in new homes, jobs and services and opening up opportunities for residents. There is increasing confidence in the market, attracted by the spectacular settings of our waterfront sites and the leadership and investment provided by the council to bring forward key locations, such as Strood Riverside. Medway 2035, our regeneration strategy sets out our further ambitions for the area's successful future.

Chatham Maritime

Strategic brownfield sites can take longer to develop, and are more costly. Many sites in Medway have benefitted from investment, such as land decontamination and flood defences, to facilitate delivery. The council has led on this work over the last 20 years and continues to establish the conditions for successful development, such as at Strood Riverside which will benefit from a new flood defence scheme and an updated development brief to guide growth in the area.

The landmark regeneration site at Rochester Riverside now has planning permission for a strategic scheme, including up to 1,400 homes. The redevelopment of Kitchener Barracks is delivering the area's largest modular housing scheme meeting high sustainability standards and demonstrating new ways of speeding up the supply of homes to the market.

The council is committed to securing investment that can deliver its vision for Medway, as a leading waterfront university city. Funding has been secured through the South East Local Enterprise Partnership to improve infrastructure and boost the economy. The council has also bid to the Housing Infrastructure Fund to invest in the strategic infrastructure that is critical to Medway's ability to accommodate the scale of projected development needs in the emerging Local Plan.

In September 2017, the Ministry of Defence withdrew its outline planning application for the development of a new settlement at Lodge Hill, Chattenden, which proposed up to 5000 new homes. Homes England (HCA) now owns the site, and is working on a new scheme to promote through the Local Plan and a fresh planning application.

The council organised the Medway Design Awards in June 2017 to showcase and celebrate the best achievements of regeneration and development in Medway over the past ten years. This attracted a high level of interest, and demonstrated how Medway has benefitted from development and the increasing confidence in the area as a place that is positive about its future growth which is characterised by quality design.

Local Enterprise Partnership Funding

Central Government allocates funding for various projects to Local Enterprise Partnerships across the UK. Medway's funding is issued to and managed by the South East Local Enterprise Partnership (SELEP). Medway has been granted Local Growth funding for several schemes totalling £40.2m as shown below:

Scheme	Grant
Chatham Town Centre and Public Realm Package The Chatham town centre project is focusing on improving the Gateway link between Chatham railway station and Chatham town centre and waterfront area. Work is delivering a high quality environment, providing for a more pleasant and convenient experience for pedestrians. 	**£4 m**
A289 Four Elms Roundabout to Medway Tunnel Journey Time and Network Improvements See the Transport section for more information.	**£11.1 m**
Medway City Estate Connectivity Improvement Measures See the Transport section for more information.	**£2 m**
Strood Town Centre Journey Time and Accessibility Enhancements See the Transport section for more information. 	**£9 m**
Medway Cycling Action Plan See the Transport section for more information.	**£2.5 m**
Innovation Park Medway (Rochester Airport Technology Park) This supports the development of a major new employment site, whilst also safeguarding the future of the airport.	**£8.1m**
Civic Centre Flood Defences Flood defence works to enable the development of over 300 homes on the former Civic Centre Site in Strood	**£3.5 m**

Brownfield Land Register

The regeneration of brownfield sites forms the core of Medway's development strategy. The council supports the effective use of land that has been previously developed to promote sustainable development and meet the wider objectives of ambitions for Medway's growth. As well as seeking investment to bring forward key regeneration sites, the council promotes greater awareness of the availability of brownfield sites for development.

Local Planning Authorities are required to publish and maintain a Brownfield Land Register. The purpose of the register is to encourage use of previously developed land, and help boost the supply of housing. In 2017/18, there were nine sites, with capacity for over 100 homes on the register. These are in addition to the large sites in Medway's regeneration programme. The current Medway Council Brownfield Land Register is available to view at:

https://www.medway.gov.uk/info/200149/planning_policies/140/brownfield_land_registers

Regeneration Sites - update

Rochester Riverside

Rochester Riverside is a flagship regeneration scheme for Medway. Medway Council and Homes England have signed an agreement with Countryside and the Hyde Group to deliver a £400m development consisting of 1,400 new homes, a primary school, work space, retail, leisure and health care facilities over the next 15 years. Planning permission was granted at the end of January 2018 and work commenced in the late spring. This is attracting much interest, and the location by the new Rochester Station offers excellent transport connections. Further details are available at:

www.rochesterriversidecommunity.com/

Rochester Riverside
Ground breaking ceremony
22 March 2018

Chatham Waters

The Mast and Rigging pub opened for business at Chatham Waters. The remainder of the 14.6 ha site will have a mix of uses including office space, student accommodation, educational space, hotel, event complex, food store and 950 residential units *(artist's impression left, credit Peel Land & Property)*. The next phases of development will consolidate this area as a new urban quarter, alongside St Mary's Island and Gillingham Waterfront.

Chatham Dockyard

Funding of a £4.8 million lottery grant has been obtained for the refurbishment of the Fitted Rigging House in the Dockyard. It will become home to a visitor centre. The project will also involve relocating the Dockyard's library and archives. This continues the success of the Chatham Historic Dockyard Trust in attracting investment and new uses to secure this unique heritage asset.

Hoo Peninsula

There has been increasing interest in development sites on the Hoo Peninsula in recent years. Much land is being promoted through the Local Plan, but a number of planning applications have also been approved in and around Hoo St Werburgh. These include Street Farm in Hoo (50 dwellings), land north of Peninsula Way (131 dwellings), land south of Stoke Road (127 dwellings) and the former Sports Ground at Bells Lane (232 dwellings).

Strood

The official opening of the Medway Innovation Studios in Strood *(pictured right)* took place in August. The shipping container buildings took about 10 weeks to construct managed by CargoTek. Every space at the studios has been let.

Redrow Homes have commenced building at the Temple Waterfront site. The first dwellings are expected to be occupied in July 2018.

The former Civic Centre car park in Strood has now closed enabling the flood mitigation works to commence.

The Strood Waterfront Development Brief 2018 was produced following public consultation in December 2017/January 2018.

St Andrew's Park, Halling

Development on the old Halling Cement Works site continues. Developers Redrow have almost completed the dwellings. To the east of Formby Road (opposite the current development) applications were submitted in 2017/18 for further residential units and also for B1 and B8 start-up business units.

Kitchener Barracks

Demolition of Kitchener Barracks has been completed and work has commenced on the erection of the 302 homes. More details available at:

https://kitchenerbarracks.com/

The new Kitchener Barracks marketing suite shown left.

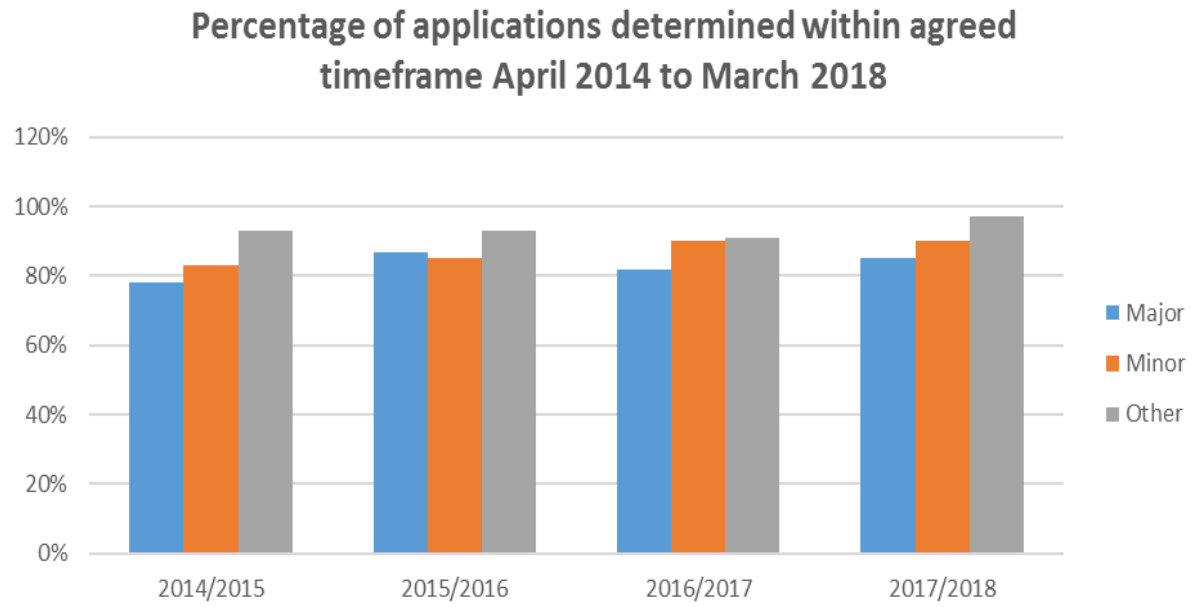
Development Management Planning Statistics

Planning applications

In 2017/18 1,489 planning applications were determined.

Number of applications determined and percentage processed within the statutory timescale or the agreed timeframe

	2014/2015		2015/2016		2016/2017		2017/2018	
	Nos	%	Nos	%	Nos	%	Nos	%
Major	56	78%	54	87%	65	82%	55	85%
Minor	369	83%	285	85%	314	90%	355	90%
Other	908	93%	983	93%	1,074	91%	1,079	97%



Major

- *Large-scale major developments - where the number of residential units to be constructed is 200 or more or 1,000 square metres of industrial, commercial or retail floor space.*
- *Small-scale major development - where the number of residential units to be constructed is between 10 and 199 inclusive.*

Minor

Is where the number of dwellings to be constructed is between 1 and 9 inclusive. A site area of less than 0.5 hectares should be used as the definition of a minor development. For all other uses, a minor development is one where the floor space to be built is less than 1,000 square metres or where the site area is less than 1 hectare.

Other

Covers minerals processing, change of use, householder developments, advertisements, listed building consents, conservation area consents, certificates of lawful development and notifications.

Managing planning applications process

The general view when processing planning applications is to focus on achieving a positive, pro-growth planning system. It is considered better to take extra time and get a better quality result, than to rush the decision and get a poor result, or simply object to proposals, which if adjusted could represent sustainable development. The Government introduced the use of Planning Performance Agreements (PPA's) and Planning Extension Agreements (PEA's), whereby applicants and Local Planning Authorities can agree an appropriate timeframe for the determination of an application, subject to there being a programme and clear end date for the determination.

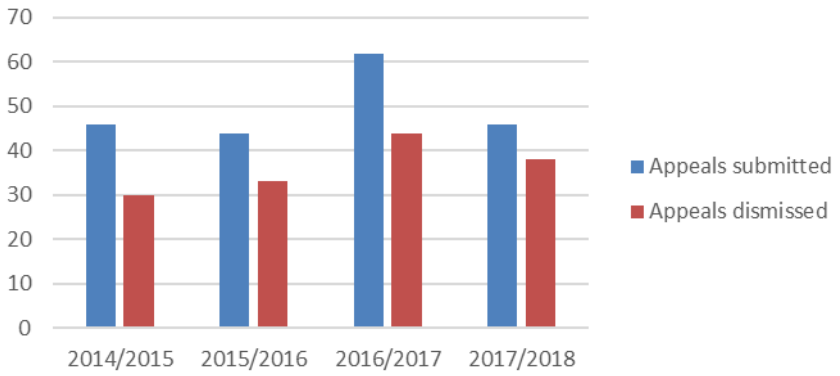
Planning Performance Agreement (PPA)
A PPA is a framework agreed between a local planning authority and a planning applicant for the management of complex development proposals within the planning process. A PPA allows both the developer and the local planning authority to agree a project plan and programme, which will include the appropriate resources necessary to determine the planning application to an agreed timetable. Medway makes good use of PPAs, and many developers welcome the bespoke service that they provide.

Planning Extension Agreements (PEA's)
A PEA is used to develop a bespoke timetable, whereby the timetable can be extended beyond 8, 13 or 16 weeks so long as the council and the applicant agree. Provided the council is able to meet the new agreed date, an application will be counted as satisfying the timeliness requirement for applications.

Appeals against planning decisions

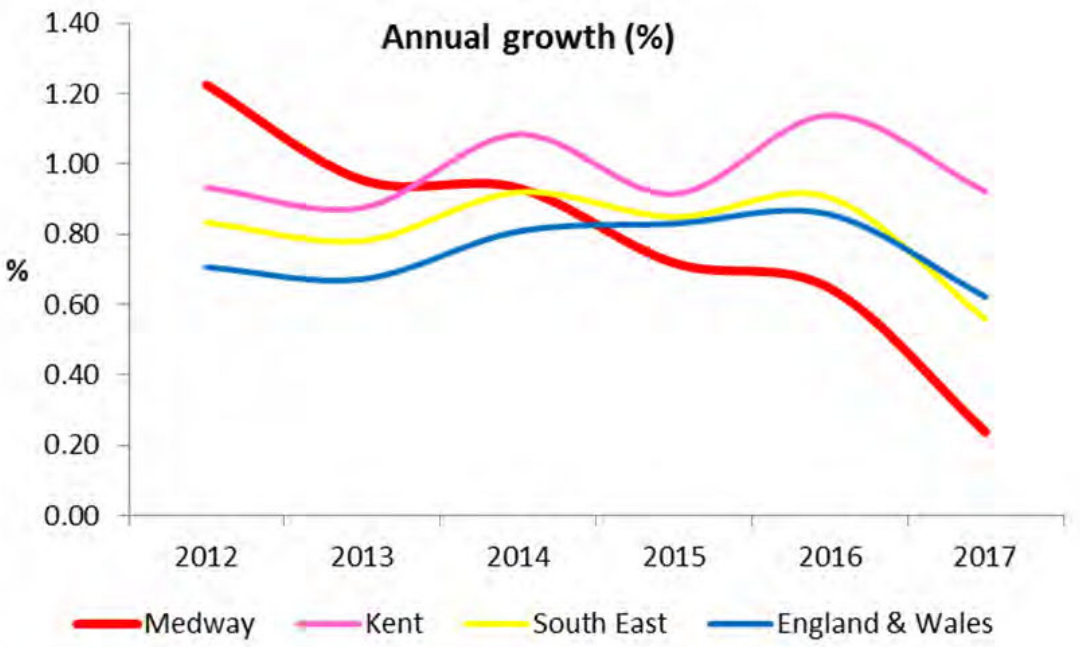
During the year 2017/18, 55 appeals against the Council's decisions were determined.
The Planning Inspectorate dismissed 83% of these appeals.

Percentage of Dismissed Appeals	
Year	**Percentage Dismissed**
2014-2015	65%
2015-2016	75%
2016-2017	65%
2017-2018	**83%**



Population

Mid year estimate 2017



The latest mid-year estimate indicates that the population of Medway reached 277,616 in June 2017 – 659 persons (0.2%) above the revised 2016 mid-year figure.

The latest annual growth rate while significant has continued to slow compared to the rates of growth seen over the past five years. The council is considering the implications of these trends in planning for the future needs of the area.

Population growth

	Medway		Kent	South East	Eng & Wales
	Population	Percent change			
2012	268,130	1.23	0.93	0.83	0.71
2013	270,689	0.95	0.88	0.78	0.67
2014	273,212	0.93	1.08	0.92	0.81
2015	275,176	0.72	0.91	0.85	0.83
2016	276.957	0.65	1.14	0.90	0.86
2017	**277,616**	**0.24**	**0.92**	**0.56**	**0.62**

Natural growth – births exceeding deaths – remains Medway's main source of growth, however significant outward migration from Medway, most notably to other parts of Kent, has reduced the overall level of growth.

The rate of natural growth was down in Medway has remained fairly consistent, but its significance towards Medway's population growth has become greater with net migration falling.

Source: Mid 2017 Population Estimates, Office for National Statistics.

Further information on Medway's population is available via this webpage:

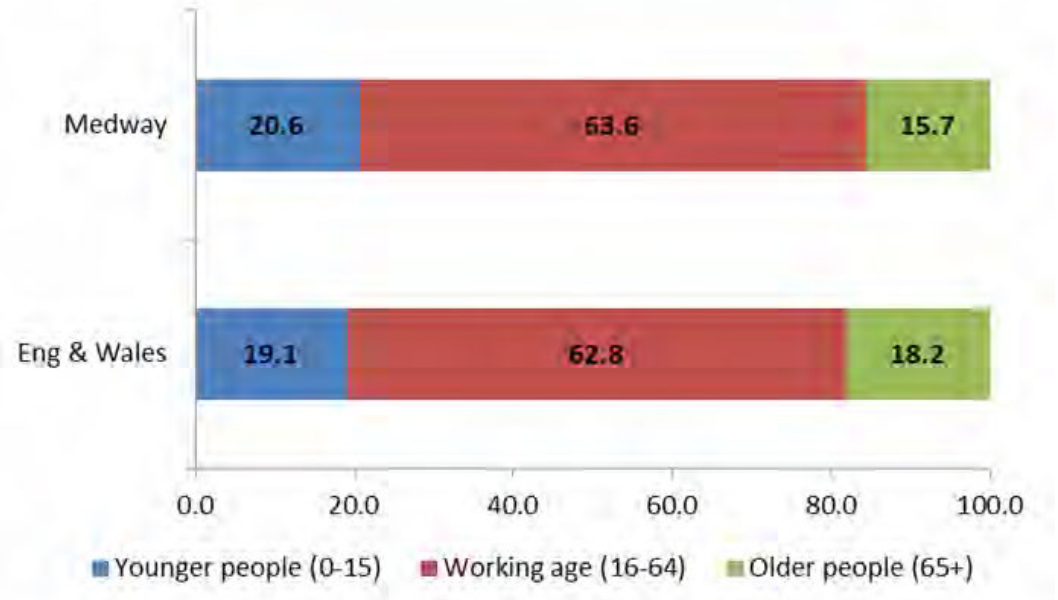
https://www.medway.gov.uk/downloads/file/226/demography_population_2017

Population by broad age group – 2017

By broad age group - Medway has a larger working age population at 64% than nationally (63%), a larger younger person's population (21%) and a smaller elderly population (16%).

There has been notable growth in the proportion of young people in Medway over recent years, increasing from 19% of the population in 2014, to 20.6% in 2017. This change brings implications for services, such as education and health, and housing requirements. These population changes will be kept under review as the council develops and implements its planning policy.

Population by broad age group – 2017



Population by broad age group – 2017				
		0-15	**16-64**	**65+**
Medway	Numbers	57,276	176,644	43,696
	Percent	**20.6**	**63.6**	**15.7**
Kent		19.3	60.8	19.9
South East		19.1	61.8	19.1
Eng & Wales		19.1	62.8	18.2

Migration

The majority of people moving into and from Medway come from other parts of England, particularly from neighbouring areas and London. International migration represents just over eleven percent of the volume of the inward flow to Medway.

The most significant migrationary flows into Medway are moves from neighbouring authorities – namely Gravesham, Maidstone then Swale. The largest moves out of Medway are also to neighbouring areas, but with a stronger trend for people to move east and south, to Swale, Maidstone, Tonbridge and Malling and Canterbury.

Flows from London to Medway have become more significant, typically from South East London particularly: Bexley, Greenwich, then Bromley and Lewisham.

The net inflow to Medway from London in 2017 is almost 50% higher than in 2012. Flows to Medway from London represent over one third of all inflows.

There appears to be a younger population flow into Medway than out, suggesting that families are moving into Medway; this flow may also reflect the movement of students entering Higher Education in Medway as well as move for employment purposes.

Medway migration flows 2017					
Internal Migration (within UK)			**International Migration**		
To Medway	**From Medway**	**Net**	**To Medway**	**From Medway**	**Net**
+12,400	-13,600	**-1,100**	+1,400	-1,000	**+400**

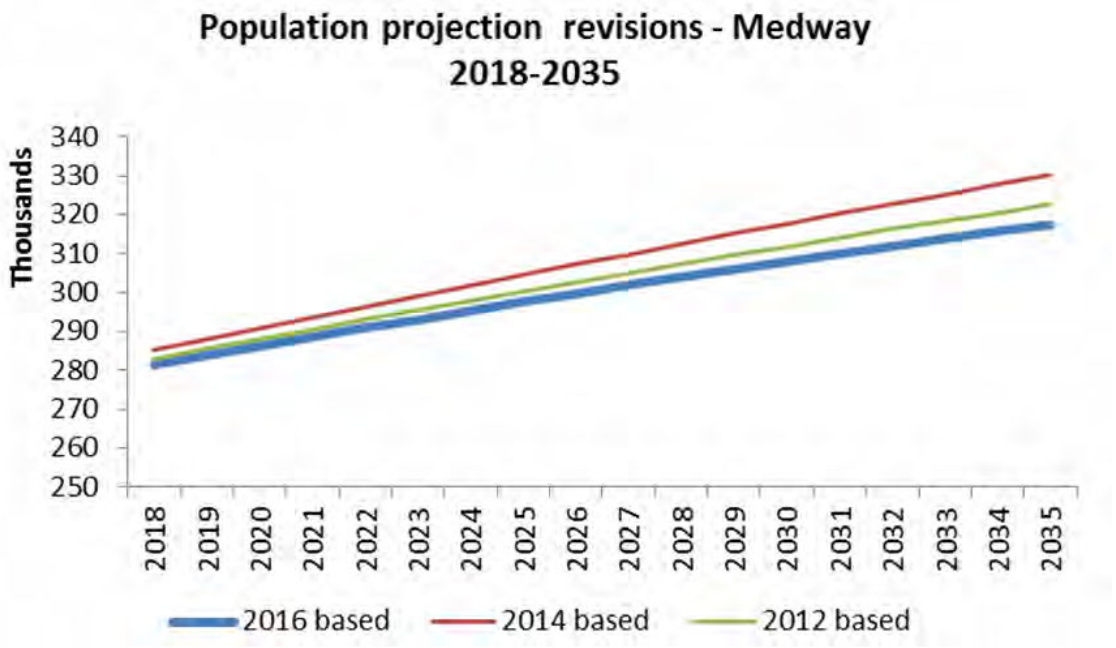
Future growth - Population projections

The 2016-based population projections which were published in May 2018 show a rate of population growth of 12.8%, with the population growing by 35,691 between 2018 and 2035.

The latest series predicts a level of growth considerably lower than the previous two projections, with the 2016 based series representing a level of growth 9,062 lower than the 2014 based series.

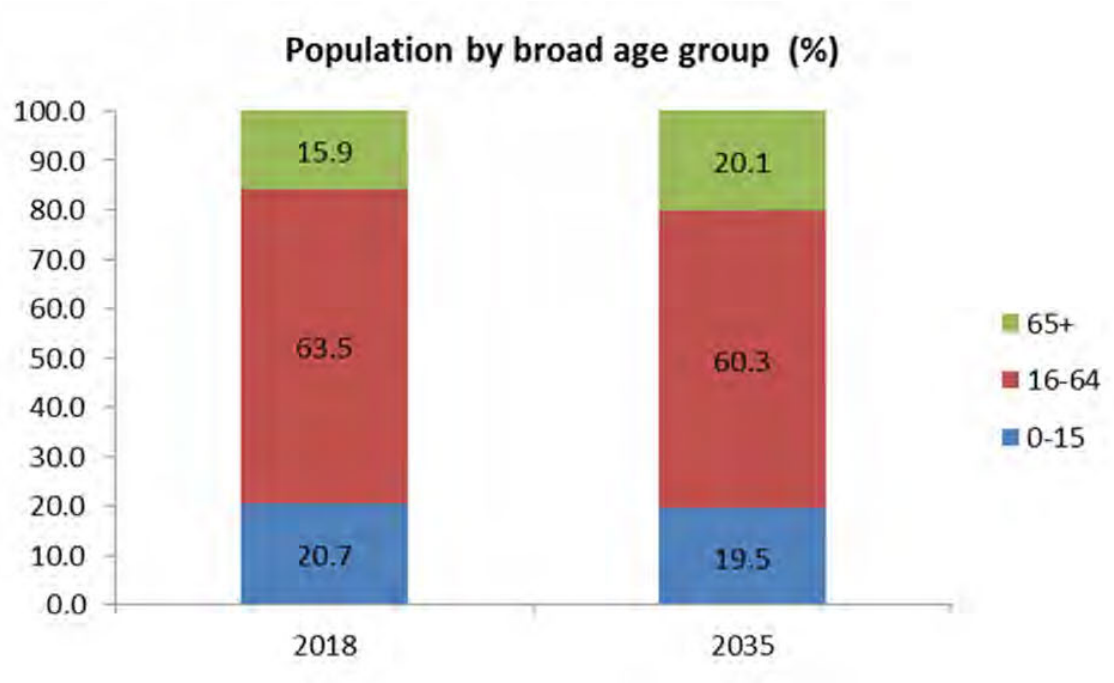
The 2016 based SNPP growth rate is twenty percent below the 2014-based growth rate and ten percent below the 2012 based SNPP growth rate.

	Population estimate		Growth	
	2018	2035	Nos	%
2016 based SNPP	281,567	317,529	35,961	12.8
2014 based SNPP	285,216	330,240	45,023	15.8
2012 based SNPP	282,935	322,688	39,751	14.0



The number of people aged 65 and over will increase by 43% by 2035, 0-15's increase by 7% and those of working age up by 7%.

The age profile of Medway is likely to change considerably by 2035. Just over one fifth of Medway's population will be aged 65 and over, while proportionally the working age population and younger people will have decreased.



Further information on population growth in Medway is available here:

http://www.medway.gov.uk/pdf/Population%20Projections%202016.pdf

Housing

The preparation of the new Local Plan involves defining a housing target to address the development needs of Medway's communities up to 2035. Government has reviewed policy for calculating local housing needs in recent years. This has created uncertainty in defining the appropriate housing target for the new Local Plan.

The council's current housing target of 1,000 homes a year was adopted in 2014. We recognise that this needs to be updated with the production of the new Local Plan. Our evidence base document, North Kent Strategic Market Assessment, identified an Objectively Assessed Need for housing of 1,281 homes a year. The government's standard method for calculating Local Housing Need currently indicates a need for 1310 homes a year. However at the time of producing this AMR, the government is consulting on a revised methodology, which could result in a further uplift in the figure. The outcome is expected next year. Given the current uncertainty, we are presenting information in this report against the council's adopted housing target of 1,000 homes a year. We will be revising this figure next year with the update of government policy and the publication of the draft plan.

Net additional dwellings a) in previous years b) for reporting year c) in future years

In 2017/18 680 units were completed, which was below the annual requirement of 1,000.

Net additional dwellings in previous years

	Completions	Requirement	Surplus/deficit
2013	565	1,000	-435
2014	579	1,000	-421
2015	483	1,000	-517
2016	553	1,000	-447
2017	642	1,000	-358
2018	**680**	**1,000**	**-320**
2013-2018	3,502	6,000	-2,498

Number of new and converted dwellings on previously developed land

In 2017/18, 601 residential completions were on previously developed land (PDL), which represents 88% of all residential completions, which is much higher than in previous years.

Number of new and converted dwellings on previously developed land (net)

	Percent units on PDL	Units on PDL
2013/14	64%	369
2014/15	64%	309
2015/16	74%	411
2016/17	86%	549
2017/18	**88%**	**601**

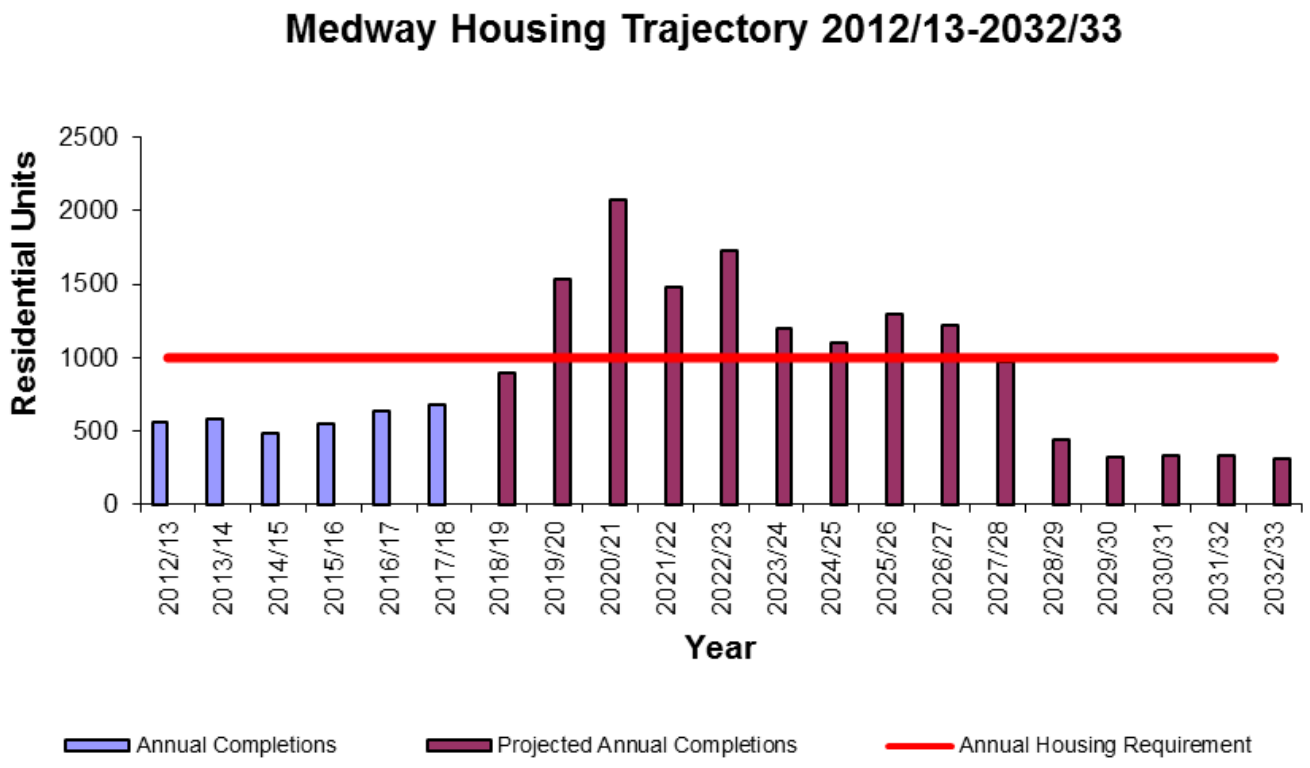
Housing Trajectory 2012/13 – 2032/33

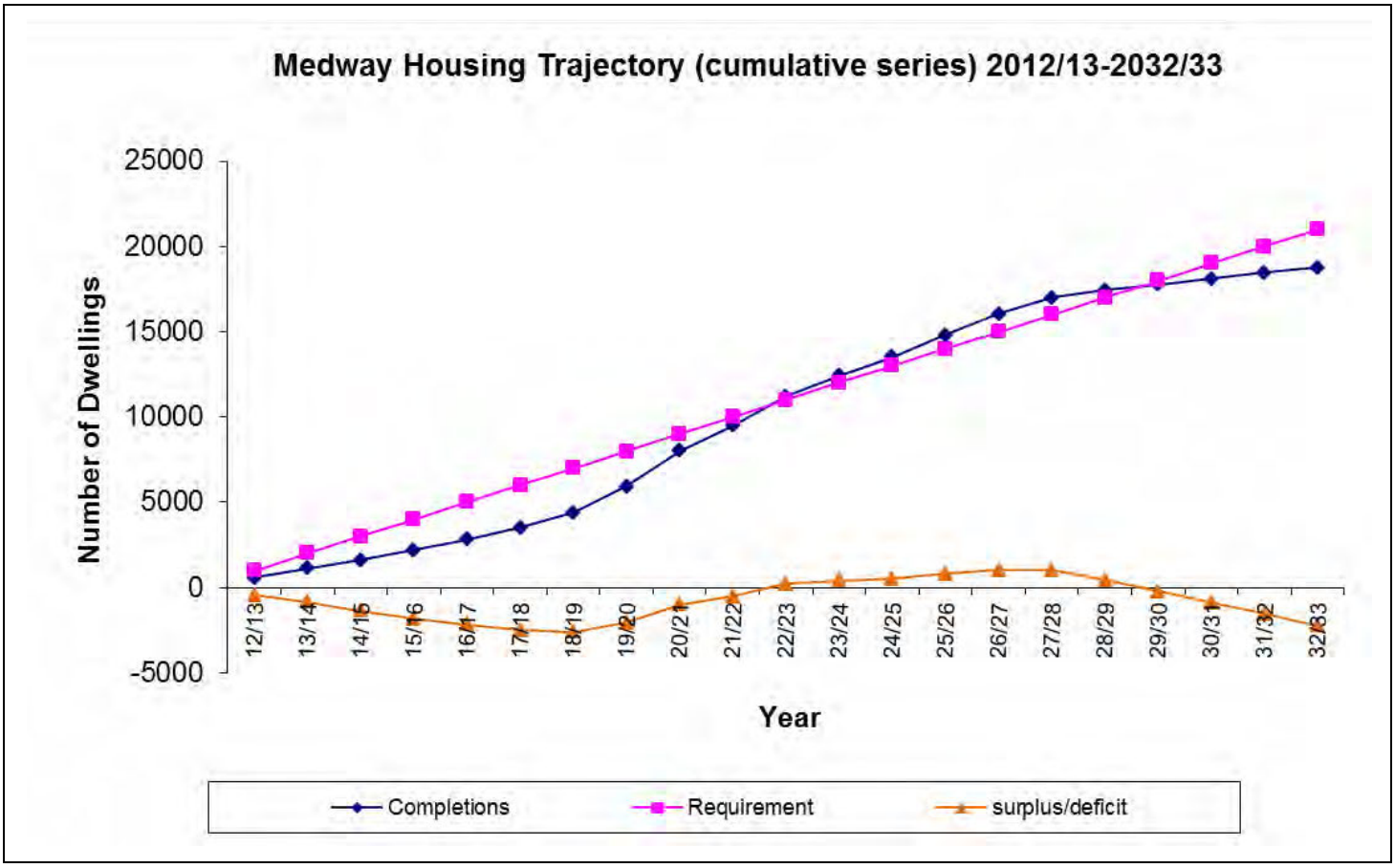
The housing trajectory shows phasing over the period 2012-2033, including contributions from past completions, sites with planning consent, local plan allocations and possible windfalls and sites that are identified in the Strategic Land Availability Assessment (SLAA), 2018. A detailed breakdown of the trajectory is set out in Volume 2 of the AMR.

Trajectory															
12-18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33
Comps	Projected Cumulative Completions														
3,502	4,395	5,929	8,005	9,486	11,212	12,407	13,511	14,805	16,031	17,007	17,453	17,781	18,116	18,446	18,758
	Projected Annual Completions														
	893	1,534	2,076	1,481	1,726	1,195	1,104	1,294	1,226	976	446	328	335	330	312
Reqmt	Annual Housing Requirement														
6,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000

The phasing is based upon planning officers' estimates, using their experience of past site delivery. Current market circumstances are also taken into account. The phasing is discussed and agreed with other council officers in Planning, Housing Services and Regeneration Delivery Teams, who have greater direct involvement with sites. Some sites within the 2018 SLAA have been phased based upon information provided and/or discussions with the land promoters. As work progresses on the new Local Plan, further sites will be allocated for development, which will significantly boost the supply of housing land.

Please note; this trajectory is based on the position as at 31st March 2018





Building work continues at Victory Pier Gillingham

Of the 841 units permitted at this riverside location, as at 31 March 2018, 648 have been completed, with the remaining 193 expected to be delivered by 2020.

Property prices

Over recent years, Medway house prices have risen at a greater rate than seen in the averages for Kent, the South East and England. Last year, the price rise in Medway matched the Kent average. As shown below, despite recent rises, the prices in Medway remain lower than the Kent and regional averages, with an average property sold in Medway being 84% of the Kent average.

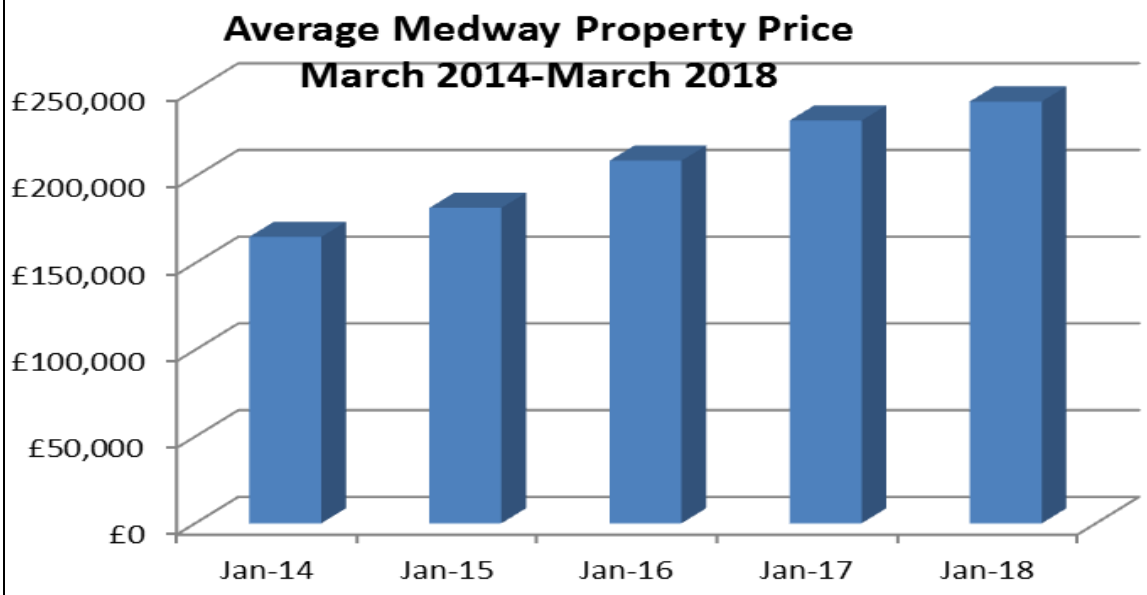
Information notes are published annually on Medway's property prices – see the following link:

https://www.medway.gov.uk/downloads/download/26/facts_and_figures

Average property price in Medway 2014-2018

Year	Medway	Kent	South East	Eng & Wales
March 2014	£165,157	£210,284	£243,371	£190,037
March 2015	£181,838	£228,561	£265,090	£203,360
March 2016	£209,075	£258,044	£300,201	£222,663
March 2017	£232,243	£275,579	£310,447	£231,760
March 2018	**£243,217**	**£289,809**	**£321,237**	**£240,732**
2014-2018 % change	47%	38%	32%	27%
2017-2018 % change	5%	5%	3%	4%

Source: Crown Copyright Land Registry Property Prices July 2018



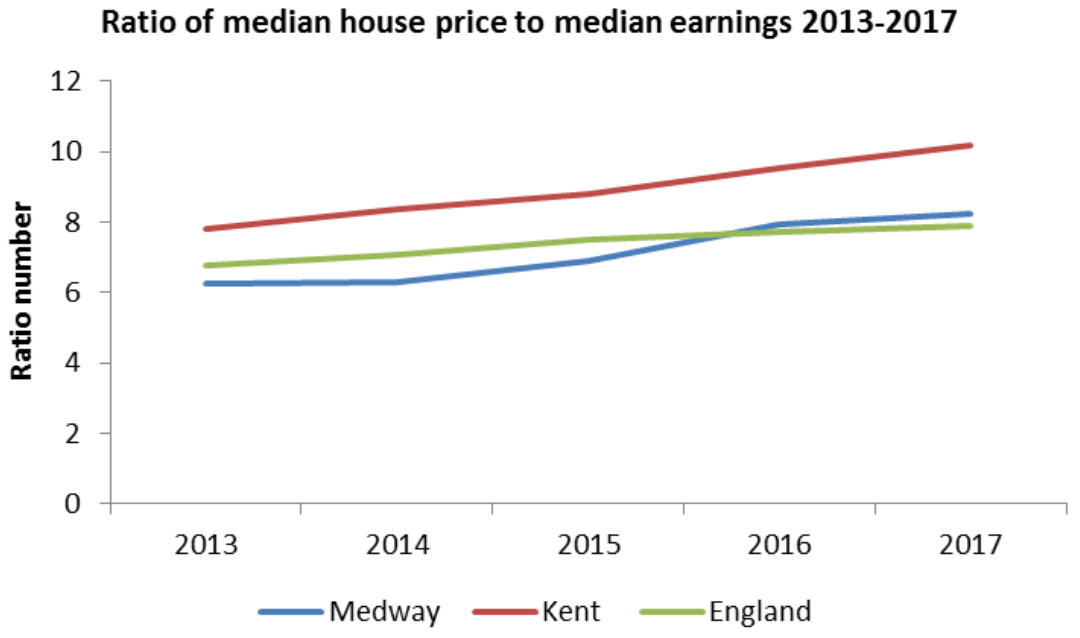
Housing affordability
House price to earnings

The cost of housing is a major issue across much of the country, and is a particular concern in the South East of England. Affordability ratios provide an indication of the relative financial accessibility of an area's housing market to local workers. The average cost of a property in Medway is over eight times the average annual salary. The position is worse for the lower quartile income/housing cost ratio.

Housing affordability over the past five years has worsened nationally, including in Medway. However Medway still remains comparatively more affordable than housing across wider Kent.

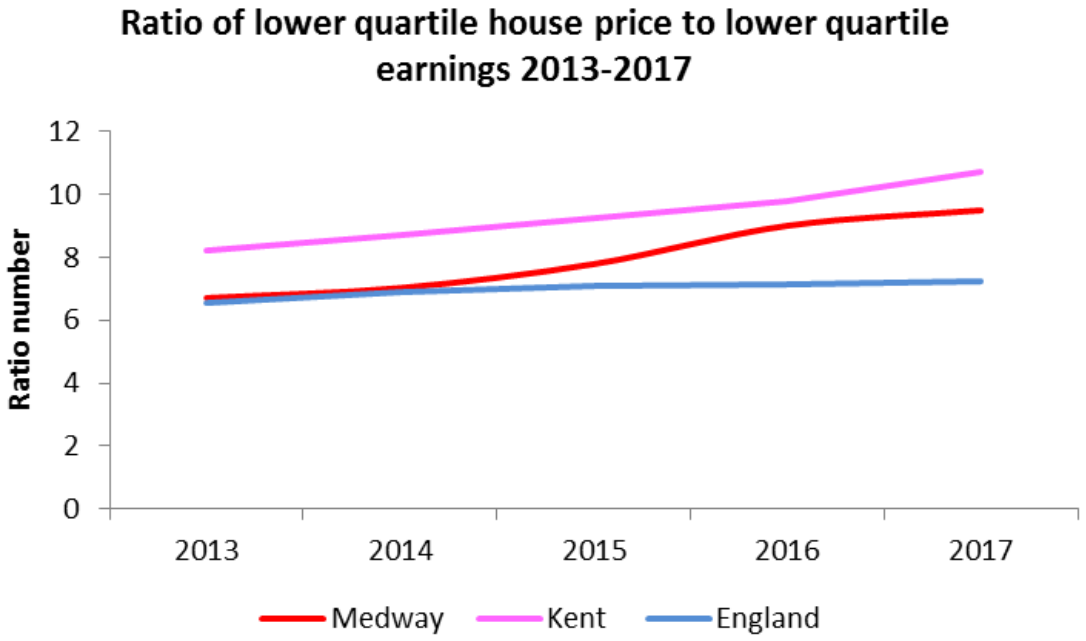
Ratio of median house price to median earnings

	2013	2014	2015	2016	2017	Ratio change 2013-2017 Nos	Ratio change 2013-2017 Percent
Medway	6.2	6.3	6.9	7.9	**8.3**	2.0	32.2
Kent	7.8	8.4	8.8	9.5	**10.2**	2.4	30.1
England	6.8	7.1	7.5	7.7	**7.9**	1.2	17.0



Ratio of lower quartile house price to lower quartile earnings

	2013	2014	2015	2016	2017	Ratio increase 2013-2017 Nos	Ratio increase 2013-2017 Percent
Medway	6.7	7.0	7.9	9.0	**9.5**	2.8	41.6
Kent	8.2	8.7	9.2	9.8	**10.7**	2.5	30.7
England	6.6	6.9	7.1	7.2	**7.3**	0.7	10.5



Source:

https://www.ons.gov.uk/peoplepopulationandcommunity/housing/datasets/ratioofhousepricetoworkplacebasedearningslowerquartileandmedian

Affordable Housing

A significant proportion of the population is unable to afford the cost of purchasing, outright, a house or other type of residential accommodation. As such it is important to maintain an adequate supply of 'affordable housing' to ensure that the whole population has a satisfactory place to live. The council's policy is to seek at least 25% of homes on any development site that meets the appropriate size thresholds to be affordable.

Gross affordable completions (count)
Affordable completions as proportion of all completions

Affordable housing data is collected and reported by the council's Housing Team and is reported as gross numbers.

The number of affordable completions has risen slightly from last year. However only 19% of gross completions were affordable in 2017/18.

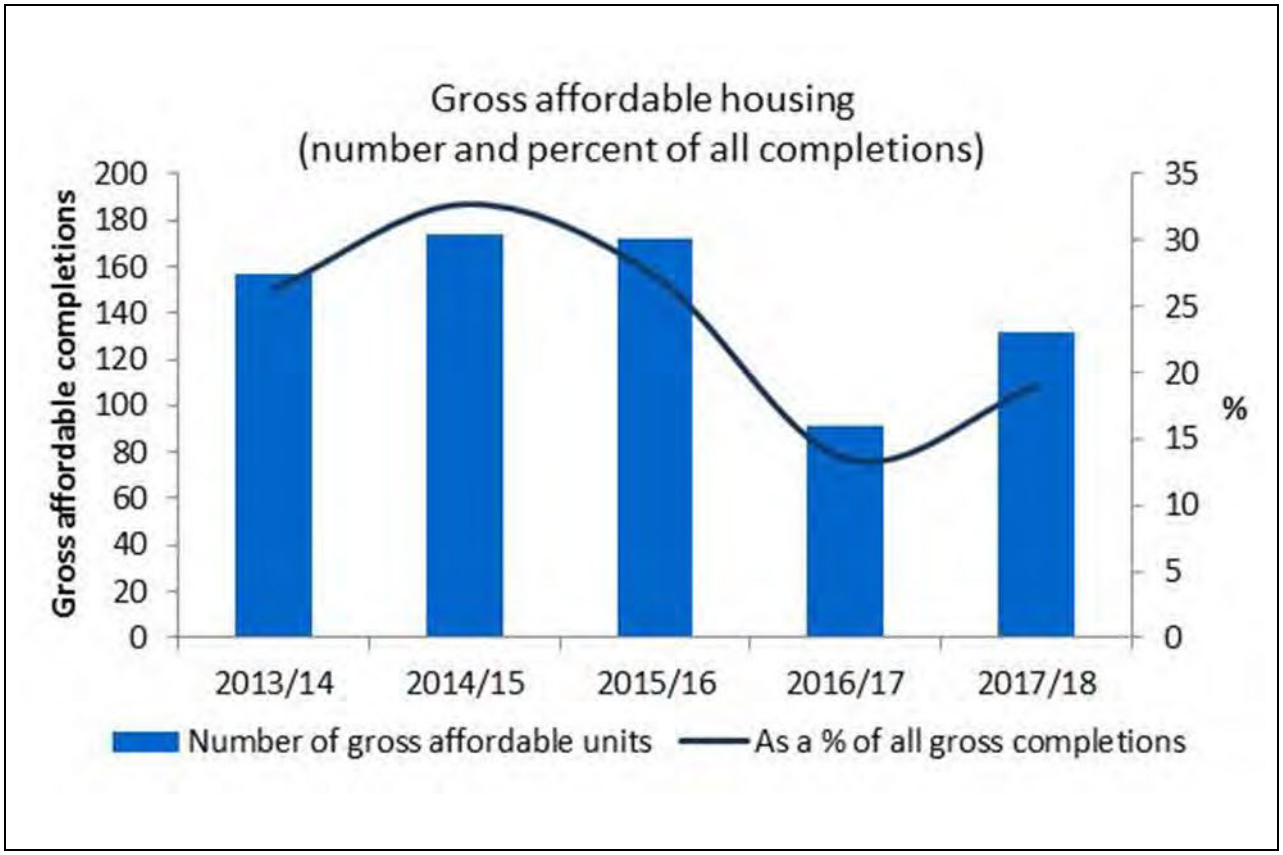
For sites built out in the year 2017/18 the breakdown of houses and flats by number of bedrooms is shown in the table below. More flats than houses were completed. The majority of new properties were for smaller households providing 1 and 2 bedrooms.

Affordable Completions (gross) by property type and number of bedrooms 2017/18

Number of bedrooms	Houses/Bungalows	Flats
One	0	64
Two	12	30
Three	20	2
Four or more	4	0
Total	**36**	**96**
Total % split	**27.3**	**72.2**

Gross affordable completions

	Number of gross affordable units	Number of gross completions	As % of all gross completions
2013/14	157	597	26.3
2014/15	174	532	32.7
2015/16	172	630	27.3
2016/17	91	675	13.5
2017/18	**132**	**695**	**19%**


Gross affordable housing
(number and percent of all completions)
Gross affordable completions
200
180
160
140
120
100
80
60
40
20
0
35
30
25
20
15
10
5
0
%
2013/14
2014/15
2015/16
2016/17
2017/18
Number of gross affordable units
As a % of all gross completions

Residential completions by property type and size

Most of the new housing being built in Medway is 2 and 3 bed homes.

Specialist provision is continuing to come forward for students. Although nothing was completed during this year, there are currently 119 proposed student rooms with planning permission.

Completions (gross) on large sites by property type and number of bedrooms 2017/18

Number of bedrooms	Houses	Flats
One	6	22
Two	11	30
Three	34	0
Four or more	8	0
Total	**59**	**52**
Total % split	**53%**	**47%**

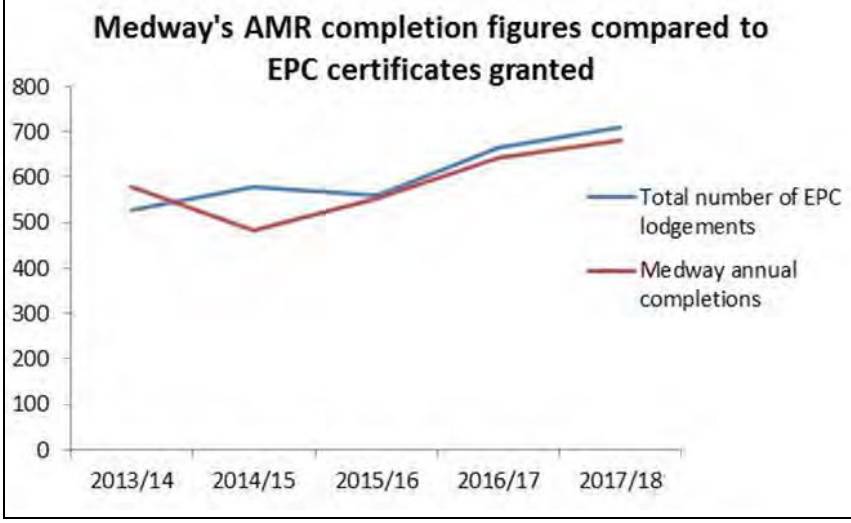
Please note, this table only shows sites which have been completely built out; it does not include sites where completions have occurred with the remainder still under construction.

Lodgement Completions - Energy Performance Certificates (EPCs)

A quarterly series of statistics is published by the Ministry for Housing, Communities and Local Government on the energy efficiency of domestic and non-domestic buildings in England and Wales that have been constructed, sold or let since 2008. This data comes from Energy Performance Certificates (EPCs) which are produced at the time of completion or sale.

Comparing EPC lodgement completions with Medway's Annual Housing Completions

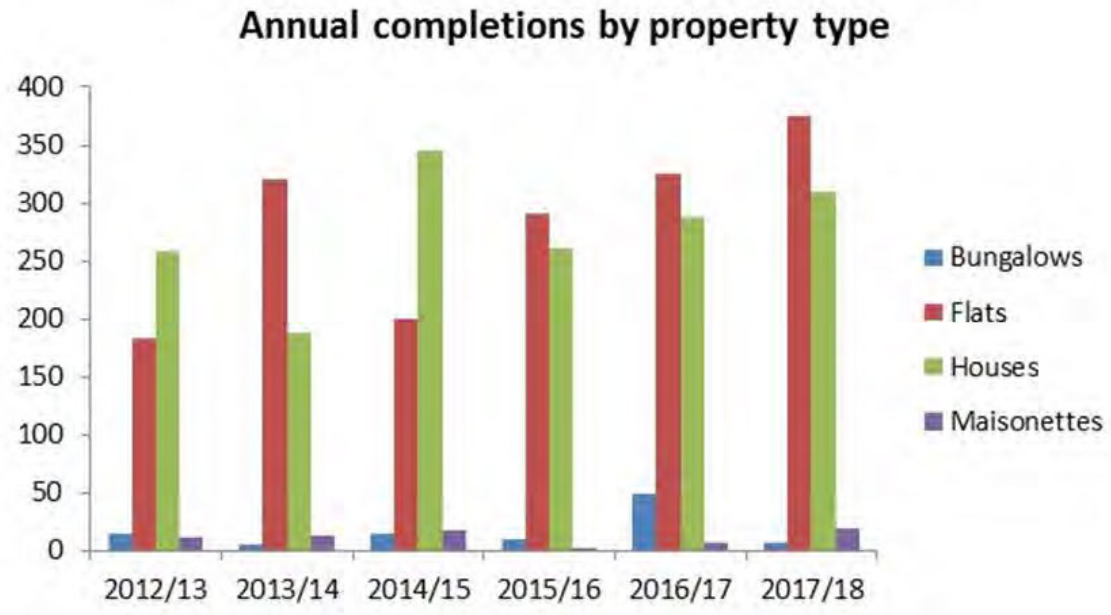
Each type of dwelling is referred to as a lodgement. The number of lodgements is different to the number of actual completions per year due to differences in the EPC requirements and definitions used when counting completions for the annual survey. However, over 6 years, there is a difference of only 6 dwellings, and annual variations are reducing, so using the EPC figures could give an early indication as to what the housing completion figures might be for each year.



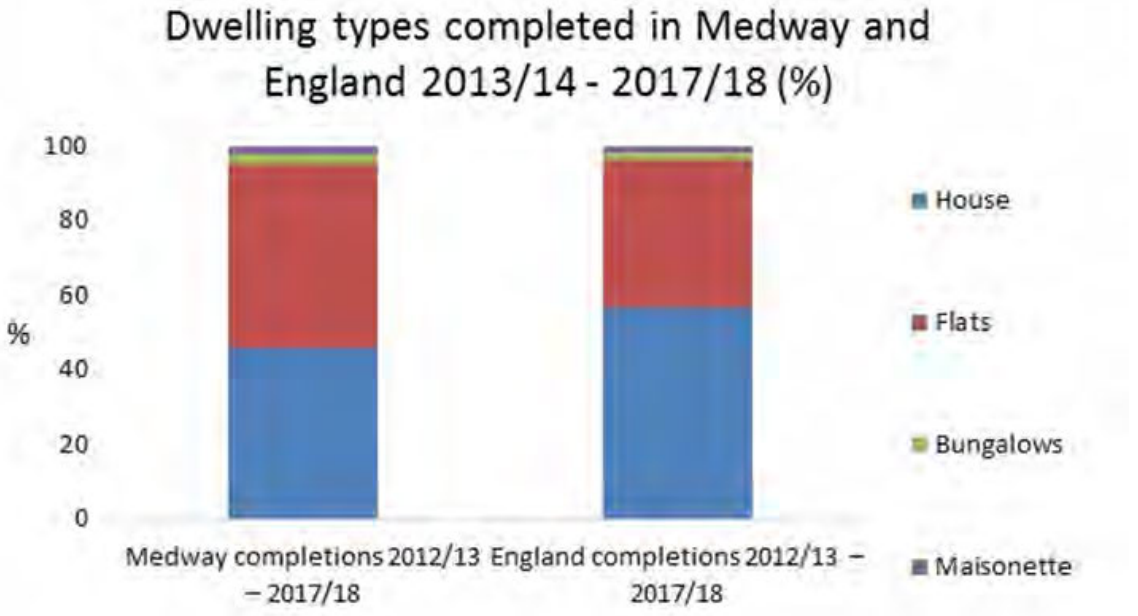
	Total lodgements	Medway completions	Difference
2012/13	466	565	-99
2013/14	527	579	-52
2014/15	578	483	95
2015/16	561	553	8
2016/17	667	642	25
2017/18	**709**	**680**	**29**
TOTAL	**3,508**	**3,502**	**-6**

Annual Completions by property type

From Medway Council's annual housing survey, it is usually not possible to monitor the completions of property types until the whole site is built out (see above). However, using the EPC statistics, it is possible to produce an approximate breakdown for each year, see the chart below:



For the 3rd year in a row more flats than houses were completed.



Since 2012/13, the average split of completions has been 46% houses, 50% flats, 3% bungalows and 2% maisonettes. Compared to national figures, this shows that there were a smaller proportion of houses completed in Medway, but a larger proportion of flats. This reflects on the regeneration achievements in Medway in recent years.

Average floor space completed 2012/13 – 2017/18		
Type of dwelling	**Medway (sq.m)**	England (sq.m)
Bungalow	**75**	88
Flats	**61**	63
Houses	**111**	113
Maisonettes	**68**	87

The average floor space size for completions of dwellings in Medway is generally slightly smaller than those completed nationally in England, with the comparative sizes for bungalows and maisonettes being less than 90% of the average for England. However it should be noted that these make up a small amount of new build homes in Medway.

Source: https://www.gov.uk/government/collections/energy-performance-of-buildings-certificates

'Other'

Using information gained from Council Tax records, during 2017/18, twelve houseboats moved into marinas in Medway (Port Werburgh, Port Medway Marina Cuxton and Medway Bridge), and seven moved out, leaving a net gain of five houseboats.

C2 accommodation (residential institutions) saw a net loss of 28 rooms 2017/18. However, in the next 5 years there is expected to be a net gain of around 113 rooms.

New Homes Bonus

The New Homes Bonus is a grant paid by central government to local councils to reflect and incentivise housing growth in their areas.

It is based on the amount of extra Council Tax revenue raised for new-build homes, conversions and long-term empty homes brought back into use. There is also an extra payment for providing affordable homes.

New Homes Bonus					
2012/13	2013/14	2014/15	2015/16	2016/17	**2017/18**
£2.3m	£3.5m	£5.4m	£6.0m	£7.5m	**£5.3m**

New Homes Bonus is not ring-fenced and is treated as part of the overall Medway Council aggregate finance, alongside Revenue Support Grant, Council Tax and Business Rates.

Gypsies, Travellers and Travelling Showpeople

In 2017, the Council commissioned Opinion Research Services (ORS) to produce an updated Gypsy, Traveller and Travelling Showpeople Accommodation Assessment (GTAA) to assess requirements from 2017-2035, as part of the evidence base for the new Local Plan. The report is available to view at:

https://www.medway.gov.uk/downloads/file/3371/gypsy_traveller_and_travelling_showpeople_accommodation_assessment

In 2015 the definition of a 'traveller' (gypsy, traveller and travelling showperson) changed with the publication of the Planning Policy for Traveller Sites (PPTS). Due to the change of the definition of a 'traveller' the level of need identified excludes cultural need. If the cultural definition were applied there would be an additional 21 pitches needed for gypsy and travellers and 0 plots for travelling showpersons.

Summary of Gypsy, Traveller and Travelling Showpeople accommodation and pitch need 2017-2035 (PPTs 2015 definition)

	Gypsy and Traveller Pitch Need Total (No. of pitches)	Travelling Show people Plot Need Total (no. of plots)
Current authorised residential provision (pitches/plots)	30	29
Residential need 2017-2022 (pitches/plots)	22	0
Residential need 2022-2027 pitches/plots)	4	1
Residential need 2027-2032 pitches/plots)	5	1
Residential need 2032-2035 pitches/plots)	3	1
Residential need 2017-2035 (pitches/plots)	34	3

In conjunction with the new definition of the 'traveller' the PPTS required Local Planning Authorities to maintain a 5 year supply of housing as they do for standard housing.

Outlined in the tables separately below is the current 5 year supply position for gypsy and travellers and then travelling showpersons. The figures quoted are as at 31st March 2018.

The new Local Plan is making provision to meet the needs for this specialist form of accommodation.

5 year land supply for Gypsy and Travellers (2017-2035)	
A. Target 2017-2035 from GTAA 2018 (includes both Gypsy, Traveller and Travelling Showpersons need)	36
B. Completions (2017-18)	0
C. Residual requirement (a-b)	0
D. 5 year requirement (a/number of years of the plan period [18] x 5)	10
E. Annual need (d/5)	2
F. Total supply deemed deliverable in 5 year period (permitted sites & allocations)	4
G. Land supply in years (f/e)	2

5 year land supply for Travelling Showpeople (2017-2035)	
A. Target 2017-2035 from GTAA 2018 (includes both Gypsy, Traveller and Travelling Showpersons need)	3
B. Completions (2017-18)	0
C. Residual requirement (a-b)	0
D. 5 year requirement (a/number of years of the plan period [18] x 5)	0.83
E. Annual need (d/5)	0.16
F. Total supply deemed deliverable in 5 year period (permitted sites & allocations)	0
G. Land supply in years (f/e)	0

*For historical information please see the *Gypsy & Traveller and Travelling Showpeople Accommodation Assessment: Medway Council Final Report (September 2013).*

https://www.medway.gov.uk/downloads/file/2365/gypsy_traveller_accommodation_assessment_2013

Net additional pitches (Gypsy and Traveller)

Bi-annual counts of Gypsy and Traveller Caravans are made by the Planning Service, Housing Management and Strategic Housing every January and July, before being submitted to MHCLG and subsequently published. A count of Travelling Showpeople is also made annually each January.

In January 2018, there were 46 caravans in Medway, of which 10 were socially rented, 24 on authorised sites with permanent/temporary permission and a further 12 on unauthorised sites without planning permission. In addition to this, there were a further 23 Travelling Showpeople caravans counted.

Gypsy Site Trend

	Authorised sites (with planning permission)				Unauthorised sites (without planning permission)				
	Socially rented	**All Private Caravans**		**All Private Caravans**	No. of Caravans on Sites on Travellers' own land		No. of Caravans on Sites on land not owned by Travellers		**Total caravans**
	Caravans	Temporary Permission	Permanent Permission		Tolerated	Not tolerated	Tolerated	Not tolerated	
Jul 2012	**12**	0	0	**0**	1	0	0	0	**13**
Jan 2013	**12**	0	5	**5**	1	0	0	0	**18**
Jul 2013	**0**	0	14	**14**	1	0	27	0	**42**
Jan 2014	**12**	0	5	**5**	1	0	0	0	**18**
Jul 2014	**0**	0	14	**14**	1	0	0	0	**15**
Jan 2015	**12**	0	5	**5**	1	0	0	0	**18**
Jul 2015	**0**	0	14	**14**	1	0	0	0	**15**
Jan 2016	**12**	0	5	**5**	1	0	0	0	**18**
Jul 2016	**0**	16	10	**26**	3	4	0	0	**33**
Jan 2017	**10**	17	11	**28**	3	7	0	0	**48**
Jul 2017	**10**	13	10	**23**	4	8	0	0	**45**
Jan 2018	**10**	9	15	**24**	4	8	0	0	**46**

*Please note, the Traveller count is voluntary and in some years numbers may have been estimated. The Planning Service took on the combined role of doing the return with sections of the Housing team from the July 2016 return onwards.

Planning applications

Year	Permitted		Refused
	Permanent*	Temporary	
2014/15	0	4	0
2015/16	0	0	1
2016/17	0	2	0
2017/18	3	1	1

*including retrospective and lawful development certificates

During the year 2017/18 there were four approvals granted for gypsy and traveller caravans/mobile dwellings;

1. Temporary permission for a gypsy/traveller and his family to occupy a site in Cliffe
2. Permission for four pitches in High Halstow, conditioned for up to two caravans per pitch
3. Retrospective permission for changing use of the land in Lower Stoke for one gypsy family with 3 caravans, including no more than one static caravan/mobile.
4. A lawful development certificate was permitted for the stationing of a residential caravan near Wainscott.

There was one refusal of an application in Sharnal Street, High Halstow.

Self Build and Custom Housebuilding Register

From 1 April 2016, the council has had a duty to hold a register of people and associations interested in a serviced plot of land that could be used to build their own home.

The register operates in 'base periods'; The first base period ran from the date the register was first established (1 April 2016) until 30th October 2016, then subsequent base periods run from 31 October to 30 October the following year.

At the end of each base period, relevant authorities have three years in which to permission an equivalent number of plots of land, which are suitable for self build and custom housebuilding, as there are entries for that base period.

Base Year	Number of applicants	Number of associations
One (1/4/2016 – 30/10/2016)	15	0
Two (31/10/2016 – 30/10/2017)	39	0
Three (31/10/2017 – 30/10/2018)	14	1
TOTAL	**68**	**1**

Base Year	Number of self/custom build plots granted planning permission
One (1/4/2016 – 30/10/2016)	0
Two (31/10/2016 – 30/10/2017)	0
Three (31/10/2017 – 30/10/2018)	11
TOTAL	**11**

The council promotes opportunities for self build and custom housebuilding with developers and notifies applicants on the register when plots become available.

The council will have regard to the register when preparing the local plan, and in making decisions on planning applications. More information can be found at:

https://www.medway.gov.uk/info/200149/planning_policies/144/self-build_and_custom_housebuilding_register

Economy and Employment

Medway Council supports the development of a diverse, high quality local economy, to provide a wide range of employment options for the community as a whole.

Medway 2035 sets out the regeneration aims and objectives for Medway across eight priority areas.

- Destination and Placemaking
- High Value Jobs and Productivity
- Inward Investment
- Local Employment
- Innovation
- Business Accommodation
- Sector Growth
- Improving Employability

It was consulted on as part of the development of the Local Plan in Spring 2018, and is to be published in December 2018. Further work will include a Regeneration Delivery Plan (a framework for delivering the identified objectives, with short, medium and long-term actions).

The new Local Plan is addressing the supply of employment land to meet the needs of businesses in Medway up to 2035.

Amount and type of completed employment floor space

In 2017/18 – although there were gross gains in all sectors, once offset against losses the net change are shows quite significant losses. Demolitions at the Civic Centre Site Strood, Quayside Chatham Maritime and All Secure Canal Road Strood account for over 21,400 sq m. These reflect redevelopment interest in brownfield sites.

Amount and type of completed employment floor space (sq.m) – 2017/18

	B1	B2	B8	Mixed B	Total
Gross	791	1,921	9,238	0	**11,950**
Net	-19,257	373	-6,629	0	**-25,513**

Amount of completed employment floor space (sq.m) 2013/14- 2017/8

	2013/14	2014/15	2015/16	2016/17	2017/18
Gross	15,919	13,841	37,371	12,838	**11,950**
Net	-11,065	-1,858	21,685	517	**-25,513**

Amount and type of employment floor space coming forward on Previously Developed Land (PDL)

Almost 94% of employment floor space was completed on previously developed land.

Amount and type of completed floor space (gross sq.m) coming forward on previously developed land (PDL) – 2017/18

B1	B2	B8	Mixed B	Total
315	1,921	8,963	0	**11,199**
40%	100%	97%	0%	**93.7%**

Completed floor space (sq.m) on PDL (total) 2013/14-2017/18

2013/14	2014/15	2015/16	2016/17	2017/18
15,666	6,849	4,527	12,675	**11,199**
98%	49%	12%	98.7%	**93.7%**

Amount and type of employment land available

The amount of available floor space for B1/B2/B8 with planning permission (not started plus under construction) net of potential losses is 771,573 sq.m.

Amount of floor space for town centre uses

Redeveloped sites at Gillingham Business Park and Strood Retail Park have led to a net increase in the A1 sector. It is notable that these sites are outside of town centre locations.

Large B1 units have been demolished; the most significant site at Chatham Quays is to be replaced with a residential development.

At the former Sports Ground at Bells Lane Hoo, the demolition of the Social Club accounts for the biggest loss in the D2 category. This site will also be redeveloped with housing.

The monitoring data shows that the town centres have shown net losses in all sectors. The council recognises High Streets have been undergoing significant changes over the last decade. The new Local Plan will set out strategy and policies for securing the future of Medway's town centres. Medway 2035, our Regeneration Strategy also promotes the vitality of centres. The council has invested in Chatham and Strood over the last year to improve the public realm and to increase the attractiveness of the town centres.

Floor space (sq.m) completed for town centre uses (A1/A2/B1/D2) – 2017/18

	A1		A2		B1		D2		Total	
	Gross	Net	Gross	Net	Gross	Net	Gross	Net	Gross	Net
Town centre	194	-865	70	-56	74	-3,506	202	-152	540	-4,579
Rest of Medway	8,021	6,723	64	-337	717	-15,751	1,740	-2,047	10,542	-11,412
Total	**8215**	**5858**	**134**	**-393**	**791**	**-19,257**	**1,942**	**-2,199**	**11,082**	**-15,991**

Total floor space (sq.m) for town centre use 2013/14-2017/18

	Town Centres		Rest of Medway		Floor space Total	
Year	Gross	Net	Gross	Net	Gross	Net
2013/14	1,183	-4,677	3,144	-1,561	4,327	-6,238
2014/15	1,772	-3,118	5,353	-2,383	7,125	-5,501
2015/16	434	-3,181	12,336	-7,015	12,770	-10,196
2016/17	1,034	-430	17,584	6,665	18,618	6,235
2017/18	**540**	**-4,579**	**10,542**	**-11,412**	**11,082**	**-15991**

Job Seekers Allowance (JSA) claimants

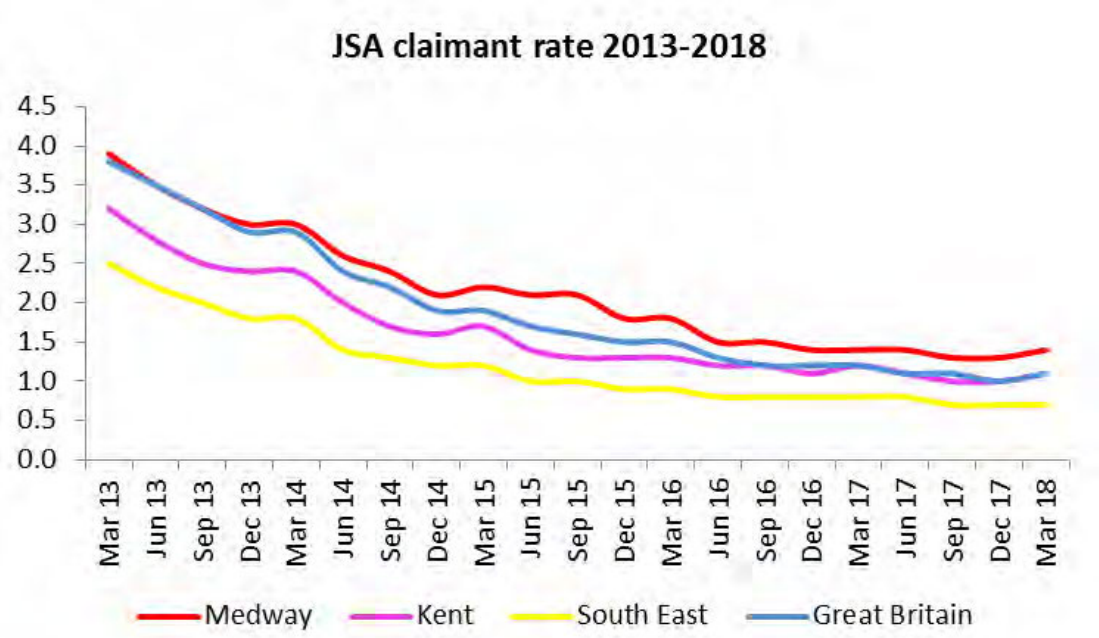
The Job Seekers claimant rate has continued to drop in Medway over 2017/18, but in March 2018 at 1.4% remains above the national rate (1.1%), the regional (0.7%) and Kent rate (1.1%).

The JSA rate in Medway dropped slightly in September and December 2018 and increased in March 2018. This is likely reflecting temporary seasonal employment opportunities, a trend which was reflected in Kent and nationally.

The JSA claimant rate remains at the lowest levels seen since 2001.

JSA claimant rate – 2013-2018

	Medway	Kent	South East	Great Britain
Mar 2013	3.9	3.2	2.5	3.8
Jun 2013	3.5	2.8	2.2	3.5
Sep 2013	3.2	2.5	2.0	3.2
Dec 2013	3.0	2.4	1.8	2.9
Mar 2014	3.0	2.4	1.8	2.9
Jun 2014	2.6	2.0	1.4	2.4
Sep 2014	2.4	1.7	1.3	2.2
Dec 2014	2.1	1.6	1.2	1.9
Mar 2015	2.2	1.7	1.2	1.9
Jun 2015	2.1	1.4	1.0	1.7
Sep 2015	2.1	1.3	1.0	1.6
Dec 2015	1.8	1.3	0.9	1.5
Mar 2016	1.8	1.3	0.9	1.5
Jun 2016	1.5	1.2	0.8	1.3
Sep 2016	1.5	1.2	0.8	1.2
Dec 2016	1.4	1.1	0.8	1.2
Mar 2017	1.4	1.2	0.8	1.2
Jun 2017	1.4	1.1	0.8	1.1
Sep 2017	1.3	1.0	0.7	1.1
Dec 2017	1.3	1.0	0.7	1.0
Mar 2018	1.4	1.1	0.7	1.1



Gross Value Added – productivity

In 2016 Medway's economy was worth just under £5.2bn, up on the 2015 level (+£144m) by 2.9%.

Medway's productivity growth in 2016 stands below the national (3.7%) growth rate, but above the regional (2.5%) and Kent county (2.2%) growth rate. 2016 is the fifth year of productivity growth for Medway however annual growth rates have fluctuated significantly over this period.

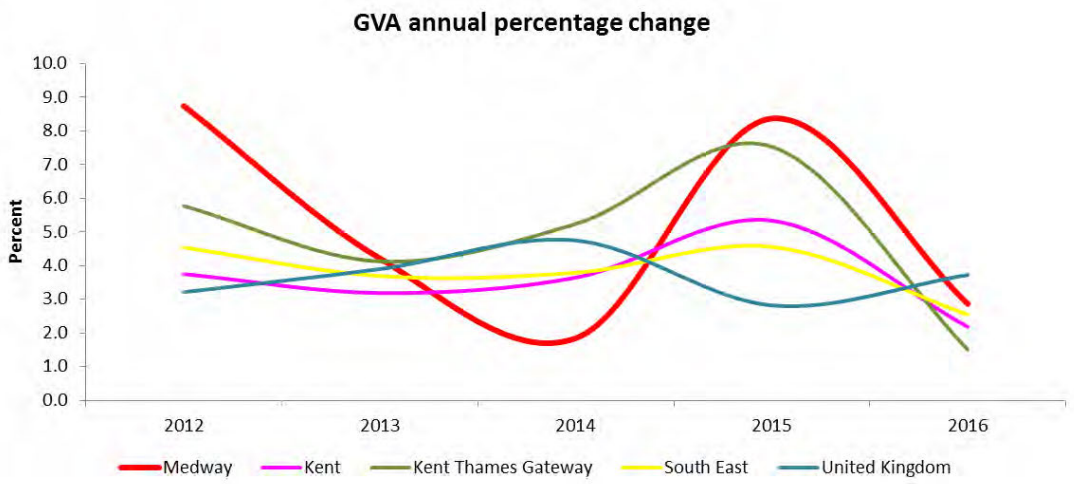
Gross value added - £ million

	2012	2013	2014	2015	2016#
Medway	4,367	4,551	4,635	5,023	5,167
	+351	+184	+84	+388	+144

Gross value added – annual change (%)

	2012	2013	2014	2015	2016#
Medway	8.7	4.2	1.8	8.4	2.9
Kent	3.7	3.2	3.6	5.3	2.2
Kent TG*	5.8	4.1	5.2	7.5	1.5
South East	4.5	3.7	3.8	4.6	2.5
UK#	3.2	3.9	4.7	2.8	3.7

Provisional figures
*Kent Thames Gateway.



For further information on GVA follow links:

https://www.ons.gov.uk/economy/grossvalueaddedgva

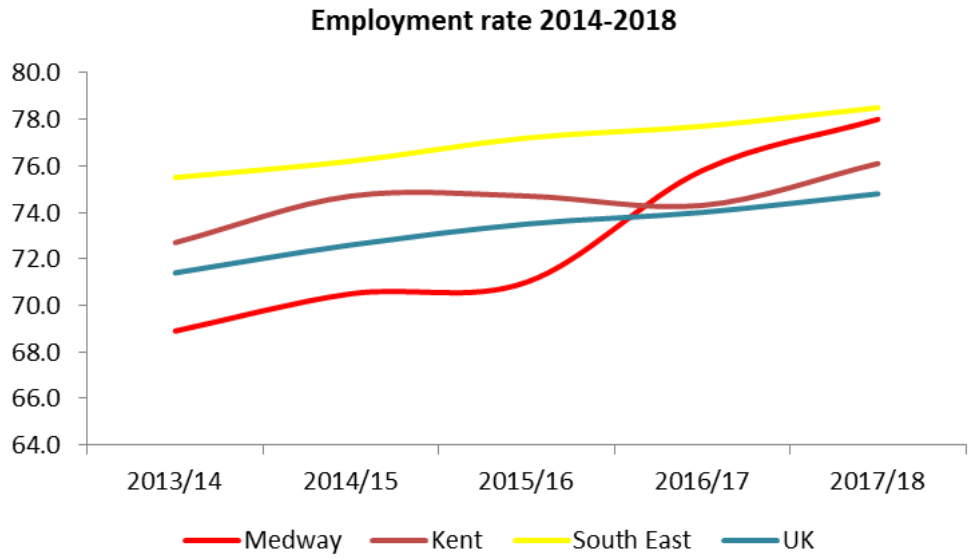
Employment

In 2018 the employment rate in Medway rose for the fourth year, standing at 78%. The Medway employment rate continues to stand above the national level at 74.8.

The gap between the Medway employment rate and the regional trend is at its narrowest in 2018 with Medway seeing larger annual increases in employment over the past five years against the South East trend.

Employment rate

	2013/14	2014/15	2015/16	2016/17	2017/18
Medway	68.9	70.5	71.0	75.8	**78.0**
Kent	72.7	74.7	74.7	74.3	**76.1**
South East	75.5	76.2	77.2	77.7	**78.5**
UK	71.4	72.6	73.5	74.0	**74.8**



Source: Annual Population Survey, ONS. Available via NOMISweb.

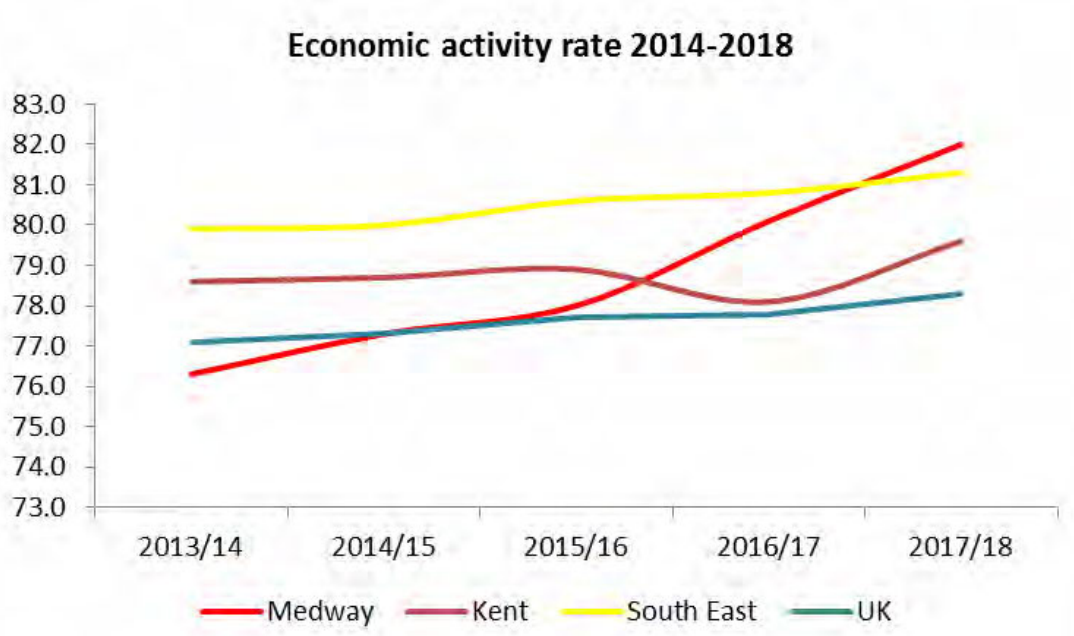
Economic activity

The economic activity level in Medway stood at 82.0% in 2018.

The economic activity rate in Medway has increased for the fourth year running and has stood above the national rate for the past three years.

Economic activity rate

	2013/14	2014/15	2015/16	2016/17	**2017/18**
Medway	76.3	77.3	78.0	80.1	**82.0**
Kent	78.6	78.7	78.9	78.1	**79.6**
South East	79.9	80.0	80.6	80.8	**81.3**
UK	77.1	77.3	77.7	77.8	**78.3**



Source: Annual Population Survey, ONS. Available via NOMISweb.

For further information on economic activity go to:

https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/uklabourmarket/august2018

The River Medway - Port cargo traffic

Medway built up around the river and its estuary, and its history and industries reflect these links. Although some traditional industries have declined, there are still a number of marine based businesses active in Medway.

The docks and wharves around Medway support local businesses and provide a strategic role for the movement of goods and materials. This includes the importation of aggregates that support the construction industry. (More information on aggregates importation is available in Volume 3 of the AMR). London Thamesport on the Isle of Grain can handle a variety of deep and shallow-drafted vessels; other ports in Medway include the Scotline Terminal on the Medway City Estate and the National Grid's Liquefied Natural Gas Importation terminal at Grain.

Data is published for Medway Ports that include Chatham Docks and the port of Sheerness, both managed by Peel Ports. Medway Ports are ranked **15th** out of the top 30 busiest UK major ports (dropping 2 places from last year) – with the cargo handled representing 1.8%.

Medway Ports cargo tonnage is down on last year, but similarly all traffic in England and Wales has generally fallen. The decline for all ports has also been notable since 2014.

In 2017, dry bulk was the largest cargo type handled by Medway Ports at 2,947 tonnes (dry bulk includes Ores, Coal, Biomass fuels - typically in the form of wood pellets and wood chips - and other agricultural products). This was followed by liquid bulk at 2,630 tonnes, which includes liquefied gas, crude oil and other oil products.

Medway Port traffic cargo – tonnage (000's)

	2013	2014	2015	2016	2017
All traffic	**8,384**	**8,447**	**9,091**	**9,170**	**8,694**
Inward	7,142	7,482	7,979	8,087	7,854
Outward	1,242	965	1,112	1,084	839

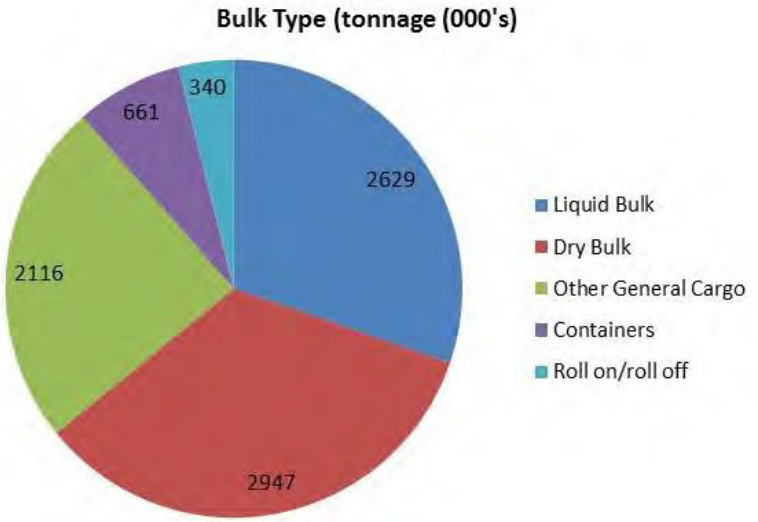
All Major UK ports traffic cargo – tonnage (000's)

	2013	2014	2015	2016	2017
All traffic	491,755	491,856	485,729	472,772	470,683

Medway Port - Ship arrivals – cargo vessels only

	2013	2014	2015	2016	2017
Arrivals	2,807	3,409	3,031	2,834	2,179

Bulk type Medway Ports – 2017		
	Tonnage (000's)	
Liquefied gas	1,116	
Oil products	1,513	
LIQUID BULK TOTAL		**2,629**
Ores	92	
Agricultural Products	61	
Other dry bulk	2,794	
DRY BULK TOTAL		**2,947**
Forestry products	1,333	
Iron and steel products	312	
General cargo and containers<20'	472	
OTHER GENERAL CARGO TOTAL		**2,117**
CONTAINERS TOTAL		**661**
ROLL ON/ROLL OFF (self propelled) Import/export of motor vehicles TOTAL		**340**
ROLL ON/ROLL OFF (non self propelled) TOTAL		**0.1**
TOTAL TRAFFIC		**8,694.1**



Source: DfT Port Freight Statistics
Further information available at:
https://www.gov.uk/government/statistics/port-freight-statistics-2017-final-figures

Retail and Town Centres

Medway Council seeks to maintain and enhance the vitality and viability of its network of urban and rural centres and support the delivery of appropriate comparison and convenience retail, office, leisure, community, entertainment and cultural facilities. In line with national changes, the town centres in Medway have faced a number of challenges in recent years, with competition from online retailers and larger retail centres further afield, particularly Bluewater. The new Local Plan and our Regeneration Strategy, Medway 2035, promote strategies and policies to secure a vibrant and strong role for Medway's centres in coming years.

The net loss of drinking establishments/public houses has continued in 2017/18, with the loss of 12 establishments, with all but one of these being lost to residential use.

Gross completions A1-A5

The largest amount of new A1 floor space was delivered from the redevelopment of the B&Q site at Strood Retail Park and from the retail units at Gillingham Business Park.

Town Centre (TC) and non Town Centre gross retail floor space completions (sq.m)

		2013/14	2014/15	2015/16	2016/17	2017/18
A1	TC	210	259	68	227	194
	Non TC	642	704	7,756	1,728	8,021
	Total	**852**	**963**	**7,824**	**1,955**	**8,215**
A2	TC	276	167	245	202	70
	Non TC	0	31	34	103	64
	Total	**276**	**198**	**279**	**305**	**134**
A3	TC	161	644	1,141	671	419
	Non TC	1,232	1,032	123	1,434	1,728
	Total	**1,393**	**1,676**	**1,264**	**2105**	**2,147**
A4	TC	0	78	273	107	60
	Non TC	0	254	252	119	331
	Total	**0**	**332**	**525**	**226**	**391**
A5	TC	0	147	0	36	47
	Non TC	493	174	234	67	58
	Total	**493**	**321**	**234**	**103**	**105**
A1-A5	TC	647	1,295	1,727	1,243	790
	Non TC	2,367	2,195	8,399	3,451	10,202
	Total	**3,014**	**3,490**	**10,126**	**4,694**	**10,992**

Net completions in town centres

Despite the increases seen in new retail floor space provision in town centres there was a net loss in A1, A2, A4 and D2 uses. Whilst many changes are due to premises swapping to other town centre uses, the most frequent losses have been to residential use. Some of these changes have been facilitated through the government's revisions to Permitted Development Rights that allow for a greater range of buildings to be converted to housing under the Prior Approval route.

Town centre development – 2017/18

Use	Losses (sq.m)	Gains (sq.m)	Net change (sq.m)
A1	-1,059	194	-865
A2	-126	70	-56
A3	-355	419	64
A4	-1,048	60	-988
A5	0	47	47
D1	0	20	20
D2	-354	202	-152
Total	**-2,942**	**1,012**	**-1,930**

Natural and Built Environment

Greenspace regeneration project

Development of Green Spaces

Working in partnership the aim is to protect and sustain the existing open spaces and create new and improved open spaces by:

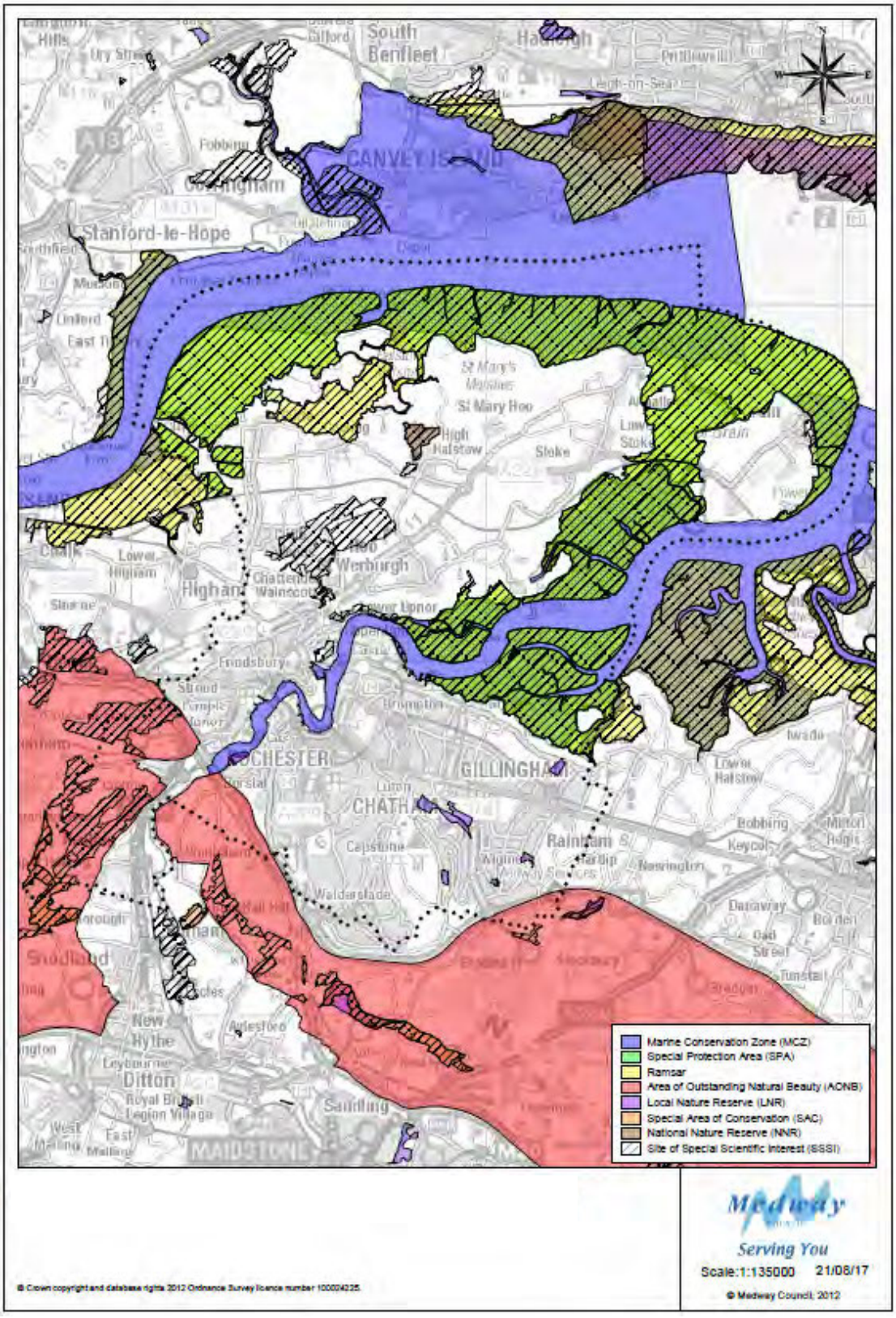
- make the best use of our valued open and green spaces
- identify how we can improve our existing parks and open spaces
- develop new partnerships and secure funding to make improvements in the future
- encourage more community involvement
- celebrate our open and green spaces

The current projects include:

- development of play areas
- introducing a BMX pump track to Queen Elizabeth Fields in Gillingham
- Green Flag Awards
- HLF Command of the Heights project at Fort Amherst and Chatham Waterfront

Command of the Heights; mock up of Spur Battery Amphitheatre

Environmental Designations in Medway



Green flag awards

The winners of the Green Flag award are announced each year in July during 'Love Parks' week. In 2017 seven sites received the Green Flag award.

Green flag sites – year awarded		
July 2013	7	Over the years the sites have included:- The Vines, Riverside Country Park, Hillyfields, Capstone Farm Country Park, Broomhill Park, Great Lines Heritage Park and Gillingham Park
July 2014	7	
July 2015	7	
July 2016	6	
July 2017	7	

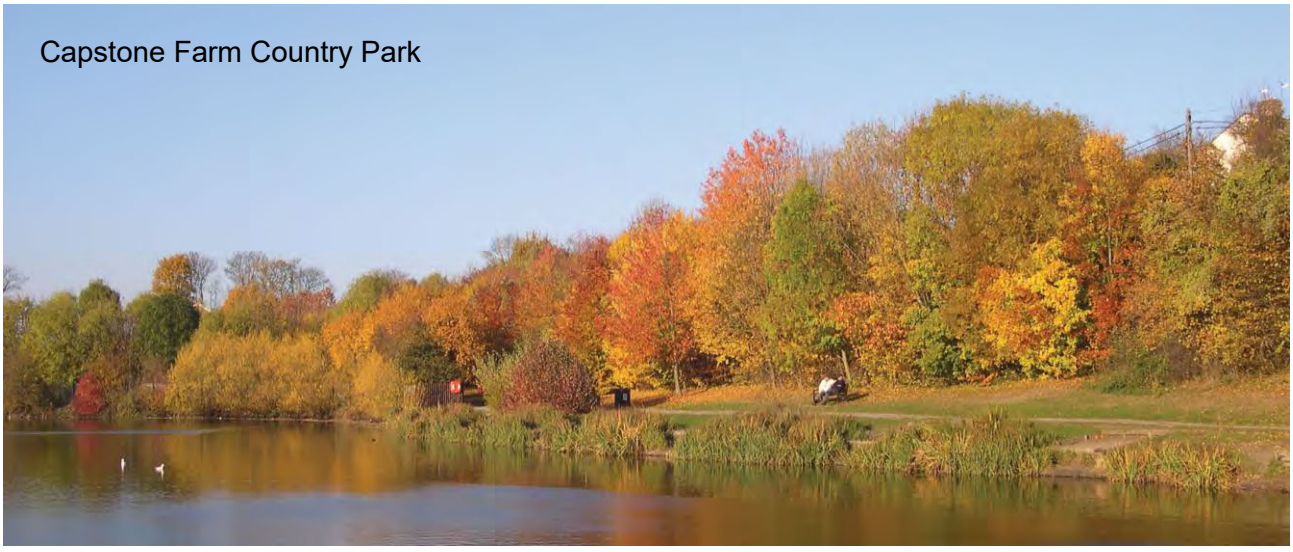
Medway's thriving towns are surrounded by beautiful parks and countryside, which Medway Council works hard to maintain so people can enjoy the area's open spaces throughout the year. The council has invested in improving footpaths and cycle routes across Medway, giving people more access to enjoy the impressive green spaces.

Recognising beautifully maintained parks the international award, now into its third decade, is a sign to the public that the space boasts the highest possible environmental standards, is exceptionally well maintained and has excellent visitor facilities.

Capstone Farm Country Park, Riverside Country Park, Great Lines Heritage Park, The Vines, Broomhill Park, Hillyfields Community Park and Gillingham Park are among a record-breaking 1,797 UK parks and green spaces that received the prestigious Green Flag Award in July 2017 – the mark of a quality park or green space.

Source: http://www.greenflagaward.org.uk/

Capstone Farm Country Park



Air Quality

Clean air is important for our health and for the environment. Urban air pollution has a long history and in the past has generally been caused by industrial and domestic sources. Today, the biggest source of air pollution in the UK is from road traffic and this is the case in Medway. There is increasing awareness of the impacts of poor air quality.

The assessment of local air quality has shown that in Medway levels of nitrogen dioxide (NO_2) are above the health-based objectives set out by the Government. Therefore, Medway Council declared three Air Quality Management Areas (AQMAs) in 2010: Central Medway; High Street, Rainham; and Pier Road, Gillingham.

The Four Elms Hill AQMA was declared on 1 November 2017 for exceedances of the annual mean nitrogen dioxide objective; this AQMA covers part of Four Elms Hill, Chattenden, including properties adjacent to parts of the Four Elms Hill (A228), Main Road (A228) and Peninsula Way (A228).

The Air Quality Action Plan outlines a number of measures aimed at improving local air quality by reducing levels of nitrogen dioxide to acceptable levels. More information can be found at:

http://www.medway.gov.uk/crimenuisanceandsafety/rubbishpollutionnuisance/airandsmells/medwayairqualityaction.aspx

Many challenges still lie ahead for Medway Council in terms of making a positive contribution to improving air quality. Whilst a weak trend of decreasing measured concentrations of nitrogen dioxide is apparent at most sites from 2011 to 2017, monitoring results for 2017 demonstrate that air quality in Medway continues to exceed the annual mean nitrogen dioxide objective at some locations to roads covered by the four AQMAs currently declared. Although, it should be noted that measured pollutant concentrations remain below the national objectives at all monitoring sites located outside the declared AQMAs (when distance-corrected to represent relevant exposure) , and numerous sites within them. No changes to the number and/or extent of the AQMAs currently declared are recommended.

A key action taken by Medway Council to improve air quality since the last Annual Status Report (ASR, 2017) is the development and adoption in December 2017 of the **Medway Air Quality Communication Strategy**. The Strategy is designed to support in achieving the aims of the Medway Air Quality Action Plan (2015) through stimulating changes in the way people and organisations view air pollution. The Strategy includes three key objectives and a number of key messages and details a series of recommended communications activities to increase the awareness of the health impacts of air pollution amongst identified key stakeholders and specific local groups affected by air pollution.

In addition to the Communication Strategy, Medway Council intends to implement further measures to improve air quality within Medway in the future. These include measures that aim to improve Medway's air quality through freight and delivery management, transport planning and infrastructure, improving vehicle fleet efficiency, promoting travel alternatives, promoting low emission transport, traffic management, promoting travel alternatives and alternatives to private vehicle use, policy guidance and development control and public information.

The latest ASR, for 2018, is to be released in due course.

Built Environment - Heritage at Risk

Historic England compiles an annual Heritage at Risk register which identifies Grade I and Grade II* Listed Buildings, Scheduled Monuments and Conservation Areas which are at risk from neglect. There are a number of conditions for each type of designation to be included onto the Register:

- **Vacant Listed Buildings:** In very bad, poor or fair condition.
- **Occupied Listed Buildings:** In very bad or poor condition.
- **Scheduled Monuments:** Depends on their condition, vulnerability, trend of their condition and their likely future vulnerability.
- **Conservation Areas:** Those that are deteriorating or in very bad condition and are not expected to change significantly in the next 3 years.

Fort Amherst

Currently Medway has 15 entries on the Heritage at Risk register; including 8 Scheduled Monuments, 5 Listed Buildings and 4 Conservation Areas. This number of entries is significantly higher than most of the other Kent local authorities, with a number of the entries comprising more than one building or site per entry.

After a peak of 18 entries on the register in 2015, the number has reduced through work with the owners to undertake repairs and improvements. Other sites, such as Fort Amherst have recently benefitted from Heritage Lottery Funding to help undertake a number of improvements and essential repairs.

Nationally, 3.8% of Grade I and Grade II* Listed Buildings (excluding Places of Worship) are currently on the Heritage at Risk register, this compares to 3.9% in Medway. Of the 24 Conservation Areas in Medway, 4 are included on the register; equating to 16.7%, which compares to just 6% nationally.

The National List of Buildings of Special Architectural or Historic Importance

The most recent national data available from Historic England indicates that Medway has 723 entries in the national list of buildings of special architectural or historic importance. These can be broken down as follows:

- 49 Grade I Listed Buildings
- 78 Grade II* Listed Buildings
- 517 Grade II Listed Buildings
- 76 Scheduled Monuments
- 2 Historic Parks and Gardens
- 1 Certificate of Immunity

2017 saw a further 4 entries added to the National List of Buildings of Special Architectural or Historic Importance, including the war memorials in Rochester, Rainham and Hoo.

Health and Communities

Life expectancy

Life expectancy represents the average number of years a person would expect to live based on contemporary mortality rates.

Lifestyle issues including **smoking, obesity and alcohol** are key contributors to high mortality rates resulting from the major killers in Medway, particularly, circulatory disease, cancer and respiratory disease. These are the focus of many public health campaigns in Medway.

The latest information available at Local Authority level covers the period 2013-2017. In Medway for this period, life expectancy has risen marginally. It is however consistently lower than the average age for England.

Medway life expectancy
Years

	2010-12	2011-13	2012-14	2013-15	**2013-17**
Male	78.5	78.8	78.7	78.4	**78.5**
Female	82.2	83.1	82.2	82.0	**82.2**

https://fingertips.phe.org.uk/profile/health-profiles

England authority average life expectancy
Years

	2010-12	2011-13	2012-14	2013-15	**2013-17**
Male	79.2	79.4	79.5	79.5	**79.5**
Female	83.0	83.1	83.2	83.1	**83.1**

Public Health England

Ward Data

The 2013-17 data shows that within Medway life expectancy for men has improved slightly, but for women it has remained the same. There is great variation in life expectancy at ward level – central parts of Medway around the town centres record the lowest life expectancy – most notably for men living in Chatham Central, River, Luton & Wayfield, Gillingham North and Gillingham South. For women the lowest life expectancies are for those living in Chatham Central and Watling.

Average life expectancy 2013 to 2017 – wards		
	Male	**Female**
Chatham Central	76.2	79.7
Cuxton and Halling	84.3	85.9
Gillingham North	76.2	80.6
Gillingham South	76.5	80.2
Hempstead and Wigmore	84.7	85.0
Lordswood and Capstone	82.0	84.9
Luton and Wayfield	76.4	81.4
Peninsula	78.0	82.4
Princes Park	78.4	83.1
Rainham Central	81.8	87.1
Rainham North	79.7	85.8
Rainham South	80.2	82.9
River	75.6	82.4
Rochester East	78.3	82.6
Rochester South and Horsted	78.9	81.6
Rochester West	78.1	82.3
Strood North	78.6	81.8
Strood Rural	80.4	83.6
Strood South	77.4	83.1
Twydall	79.3	82.0
Walderslade	79.2	84.3
Watling	77.9	78.8
Medway	**78.6**	**82.2**

Source: Medway life expectancy Public Health Profile 2017, – Public Health England © Crown Copyright.

Life expectancy at ward level supplied by the Public Health Team

See glossary for 'life expectancy' definition.

Mortality

The death rate in Medway as measured by the standardised mortality ratio stands above the national level. The death rate in Medway also remains higher than the South East and Kent.

It should be noted that the trend in female death rate has been quite erratic over the past five years.

The majority of deaths in England and Wales in 2017 were contributed to three main causes: cancers (neoplasms), circulatory diseases and respiratory.

Standardised mortality ratio

	2013	2014	2015	2016	2017
Medway	**104**	**112**	**111**	**103**	**104**
Kent	96	97	97	98	97
South East	93	93	92	92	93
Eng/Wales	100	100	100	100	100

Medway - Standardised mortality ratio by gender

	2013	2014	2015	2016	**2017**
Male	104	109	112	108	**100**
Female	103	116	110	99	**109**

Source: Death registrations summary tables - England and Wales *(Office for National Statistics (ONS)) © Crown copyright 2018.*

https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/datasets/deathregistrationssummarytablesenglandandwalesreferencetables

For more detailed information on health in Medway go to:

http://www.medwayjsna.info/

Hot food takeaway guidance

In order to promote a healthier Medway, in February 2014 Medway Council issued a Hot Food Takeaway Guidance Note. The purpose of this was to manage the potential proliferation of hot food takeaways, to help reduce obesity particularly among children, create a healthier environment, more vibrancy in town centres and to assist the creation of a more diverse offer in retail areas. The guidance supports a 400m buffer around schools to manage the siting of takeaways and the restriction on hours of operation.

Obesity and poor diet can lead to serious health issues for our local population. 64.6% of adults in Medway are overweight or obese, compared to an England average of 61.3%. The rates of overweight children in both reception (22.6%) and year 6 (35.5%) are similar to the England averages (22.6% and 34.2%, respectively). Medway Council has set out ambitions to improve the health and associated life chances of local people.

The aim is to reduce the concentration and clustering of hot food takeaway in core retail areas/town centres and reduce the prevalence of takeaways to prevent proliferation. The proposals apply only to new hot food takeaways seeking planning permission.

Use of guidance:
The planning guidance note has been used in sixteen applications during 2017/18.

The majority of applications received in this last year have been for a change of use to A5 (hot food takeaway).

The following table shows the number of applications relating to hot food takeaways that were received during the year (16 applications):

Application theme - 2014/16 - 2017/18

	New takeaway	Change of use	To extend hours	Other	Total number of applications
2014-16	3 (27%)	5 (46%)	2 (18%)	1 (9%)	11
2016-17	0	8 (89%)	1 (11%)	0	9
2017-18	**0**	**13 (81%)**	**3 (19%)**	**0**	**16**

This table shows the number of applications relating to hot food takeaways that were determined within the year (14 applications). The remaining 2 will be decided in the year 2018/19.

Application outcome - 2014/16 - 2017/18

	Approved	Approved with conditions	Refused	Total number of applications
2014-16	3 (27%)	5 (45%)	3 (27%)	11
2016-17	2 (33%)	1 (17%)	3 (50%)	6
2017-18	**10 (71%)**	**1 (7%)**	**3 (21%)**	**14**

A Better Medway

This supports the local population to live a healthier lifestyle. Current programmes include health walks, cycling and Nordic walking as well as access to sports centres offering swimming and a number of fitness classes. Further details on the programmes, information and support are available at:

https://www.medway.gov.uk/homepage/48/a_better_medway

Infrastructure
Education

GCSE attainment scores

A new grading system has been introduced which means that current pass rates can no longer be compared to the old GCSE pass rates. New GCSEs will be graded 9 to 1, rather than A* to G. Grade 9 is the highest grade, set above the current A*. The grades were given for the first time in 2017 results for specifications that first started teaching in 2015. By 2019, all GCSE results will be using the new system.

Ofqual has developed grade descriptors for the reformed GCSEs graded 9 to 1.

A school's **Attainment 8 score** is the average of all of its students' **scores**. Students don't have to take **8** subjects, but they **score** zero for any unfilled slots. For comparison the England and Medway scores are set out below.

Average attainment score 8 per pupil		
	2016	2017
Medway	**48.5**	**44.6**
England[2]	49.9	45.7

Source: https://www.gov.uk/government/statistics/revised-gcse-and-equivalent-results-in-england-2016-to-2017
Main local authority tables: SFR03/2017 Table LA4

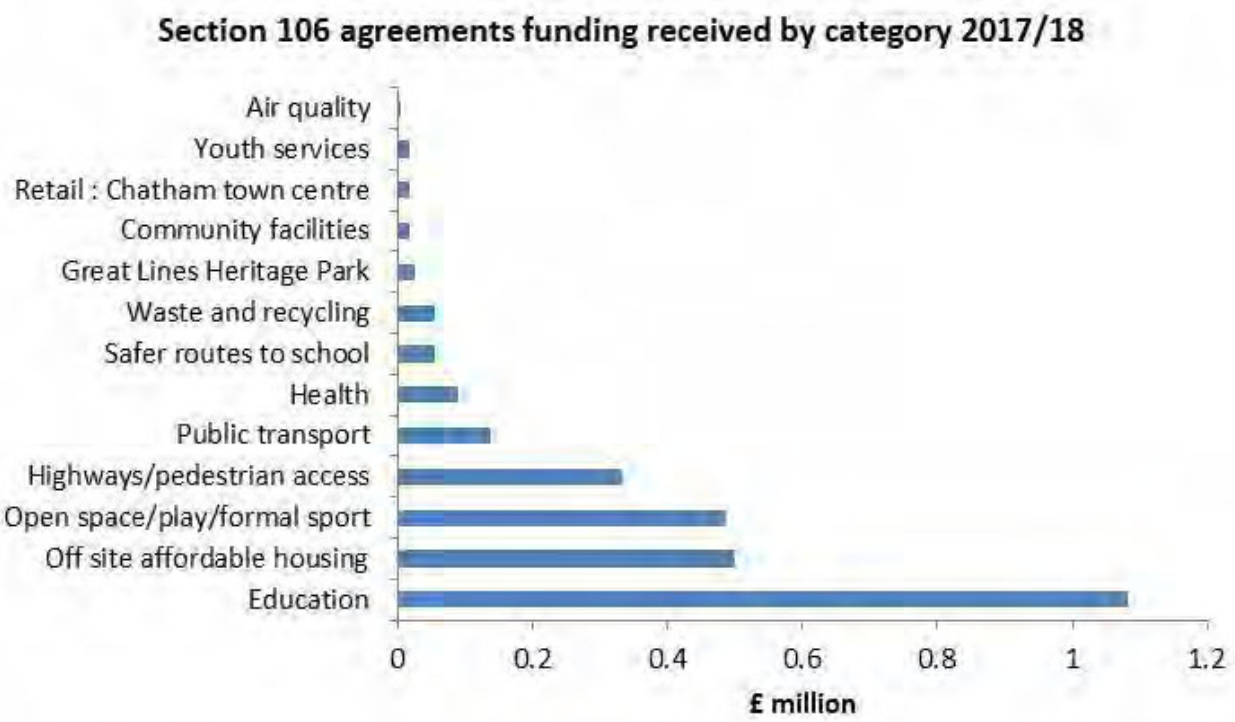
[2] Local authority, region and the total (state-funded sector) figures cover achievements in state-funded schools only. They do not include pupils recently arrived from overseas and so will not match with state-funded figures in the main tables. The 'England' line above includes all pupils from state-funded schools, independent schools, independent special schools, non-maintained special schools, hospital schools, pupil referral units and alternative provision. Alternative provision includes academy and free school alternative provision.

Infrastructure
Developer Contributions

Developers are required to make provision for infrastructure where the need arises directly from development.

In 2017/18 funding received through Section 106 agreements amounted to £2,815,600.04. Education received the highest amount with £1,083,019 (38% of the total contribution). Contributions of over 17% of this funding went equally towards open space/sport and off site affordable housing.

Amount of funding received during the year 2017/18	
Section 106 agreements	£2,815,600.04
Habitat Regulations contributions	£122,519.06
Total	**£2,938,119.10**



It is central to government policy that new development should be sustainable, which includes that it should provide capacity, new facilities and infrastructure to meet the needs of new residents, in order to mitigate the impact of the development.

Section 106 of the Town and Country Planning Act 1990 allows anyone with an interest in land to enter into a planning obligation, which is enforceable by a local planning authority.

Developer contributions are required for developments of 10 or more residential units and certain other forms of development. They also include a clause stating the deadline for expenditure of contributions. From 1 April 2017 new S106 agreements will usually specify a 5 year deadline for

spend. Prior to this date a 10 year deadline was the norm but individual contributions can vary.

A further unilateral undertaking of £223.58 per dwelling was required in 2017/18 for any housing development within 6km of a protected site, in relation to the recreational disturbance that would be caused to the bird population (habitat regulations). For the period 1st April 2017 to 31 March 2018 a total of £122,519.06 was received. This is funding a strategic package of environmental management and mitigation measures across the protected habitats of north Kent's estuaries and marshes. For more information, please see:

https://birdwise.org.uk

In 2017/18, The Medway Guide to Developer Contributions and Obligations was refreshed, the final draft was adopted by Cabinet in May 2018. For more information, please see:

https://www.medway.gov.uk/downloads/file/2745/medway_guide_to_developer_contributions_and_obligations_2018

Transport

As a transport authority, Medway Council is responsible for the local highway network, public rights of way and other transport related infrastructure. This includes 840 km of adopted highway and 293 km of public rights of way, plus the Medway Tunnel.

Local Transport Plan

Medway's third Local Transport Plan (LTP) provides the transport strategy for the period 2011 to 2026. The LTP contains five priorities, with key actions for the Council and partners under each priority:

1. Regeneration, economic competitiveness and growth
2. The natural environment
3. Connectivity
4. Equality of opportunity
5. Safety, security and public health

Local Enterprise Partnership Funding
As outlined within the Development and Regeneration section, Medway has successfully secured funding for various local schemes. Updates on the transport projects are set out below:

A289 Four Elms roundabout to Medway Tunnel journey time and network improvements:
This project will deliver highway capacity improvements in order to provide journey time savings and reduced congestion. Design work is ongoing.

Medway City Estate connectivity improvement measures
This project will deliver an integrated package of infrastructure measures aimed at addressing the existing barriers to movement to and from and within the Medway City Estate. Phase 1 of the project focused on improving vehicular egress from Medway City Estate and included the provision of new traffic signals on the westbound entrance to Medway Tunnel. Studies are currently underway to inform the development of a system to automate the traffic signals. Phase 2 of the project will focus on infrastructure improvements to encourage alternative sustainable modes of travel to the site. It is anticipated that preliminary designs will be completed by the end of 2018.

Strood town centre journey time and accessibility enhancements
The Strood town centre project will deliver journey time and accessibility enhancements to the town centre including changes to the highway and improved public realm. Phase 1 of the project has transformed the existing car park at Commercial Road. Further improvements are being made to pedestrian routes, road surfacing and road layouts in the town centre, with work due for completion in 2019.

Medway Cycling Action Plan

The Medway Cycling Action Plan document was completed in April 2016. The delivery of a package of measures, to improve access to cycling in Medway (as outlined in the Cycling Action Plan document), is substantially complete. Improvements include the expansion of existing cycling facilities such as cycle parking stands and new cycle corridors. An updated version of Medway's cycle routes map is now available online here. Work has commenced on the build of a cycle pump track (an off road leisure facility) at Queen Elizabeth Fields, Gillingham and is scheduled for completion in October 2018.

https://www.medway.gov.uk/info/200177/regeneration/677/medway_cycle_plan

Estimated traffic flows for cars and all vehicle types

Medway continues to see a lower rate of growth in car usage over vehicle usage.

Over the longer term car and vehicle journeys in Medway has grown at a slower rate in comparison to Kent and the South East and England.

Car Traffic – Million miles

	2013	2014	2015	2016	2017	Percent change 2013-17	Percent change 2016-17
Medway	**690**	**703**	**705**	**709**	**710**	**2.9**	**0.1**
Kent	6,850	6,946	7,097	7,204	7,250	5.8	0.6
South East	41,399	42,198	43,025	43,598	43,786	5.8	0.4
England	205,599	209,815	212,197	215,397	217,763	5.9	1.1

Motor Vehicle Traffic – Million miles

	2013	2014	2015	2016	2017	Percent change 2013-17	Percent change 2016-17
Medway	**853**	**874**	**882**	**894**	**897**	**5.2**	**0.3**
Kent	8,806	8,996	9,254	9,451	9,515	8.1	0.7
South East	51,476	52,792	54,082	55,024	55,264	7.4	0.4
England	259,891	266,660	271,092	276,130	279,395	7.5	1.2

This is a measure of the level of usage of roads in Medway, rather than a reflection of vehicle ownership amongst Medway residents.

Source: DfT transport statistics

https://www.gov.uk/government/collections/road-traffic-statistics#publications-2016
Tables TRA8901 & TRA8902

Passenger journeys on local bus services

In 2016/17 8.7 million bus passenger journeys were made in Medway.
Medway has seen a slight drop in bus usage over the past four years, although nationally there has been a bigger fall in usage. Kent has seen the biggest drop in passenger journeys.

Passenger journeys on local bus services - millions

	2013/14	2014/15	2015/16	2016/17	Percent change 2014-17
Medway	**8.9**	**8.9**	**8.8**	**8.7**	**-2.2**
Kent	62.3	57.8	55.8	55.7	-10.6
South East	355.5	355.5	353.3	356	0.1
England	4,672.7	4,627.4	4,507.8	4,438.2	-5.0

Source: DfT transport statistics
https://www.gov.uk/government/collections/bus-statistics
Table BUS0109a

Railway Stations

Medway has seven train stations within the borough.

Cuxton and Halling are on the Medway Valley line that runs between Strood and Tonbridge and connections at Strood station provide for onward journeys to London or east Kent.

Rainham, Gillingham, Chatham, Rochester and Strood are served by the north Kent line, with links to London. These are the busiest trains and take the bulk of passengers during the early morning and evening rush hours to and from the capital.

Passenger usage per annum

Station	2013-14	2014-15	2015-16	2016-17
Chatham	2,699,480	2,696,730	2,767,892	2,742,800
Cuxton	39,854	41,578	40,808	42,512
Gillingham	2,439,280	2,540,188	2,629,244	2,731,126
Halling	48,070	55,240	58,710	68,100
Rainham	1,715,959	1,722,010	1,775,560	1,821,372
Rochester	1,240,794	1,304,746	1,385,260	1,631,718
Strood	1,098,676	1,182,148	1,197,602	1,132,056

Since the 2015-16 data was published Rochester Station has been relocated. There was a noticeable increase in user numbers in the last year, of 18%.

Strood Station has been given a £2.59 million upgrade. Work was carried out over a period of 9 months include a larger booking hall, new waiting room and better facilities for passengers. User numbers have dropped by over 5% at Strood over the last year.

There was also a marked increase in use of Halling Station, which may have been linked to new development at St Andrews Park.

Source:
http://orr.gov.uk/statistics/published-stats/station-usage-estimates
Station usage 2016/17 data

Minerals, Waste and Energy

Minerals

Information on Minerals in Medway can be found in the Local Aggregate Assessment set out in Volume 3. It reports on the extraction of sand and gravel locally, sales of recycled and secondary aggregate, and the importation of marine won aggregates and crushed rock. The full report is available at:

https://www.medway.gov.uk/downloads/download/24/authority_monitoring_report

Waste

As a Waste Planning Authority, Medway has a responsibility to ensure that the need for waste management facilities is considered alongside other spatial planning concerns, recognising the positive contribution that waste management can bring to the development of sustainable communities.

Medway currently benefits from a range of waste management facilities that assist in the delivery of sustainable development. Some facilities have seen significant increases in volumes of materials processed over the last year. The following information on Medway's waste management is taken from the Environment Agency Waste Data Interrogators:

Waste received (tonnes)		
	2016	**2017**
Hazardous	15,855.07	25,873.97
Household, Industrial and Commercial	448,289.47	523,579.03
Construction, Demolition and Excavation	107,605.81	109,934.10
Total	**571,750.35**	**659,387.10**

Waste removed (tonnes)		
	2016	**2017**
Hazardous	8,353.13	16,921.58
Household, Industrial and Commercial	496,555.57	589,191.99
Construction, Demolition and Excavation	52,278.34	19,474.47
Total	**557,187.04**	**625,588.04**

Energy

Energy Performance

A quarterly series of official statistics is published by the Ministry of Housing, Communities and Local Government, presenting information about certificates on the energy efficiency of domestic and non-domestic buildings in England and

Wales that have been constructed, sold, or let since 2008, and of larger public authority buildings recorded since 2008.

Energy Performance Certificates (EPCs)

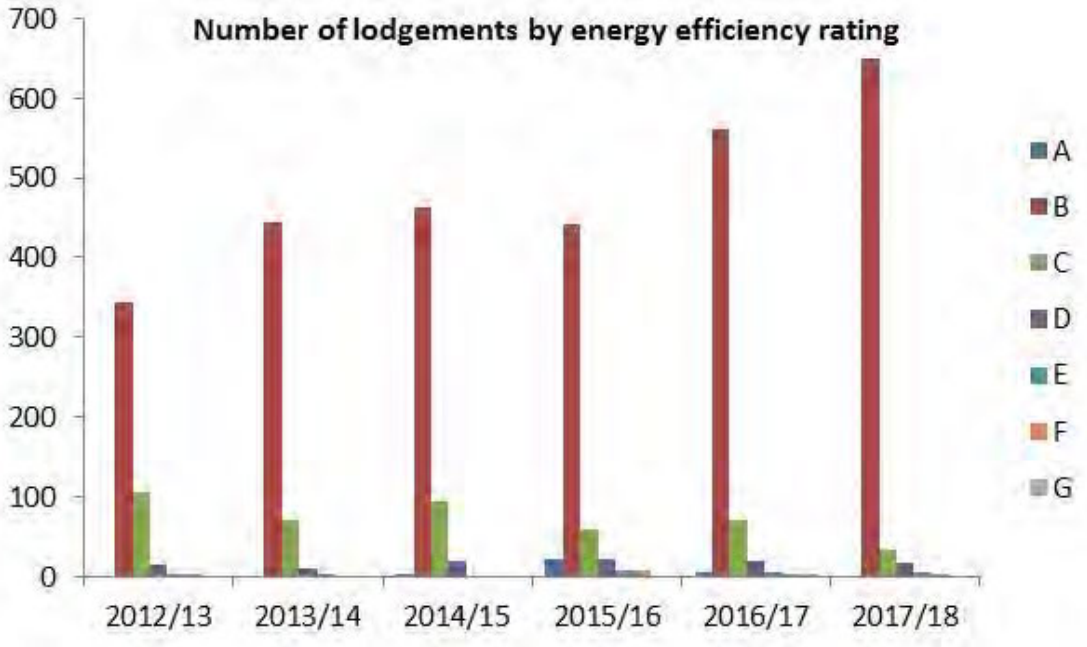
Two types of EPCs are issued on the completion of new dwellings – Energy Efficiency (based on fuel costs) and Environmental Impact (based on CO^2 Emissions). An EPC gives a property an energy efficiency rating from A (most efficient) to G (least efficient) and is valid for 10 years.

New dwellings - Energy Efficiency (based on fuel costs)

Since 2012/13 the majority of dwellings have been constructed to a B energy efficiency rating (based on fuel costs). This is broadly consistent with the rest of England, although England's overall percentage of B ratings is lower, due to there being higher levels of C ratings.

This year 2017/18 Medway saw the largest increase to rating B, following a fall in ratings C, D, E and F. There were no rating G dwellings constructed this year.

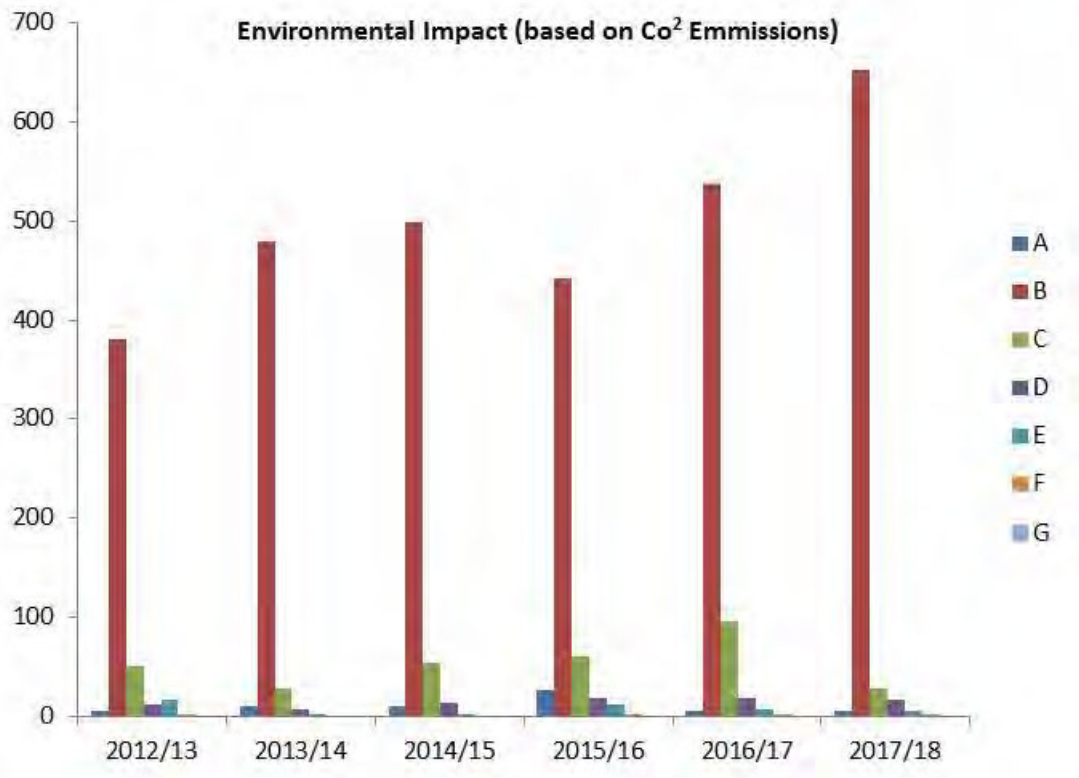
% Medway Number of lodgements by energy efficiency rating (based on fuel costs)							
Year	A%	B%	C%	D%	E%	F%	G%
2012/13	0.0	73.6	22.7	3.2	0.2	0.2	0.0
2013/14	0.0	84.4	13.3	1.7	0.6	0.0	0.0
2014/15	0.2	79.9	16.4	3.5	0.0	0.0	0.0
2015/16	3.9	78.8	10.7	3.9	1.2	1.4	0.0
2016/17	0.7	84.3	10.5	3.0	0.9	0.4	0.1
2017/18	0.0	91.7	4.8	2.5	0.8	0.1	0.0
Total	**0.8**	**82.6**	**12.6**	**3.0**	**0.7**	**0.4**	**0.0**
England Total	**1.1**	**74.4**	**20.2**	**3.3**	**0.9**	**0.2**	**0.1**



New Dwellings - Environmental Impact (based on CO^2 Emissions)

Similarly to the energy efficiency rating based on fuel costs, the majority of new homes have been constructed to a B rating. Likewise, this year 2017/18 the percentage of rating B dwellings has increased, following a reduction in ratings C, D, E and F. There have been no new homes constructed to a G rating since 2012/13.
Compared to England, Medway has broadly produced similar building environmental impact ratings, although England overall has a higher percentage of A rating dwellings.

Medway New Dwellings - Environmental Impact (based on CO^2 Emissions)							
	A%	B%	C%	D%	E%	F%	G%
2012/13	1.1	81.8	10.7	2.6	3.6	0.2	0.0
2013/14	2.1	90.9	5.3	1.3	0.4	0.0	0.0
2014/15	1.9	86.2	9.3	2.2	0.3	0.0	0.0
2015/16	4.8	78.8	10.9	3.2	2.1	0.2	0.0
2016/17	0.9	80.7	14.4	2.8	1.0	0.1	0.0
2017/18	0.8	92.0	3.9	2.4	0.7	0.1	0.0
Total	**1.9**	**85.2**	**9.0**	**2.5**	**1.3**	**0.1**	**0.0**
England total	**8.8**	**75.3**	**11.9**	**3.0**	**0.8**	**0.2**	**0.0**



Source:

https://www.gov.uk/government/statistical-data-sets/live-tables-on-energy-performance-of-buildings-certificates

Notable developments and Medway news during the year 1st April 2017 – 31st March 2018

Strood

- Work began on building a new access road to a former quarry near Manor Farm Barn, Frindsbury, to serve the construction of 48 dwellings, the sales of which will enable funds of around £900,000 to be raised for the restoration of the 700 year old barn.
- Starbucks was set to move into the last unit at the former B&Q site at Strood Retail Park. The other new occupiers include Marks and Spencer Food Hall, B&M Discount Store and The Gym.
- Redrow commenced building at Temple Wharf and attracted early interest from around 2,000 people.
- The official opening of the Medway Innovation Studios took place. The shipping container buildings took about 10 weeks to construct managed by CargoTek. Every space at the studios has been let.
- Strood Station reopened after a £2.59 million upgrade. Work was carried out over a period of 9 months to provide a larger booking hall, new waiting room and better facilities for passengers.
- Changes to make Strood Town Centre more accessible began. The £9 million plans include improved pedestrian routes, cycling facilities and road layouts. Strood is one of Medway's key regeneration areas, the improvements will help to revitalise the town.
- Wainscott Stores was to follow the trend of post office branches at Strood and Cliffe Woods to offer banking services.

Rochester

- Medway Council and Homes England signed an agreement with Countryside and the Hyde Group to deliver a £400m development at Rochester Riverside, consisting of 1400 new homes, a primary school, work space, retail, leisure and health care facilities.
- Monthly markets selling artisan goods, vintage clothes and fine foods started up in Rochester. Stalls are set up between Northgate and Rochester bridge.
- The redevelopment of a site in Corporation Street Rochester began with the demolition of the old flats, to be replaced with 89 homes offering 53 shared ownership and 36 market rent homes.
- The Cathedral Tea Rooms in Rochester closed and the building was taken on by Rochester Bridge Trust for office space and community activities.
- The Nat West Bank in Rochester closed, leaving just one remaining bank in the High Street (Lloyds). However, Lloyds announced they would close its branch in Spring 2018.
- The memorial in Rochester High Street has been granted Grade II Listed status by Historic England.

Chatham

- Funding of a £4.8 million lottery grant was obtained for the refurbishment of the Fitted Rigging House in the Dockyard, to become home to a visitor centre, the Dockyard's library and archives.
- It was a successful year for the Historic Dockyard, with awards for its architecture, design and tourism offer. Command of the Oceans won the RIBA South East Regional Award, RIBA South East Conservation Award, RIBA South East Building of the Year Award 2017 and the RIBA National Award 2017. It also picked up 2 more at the Medway Design and Regeneration Awards and finally the Leisure Tourism Business of the Year at the KEiBA Awards. It was also shortlisted for the RIBA Stirling Prize.
- Chatham Dockyard received a national gold award by Visit England as it celebrated its 400th birthday.
- For the first time since it opened 14 years ago the Dockside Outlet Centre had a 100% occupancy rate, which bucked the national retail market trend.
- At Pier 5, The Quays adjoining the Dockside Outlet Centre saw a number of new businesses, including restaurants and bars.
- Work began at Colonial House at Chatham Maritime to demolish the former offices and provide new homes and commercial space.
- Medway Council secured £4 million of Government funding to revitalise Chatham Town Centre. The Chatham Placemaking public realm project seeks to improve the route for pedestrians and cyclists from the railway station to the town centre.
- New properties were built in Chatham town centre by mhs Homes, as part of a £12 million development (part funded by a grant from The Homes and Communities Agency) creating 77 homes.
- There were a number of changes in Chatham town centre, with new openings of a number of food and drink businesses, as well as leisure uses, such as a Ping Pong Parlour at the Pentagon Centre, and the discount homeware chain B&M moving into the former Staples building. Work to widen activities at the Pentagon Centre included its use for a careers fair and fundraising event.
- Demolition of the Kitchener Barracks commenced to make way for a new housing development by Latis, making use of modular construction techniques.
- The Co-op store in Walderslade village reopened following a £1.2 million makeover.
- P & D Material Recovery, based at Chatham Docks made a major investment in their waste management facilities. The company bought machinery which sorts waste into categories allowing up to 90% of it to be recycled
- A juice maker based in Lordswood, Chatham broke the £1 million turnover barrier for the first time. The Juice Executive founded in 2014 more than doubled its sales over the last year and has added another eight staff.
- A joint project between Canterbury Christ Church University and the University of Kent was successful in gaining funding for Kent's first medical school. Due to open in 2020, it should assist in addressing recruitment issues in the health sector.
- Toys R Us went into administration.

Gillingham and Rainham
• There were a number of developments in retail and leisure, with the opening of a new McDonalds restaurant and takeaway in Courteney Road, Gillingham, an Aldi supermarket on Gillingham Business Park', the Mast and Rigging pub at Chatham Waters, and M&Co moved into the former BHS store at Hempstead Valley Shopping Centre. • Detailed planning permission was approved for Chatham Waters, including two tower blocks of 16 and 11 storeys, together with some commercial space at ground floor. • Rainham Mark Grammar School was awarded The Prince's Teaching Institute Schools Leadership Mark. • The CAMRA (Campaign for Real Ale) award for the 3rd year running went to Medway's micropub Past and Present in Skinner Street, Gillingham. • Rainham's War Memorial was granted Grade II Listed status by Historic England. • Gillingham Baptist Church in Green Street is to be given a £1 million makeover.
Hoo Peninsula and the Isle of Grain
• The 650ft Kingsnorth power station chimney was demolished along with two bunkers at the old Kingsnorth Power Station; the works to clear the site began in 2014 and should be completed by the end of the year. • Grupo Pacadar, a Spanish construction company, which designs and manufactures pre cast concrete structures, invested £10 million on a 20 acre facility at Thamesport at Grain.
Medway Valley
• The 'blue lake' at Halling is to become a fishing and water sports attraction.
General
• The first Medway Design Awards ceremony was held in Chatham Dockyard. The winners were selected by an independent panel of judges. There were 9 categories the winners in each were: o Residential Minor – Manna House, High Street, Upnor o Residential Major – Centenary Gardens, Beatty Avenue, Gillingham o Residential Super Major – Victory Pier, Gillingham o Public Buildings, Community – Medway Park, Mill Road, Gillingham o Public Buildings, Education – Walderslade Primary School, Chatham o Civils and Infrastructure – Great Lines Heritage Park o Commercial Industrial and Retail – Restaurant quarter at Hempstead Valley Shopping Centre o Restoration Conservation – Command of the Oceans at Chatham Historic Dockyard o Regeneration Impact – Chatham Historic Dockyard Local residents were given the opportunity to vote for the development that had the most positive impact on the towns over the last 10 years and they picked Victory Pier in Gillingham.

- A consultation seeking views from the public on the Environment Agency's strategy to protect areas of the north Kent coast over the next century ran until the 5th February 2018. The online consultation asked people to consider how best to protect people, properties, wildlife habitats and agricultural land from flooding and coastal erosion.
- The Government announced that Medway Council was one of 45 Local Authorities shortlisted for a share of the £5 billion Housing Infrastructure Fund, and invited to progress to the next stage of the bidding process.

Glossary

Affordable Housing - Social rented, affordable rented and intermediate housing, provided to eligible households whose needs are not met by the market. Eligibility is determined with regard to local incomes and local house prices. Affordable housing should include provisions to remain at an affordable price for future eligible households or for the subsidy to be recycled for alternative affordable housing provision.

Biodiversity - The whole variety of life encompassing all genetics, species and ecosystem variations, including plans and animals.

Change of Use - A change in the way that land or buildings are used (see Use Classes Order). Planning permission is usually necessary in order to change from one 'use class' to another.

Commitments (or committed development) - All land with current planning permission or allocated in adopted development plans for development (particularly residential development).

Community Infrastructure Levy (CIL) - is a system of securing developer contributions from planning permissions which local authorities are empowered but not required to charge on new development in their area. The levy is to be used to support growth.

Duty to cooperate - was introduced in the Localism Act 2011, and amends the Planning and Compulsory Purchase Act 2004. It places a legal duty on local planning authorities, county councils in England and public bodies to engage constructively, actively and on an ongoing basis to maximise the effectiveness of Local and Marine Plan preparation relating to strategic cross boundary matters.

Economic activity - A person is economically active if they are either employed or unemployed i.e. in work or looking for work. A person is economically inactive if they are either not seeking work or are unavailable to start work. This includes people who are looking after a family and people who are on long term sick leave.

Employment Land Availability (ELA) - The total amount of land reserved for industrial and business use awaiting development.

Employment rate - The number of people in employment in the UK is measured by the Labour Force Survey (LFS) and consists of people aged 16 and over who did paid work (as an employee or self-employed), those who had a job that they were temporarily away from, those on government-supported training and employment programmes, and those doing unpaid family work.

English indices of deprivation - identify the most deprived areas across the country. The indices combine a number of indicators, chosen to cover a range of economic, social and housing issues, into a single deprivation score for each small area in England. The indices are used widely to analyse patterns of deprivation, identify areas that would benefit from special initiatives or programmes and as a tool to determine eligibility for specific funding streams.

Greenfield Land or Site - Land (or a defined site) usually farmland, that has not previously been developed.

Gross Value Added (GVA) - This is the value of goods and services produced by an area, sector or producer minus the cost of the raw materials and other inputs used to produce them. For sub-national GVA, ONS uses an income-based measure. GVA is mainly composed of the income made by employees (earnings) and the business (profits/surplus) as a result of production.

Life expectancy - at birth is chosen as the preferred summary measure of all cause mortality as it quantifies the differences between areas in units (years of life) that are more readily understood and meaningful to the audience than those of other measures. All cause mortality is a fundamental and probably the oldest measure of the health status of a population. It represents the cumulative effect of the prevalence of risk factors, prevalence and severity of disease, and the effectiveness of interventions and treatment. Differences in levels of all-cause mortality reflect health inequalities between different population groups, e.g. between genders, social classes and ethnic groups.

Localism Act 2011 - introduced in November 2011. The aim of the act was to devolve more decision-making powers from central government back into the hands of individuals, communities and councils.

Outline application - A general application for planning permission to establish that a development is acceptable in principle, subject to subsequent approval of detailed matters. Does not apply to changes of use.

Mixed Use - Developments or proposals comprising more than one land use type on a single site.

National Planning Policy Framework – published in 2012, it sets out the government's planning policies for England.

Neighbourhood Plans - A plan prepared by a Parish Council or Neighbourhood Forum for a particular neighbourhood area (made under the Planning and Compulsory Purchase Act 2004, as amended).

Planning Permission - Formal approval sought from a local planning authority allowing a proposed development to proceed. Permission may be sought in principle through outline planning applications, or be sought in detail through full planning applications.

Previously Developed Land or 'Brownfield' land - Land which is or was occupied by a permanent structure, including the curtilage of the developed land (although it should not be assumed that the whole of the curtilage should be developed) and any associated fixed surface infrastructure.

Renewable and Low Carbon Energy - Includes energy for heating and cooling as well as generating electricity. Renewable energy covers those energy flows that occur naturally and repeatedly in the environment – from the wind, the fall of water, the movement of the oceans, from the sun and also from biomass and deep geothermal heat. Low carbon technologies are those that can help reduce emissions (compared to conventional use of fossil fuels).

Site of Special Scientific Interest (SSSI) - A site designated by Natural England under the Wildlife and Countryside Act 1981 as an area of special interest by reason

of any of its flora, fauna, geological or physiographical features (plants, animals and natural features relating to the Earth's structure).

Standardised mortality ratio – The SMR is a comparison of the number of the observed deaths in a population with the number of expected deaths if the age-specific death rates were the same as a standard population. SMRs equal to 100 imply that the mortality rate is the same as the standard mortality rate. A number higher than 100 implies an excess mortality rate whereas a number below 100 implies below average mortality.

Super Output Areas (SOAs) - a geography designed for the collection and publication of small area statistics. They are used on the Neighbourhood Statistics site and across National Statistics. Lower Super Output Areas (LSOAs) which are used as the unit to present data on deprivation, were originally built using 2001 Census data from groups of Output Areas and contain on average 1,500 residents.

Supplementary planning document (SPD) - provides additional information on planning policies in a development plan.

Strategic Land Availability Assessment (SLAA) - assesses the suitability, availability and deliverability of sites to meet a requirement for residential, employment, retail and other uses.

Sustainable drainage systems (SUDS) - surface water drainage systems which consider quantity, quality and amenity issues.

Use Class - classes of land and building use as categorised by the Town and Country Planning (Use Classes) Order 1987 as amended. The various classes and categories appropriate to that class are as follows:

A1 Shops - Shops, retail warehouses, hairdressers, undertakers, travel and ticket agencies, post offices, pet shops, sandwich bars, showrooms, domestic hire shops, dry cleaners, funeral directors and internet cafes.

A2 Financial and professional services - Financial services such as banks and building societies, professional services (other than health and medical services) and including estate and employment agencies. It does not include betting offices or pay day loan shops - these are now classed as “sui generis” uses (see below).

A3 Restaurants and cafés - For the sale of food and drink for consumption on the premises - restaurants, snack bars and cafes.

A4 Drinking establishments - Public houses, wine bars or other drinking establishments (but not night clubs).

A5 Hot food takeaways - For the sale of hot food for consumption off the premises.

B1 Business - Offices (other than those that fall within A2), research and development of products and processes, light industry appropriate in a residential area.

B2 General industrial - Use for industrial process other than one falling within class B1 (excluding incineration purposes, chemical treatment or landfill or hazardous waste).

B8 Storage or distribution - This class includes open air storage.

C1 Hotels - Hotels, boarding and guest houses where no significant element of care is provided (excludes hostels).

C2 Residential institutions - Residential care homes, hospitals, nursing homes, boarding schools, residential colleges and training centres.

C2A Secure Residential Institution - Use for a provision of secure residential accommodation, including use as a prison, young offenders institution, detention centre, secure training centre, custody centre, short term holding centre, secure hospital, secure local authority accommodation or use as a military barracks.

C3 Dwellinghouses - this class is formed of 3 parts:

- C3(a) covers use by a single person or a family (a couple whether married or not, a person related to one another with members of the family of one of the couple to be treated as members of the family of the other), an employer and certain domestic employees (such as an au pair, nanny, nurse, governess, servant, chauffeur, gardener, secretary and personal assistant), a carer and the person receiving the care and a foster parent and foster child.
- C3(b): up to six people living together as a single household and receiving care e.g. supported housing schemes such as those for people with learning disabilities or mental health problems.
- C3(c) allows for groups of people (up to six) living together as a single household. This allows for those groupings that do not fall within the C4 HMO definition, but which fell within the previous C3 use class, to be provided for i.e. a small religious community may fall into this section as could a homeowner who is living with a lodger.

C4 Houses in multiple occupation - small shared houses occupied by between three and six unrelated individuals, as their only or main residence, who share basic amenities such as a kitchen or bathroom.

D1 Non-residential institutions - Clinics, health centres, crèches, day nurseries, day centres, schools, art galleries (other than for sale or hire), museums, libraries, halls, places of worship, church halls, law court. Non residential education and training centres.

D2 Assembly and leisure - Cinemas, music and concert halls, bingo and dance halls (but not night clubs), swimming baths, skating rinks, gymnasiums or area for indoor or outdoor sports and recreations (except for motor sports, or where firearms are used).

Sui Generis - certain uses do not fall within any use class and are considered 'sui generis'. Such uses include: betting offices/shops, pay day loan shops, theatres, larger houses in multiple occupation, hostels providing no significant element of care, scrap yards. Petrol filling stations and shops selling and/or displaying motor vehicles. Retail warehouse clubs, nightclubs, launderettes, taxi businesses, amusement centres and casinos.

Windfall Site - Sites not specifically identified in the development plan (definition from revised National Planning Policy Framework 24 July 2018)

Property Price Report

Update March 2018

Medway Council
Serving You

This report is an update of property prices monitored by Medway Council. In order to gain an understanding of the wider picture Land Registry data has also been used for comparisons.

The UK House Price Index is published by Land Registry and captures changes in the value of residential properties using sales data collected on all residential housing transactions, whether for cash or with a mortgage, in England and Wales since January 1995. The Index is calculated by using Land Registry's own 'Price Paid Dataset'. A search facility is available at a national level as well as for the various regions, counties and London Boroughs.

In order to gain a better understanding of the local property market, Medway Council collect detailed information on advertised prices. This is compiled monthly from the Rightmove website (previously collected from local newspapers). New houses are also monitored; this information is taken from house builders web sites. By collecting this data locality, property types and number of bedrooms can be analysed. The database also allows for additional interrogation of car parking, age bands and policy protection e.g. Listed Buildings.

Annual Analysis from Medway Data

The most common type of property advertised for sale in Medway is for 3 bedroomed terraced housing which accounts for 21%.

The graph below shows that the advertised prices of 3 bedroomed terraced houses has risen steadily over the last 5 years to an average of £259,889 in 2017/18.

Chart 1. Average price of 3 bedroom terraced properties

Locality

The urban area localities can be subdivided into neighbourhoods; these together with villages are monitored to identify trends in average prices. Both ends of the market are considered below:

2 bed flats/maisonettes and 4 or more bedroom detached houses/bungalows.

Table 1. Two bed flats - price range by locality

2017/18	
Location	**Price**
Chatham	**£216,750**
Gillingham	**£249,288**
Rainham	**£234,995**
Rochester	**£200,000**
Strood	**£232,968**
Chatham Maritime	**£282,500**
Halling	**£231,107**

As can be seen in Tables 1 and 2, average prices can vary greatly within Medway, illustrating that location is an important factor influencing property prices.

Table 2. Four bed detached - price range by locality

2017/18	
Location	**Price**
Strood	**£525,900**
Walderslade	**£480,714***
Chatham	**£545,000***
Gillingham	**£670,833***
Hempstead	**£546,667***
Rainham	**£487,861**
Rochester	**£670,000***

*Based on the average of less than 10 properties

Type and Style

Out of the 1103 properties monitored during the year 1st April 2017 – 31st March 2018, just over 21% (232 properties) were 3 bedroom terraced houses. All flats /maisonettes represented almost 27% of advertised properties which is a big rise from previous years.

Table 3. Three bedroomed terraced and all flats/maisonettes as a percentage of advertised stock

Year	3 bed terraced dwellings	All flats/ maisonettes
2013/14	**18%**	**16%**
2014/15	**18%**	**18%**
2015/16	**16%**	**19%**
2016/17	**23%**	**13%**
2017/18	**21%**	**27%**

Table 4. Type of property

Property Type	Proportion
Detached	**14%**
Semi-detached	**23%**
Terraced	**36%**
Flats/Maisonettes	**27%**

Over the past year more flats and fewer detached homes have been advertised for sale.

Table 5. Number of bedrooms

No of Bedrooms	Proportion
1 bed	**10%**
2 bed	**27%**
3 bed	**43%**
4+ bed	**19%**

New Housing

House builders developing in Medway during 2017/18 have included:

- Countryside
- Redrow
- Berkeley Homes
- Persimmon

Chart 2 shows the amount of new accommodation completed in Medway since 2013/14. For further information see the Councils Authority Monitoring Reports

Chart 2. Housing completions

Rural Issues

Comparing prices between the rural and urban areas is difficult, as the numbers of advertised properties between the two vary significantly. For the period 1st April 2017 – 31st March 2018, 6% of advertised properties for rent had a rural address; slightly more (12%) were for sale.

Of the rural dwellings Halling had the most (33%) to buy and Hoo (44%) to rent.

New rural housing is currently under construction at Hoo and Halling.

Redrow Development, Manor Park, Rainham

Rented Accommodation

The table below shows the number of monitored properties advertised to rent each year.

Table 6. Number of property advertised to rent

Year	Number of Properties
2013/14	683
2014/15	331
2015/16	275
2016/17	319
2017/18	545

Table 7. Rented accommodation by number of bedrooms

No of Bedrooms	Proportion
1 bed	28%
2 bed	36%
3 bed	30%
4+ bed	6%

Chart 3. Rented accommodation by number of bedrooms

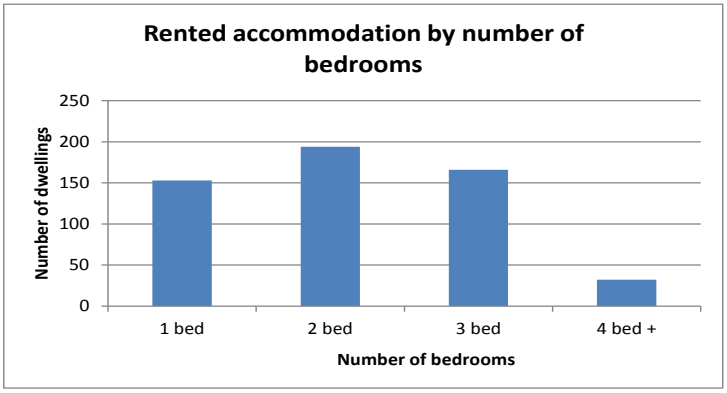


Table 8. Rental by locality and type

	Average rent for a 1 bed flat	Average rent for a 3 bed terrace
Chatham	£596	£900
Gillingham	£705	£881
Rainham	£640*	£986*
Rochester	£707	£1063
Strood	£603*	£985

*Based on the average of less than 10 properties

Rochester continues to command a higher rental for 3 bed terraced properties.

Table 9 shows that the cost of renting seems to be levelling out, a higher rise for larger accommodation 4 plus beds may reflect that it is harder to find these properties.

Table 9. Comparison of rent paid

	Number of bedrooms			
Year	1	2	3	4
2013/14	£533	£681	£788	£1348
2014/15	£549	£710	£817	£1424
2015/16	£612	£768	£906	£1846
2016/17	£671	£865	£970	£1414
2017/18	£672	£876	£967	£1469

Chart 4. Type of property to rent

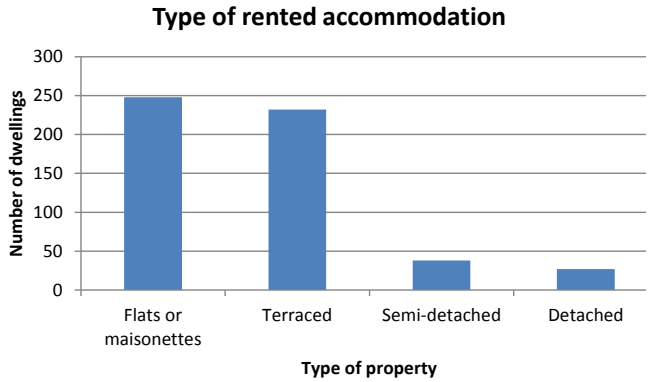


Table 10. Type of property to rent

Property Type	Proportion
Detached	5%
Semi-detached	7%
Terraced	43%
Flats/Maisonettes	46%

The private rented sector consists mainly of flats and terraced housing which accounts for 89% of advertised properties.

Land Registry and Medway Data

Quarterly Data

Direct comparison between Land Registry and Medway statistics is not possible because Land Registry data is based on actual sales. The information collected by Medway Council is based on advertised house prices, which does not always reflect the prices paid for properties. There are also months where Medway collects new house price information, which can also push up the average advertised prices. Land Registry figures reflect market prices of some months previously and are as a result of negotiations.

Land Registry data is available monthly. The months of March, June, September and December have been used to compare prices.

Table 11. Comparison of prices for Land Registry and Medway Council data

	Council Data	**Land Registry Data**			
	Medway Council	**Medway**	**Kent**	**South East**	**England**
Flats/Maisonettes					
June 2017	**£219,405**	£205,803	£168,443	£181,608	£226,903
September 2017	**£218,888**	£207,246	£170,876	£184,843	£228,100
December 2017	**£267,265**	£205,090	£168,917	£184,436	£226,571
March 2018	**£250,240**	£202,331	£166,950	£184,110	£223,619
Terraced					
June 2017	**£281,250**	£264,755	£213,417	£234,574	£192,365
September 2017	**£307,014**	£268,740	£218,574	£241,248	£195,100
December 2017	**£347,666**	£268,199	£217,363	£242,691	£195,848
March 2018	**£291,372**	£268,227	£217,673	£244,423	£194,099
Semi-detached					
June 2017	**£375,384**	£273,385	£294,223	£335,000	£220,193
September 2017	**£344,641**	£278,943	£301,475	£340,320	£223,544
December 2017	**£347,363**	£279,834	£305,279	£340,257	£225,421
March 2018	**£309,521**	£280,719	£307,853	£338,821	£223,241
Detached					
June 2017	**£540,313**	£543,021	£413,953	£465,833	£357,765
September 2017	**£414,795**	£555,378	£423,075	£477,107	£365,973
December 2017	**£570,333**	£551,913	£424,555	£482,176	£366,649
March 2018	**£459,576**	£555,086	£428,714	£489,542	£367,859

Source: Crown copyright Land Registry Property Prices 25th May 2018 and Medway Council's own data

Land Registry Data

Local and National Statistics

The volume of sales decreased in Medway from 381 existing and 53 new build in March 2017 to 293 existing and 9 new build in March 2018.

Table 12. The percentage change in average prices of all properties

	March 2017	March 2018	% Difference
Medway	**£232,243**	**£242,697**	**4.5**
Kent	**£275,579**	**£290,274**	**5.3**
South East	**£310,447**	**£320,682**	**3.3**
England	**£231,760**	**£240,949**	**4.0**

Source: Crown copyright Land Registry Property Prices 25th May 2018

Valuation Office Data – Rents

The table below shows the mean cost of renting by type and by administrative area.

Table 13. Mean monthly rents recorded between 1st October 2016 & 30th September 2017

	Studio	1 bed	2 bed	3 bed	4 bed or more
Medway	**£503**	**£610**	**£750**	**£857**	**£1,375**
Kent	**£510**	**£605**	**£794**	**£1,016**	**£1,662**
South East	**£565**	**£710**	**£911**	**£1,127**	**£1,896**
England	**£633**	**£705**	**£774**	**£887**	**£1,563**

Source: Crown copyright Valuation Office 25th May 2018

For further information or similar enquiries contact:
Planning Policy Team
Physical & Cultural Regeneration
Regeneration, Culture, Environment & Transformation
Civic Headquarters
Gun Wharf
Dock Road
Chatham, Kent
ME4 4TR
Telephone: 01634 331218
E-mail: planning.policy@medway.gov.uk

Hoo Peninsula Property Price Report (August 2018)

This report is of property prices on the Hoo Peninsula as monitored by Medway Council. In order to gain a better understanding of the local property market, Medway Council collect detailed information on advertised prices. This is compiled monthly from the Rightmove website (previously collected from local newspapers). New houses are also monitored; this information is taken from house builders web sites. By collecting this data locality, property types and number of bedrooms can be analysed.

The same method as that adopted in the Medway-wide Property Price Report has been used to look specifically at the Hoo Peninsula.

2017 summary

Sample: 173 properties

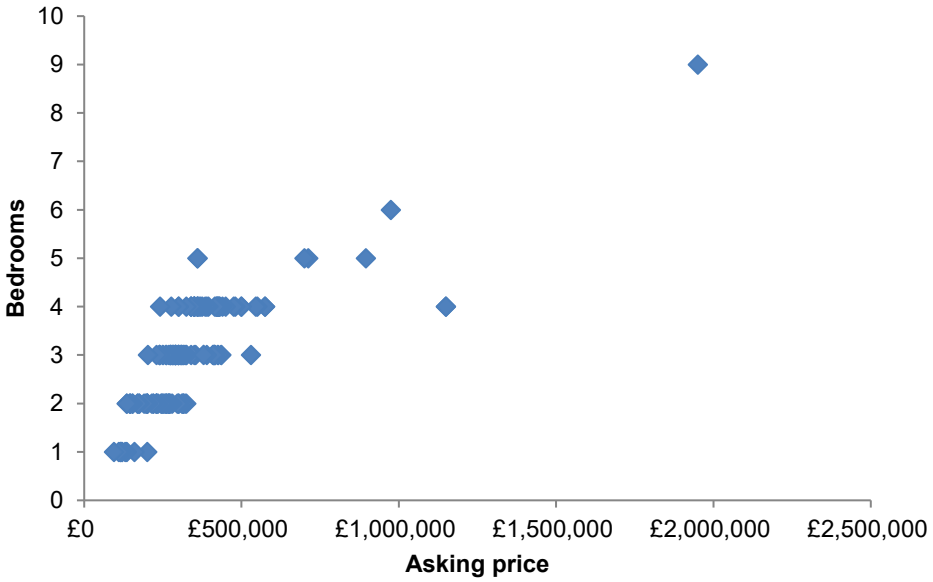
Mean house asking price: £332,861

Mean number of bedrooms: 2.95

Mean house asking prices (by bedroom)

Bedrooms	Mean asking price	Number of properties
1	£130,000	10
2	£233,093	49
3	£316,277	65
4	£436,987	42

Chart 1: 2017 Asking Prices on the Hoo Peninsula



2018 summary (January to July)

Sample: 142 properties

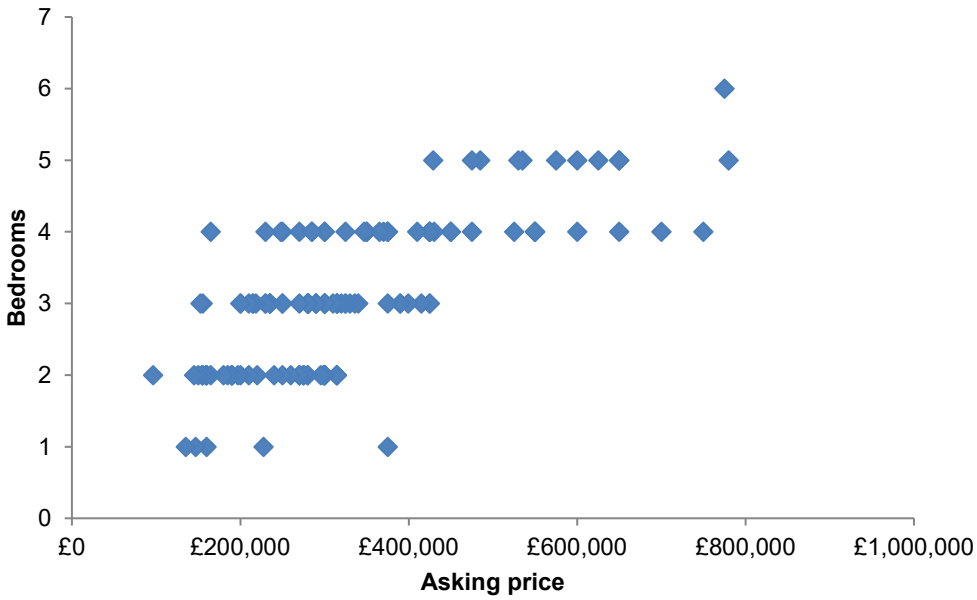
Mean house price: £323,562

Mean number of bedrooms: 3.06

Mean house prices on Hoo Peninsula (by bedroom)

Bedrooms	Mean asking price	Number of properties
1	£208,900	5
2	£225,817	42
3	£289,425	47
4	£408,472	36

Chart 2: 2018 (January to July) Asking Prices on the Hoo Peninsula



MEDWAY GUIDE TO DEVELOPER CONTRIBUTIONS AND OBLIGATIONS

May 2018

Medway Council

Serving You

Contents

Introduction

1.1 The development of new housing increases the number of people living in an area, and with that the demand on local services, such as schools, health services, parks, and transport. The Planning system recognises the need to address the impacts arising from development, and can use legal obligations, agreements and unilateral undertakings to secure acceptable development. Developer contributions are an important component of this process. Planning obligations assist in mitigating the impact of unacceptable development to make it acceptable in planning terms.

1.2 The purpose of this guide is to set out Medway Council's policy relating to developer contributions. It is to assist developers, the Council's own staff and all stakeholders to:

- Ensure the impacts of developments are properly mitigated
- Ensure that there is clear information on the Council's policy for developer contributions
- Ensure consistency, transparency and accountability
- Provide a streamlined, efficient service
- Achieve greater speed in determining planning applications

1.3 The Council introduced its first Medway Guide to Developer Contributions in 2008. This document is the third review. This Guide has been adopted by Medway Council in May 2018 as a supplementary planning document, following consideration of comments received during consultation. This means that the guidance is a material consideration in making decisions on planning applications. The Council has not progressed a Community Infrastructure Levy, due to ongoing work on preparing a new Local Plan for Medway and the associated evidence base. This will be further considered in light of anticipated updated government policy and guidance. Further work on identifying infrastructure capacity and needs is being carried out to support the new Local Plan. This updated evidence base will inform a further policy document setting out the process and requirements relating to developer contributions, and will be published alongside the new Local Plan. This will include viability testing of the cumulative requirements of the Local Plan policies.

1.4 This guide provides comprehensive advice on how to determine contributions and includes technical details for services for which contributions may be sought. The guide also includes a checklist at Appendix 1, to be followed in order to enable faster decisions to be made.

1.5 Every effort has been made to make this guide as comprehensive as possible but it is not possible to anticipate the needs generated by all types of development. It is the responsibility of those submitting planning applications to contact planning staff at as early a stage as possible to determine whether the potential impacts of a proposed development go beyond the advice given here.

1.6 **Developers are expected to take account of, and meet, the requirements of this document, before submitting planning applications to the council.**

Legal and Policy Context

2.1 Medway is a growing urban area that is projected to increase to over 330,000 people by 2035. The planning process can support the delivery of development to meet the area's needs for homes, jobs, services and infrastructure. Many aspects of the area's infrastructure are under pressure in meeting the needs of the growing population. The delivery of timely and appropriate investments in infrastructure improvements to support housing growth is a major issue. It was the key concern raised by residents in consultation on the emerging Local Plan, and a common issue for comments on planning applications.

2.2 The council wants to ensure that the process of securing the delivery of upgraded infrastructure and services to meet the increased demands arising from new development works effectively. This guide has been adopted as a supplementary planning document, and is a material consideration in determining planning applications.

2.3 This guide has been prepared in accordance with planning legislation and policy overseeing the processes of securing appropriate contributions and obligations from developments. Planning obligations or agreements and Unilateral Undertakings are normally entered into in accordance with Section 106 of the Town & Country Planning Act 1990 (as amended). These tend to be referred to on a day-to-day basis as 'Section 106 (S106) agreements' and this term is used throughout this guide.

2.4 Section 106 of the 1990 Act provides that anyone with an interest in land may enter into a planning obligation, which is enforceable by a local planning authority. An obligation may be created by agreement or by the party with an interest in the land making a unilateral undertaking. Obligations may:

- Restrict the development or use of land
- Require operations to be carried out in, on, under or over the land
- Require the land to be used in any specified way; or
- Require payments to be made to the local planning authority, either in a single sum or periodically.

2.5 Obligations run with the land and, providing all parties with an interest in the land enter into the agreement, affect everyone with an interest in it, including successors in title. They are registered as Local Land Charges.

2.6 The main principles governing the use of obligations are that:

- They should only be used when planning conditions are not appropriate
- They are intended to make development acceptable which would otherwise be unacceptable in planning terms
- They can be used to prescribe the nature of the development (e.g. a proportion of the housing must be affordable), to compensate for loss or damage caused by the development (e.g. loss of open space) or mitigate a development's impact (e.g. increase public transport provision).

2.7 All S106 agreements should satisfy the following tests:

- it must be necessary to make the proposed development acceptable in planning terms,
- it is directly related to the proposed development,
- it is fairly and reasonably related in scale and kind to the proposed development.

2.8 Agreements must be governed by the fundamental principle that planning permissions may not be bought or sold, and they cannot be used to secure a share in the profit from development.

2.9 Contributions may be either in kind or in the form of a financial contribution. Payments can be made in the form of a lump sum, an endowment, or as phased payments related to dates, events or triggers.

2.10 Local planning authorities should set out their policy on local standards, including infrastructure contributions and requirements for affordable housing in the Local Plan. The plan is subject to testing the cumulative impact of policies and requirements on viability, so that the Local Plan can be delivered. As the Local Plan process is ongoing, the council has updated its current guidance so that prospective developers are aware in advance of what contributions might be sought from any particular development. This is the prime function of this guide. The council will take account of further guidance and policy on developer contributions anticipated to follow consultation carried out in Spring 2018.

2.11 Medway Council supports the delivery of quality development which delivers its ambitions for the area's successful growth. The council has led in the production of a Planning Protocol for Delivering Growth in Kent and Medway. This aims to provide increased efficiency and certainty in the planning process for communities and developers. The protocol sets out the council's commitment to effective communication and working to increase certainty and consistency in the development planning process. The preparation and review of this Guide to Developer Contributions and Obligations specifically addresses the standards and commitments set out in the Planning Protocol.

2.12 This Guide provides clarity to developers and wider stakeholders on the requirements for infrastructure arising from consented developments, and associated obligations to ensure that the impacts of new developments are appropriately considered and mitigated.

2.13 The Council's current policy in respect of developer contributions is set out in "saved" Policy S.6 of the Medway Local Plan 2003. This states that:

"The Council will set conditions on planning permissions or seek to enter into a legal agreement with developers to provide for new physical infrastructure, social, recreational and community facilities (including education facilities) and environmental mitigation or compensation measures where mitigation is impossible or inadequate on its own, where the need for these arises directly from the development concerned. Provision will be sought in proportion to the

size and nature of the individual development, and will take into account the existing pattern of provision and capacity in the locality.

Provision will be made on the site where this can be reasonably achieved. When this is not the case, contributions will be sought for the provision of facilities and ecological features elsewhere, provided their location can adequately serve the development site or are appropriately related to it."

2.14 This policy is the basis for the detailed requirements set out later in this guide. It will be replaced in due course by policies in the new Local Plan.

Procedural and Administrative Considerations

3.1 Medway Council has put in place systems and arrangements to assist developers, speed the decision making process and ensure consistency, transparency and accountability. These procedures cover pre-application advice, submission of planning application(s) and post decision issues. Further information is set out at Appendix 1 of this document: Summary Chart and Checklist for Applicants.

3.2 Developers should contact the Section 106 (S106) Officer regarding payment of contributions after the agreement is completed.

3.3 *Standard Templates and Clauses*
To ensure effective use of staff resources in drafting legal agreements, the Council has developed standard templates, based on many years experience and established legal practice. For unilateral undertakings, proof of ownership of the land affected by the agreement must be shown. Templates are available on the website http://www.medway.gov.uk
Please search for 'developer contributions' for developments of 10 dwellings or more, and 'bird disturbance in North Kent' for developments of 1 – 9 dwellings'.

3.4 *Contacting and Negotiating with the Council*
Co-ordination and openness are critical to the successful negotiation and completion of agreements. Developers and their agents should:

- Conduct all negotiations through the development management case officer. In pre-application discussions the Council will make every effort to identify a case officer, to ensure continuity and consistency. A pre-application charge will be levied by the council. Please visit the website for details http://www.medway.gov.uk. One to one negotiations with a particular service should only take place with the prior agreement of the case officer. The case officer will usually attend all such meetings. Contact with the Legal Section by the applicant should not be necessary in straight forward cases other than for checking title information, technical legal queries or to arrange the engrossing of an agreement. The case officer is responsible for involving the Legal Section, if necessary, in all other cases. However in his/her capacity as monitoring officer, the Assistant Director Corporate Services can always require legal involvement where necessary to protect the position of the council.

- Traditionally the negotiation and drafting of agreements has started very late in the determination of a planning application. This imposes great pressure to agree heads of terms before Planning Committee meetings and can delay planning permissions not being granted for weeks or months after a positive resolution. With this in mind Medway Council will enter into 'without prejudice' negotiations and drafting at as early a stage as possible. These negotiations will consider S106 related matters without prejudice to the consideration of the associated planning application. In this way negotiations can commence at the pre-application

stage and the shared aim should be to have a completed agreement ready by the time an application is determined.

3.5 *Planning Performance Agreements*

The Council promotes the use of Planning Performance Agreements (PPAs) to achieve a more efficient and effective application process. The consideration and resolution of the S106 agreement forms part of the timetabled and resourced actions throughout the key stages from pre-application discussions, processing of the application and issue of decision and clearance of conditions.

3.6 *Basis of Guide*

The Council's initial negotiations will generally be based on this guide. Only where there are good and valid reasons for departing from the guide will alternatives be considered.

3.7 An example might be where the 'normal' level of contribution is genuinely unaffordable in which case the developer should inform the Council as quickly as possible and provide detailed financial evidence to substantiate the claim. Only where comprehensive evidence is provided will it be possible for the Council to consider such departures and in these cases an 'open book' approach will be required.

3.8 Each new dwelling within a defined 6km buffer of the Thames, Medway and Swale Special Protection Areas and Ramsar sites (please see Appendix 2 for map showing buffers) will incur a bird disturbance mitigation contribution of £239.61 per dwelling for a Strategic Access Management and Monitoring Scheme. Contributions for services to mitigate the impact of the development will be sought on developments of 10 dwellings or more.

3.9 All S106 contributions will be index linked annually on 1 April (using the all items retail prices index – rpi), and will be calculated at 2.43 persons per dwelling. Therefore it should be understood that the sums set out in this document are subject to annual review in line with the RPI as set out above.

3.10 *Resolving Disputes*

Complaints relating to procedural and administrative matters will be dealt with in accordance with the Council's normal complaints procedure as set out on our website. Any concerns over negotiations should be made initially to the case officer, and if this does not resolve the problem, to the Head of Planning. If necessary the matter will then be referred to the Assistant Director, Physical and Cultural Regeneration, and if necessary to the Director, Regeneration, Culture, Environment and Transformation.

3.11 *Administrative and Associated Costs*

The Council is committed to providing sufficient resources to achieve a high level of service and has set administrative costs, to be paid on completion of the agreement, on all agreements as follows:

- £300 per trigger event as set out in the S106 agreement
- The Council's reasonable legal costs, at a minimum of £500 per agreement
- In some cases the cost of the case officer's time negotiating the S106 matters.

3.12 *Thresholds*

Land Use	Threshold
Housing	10 units or more or combined GIA of 1000 sq.m
Office	100 sq.m or more
Industrial	250 sq.m or more
Warehouse	500 sq.m or more
Retail	100 sq.m or more
Educational	25 students or more
Hotel	25 rooms or more
Other	50 users or more

The requirements relating to the provision for Affordable Housing vary, and developers should refer to the details set out in the Affordable Housing section of this guide.

The tariff relating to Strategic Access Management and Monitoring scheme to address the risk of bird disturbance in the designated estuarine habitats applies to all dwellings within a 6km buffer of the designated areas.

For developers promoting schemes involving self-build housing developments, designated starter home exception sites, or the redevelopment of a vacant building, there are additional considerations. In such cases, prospective developers should contact the Planning Service for further details of the contributions and obligations required.

Planning Practice Guidance provides more detail on these considerations:

https://www.gov.uk/guidance/planning-obligations

3.13 *Reporting on contributions and obligations*

The Council is committed to providing clear information on developer contributions and obligations. S106 agreements are published with the planning application on the council's website through Public Access. The Planning

Service reports quarterly to Planning Committee on developer contributions. These reports list information on S106 contributions received, and obligations included in all S106 agreements completed in that quarter. The Council also reports on developer contributions in its annual Authority Monitoring Report, which is published each December for the preceding financial year.

Level of contributions per dwelling

Please note that developer contributions will be required for developments of 10 dwellings or more.

A bird disturbance mitigation contribution of £239.61per dwelling will be sought for each new dwelling within the SPA and RAMSAR 6 km buffers (please see plan on the last page of this document – Appendix 2).

If required, contributions for transport/travel will be site specific.

Contribution for	Amount per dwelling based on average 2.43 persons per dwelling
Bird disturbance mitigation (SAMMS)	£239.61
Cultural services : - Community services - Heritage and museums - Libraries *	 £178.80 £277.80 £161.15
Education** : - Nursery - Primary - Secondary - Sixth form	 £1,345.59 £3,302.81 £2,616.93 £688.87
Health	617.05
Open/play space, outdoor formal sport	£2,489.73
Sports facilities	£237.58
Waste and recycling	£168.86
Youth provision	£76.42
TOTAL	**£12,401.20**

* contribution for existing library provision

** contribution for extension of existing schools, not for provision of new school.

Figures to be indexed to retail price index on 1 April annually

Affordable Housing

1. Background

1.1 *Medway Local Plan 2003 Policy H3: Affordable Housing* states that where a need has been identified, affordable housing will be sought as a proportion of residential developments of a substantial scale.

1.2 The 2015 *North Kent Strategic Housing Assessment (SHMA)* clearly identifies a need for additional affordable housing in Medway and the Council is committed to meeting this.

1.3 The aim of the Council's Affordable Housing Planning Policies and this guidance is to ensure the development of balanced and integrated communities and to deliver good quality affordable housing for local people in housing need for both present and future generations.

2. Definition of Affordable Housing

2.1 The primary definition that is used to assess need, suitability, and to inform the development of requirements for affordable housing is provided within National Planning Policy Framework Annex 2: Glossary, which defines affordable housing as:

Social rented, affordable rented and intermediate housing, provided to eligible households whose needs are not met by the market. Eligibility is determined with regard to local incomes and local house prices for future eligible households or for the subsidy to be recycled for alternative affordable housing provision.

Social rented housing is owned by local authorities and private registered providers (as defined in section 80 of the Housing and Regeneration Act 2008), for which guideline target rents are determined through the national rent regime. It may also be owned by other persons and provided under equivalent rental arrangements to the above, as agreed with the local authority or with Homes England.

Affordable rented housing is let by local authorities or private registered providers of social housing to households who are eligible for social rented housing. Affordable Rent is subject to rent controls that require a rent of no more than 80% of the local market rent (including service charges, where applicable).

Intermediate housing is homes for sale and rent provided at a cost above social rent, but below market levels subject to the criteria in the Affordable Housing definition above. These can include shared equity (shared ownership and equity loans), other low cost homes for sale and intermediate rent, but not affordable rented housing.

Homes that do not meet this definition of affordable housing, such as “low cost market” housing, may not be considered as affordable housing for planning purposes.

3. When Affordable Housing Will Be Sought

3.1 As set out in *Policy H3* of the *Medway Local Plan (2003)*, affordable housing will be required on residential developments of a substantial scale i.e.

- developments of 15 or more dwellings or developments with a gross site area of 0.5 hectare or more in rural settlements with a population of 3,000 or less; or
- developments of 25 or more dwellings or developments with a gross site area of 1 hectare or more in urban areas.

3.2 The application of the policy is Medway-wide and reflects the need for affordable housing throughout the area as identified in the *North Kent Strategic Market Housing Assessment* (2015) and subsequent detailed analysis of both the council’s housing register and demand data held by the Help to Buy agency.

3.3 S106 Agreements will require the affordable housing to be retained in perpetuity. Matters to be taken into account when affordable housing is negotiated will be:

a) the suitability of the site for affordable housing development;
b) the economics of provision;
c) the proximity of local services and facilities and access to public transport;
d) the realisation of other planning objectives;
e) the need to support Medway’s regeneration agenda and to achieve a successful housing development, taking into account the appropriate mix of affordable housing types and the proportion of affordable housing and its subsequent management.

4. How Much Affordable Housing Will Be Sought

4.1 The Council’s target is to seek at least 25% of homes to be affordable homes on any site meeting the Council’s size thresholds.

4.2 The size thresholds and the percentage of affordable housing are supported by the 2015 *North Kent Strategic Housing Market Assessment*. Where the Council considers that intermediate tenures are appropriate on a site they will be included within the overall percentage of affordable housing.

4.3 The target will be the baseline for negotiations for affordable housing on suitable housing sites. Where a developer considers that this requirement significantly affects the viability of a scheme an “open book” approach based on

the residual valuation methodology will be taken to establish the extent of this case.

4.4 In many cases, when calculating how many dwellings the percentage target represents on a site, the outcome will not be a whole number. Where the calculation results is a residual of 0.5 or more of a dwelling, the number of dwellings should be rounded up to the nearest whole dwelling and where it results in a residual of less than 0.5 of a dwelling it should be rounded down to the nearest whole dwelling.

5. Who Can Deliver Affordable Housing?

5.1 Affordable Housing Providers
Medway Council does not want to adopt restrictive practices, which could preclude innovation and competition between potential providers of affordable housing. The most effective way of delivering the requirement however, is widely considered to be by engaging a Registered Provider of social housing or be an Homes England Investment Partner.

5.2 It is recommended that the skills and experiences of Registered Providers be used at an early stage of the design process. Design and management issues in relation to affordable housing are far better resolved at this stage. Registered Providers will also be able to advise on the financial implications of the affordable housing requirement.

5.3 Contact details for those Registered Provider partners that have a demonstrable track record of delivery and management within Medway can be provided on request. The Council retains its right not to support the disposal of affordable units to RPs that do not have the management abilities and local knowledge to effectively manage new affordable housing in Medway.

6. Registered Providers & Investment Partners

6.1 The Council does not prescribe the affordable housing providers that developers use to deliver affordable housing nor does it have a restrictive list of partner affordable housing providers eligible to operate in the area. To ensure prospective partners are competent and committed to affordable housing delivery and management in Medway they are required to either be a Registered Provider or have Homes England Investment Partner status. In addition the organisation must be able to demonstrate that they can meet the eligibility criteria set out by the North Kent Housing Partnership.

6.2 Registered Providers are bodies registered with Homes England as a social landlord pursuant to the provisions of the Housing and Regeneration Act 2008.

6.3 Investment partners are those organisations that have successfully qualified for investment partner status by completing Homes England's qualification questionnaire and having been selected; this selection having taken into account the applicants technical ability (based on the technical standards

described in the former Housing Corporation's Design and Quality Strategy and Design and Quality Standards), financial capacity and good standing.

6.4 This will enable the Council to make an informed decision on the ability of the organisation to deliver and manage affordable housing whilst ensuring all interested organisations have a fair and equal opportunity to demonstrate how they will operate.

6.5 Specialist housing providers who are unable to fulfil all the criteria may still be considered but the Council reserves the right to demand additional information.

7. North Kent Housing Partnership Eligibility Criteria

7.1 All affordable housing providers wishing to operate in Medway will be expected to be able to fulfil all of the following criteria. They must:

1. Be a body registered with Homes England (HE) as a social landlord pursuant to the provisions of the Housing and Regeneration Act 2008 or any other body or company approved by Homes England for receipt of social housing grant or other financial support and approved by the Council.

2. Enter into a nominations agreement with the Council for the units to be delivered.

3. Be a member of Kent HomeChoice and agree that all lettings will go through the Kent choice-based lettings system.

4. Have due regard to the Tenancy Strategy of the council when formulating policies relating to :

   a. the kinds of tenancies they grant
   b. the circumstances in which they will grant a tenancy of a particular kind
   c. where they grant tenancies for a term, the length of the term and
   d. the circumstances in which they will grant a further tenancy on the coming to an end of an existing tenancy.

5. Have an office within Medway or be able to demonstrate that adequate management arrangements have been put in place for the management of the stock in the area.

6. Be willing to actively engage as a key stakeholder in the development of policies and strategies developed by the council where invited to do so.

7. Consider the use of Modern Methods of Construction (MMC) for all new developments (where practicably possible).

8. Use all reasonable endeavours to make developments meet the current Secure by Design standard, and where suitable the additional provisions

for specialist provision (unless otherwise agreed by Homes England and the Council).

9. Comply with the standards set out in Fact Sheet No. 6 – Design Principles for Extra Care (CSIP, 2008) or any subsequent design standards that may be adopted by the Council where extra care units are to be delivered.

10. Deliver a range of unit types, tenures and sizes as identified by local need and suitable to the location.

11. Work with the council's occupational therapists (OTs) from the initial unit design stage through to the occupation of units. This will better enable units that can be designed for clients with specialist needs to be accommodated and delivered at minimal cost to all parties. OTs can also assist with the identification of clients with specialist accommodation needs ensuring such units are ready for occupation on completion or relets thus minimising void times.

12. Deliver a minimum 5% of all new affordable dwellings as wheelchair-user housing as set out within the Housing Corporations Design and Quality Standards (April 2007). Where it can be demonstrated to the council's satisfaction that a site cannot deliver wheelchair-user dwellings an exemption will need to be sought.

13. Ensure that their practices are compliant with the council's duties towards equalities. As public bodies, local authorities are required to meet Public Sector Equality Duties (PSEDs), which are set out under Section 149 of the Equality Act 2010. Further information on PSED can be found at http:www.equalityhumanrights.com/advice-and-guidance/public-sectorequality-duty

    These duties include the need to consider how we:
    - eliminate unlawful discrimination, harassment and victimisation;
    - advance equality of opportunities; and
    - foster good relations

14. Respond in a timely manner to requests by the Council for qualitative and quantitative information – including quarterly information on voids, re-lets, tenure conversions, decent homes standards and rent levels.

15. Be willing to meet quarterly with officers of the Housing Strategy &Partnership Team to discuss the organisation's development plan.

16. Agree to provide training to Council staff on relevant affordable housing standards and issues, which are of clear benefit to the enabling function of the Council and affordable housing providers.

17. Provide information on customer satisfaction levels to the Council on a scheme-by-scheme basis.

18. Be willing to arrange site visits for the Council's staff both prior to and on completion of schemes. The aim of this is to assist with developing local lettings plans and to better ensure the properties are correctly advertised on the Kent HomeChoice system.

8. Affordable Housing Tenure Mix

8.1 The social rented stock in Medway at 14.8% (17,047) is low relative to the national average of 19.3% and does not provide adequate turnover to meet the scale of need identified. The scale of need could justify the whole allocation for affordable housing being used as social or affordable rented units but a balanced approach is now the core of the strategy in Medway and this approach will be pursued.

8.2 The Council's preferred options are for mixed tenure schemes of social or affordable rented and intermediate tenures (usually shared ownership). It is accepted that for smaller sites there may be reasons for not mixing tenures. Therefore, where there are to be 10 or less affordable housing units provided in a scheme the Council may accept that the units can be of a single tenure. This will be determined by the Housing Strategy & Partnership Team on a site-by-site basis based on local needs.

8.3 Where the number of affordable units to be provided is greater than 10, a tenure mix of 60% affordable rent and 40% intermediate affordable housing (of which shared ownership is the preferred option) will be sought.

8.4 The Council maps the location of affordable housing by tenure and size of units, and in the interests of creating sustainable communities reserves the right to seek different tenure mixes where this improves the mix of tenures locally.

9. Affordable Housing Size Mix

9.1 In terms of the size mix of affordable unit on a site, the Council will generally seek to achieve the approximate following mix, where practically feasible :

- 30% 1-bedroom properties
- 30% 2-bedroom properties
- 30% 3-bedroom properties
- 5% 4-bedroom properties
- 5% 5-bedroom properties

The Housing Strategy & Partnership Team recognises that Medway contains a wide range of development sites and not all sites will be capable of delivering the full range of unit sizes. Some sites may be unsuitable for houses and others unsuitable for apartments or bungalows. Where this is the case the Housing Development and Investment Team will expect the affordable element to be representative of the total size mix to be delivered on any given scheme.

9.2 The above breakdown of both housing tenure and size is to be regarded only as a guide. The exact percentages for each site will be determined following discussions between the Housing Strategy & Partnership Team, Development Management and the developer prior to the drafting of a S106 Agreement.

10. Design and Layout of Affordable Housing on s106 Sites

10.1 In accordance with government guidelines on sustainability, the Council favours a mix of housing types and tenures on developments. The Council expects affordable housing to be so designed that it cannot be easily distinguished from market housing however in some circumstances some differences may be accepted. The developer and affordable housing provider are advised to work together to ensure that the affordable housing forms an integral part of the overall development.

10.2 Developers will need to satisfy the Council that the mix of unit types will address the housing need that has been identified in the area and that the standard of construction is suitable.

10.3 Internal space standards should, as a minimum, comply with any current council or Homes England guidance (whichever is larger). The following table gives indicative space standards for selected dwelling types based on the current nationally described space standard

Number Of Bedrooms	Number of Bed spaces	1 storey Dwelling	2 Storey dwellings	3 Storey Dwellings
1b	1p	39		
	2p	50	58	
2b	3p	61	70	
	4p	70	79	
3b	4p	74	84	90
	5p	86	96	99
	6p	95	102	108
4b	5p	90	97	103
	6p	99	106	112
	7p	108	115	121
	8p	117	124	130
5b	6p	103	110	116
	7p	112	119	125
	8p	121	128	134
6b	7p	116	123	129
	8p	125	132	138

10.4 The Council requires developers as a minimum to adhere to the provisions of the technical housing standards as set out in Nationally Described Space

Standards[1], published by DCLG in 2015. As such compliance will be a consideration in the grant of planning permission and will apply to all proposals involving new units of accommodation, including affordable units.

10.5 Specific advice on individual sites should be sought at an early stage from the Housing Strategy & Partnership Team.

10.6 On sites that are large enough for there to be a choice of location for the affordable housing, the opportunity should be taken to locate it near bus routes and local facilities if these are available.

10.7 It is expected that developers will take part in a Considerate Contractor scheme, and where possible seek to use local contractors and suppliers whilst promoting training and career advancement opportunities

11. Affordable Housing Plan for S106 Sites

11.1 As part of s106 obligations developers will be required to provide an Affordable Housing Plan (AHP). See below for items that should be incorporated within the AHP. The AHP will need to be approved in writing by the Housing Strategy & Partnerships Team prior to the commencement of any development. For larger sites broken down by phases the AHP will need to be agreed for each phase before development can commence.

11.2 The AHP should illustrate/include the following

- Meet the minimum target for affordable housing, provided across the entire site including gardens and any associated buildings such as garages.
- The size (sq_m), number of bedrooms and housing type of each affordable property.
- Clearly labelled associated parking for the affordable units.
- Tenure of the affordable housing - normally 60% affordable rented and 40% intermediate - to be shown in different colours on a layout plan (or floor plans in the case of flats).
- Where more than one type of intermediate product is being delivered these will need to be distinguishable via the use of different colours.
- Which of the affordable homes are being delivered to the Lifetime Homes standard or as wheelchair-user units.
- Which of the affordable homes are specialist units (extra care, sheltered, learning disability etc) where applicable.
- Written evidence that the scheme has been assessed and meets the required design and quality standards.

[1] Department for Communities and Local Government, 'Technical housing standards-nationally described space standard', March 2015, Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/524531/160519_Nationally_Described_Space_Standard____Final_Web_version.pdf

12. Phasing

12.1 The affordable housing provision to be made on a site should be an integral part of the development. Where a development is to be provided in phases, it may also be appropriate for the affordable housing element to be phased.

13. Sustainable Integrated Communities

13.1 On sites where an element of affordable housing is required, it should be provided on the site. This supports the creation of balanced sustainable communities. Normally the affordable housing element of a site should be of a similar size and character to the market housing on the site unless this does not reflect the local need.

13.2 The Council believes that to create integrated communities the affordable homes should be indistinguishable from the market housing and distributed throughout the development. However, the Council considers clusters of affordable housing to be more practical than excessive 'pepper-potting' and where it is demonstrated to be essential to ensure high standards of estate management and maintenance, larger clusters of affordable housing will be permitted.

13.3 On larger sites, the Council will negotiate a phased release of affordable housing to ensure a better distribution of tenure mix. This will be secured by way of the s106 Agreement that will include appropriate triggers to link the occupation of open market units to the delivery of the affordable housing

14. Building to Meet Housing Need

14.1 New schemes must meet the proven housing needs in Medway. The Council undertakes regular needs analysis based on its housing register, housing needs surveys and/or strategic housing market assessments to establish the housing needs of Medway.

14.2 The most recent strategic housing market assessment was undertaken in 2015 in line with *Practice Guidance (2007)* published by Department of Communities and Local Government.

14.3 The *Strategic Housing Market Assessment (2015)* identified exceptional local constraints, which a significant number of local residents face. It compared local house prices and the incomes of those seeking new accommodation.

14.4 This showed that average house prices had increased rapidly since 2009 and outstripped the average local households income

14.5 It is recognised that several housing sub-markets operate within Medway and the tenure mix sought may vary to reflect local need and existing supply within any given locality.

14.6 The Medway housing register indicates a significant requirement for properties that are fully wheelchair-adapted or suitable for clients with mobility problems. All suitable affordable housing schemes are to include a minimum 5% of homes that are fully adapted to wheelchair standards.

14.7 Further information on housing requirement can be found in the *North Kent Strategic Housing Market Assessment* which is available for download from the Council's website at:

https://www.medway.gov.uk/downloads/file/629/north_kent_shena_with_gravesham_final_report_-_2016

15. Affordability

15.1 The Council will insist that intermediate housing products are affordable to local people in housing need before agreeing to their inclusion within an affordable housing scheme. The Council collects data on local incomes and house prices/market rents to establish the income levels required to access the local housing market. This will be used to assess the affordability of intermediate products based on mortgage and rental costs equating to no more than 30% of the average gross income of households unable to access the open market.

15.2 Where service charges are to be charged, they should be reasonable so as not to render the units unaffordable once added to the rents.

16. Funding for affordable housing

16.1 The cost of providing affordable housing should be accounted for in the land purchase price. The Council does not accept situations where developers purchase land with the assumption that the requirements for affordable housing will be reduced in order to ensure financial viability.

17. Site Viability and Abnormal Development Costs

17.1 The Council recognises that requiring developers to allow part of their site to be used for non-market housing will result in a cost. In order to offset these costs, developers will be expected to take the requirement into account in negotiating realistic land values with site owners.

17.2 Other planning related requirements such as education, community facilities, children's play areas etc. will likewise be treated as known costs.

18. The 'Planning Gain' Requirement

18.1 When negotiating on sites with a requirement for affordable housing, the contribution that the Council will seek from the developer is the provision of the affordable housing land fully serviced to the site boundary for free.

18.2 Serviced land covers provision to the site boundary of all services (electricity, gas, water, sewerage, telephone, lighting etc) necessary for development. It also covers connection costs, demolition costs, infrastructure (roads, footpaths, boundary walls etc), decontamination, archaeological costs and site clearance where applicable. Services must be provided to the edge of the land and there must be no legal, physical or financial barrier (i.e. unencumbered access) to the serviced the land for the builder constructing the affordable housing.

18.3 In cases where the developer is to build the affordable homes rather than just transfer the land for free, the Council will expect the planning gain to be demonstrated by the cost that the developer charges the affordable housing provider for the built units. The price should reflect build costs (rather than the value of the dwellings) and exclude the value of the clean serviced land.

18.4 The Council follows an “open book” approach to valuations and development economics on affordable housing schemes where developers present schemes that do not meet the requirements of the affordable housing policy. In these cases the applicants should be prepared to discuss the various cost components of their schemes with the Council, and will be required to meet the costs of an independent assessment of these costs commissioned by the Council.

19. Off-Site Provision

19.1 The Council will generally expect affordable housing to be provided on the development site in order to create balanced communities. The Council will, in exceptional cases, take into account the size of the site and the type of development proposed and consider provision on an alternative site within Medway or a financial contribution towards such provision in lieu of on-site provision.

19.2 In the exceptional cases where off-site provision is acceptable, a developer will be expected to make the equivalent contribution of an agreed number, size and type of affordable dwellings on a different site (or sites) elsewhere in the area as agreed as part of the Planning Application.

19.3 Where it is agreed that it is not possible to provide an alternative site or buildings, the Council will seek a level of financial contribution that will actually result in the provision of affordable housing elsewhere in the relevant area. The sum involved must be adequate to ensure that affordable housing can be provided in that location within an agreed timescale.

20. Supported Housing

20.1 The Council regularly undertakes detailed needs analysis on the housing requirement of older and vulnerable client groups. The council will on occasions seek to negotiate an element of supported housing as part of the affordable requirements.

20.2 This reflects the government's objectives to provide high quality, value for money housing and support services to vulnerable people. Details on the identified requirement for affordable supported housing can be obtained by contacting the Housing Strategy and Partnership Team.

21. Equality Guidance

21.1 Medway Council recommends that all affordable housing providers wishing to operate in Medway ensure that their practices are compliant with the Housing Corporation Good Practice Note 8: Equality and Diversity (November 2007). It is aimed at eliminating discrimination and promoting equality through the people affordable housing providers employ in the delivery of services to the community.

21.2 Affordable housing providers should observe and act upon the Equality for Human Rights Commission's code on housing and associated guidance.

21.3 The Council also encourages affordable housing providers to give due regard to guidance produced by Habinteg Equality Centre (2007), "*Housing Association Guide to Disability Equality Schemes and Action Plans*" in the delivery of their schemes.

22. Mortgagee–in–possession clauses

22.1 The Council will make provision in s106 Agreements for mortgagees in possession to be exempted from covenants to use land only for affordable housing and from occupancy restrictions linked to the development of the affordable homes.

23. Pre-application Discussions

23.1 Negotiations where affordable housing is involved often require considerable input. Contact should be made with the Council at the earliest opportunity and well in advance of any planning application being submitted. Negotiation must be concluded before the Council decides on the planning applications or schemes will be recommended for refusal.

24. Registered Providers already operating In Medway

24.1 Medway Council operates a flexible approach to partnership working and does not maintain a list of preferred Registered Providers. However, a number of Registered Providers have been developing and managing affordable stock in Medway for a long period of time which has enabled them to develop a better understanding of need and operating procedures in Medway.

24.2 Where a developer is seeking to deliver affordable units or deliver the units in partnership with a Registered Provider not currently operating in Medway it is advised that the Housing Development & Investment Team be contacted at the earliest opportunity.

24.3 This is advised to ensure the organisation delivering the affordable units is fully aware of the housing need requirements of Medway and the necessary standards are achieved in terms of both build and management. Medway Council will only seek to work with organisations that can demonstrate a long-term commitment to affordable housing delivery and management in line with the Council's strategies and objectives.

24.4 A list of Registered Providers currently operating in Medway can be obtained from the Housing Development and Investment Team.

25. Policy/evidence base

National Planning Policy Framework : annex 2

North Kent Strategic Housing Market Assessment (2015)

https://www.medway.gov.uk/info/200149/planning_policy/519/future_medway_local_plan/2

Housing Association Guide to Disability Equality Schemes and Action Plans

https://www.habinteg.org.uk/housing-association-guide-to-des

Air quality

1.1 Poor air quality affects human health and the environment. Developments have the potential to affect local air quality significantly, through the location and design of receptor locations and through an associated increase in emissions.

1.2 All new developments shall have due regard to the Medway Air Quality Planning Guidance. This guidance applies to all new full or outline planning applications submitted after April 2016 and not to reserved matters applications where outline approval was consented before the adoption of the Air Quality Planning Guidance. The guidance has been developed in conjunction with the other Kent local authorities to improve air quality across the region and encourage emissions reductions to improve the environment and health of the population. The document aims to provide developers with clear information as to what the council requires and provide consistency in how the council will approach planning applications in terms of air quality. The damage costs approach set out in the document seeks to minimise the emissions impact of developments wherever practicable to sustainable levels, by securing reasonable emission mitigation while also seeking to counter the cumulative impacts arising from all developments.

2. Policy / evidence base

Air Quality Planning Guidance April 2016 (Medway Council

https://www.medway.gov.uk/info/200140/environment/416/air_quality/2

Medway Local Plan 2003 (Medway Council) –

https://www.medway.gov.uk/downloads/file/2400/medway_local_plan_2003

National Planning Policy Framework (NPPF) March 2012 - https://www.gov.uk/government/publications/national-planning-policy-framework--2

Medway Air Quality Action Plan December 2016 –

http://www.kentair.org.uk/Pagesfiles/Final_Approved_Medway_AQAP_December_2015.pdf

Bird disturbance mitigation

Strategic Access Management and Monitoring Scheme (SAMMS)

1.1 Much of the estuary and marshes along the north Kent coast on the Thames, Medway and Swale are designated Special Protection Areas (SPA), or Ramsar sites. This is in recognition of their international significance for wintering birds, in particular waders and waterfowl.

1.2 Research commissioned by the North Kent Environmental Planning Group found that there have been marked declines in the numbers of birds using the SPAs, and this can been directly linked to those locations with high levels of public access. 75% of visitors to the coast have travelled from within 6km. A series of strategic mitigation measures to reduce bird disturbance caused by recreational visitors to the SPAs and Ramsar sites has been proposed. A Strategic scheme is supported by the north Kent planning authorities, and is endorsed by Natural England in addressing this aspect of potential impact to the Special Protection Areas.

1.4 A SAMMS contribution of £239.61 will apply to any new dwelling created within the 6km zone of influence of the protected sites. In some circumstances, the tariff will apply up to 10km. The council applies the tariff to all new residential developments within the defined zone and criteria of the strategic scheme, including those under 10 dwellings. This sum is index linked and subject to annual review. SAMMS was introduced in the autumn of 2015, and will not apply to reserved matters applications where the outline was approved prior to Autumn 2015.

2. Policy / evidence base

Footprint Ecology, 'Bird Disturbance Study North Kent 2010/2011, Available at: http://www.footprint-ecology.co.uk/reports/Liley%20and%20Fearnley%20-%202011%20-%20Bird%20Disturbance%20Study,%20North%20Kent%202010-2011..pdf

Footprint Ecology, 'North Kent Visitor Survey Results', Available at: http://www.footprint-ecology.co.uk/reports/Fearnley%20and%20Liley%20-%202011%20-%20North%20Kent%20visitor%20survey%20results.pdf

Footprint Ecology, 'Thames Medway Swale Strategic Access Management and Monitoring Scheme', Available at: https://www.medway.gov.uk/downloads/file/1834/strategic-access-and_recreationmanagementplan

Medway Council Interim Policy Statement – Strategic Access Management and Mitigation, 2015:

https://www.medway.gov.uk/downloads/file/622/strategic_access_management_and_mitigation

Further information on Bird Disturbance in north Kent:

https://www.medway.gov.uk/downloads/file/1835/north-kent-bird-disturbance-report-2012

Cultural services

Cultural services cover the following : community facilities, heritage and museums and libraries.

1. Community facilities

1.1 Community facilities such as community centres, village halls and meeting rooms are an essential part of a sustainable living environment promoting general well-being amongst members of the local community and facilitating community cohesion.

1.2 This element of social infrastructure is wide reaching in terms of its benefits, providing for the health, welfare social, educational, spiritual, leisure and recreational needs of the community. They enable residents to participate in community life and enable people to connect with others in their local area.

1.3 It is important that:

- Community facilities are well connected to other community facilities, public transport services, open space, recreation facilities, and employment and education opportunities.
- Corresponding services are relevant to local people and can be flexible enough to respond to changing needs.
- Community services infrastructure should be equitably distributed so that all groups in the community are able to benefit
- Community infrastructure is integrated well into its surroundings and the landscape and natural attributes of sites and settings.

1.4 Contributions will be sought for a variety of community facilities. Community facilities can be provided by many different types of community groups, community centres, village halls, churches and other places of worship, local associations etc. When major planning applications are received, community facilities of all types in that particular area will be reviewed and contributions requested for the most appropriate to the development.

Charge : **£178.80 per dwelling**

2. Heritage and Museums

2.1 The Heritage and Museums service of Medway Council is responsible for Medway's most iconic and historic buildings, including Rochester and Upnor Castles, Temple Manor in Strood, Eastgate House and the Guildhall Museum in Rochester and the Brook Pumping Station in Chatham. Alongside these it also manages the Medway Archives Centre in Strood, and the Visitor Information Centre in Rochester.

2.2 As well as operating the buildings as places to visit for the public, the service also conserves and maintains these buildings and collections, provides an educational service for local and visiting schools, and develops exhibitions, events, and activities throughout the year.

2.3 Heritage and Museums are major assets for the entire Medway population and demands on their fabric upkeep and maintenance and costs directly increase with local population growth. The Visiting Friends and Relatives market is particularly strong in Medway and set to grow with local population growth.

2.4 The Heritage and Museums contribution of **£277.80 per dwelling** in line with the defined thresholds applies to developments within 1,000 metres of the sites identified in 2.1.

2.5 **Policy and evidence base**

Medway Economic Impact Study 2015

http://www.visitkentbusiness.co.uk/library/Economic_Impact_of_Tourism_-_Medway_2015_FINAL_REPORT.PDF

Destination Management Plan 2014

3. The Library Service

3.1 Medway Council has a statutory duty to provide a public Library service that is 'comprehensive and efficient' (under the 1964 Public Libraries and Museums Act.)

3.2 The Library Service is currently provided by 15 static Libraries and two mobile Libraries along with Community Hubs support reading and literacy through books, spoken word CD's to borrow, to download, and through related activities.

3.3 The service provides access to information technology, through stand alone PCs, the Internet and Wi-Fi which supports residents learning new skills and finding employment. By providing a shared community space residents feel safe and supported which addresses loneliness and social isolation; activities also support the health and well-being agenda.

3.4 Charge

For investment in existing provision : **£161.15 per dwelling**

Or towards the provision of a new library : **£297.58 per dwelling**

3.5 **Policy and evidence base**

Public Libraries and Museums act (1964)

http://www.legislation.gov.uk/ukpga/1964/75/pdfs/ukpga_19640075_en.pdf

Education

1. Medway Council has a statutory duty to provide sufficient school places. Central government provides basic need funding to help provide extra places due to forecast need, but developers need to contribute towards the additional extra places required due to new housing. Only dwellings which are suitable for family occupation will be included for the purposes of an education request. Family dwellings are defined as dwellings with two or more bedrooms.

2. The precise number of new homes to trigger the need for new schools, and/or expansions of another local school, requires careful consideration on a case by case basis. This will depend upon dwelling mix and availability in local schools. The council also considers the wider picture, looking at a number of developments as a whole rather than in isolation, to ensure that sufficient provision is provided to meet demand from the developments, but also to consider the danger of over provision. For example, 776 homes would generate 210 pupils and raise the need for a 1FE primary school, but a request for contributions would take account of existing provision in the local area.

3. Funding from developer contributions will be utilised for providing early years, primary, secondary, 6th form, and special provision.

4. The National Planning Policy Framework states that planning policies should minimise journey lengths for education, and where practical, primary schools should be within walking distance of developments. Medway Council defines nearby schools as within walking distance (2 miles for primary and 3 miles for secondary).

5. A 5% surplus capacity is maintained to ensure that if more pupils move into the area than forecast, there will be places available. 5% is a nationally accepted surplus.

6. Charges

6.1 The charge per dwelling is :

Nursery: £1,345.59 for extending an existing school
Primary: £3,302.81 for extending an existing school
Secondary : £2,616.93 for provision within existing schools
Sixth form: £688.87 for provision within existing schools

When a new school is required to accommodate demand the following charges would apply per dwelling :
Nursery : £1,722.35
Primary : £4,227.60
Secondary : £3,349.66
Sixth form : £881.75

6.2 The Education service requests contributions on a pupil yield basis. At the point of agreeing the S106 agreement, this is converted into a charge per dwelling.

6.3 In some cases the council will accept alternatives to a financial contribution. This is at the sole discretion of the council, and would generally be on large developments. Where developments are over 776 dwellings, there is an opportunity to discuss with the local authority how best to deliver a new school. The specification of the facilities would be determined by the council, and would include all furniture, fixtures, and information technology equipment as necessary.

For example in lieu of a financial contribution a developer could provide their own nursery provision, or for larger developments with significant number of pupils, a new school.

7. Policy and evidence base

Pupil Product Ratios – MORI study 2005/06

Annual forecast rolls . School Organisation Plan
https://www.medway.gov.uk/downloads/file/791/school_organisation_plan

Latest annual update https://democracy.medway.gov.uk/mgconvert2pdf.aspx?id=38033

EBDOG Cost Benchmarking Surveys for Schools:

http://ebdog.org.uk/

Medway School Place Planning Strategy

Charge per pupil - National School Delivery Cost Benchmarking, Education Building and Development Officers Group
(https://www.local.gov.uk/sites/default/files/documents/national-school-delivery--af4.pdf)

Flood Risk Management & Sustainable Drainage

1. A number of areas within Medway are at risk of flooding, including tidal, surface water, groundwater and flooding associated with ditches and streams.

2. Flood risk in Medway is managed by a number of Flood Risk Management Authorities including the Environment Agency, Medway Council (as Lead Local Flood Authority and Highways Service), Internal Drainage Boards, and Southern Water.

3. The National Planning Policy framework requires certain sizes and locations of development to submit a Flood Risk Assessment (FRA) as part of the planning application process. These assessments identify any flood risks and mitigation measures required to make a development viable.

4. The consequences of flooding would be dependent on the nature, scale, and location of a development; therefore it is not possible to provide standardised guidance on what mitigations would be required at a typical site although further information can be sought on the Medway Council's website

   https://www.medway.gov.uk/downloads/file/1831/local_flood_risk_strategy

5 Policy context

5.1 The NPPF emphasises the importance of meeting the challenge of climate change, flooding, and coastal change, and sets out the Governments approach within the National Planning Policy Guidance (NPPG). Local Plan policies set out the approach to sustainable drainage and flood risk mitigation.

5.2 A number of documents are relevant to the planning process at a local level. The Medway Strategic Flood Risk Assessment (SFRA) which assesses the risk of all sources of flooding within Medway and supports the Local Plan to help make planning decisions. The Local Flood Risk Management Strategy is a key document which identifies objectives to manage sources of local flood risk such as surface water, groundwater and ditches/streams.

5.3 The Environment Agency (EA) are developing the Medway Estuary and Swale Strategy (MEASS), a flood and coastal erosion risk management strategy which will determine the best economic, environmental and technically appropriate approach to managing flood and coastal erosion risk within the strategic area, and identify suitable schemes to deliver the policies set out within the Medway Estuary and Swale, and the Isle of Grain to South Foreland Shoreline Management Plans. MEASS is due to be published in summer 2018 and will contain plans for tidal frontages at risk of flooding through Medway for the next 100 years, setting out required capital funded defence works and identifying where third party partnership funding will be required. Any potential development sites should make reference to MEASS and where sites would benefit from flood defence works, a contribution for the site and/or wider strategic area may be requested.

6. Assessing the requirement

6.1 Flood mitigation works needed as a consequence of a development proposal are determined through completing a Flood Risk Assessment (FRA) (where required). FRA's provide an assessment of the risk of flooding from all sources including groundwater, coastal, tidal, fluvial and pluvial. FRA's identify flood mitigation measures and provide advice on actions to be taken before development commences, taking into account local policies and strategy. The FRA will be submitted with the application and reviewed by the relevant Risk Management Authorities.

6.2 The risk of pluvial/surface water flooding is generally managed via the use of on-site Sustainable Drainage Systems (SuDs). SuDs designs can be integrated into the layout of a site and provide an opportunity to fulfil several planning objectives via the provision of amenity and biodiversity, and can contribute towards improvements to water quality. If considered early in the design phase of a development, then both the capital costs of drainage and amenity can be reduced along with maintenance costs. Above ground systems are more economical to construct and maintain, compared with underground systems over the lifetime of a development. Medway Council Lead Local Flood Authority promotes the use of above ground systems where possible and appropriate.

7. Scope for contributions

7.1 Schedule 3 of the Flood and Water Management Act 2010 prescribed that major developments would need drainage approval from the Lead Local Flood Authority whom would be expected to adopt and maintain approved sustainable drainage systems. However a funding mechanism is yet to be realised for the ongoing maintenance and therefore this schedule has yet to be enacted. In the interim, the NPPF requires developers to design SuDs in accordance with the national SuDs guidance and any other local guidance where available. Under certain circumstances, the Council may consider adopting SuDs ahead of the implementation of the Act. In such circumstances, the cost of ongoing maintenance could be part of the Section 106 negotiation (or commuted sums if part of a Section 38 Highways Adoptions Agreement).

8. Summary

8.1 In regeneration areas, flood mitigation may be best served through strategic flood solutions that serve the wider area/collective developments. Current work is ongoing with regards to the phasing of developments/flood mitigation works to ensure that risk is appropriately managed at a strategic scale.

8.2 Flood risk mitigation, including the use of SuDs may in some instances be combined with other requirements and initiatives such as green infrastructure, open space provision, urban and landscape design. These wider issues should be discussed with the Council via the pre planning process to ensure that a proposal does not compromise either requirement or any other future infrastructure provision.

8.3 The solutions described above will normally be secured through planning conditions; however planning obligations may be required to secure elements such as the timing, adoption, maintenance and or financial contributions to offsite solutions.

Health

1. Healthcare contributions will support expansion and improvement of existing facilities, although some developments may be so significant as to warrant a new health facility in the development area.

2. Medway Clinical Commissioning Group has the responsibility for commissioning the majority of health services in Medway; Public Health (Medway Council) is also responsible for commissioning a range of services.

3. The modelling tool produced by the Healthy Urban Development Unit (HUDU) was prepared by a joint Local Authority and NHS unit. The unit based in London has been set up to assist in the infrastructure development for health and is widely used across London and nationally. The model takes full account of the demographics of the existing population, and the future predicted population growth. Using standard NHS cost and floor space requirements for the various facilities, the model is able to quantify the impact in terms of physical space and subsequent cost, and estimate a cost per dwelling based on the future expansion of the population.

4. The HUDU model was used to determine a figure for local health facilities, based on Medway demographics.

5. Charge : **£617.05 per dwelling**

6. Where a new facility is required on a large development, the building may, with the agreement of the developer, be built, developed and funded by the developer and the freehold or long leasehold interest handed over to the NHS. In these circumstances the developer can not charge a CMR for a minimum of 10 years to ensure appropriate planning gain. Where there is provision of a new facility by the developer, no financial contribution would be sought.

Open space and outdoor formal sport

1. Contributions will be pro-rata where suitable on-site provision is made in accordance with local standards established in the *'Playing Pitch and Outdoor Sports Facilities Study'* (December 2012 - under review) and *'Open Space PPG17 Study'* (June 2012) excluding athletics tracks, civic spaces, churchyards and green corridors. Contributions will be requested on all developments even where on-site provision is made.

2. Quality and quantity of open space provision varies across Medway. All development will result in additional open space need and this contribution will be utilised to best meet need arising from development in the area either through provision of new facilities or improvements to existing facilities and sites to create additional capacity. The quality of existing greenspace infrastructure has been informed by the Ward Open Space Improvement Plan (2017). This document will be used to prioritise off site investments.

3. Requests will not be made on sheltered housing and special needs housing for the elderly developments. Retirement flats/housing will be expected to contribute and will be tailored to address senior parks and dementia access in nearby greenspaces.

4. Charge : **£2,489.73 per dwelling**

5. Policy/Evidence Base

- Playing Pitch and Outdoor Sports Facilities Study, 2012 (under review)
- Open Space PPG17 Study, 2012
- Fields in Trust guidance http://www.fieldsintrust.org/Upload/toolkit/pdfs/Guidance-for-Outdoor-Sport-and-Play-Oct-2015.pdf

6. Additional notes

6.1 The provision of open space on Employment Areas and implication on existing open space will be considered on a case-by-case basis having regard to the likely scale of the workforce that will be employed within the development.

6.2 Greenspace Services will not usually accept the transfer of any land to Medway Council (playgrounds, allotments, parks, informal open space, sports pitches) which would create additional landscape maintenance responsibilities and costs to the Council. Developers should therefore ensure they make their own arrangements for the management and maintenance of landscaping associated with a development to be agreed with Greenspace Services. If the Council accepts transfer, a charge adequate to cover 15 years maintenance with annual indexation will be levied.

6.3 Payment of S106 contributions will be sought at the earliest possible stage of the development to enable the funding of project work associated with that development. Accordingly, the trigger for payment of the contribution will be on commencement of civil engineering works, or in exceptional circumstances on the 1st occupation. Where developments are subject to significant phasing it is acknowledged that payment of S106 contributions could be phased in accordance with progress of that development.

Environmental Mitigation

1. What is covered?

1.1 Where possible on site management is required to offset biodiversity loss which cannot be adequately covered by planning conditions. Off site provision will be required if on site option is not practical or available.

2. Where it applies?

2.1 All developments in the borough which would have a direct or an indirect impact on the natural environment through the loss of protected sites and species or priority ecological habitats, and mitigation impact of noise, light pollution or increased disturbance.

2.2 All built developments where the site has a biodiversity interest which would be adversely affected and which has been identified through:

- Ecological Surveys / Environmental Impact Assessment / an Environmental Statement
- Consultation with the Kent Biological Record Centre, Kent County Council eco-advice service or site surveys by Medway Council officers, independent ecologists / and local, county and national conservation organisations

3. Requirement

3.1 See Medway Local Plan policies BNE35-39 as below :

Policy BNE35 : international and national nature conservation sites
Policy BNE36: strategic and local nature conservation sites
Policy BNE37: wildlife habitats
Policy BNE38: wildlife corridors and stepping stones
Policy BNE39: protected species

3.2 Direct loss of habitat and damage to species should be avoided where reasonably possible but mitigation and/or compensation will be sought when such loss is unavoidable.

3.3 The re-creation of habitat on site will always be sought as the first preference and off site compensation should only be considered when all other means have been exhausted.

3.4 The developer will be liable for all off site costs associated with survey, translocation, species protection, habitat enhancement and site purchase, management and monitoring where off site mitigation is required.

3.5 Where it can be recognised that development could lead to increased pressure on adjacent sites of nature conservation interest, due to noise, disturbance, increased predation (disturbance by domestic pets), light pollution, or through increased amenity use of the site a financial contribution will be sought to minimise these impacts.

3.6 The extent, nature and management of required habitat enhancement or creation will depend on the size of the development, its location in the context of designated sites and likely impact on biodiversity.

4. Charging system

4.1 Charge will be based upon costs identified to meet the needs of each site. It is anticipated that mitigation and subsequent management will be undertaken through 1 or more of the following mechanisms

a) On-site mitigation
Medway Council will not normally take on management of development sites where mitigation work has taken place and the developer will need to make arrangements with a third party.

Should the Council take on responsibility an endowment charge equal to 15 times the annual cost of management works (plus indexation) will be payable based on an agreed management plan.

b) Off-site mitigation on Council land
In instances where it is agreed that mitigation can take place on Council owned land, the developer will be responsible for meeting all capital costs associated with preparing the mitigation land together with a charge equal to 15 times the annual cost (plus indexation) of maintaining the area to an agreed management plan.

c) Off-site mitigation on third party land
In this instance it is for the developer and the third party to agree design and payment for creation and management.

5. Formulae

5.1 Contributions must, at a minimum, ensure like for like provision. In accordance with established ecological standards this will normally require a 2 for 1 replacement ratio. This is to compensate for the loss of quality when creating new habitats.

5.2 Mitigation and / or compensation measures should be ecologically functioning prior to the commencement of the development – this is particularly important for the protection of protected species.

5.3 Long-term management costs will be based on annualised costs set out in a site-specific management plan.

6. Policy/evidence base

Natural Environment White Paper: implementation update, October 2014
Biodiversity 2020: A strategy for England's wildlife and ecosystem services
Kent Biodiversity Action Plan. http://www.kentbap.org.uk/
Medway Wildlife, Countryside and Open Spaces Strategy 2008-2016

Public Health

1. An estimated 30% of Medway's adult population and over 20% of children (at the age of ten) are classified as obese. The cost of overweight and obesity to NHS Medway is estimated as £77.4 million by 2015, of which £45 million is attributed to obesity alone.

2. There are, as of March 2017 252 registered hot food takeaways in Medway – equating to 1 per 1,097 people. The majority of these premises are located in town, local and neighbourhood centres. It has been shown that there is a correlation between areas of multiple deprivation and where hot food takeaways locate.

3. In an effort to reduce childhood obesity in particular, Medway Council has produced a guidance note that seeks to decrease the prevalence of hot food takeaways in the area. New hot food takeaways of 100m^2, where they are deemed appropriate development, would be charged a fixed fee of £1,000.

4. Working with local stakeholders to implement a bespoke initiative with the school (s) or the local community within 400m of the development to address the impact of high energy food has on Medway's population. These initiatives could include nutritional resources for the school, community food growing and commissioned physical activities

5. Charge : £1,086.33or new hot food takeaways of at least 100m^2 .

6. Policy/Evidence

   FEAT http://www.feat-tool.org.uk/map/

   The National Planning Policy Framework (2012) and the National Planning Practice Guidance (2014) advocate the need for planning to consider health implications and has made an explicit link between the two.

PHE's Healthy people, healthy places briefing on *obesity and the environment: regulating the growth of fast food outlets*.

LGA's (*Tipping the Scales: Case studies on the use of planning powers to limit hot food takeaways* February 2016)

Hot Food Takeaways in Medway: a Guidance Note, 2014:

https://www.medway.gov.uk/downloads/file/625/hot_food_takeaways_in_medway_-_a_guidance_note

Sports Facilities

1. The projected increase in the population of Medway will create demand for additional indoor sports facilities which reflect modern customer requirements and align with the Medway Sports Facilities Strategy assessment of needs.

2. Charge : **£237.58 per dwelling**

3. Policy and evidence :

Medway Sports Facilities Strategy – available on the Local Plan Evidence Base

https://www.medway.gov.uk/info/200149/planning_policy/519/future_medway_local_plan/2

Travel

1.1 The majority of new developments generate the need to travel and these movements place additional demand on local and regional transport infrastructure. In accordance with the National Planning Policy Framework (NPPF), developments generating significant movements should be located where the need to travel will be minimised and the use of sustainable modes can be maximised, giving priority to pedestrian and cycle movements and creating safe and secure layouts that minimise conflicts between traffic and cyclists or pedestrians.

1.2 All developments generating a significant amount of movement should be supported by a Transport Assessment or Transport Statement. These demonstrate that:

- The opportunities for sustainable transport modes have been taken up, depending on the nature and location of the site, to reduce the need for major transport infrastructure;
- Safe and suitable access to the site be achieved for all people; and
- Improvements can be undertaken within the transport network that limits the significant impacts of the development, in a cost-effective way.

1.3 Highways England will be concerned with proposals that have the potential to impact on the safe and efficient operation of the Strategic Road Network, in the case of Medway, the A2 west and M2.

2. Policy Context

National Planning Policy Framework (NPPF) March 2012

https://www.gov.uk/government/publications/national-planning-policy-framework--2

https://www.gov.uk/guidance/national-planning-policy-framework/4-promoting-sustainable-transport

https://www.gov.uk/guidance/national-planning-policy-framework/4-promoting-sustainable-transport , para 36

Medway Local Plan 2003 (Medway Council)

Planning Practice Guidance: Travel plans, transport assessments and statements, March 2014

https://www.gov.uk/guidance/travel-plans-transport-assessments-and-statements

Medway Local Transport Plan 2011-2026

https://www.medway.gov.uk/info/200161/travel/545/transport_plans_and_policies/2

DfT Circular 02/2013 the Strategic Road Network and the Delivery of Sustainable Development (2013), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/237412/dft-circular-strategic-road.pdf

Planning for the future – A guide to working with Highways England on planning matters (2013)

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/461023/N150227_-_Highways_England_Planning_Document_FINAL-lo.pdf

3. Requirement

3.1 This policy context shapes Medway Council's approach in respect of transport contributions, which will be sought for off-site mitigation in respect of the following :

- Sustainable travel: accessible and connected communities
- Highway safety
- Highway capacity

3.2 The highway works deemed necessary as a result of a development proposal may include any works for improving the existing highway network, providing new highways, accommodating public transport, pedestrians and cyclists, associated engineering works and necessary legal and administrative costs. Highway works will normally be undertaken by the developer through a Section 278 agreement, which will include a charge for future maintenance. These works will be taken in to consideration when determining the level of developer contributions.

4. Sustainable Travel: accessible and connected communities

4.1 New developments will require access to key services by non-car modes and should promote walking, cycling and the use of public transport for employment, leisure and health purposes. Linkages between new developments and local facilities and community infrastructure, the public transport network and established walking and cycling routes are fundamental to achieving more sustainable patterns of movement and reducing reliance on the private motorcar.

4.2 Where necessary, improvements to non-car accessibility will be sought in the form of stand-alone measures or a contribution towards schemes that Medway Council has identified as providing wider benefits. A contribution towards public transport service provision and associated infrastructure may also be sought in order to enhance the sustainable credentials of the development.

4.3 Medway Council places high value on initiatives that reduce the impact of the school run on the highway network and promote ‘active travel’ to schools and other educational establishments. Development proposals may therefore be required to provide a contribution towards educational and promotional initiatives local to the site, including route improvements and the development of School Travel Plans.

4.4 Developments will often impact on the existing Public Rights of Way (PRoW) network and improvements may be required to facilitate additional use. Improvements to the existing PRoW network required as a result of a development may also necessitate the provision of new routes linking existing rights of way. In each case, the required improvements will be determined in relation to the scale of development, with a view to providing access to strategic facilities, including green infrastructure.

5. Highway Safety

5.1 For proposed major developments, a Transport Assessment is required to assess road safety data (available from Medway Council) within an agreed area. If the additional movements generated by the development are likely to increase the risk of crashes (all road users) in the vicinity of the site, either directly or indirectly through the diversion of traffic along other routes, a contribution towards mitigation measures may be required. This could be in the form of stand-alone improvements or a contribution towards a scheme that Medway Council has identified would provide wider safety benefits to the local highway network.

6. Highway Capacity

6.1 Developments that reduce the capacity of the highway network within an agreed area may be required to provide a contribution towards mitigation measures, with a view to ensuring a ‘nil detriment’ impact. This may be in the form of stand-alone measures or a contribution towards a scheme that Medway Council has identified would provide wider benefits to the local highway network. Developments that generate a significant number of HGV movements may be required to provide a contribution towards measures identified in Medway Council’s Network Management Plan, or measures to reduce the impact of HGV parking on the highway network.

Waste and Recycling

1. Medway Council is responsible for the collection and disposal of household municipal solid waste. The complexity of managing Medway's waste has steadily increased over these millennia as improved procedures using this waste as a resource rather than landfill are achieved. Waste services continue to build on past successes in order to maintain a comprehensive set of recycling options for all Medway residents.

2. Charge : **£168.86 per dwelling**

3. Policy/evidence base

Environmental Protection Act 1990
http://www.legislation.gov.uk/ukpga/1990/43/contents

Waste Minimisation Act 1998
http://www.legislation.gov.uk/ukpga/1998/44/contents

EU Landfill Directive
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69347/pb13563-landfill-directive-100322.pdf

Waste and Emissions Trading Act 2003
http://www.legislation.gov.uk/ukpga/2003/33/contents

Household Waste and Recycling Act 2003
http://www.legislation.gov.uk/ukpga/2003/29/contents

Clean Neighbourhood's and Environment Act 2005
http://www.legislation.gov.uk/ukpga/2005/16/contents

EU WEEE & Batteries Directive
https://www.gov.uk/government/publications/environmental-permitting-guidance-waste-batteries-and-accumulators-directive

4. Additional notes

4.1 Developers are invited to work alongside the council by making sure each new home is provided with adequate information relating to the council's waste provision. Printed information can be made available to developers or their agents for onward distribution to new residents.
Developers are required to reference and adhere to the guide *'Waste and recycling requirements for new residential developments in Medway'* available from Waste Services or Medway Council's website, www.medway.gov.uk

Youth facilities

1 The full contribution will apply where no provision is made on site and a deficiency in youth provision, which includes sports and games, exists in the area. Pro-rata contributions will be requested where on-site provision is made.

2. Charge : **£76.42 per dwelling**

3. Policy/evidence base

Resourcing Excellent Youth Facilities

http://www.mywf.org.uk/uploads/policy/REYSDec2002.pdf

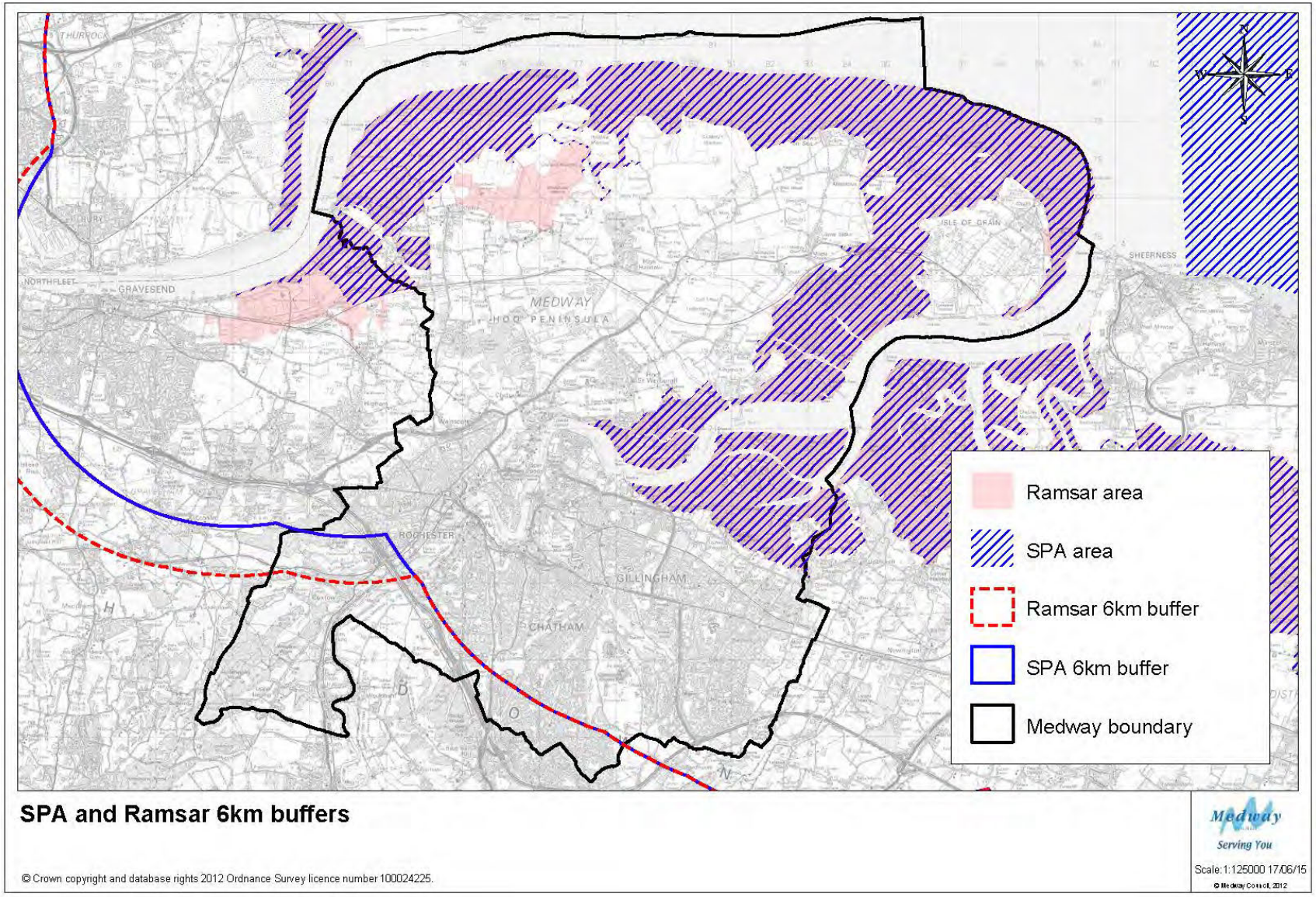
Appendix 1 : Summary Chart and Checklist for Applicants

Planning application process	Actions for applicants	Notes
1. Pre-application stage	• Consult contributions guidance and download standard S106 legal agreement template and relevant standard legal clauses https://www.medway.gov.uk/info/200147/applying_for_planning_permission/127/developer_applications/4 • Refer to any other relevant policy document e.g. Local Plan/LDF/development brief • Identify potential requirements • Consult with Council's planning officer if necessary • Commence "without prejudice" negotiations with planning officer if 'standard' contributions approach not accepted or applicable • Information on pre-application advice service http://www.medway.gov.uk/planningandbuilding/applyforplanningpermission/pre-applicationadvice.aspx	• The Council is committed to supporting the pre-application process. Early research and discussions can save time and expense later in the planning process • If clarification on any matter is required this should be through the planning officer and not an individual service • For larger schemes the Head of the Planning Service will appoint a planning officer(s) to facilitate discussion and negotiation, with the intention that this officer would be appointed as case officer to any future related planning application. There will be a charge for this
2. Submission of application	• Provide contact details for legal representative if standard agreement not acceptable • Set out findings from pre-application research and submit alongside planning application	• In straightforward cases it may not be necessary for a legal representative to be appointed

Planning application process	Actions for applicants	Notes
3. Technical appraisal of application	• Seek to agree Heads of Terms for S106 agreements with the Council's planning officer at as early a stage as possible • Submit reasons if standard contributions not accepted, together with financial details of development costs where relevant • If agreement not reached the case officer will refer the matter to the Council's Head of the Planning Service. If necessary this matter can then be referred to the Assistant Director and then as necessary to the Council's Director • Complete full draft agreement ASAP (on a 'without prejudice' basis)	• For cases where the Council's standard formulae are disputed on the basis that they would undermine the viability of the development, comprehensive evidence must be submitted to justify any departure from the normal process • If there is a need to adjudicate between different service demands and this cannot be resolved by the case officer the matter will be referred to the Head of the Planning Service. • Assessments are generally valid for six months from the date issued and should any circumstances change a new assessment will be required. Assessments are a 'snapshot' of requirements at a given time and variable factors may require regular reviews, particularly over the longer term
4. Determination of application	• The draft S106 legal agreement should be completed prior to a delegated decision on the application being made, or a report being submitted to the Planning Committee • Full Heads of Terms will be included in all officer report	

Planning application process	Actions for applicants	Notes
5. Post determination	After a resolution to approve the planning application has been made, the S106 legal agreement should be signed and engrossed without delay. Medway Council reserves the right to refer all cases which have not been completed within six months of the decision back to committee with a recommendation for refusal, unless special circumstances have been clearly identified	The applicant and the Council should work to a target signing and engrossing the agreement/undertaking within one week of the decision
6. Post decision	• It is the applicants' responsibility to comply with the terms of the S106 legal agreement in a timely manner, including respecting 'trigger points' which may occur some time after a development has commenced • The Council will continually review all 'live' agreements and monitor against progress on site • It is the applicant's responsibility to complete the commencement notice and forms attached to the agreement, and post or email (to S106@medway.gov.uk) so that the council is made aware of when contributions become due.	• Invoices, which include BACS details, will be raised by the S106 Officer.

Appendix 2 : SPA and Ramsar 6 km buffers



Procurement Strategy 2016-2021

Introduction

I am delighted to introduce our new procurement strategy 2016-19 which builds on three successful years since the introduction of a "Category Management" approach to procurement at the Council.

The story so far

The Council has delivered against our previous Strategy and been recognised nationally at Go Awards in 2014 and again in 2016 for taking an innovative approach. The Category Management team has helped to procure £600 million of contracts in that time with a massive £23 million of whole life savings, helping to protect the delivery of frontline services. We have contracted with many hundreds of contractors and have smashed our target to give 50% of our contracts to Small and Medium sized Enterprises (SMEs) by achieving 64% last year (of which 37% were with Medway SMEs against a target 40%). Our "one in a million" scheme has created 30 apprenticeships. We have achieved the CIPS Corporate Ethics mark in 2015 demonstrating our commitment to ethical purchasing. We have adopted the PAS91 model Pre Qualification Questionnaire demonstrating our commitment to supporting SMEs and others through the tender process. We have vastly increased the speed in which we get to market and complete our procurements.

Our popular and well attended Meet the Buyer Events and contract specific supplier engagements have assisted Medway companies to improve the quality of their bids and be successful at the tender stage. This has led to improved services for our customers.

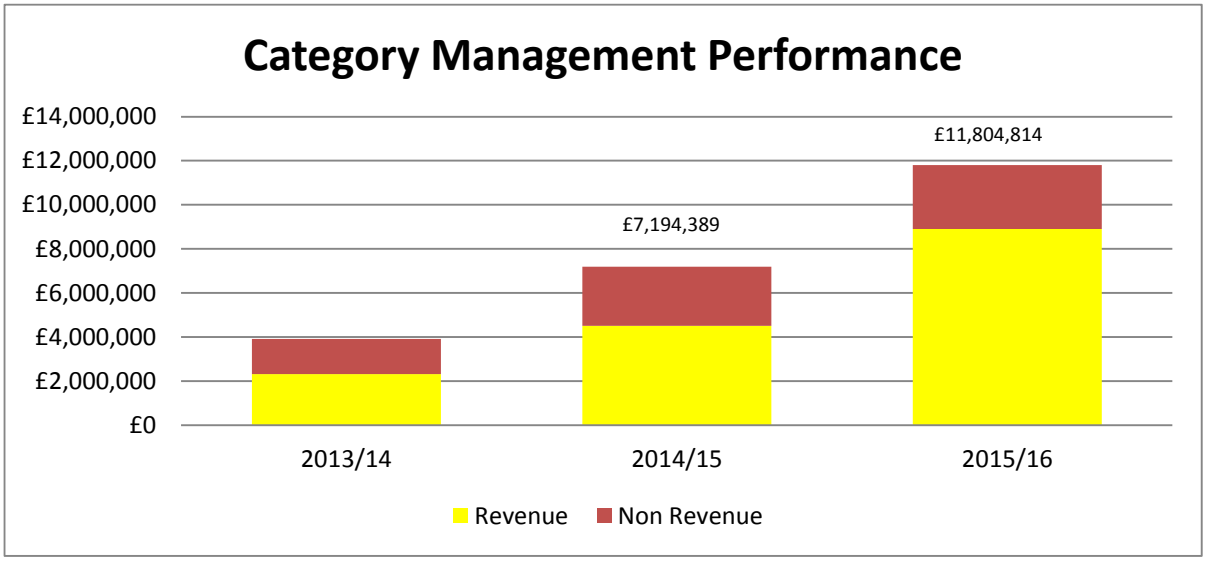


Table 1 procurement savings over the last 3 years

Future proof

The Council and the Category Management team have acquired a reputation in Kent and the South East for best practice and openness in procurement. Good companies have utilised the feedback function that we provide at the end of each tender to improve their bids to win subsequent business with Medway.

With a continuing reduction in Government grant to Councils despite the improvement in the economy, Medway in common with other local authorities will continue to seek to protect frontline services while reducing back office and other central costs. We are going to shift our focus to a more commercial approach to service delivery and that will include procurement. We intend to use our procurement expertise to generate income.

We also want to continue to ensure that the public money we spend creates social value. We will therefore be looking to build on the success of our “one in a million” apprenticeship initiative and the employment of hard to reach individuals such as care leavers and those with learning difficulties.

We want to seek your support to promote the awareness of Child Sexual Exploitation and Domestic Violence, as part of the White Ribbon Campaign, and to refer any concerns you have to a specialist multi-agency team. We also want to enlist your support for our Healthy Workplace initiative too.

We have a clear set of new measures of success so you can track our progress enhancing Medway as a place to do business.

Adrian Gulvin

Cabinet Member for Resources

Supporting the local economy

Focusing public money on local businesses and employment for local people

"I think it is vitally important that Councils provide constructive feedback on tender decisions so suppliers can see what they did well and maybe not so well. By doing this as well I also feel it demonstrates that the tender was a fair and open procedure where every contractor had a genuine chance of being successful."

Luke Overall, Sales Executive, Caloo Ltd (17th November 2015)

2016-2021 Strategy Objectives

We are keen to make the public money we spend go further. The Medway economy is worth around £2.8billion per year and has an estimated 13,000 businesses.

We know that 80% of Medway businesses are SMEs so we will continue to ensure that it is just as likely an SME wins our business as a large supplier.

Our annual Meet the Buyer Event, where we provide an update on new opportunities along with tender training and e-tendering training, has seen an increase in bids and quality of those bids. We have liaised with the Federation of Small Businesses and the Invicta Chamber of Commerce to ensure our message reaches SMEs which means local business are getting support to increase their competitiveness for both public and private sector opportunities. We want local businesses to be good at pitching for our work.

Measures of success

- Continue to hold an annual Meet the Buyer Event
- Review the thresholds at which we undertake 3 quotes. Ensure more competition and interest from SMEs Eg reduce threshold from £5k-£100k to £1k-£50k.
- Introduce Sustainable Flexible Framework to Level 3 to embed the delivery of the Social Value Act .
- Speed up payments to SMEs through the use of technology.

2013-2016 Strategy Objectives: How did we do?

SO1: 50% of third party controllable spend in the borough of Medway with SMEs.

We have achieved a percentage of 64% of spend with SMEs.

SO2: Ensure that contractors that receive more that £1 million per year from the council support at least one apprentice at any time during the life of the contract.

We have achieved 8 apprenticeships with Medway Norse and 22 Apprenticeships via the HRA Repairs contracts.

Did you know?

In 2014, more new businesses were set up in Medway than in any other area of Kent

Reducing red tape

Making competition for public contracts fair and possible for all businesses

"It is exciting to hear there is potentially a great pipeline of opportunity in the region and hopefully many other clients will realise the benefit of the work you have done to establish this and will utilise the (Construction Professional Consultancy) Framework."

Ella Brocklebank, Business Development Manager Woodley Coles (4th December 2015)

2016-2021 Strategy Objectives

Public procurement is highly regulated in order to ensure fair and open competition when spending tax payers money.

We will continue to make it easy for businesses to find tender opportunities via the Kent Business Portal and more recently Contracts Finder.

We will reduce the time taken to submit bids. The new regulations have removed the Pre-Qualification Questionnaire stage for opportunities that are below the European threshold which will reduce the time to win opportunities.

Measures of success

- Increase use of model form documents to simplify all procurements for SMEs
- Embed passporting through tenders, bidders who are pre-accredited
- Embed use of model form contracts for goods/services/works contracts and frameworks. This reduces legal costs and enables SMEs to participate in tenders more easily.

Did you know?

Good companies are not always good at submitting tenders. Category Management are able to support companies bidding for non Medway projects. Find out more by contacting: categorymanagement@medway.gov.uk

2013-2016 Strategy Objectives: How did we do?

SO1: The council will introduce an e-procurement system

.
Implemented September 2013

SO2: The council will reduce the average timescale of procurements

Tender Timescales have reduced from 140 days to 55 days.

SO3: Suppliers tell us that our processes are straight forward, less bureaucratic and that we have reduced red tape

"We found the tender process Medway ran to be clear and well managed and it was refreshing that our submission seemed to have been really thoroughly read."

Will Ainslie, Sales & Business Development Manager, Traffic Technology Ltd (7th December 2015)

SO4: Suppliers tell us they find it easier to spot opportunities to bid for work

The number of Medway suppliers within the Kent Business Portal has increased to in excess of 1300.

Improved services, better outcomes

Spending public money better for the benefit of all communities in Medway

"You know better than most where we can take the next steps. You know first-hand where things are working well on the frontline of public services, but also where the waste is and where we can provide better services for less money."

George Osborne, Chancellor of the Exchequer (3rd August 2015)

We want to increase the social value delivered through our procurement by seeking contractors support for key initiative such as combatting Child Sexual Exploitation (CSE). We want our suppliers to value their contracts and their relationship with us.

We want to improve the value of our contracting in every sense so to drive out efficiencies but to increase quality. Therefore, we need to ensure that when we work with suppliers, we select the right suppliers for the right contracts. We want to work with the Voluntary Sector to ensure they get greater access to our contracts. We encourage collaboration by contractors to drive down costs.

Measures of success

- Embed Supplier Relationship Management (SRM) through good contract management with KPIs
- Collaboration across Public sector bodies to ensure buying power is efficiently utilised into attractive contracts that encourage SME participation.
- Transparent costs for the goods and services that are bought by the council
- Seeking support from suppliers to combat CSE
- Seeking support from suppliers to promote workplace health
- Hold a voluntary sector specific supplier engagement day each year

Did you know?

By adopting the one operator per school site for SEN Transport, the number of invoices submitted reduced to save Medway £15k pa.

2013-2016 Strategy Objectives: How did we do?

SO1: A minimum of 80% of Procurements over £3 million will include pre-tender dialogue with suppliers

100% of major projects have pre tender dialogue. Examples Include for the HRA Estates services contract, the SEN Transport Framework and the Construction Professional Services Consultancy Framework.

SO2: We can show you examples of council services that have Improved through better procurement

This can be evidence by looking at the SEN Transport Framework.

"The new arrangement enables a single point of contact for issues and has led to the drivers and escorts communicating well with the school."

Tina Lovey, Head teacher, Rivermeads School (15th December 2015)

SO3: The people that use council services, residents, community organisations and partners tell us that the goods and/or services being procured meet their needs and, where appropriate, they are involved in the procurement process

"Thank you for allowing me to be part of today's interviews. As a tenant I feel privileged to be part of this process that will affect many tenants and lease holders"

Mr S, Medway Tenant Representative (12th March 2015)

Intelligent spending

Taking an evidence-based approach to procurement

"The public sector cannot afford to continue delivering services as they do today. The technology to support some of the changes needed in order to make sustainable savings already exists. It offers rapid return on investment while maintaining, and sometimes improving, services to citizens" Mick Wayman
Your Ready Business (1st December 2015)

"Follow the Money", so the saying goes. Analysis of what the council is spending, what it is buying, from whom it is buying and who is placing the orders gives a picture of areas to target in order to maximise benefit.

The use of Framework arrangements reduces the need to engage in full tenders and is a quick route to market for public sector bodies.

Not all spend can be put under contract such as high volume, low value purchases. Purchasing cards can offer an efficient, controlled buying power for the council, which will improve cash flow management for businesses by eliminating the need to manually process invoices.

E Invoicing and Purchase to Pay (P2P) offer organisations the opportunity to get spend visibility, control who can spend and on what as well as speeding up processes enabling employees to be more productive.

Measures of success

- Reduce fragmented spend. Make sure contracts we have in place are used.
- Increased implementation and use of both Medway and external Frameworks
- Introduce purchasing cards to speed up payments for SMEs
- Automate Invoice Processing to speed up payments for SMEs
- Introduce Purchase 2 Pay system / e-catalogues, punch outs to reduce paper costs

Did you know?

The real cost of ignoring low value high volume spend is higher prices, large invoice workload and exposure to risk.

2013-2016 Strategy Objectives: How did we do?

SO1: Reduce by 25% the number of invoices with a transaction value of less than £500

Reduction of 11% with Purchasing cards in the process of being introduced.

SO2: Our suppliers come to 'Meet the Buyer' events, engage in pre-procurement dialogue and, if appropriate, we secure their input and expertise to develop our services

"What an amazing "Meet the Buyer" event with Medway Council I wish there were more Buyers with this approach to getting procurement right"

Julie Anderson, Director, Rap Interiors (18th March 2015)

SO3: Local Chambers of Commerce, the federation of Small Businesses, other local business associations, other representative trade and industry bodies and voluntary sector representative groups engage with us in developing our procurement approach

"It is great to see Medway Council changing the environment for SME procurement"

Neville Gaunt, North Kent Chairman Federation of Small Businesses for Kent & Medway

Sustainable Procurement

Sustainable Services through procurement

In light of both cuts to central government funding and a rise in demand for services, budgets for public services are growing ever tighter. …… the need to find alternative streams of income to sustain the delivery of public services has become critical.

Source: Inside Government (28th April 2015)

Councils are facing decreases in their funding and have to review not just expenditure but how they generate income in order to protect valuable frontline services.

In common with Medway, a large number of councils are adopting a more commercial approach to their activities which also means ensuring better outcomes for their citizens.

One of the ways that Councils' can generate income is through service delivery by trading services with other councils or winning new business to deliver services to other parts of the public sector

Measures of success

- Implement Frameworks to reduce time to market
- Medway Category Management seen by other public bodies as a beacon of best practice and professionalism and the go to team for procurement support and advice
- Launch of Procurement Consultancy to provide Procurement services to both Public and Private sectors
- Introduction of internal self-service for the use of frameworks using the e-procurement system to speed up awards.

CASE STUDY

In 2015/16, the category Management team undertook projects for a number of other public bodies such as Clinical Commissioning Groups (CCGs) and Gravesham Council.

This has generated income for the team but also provided valuable assistance to other public bodies to ensure legal compliance with the regulations and provide a commercial insight required to ensure value for money.

Did you know?

The average cost of running an open tender can be as much as £10,000 per exercise. Category Management are able to provide a more cost effective solution. Find out more by contacting categorymanagment@medway.gov.uk

Our measures of success

Below are our measures of success as detailed in our strategy. To ensure that we keep to target, we have assigned a timescale to achieve these objectives.

Objectives	Timescale
Supporting the local economy	
• Continue to hold an annual Meet the Buyer Event	March (Annually)
• Review the thresholds at which we undertake 3 quotes. Ensure more competition and interest from SMEs Eg reduce threshold from £5k-£100k to £1k-£50k.	December 2017
• Introduce Sustainable Flexible Framework to Level 3 to embed the delivery of the Social Value Act.	December 2017
• Speed up payments to SMEs through the use of technology.	December 2017
Reducing red tape	
• Increase use of model form documents to simplify all procurements for SMEs	December 2016
• Embed passporting through tenders, bidders who are pre-accredited	December 2016
• Embed use of model form contracts for goods/services/works contracts and frameworks. This reduces legal costs and enables SMEs to participate in tenders more easily.	December 2016
Improved services, better outcomes	
• Hold a voluntary sector specific supplier engagement day	October 2016
• Embed Supplier Relationship Management (SRM) through good contract management with KPIs	January 2017
• Collaboration across Public sector bodies to ensure buying power is efficiently utilised into attractive contracts that encourage SME participation.	On-going
• Transparent costs for the goods and services that are bought by the council	On-going
• Appropriate support from suppliers to combat CSE/Domestic abuse	On-going
• Appropriate support from suppliers to promote workplace health	On-going
Intelligent spending	
• Reduce fragmented spend. Make sure contracts we have in place are used.	January 2017
• Increased implementation and use of both Medway and external Frameworks	On-going
• Introduce purchasing cards to speed up payments for SMEs	April 2017
• Automate Invoice Processing to speed up payments for SMEs	August 2017
• Introduce Purchase 2 Pay system / e-catalogues, punch outs to reduce paper costs	August 2018 August 2018
Sustainable Procurement	
• Implement Frameworks to reduce time to market	On-going
• Medway Category Management seen by other public bodies as a beacon of best practice and professionalism and the go to team for procurement support and advice	On-going
• Introduction of internal self-service for the use of frameworks using the e-procurement system to speed up awards.	December 2016
• Launch of Procurement Consultancy to provide Procurement services to both Public and Private sectors	April 2017

PART 7 – CONTRACT PROCEDURE RULES

SECTION 1
INTRODUCTION AND PURPOSE

1.1 Introduction

1.1.1 These Contract Procedure Rules are made under Section 135 of the Local Government Act 1972. They include provision for competition, and regulate the manner in which procurement and tendering take place within the Council.

1.1.2 These Contract Procedure Rules set out the regulations that must be followed by all Officers on each and every occasion that goods, services or works are procured on behalf of the Council.

1.1.3 These Contract Procedure Rules also protect the legal position of the Council in respect of compliance with EU and UK law (general law and in relation to the Procurement Regulations) and in its contractual dealings with external third party Suppliers and Contractors.

1.2 Primary objectives

1.2.1 These Contract Procedure rules have 5 primary objectives:

(1) To ensure that the Council obtains Value for Money and fulfils its duty of achieving *Best Value* as defined in Section 3 of the Local Government Act 1999. It is of primary importance that Officers, on behalf of the Council, engage in procurement activity with the intention of delivering Best Value services to the citizens of Medway, both at the point of contracting and through effective contract management, throughout the contract term.

(2) To ensure that the Council complies with English and European law in force in England that governs the procurement of goods, services and works.

(3) To establish procurement procedures which, when followed, should protect Members and Officers of the Council from any allegation of acting unfairly or unlawfully which may be made in connection with any procurement by the Council relating to goods, services or works.

(4) To ensure that any risks associated with commencing procurement processes and subsequently entering into contracts are assessed as part of the procurement process and the Council's Procurement Gateway Process.

(5) To ensure that fairness and transparency remains at the forefront of all procurement activity undertaken by Officers and approved by Members on behalf of the Council.

1.3 Scope and application

1.3.1 These Contract Procedure Rules apply to all procurement activity undertaken by the Council (inclusive of Partnering and Income Generation Contracts) unless any such procurement is expressly prescribed under these Rules, or subject to an *Exemption* (as specified in **Section 1.8**).

1.3.2 These Contract Procedure Rules shall apply irrespective of how the procurement is funded. Where any ambiguity exists in respect of such funding the decision of the Chief Legal Officer and/or Chief Finance Officer shall be sought and that decision shall be final.

1.3.3 All contracts entered into by the Council are subject to these Contract Procedure Rules, the provisions contained within the Council's Financial Procedure Rules and in accordance with guidance from Category Management and Legal Services respectively.

1.3.4 These Contract Procedure Rules apply to all Officers involved in the issuing of Orders or the letting of Contracts for Supplies, (Goods), Services and Works necessary for the delivery of the Council's functions.

1.3.5 Any third party (e.g. a consultant) who is engaged in the letting, management or supervision of a contract on behalf of the Council must comply with these Contract Procedure Rules as if they (the consultant/third party) were Officers of the Council.

1.4 Review and amendment

1.4.1 These Contract Procedure Rules shall be reviewed on a regular basis, not less than annually, by the Chief Legal Officer who shall consult with the Procurement Board. The Chief Legal Officer shall make minor changes to the Contract Procedures in accordance with Section 14.3 of Article 14 of the Council's Constitution. Any other amendments
will be subject of approval by Council.

1.5 Interpretation

1.5.1 The interpretation of these Contract Procedure Rules is solely a matter for the Council's Chief Legal Officer and are not open to interpretation by any other Officer of the Council.

1.5.2 Where an Officer of the Council is unsure of the meaning and implications of these Contract Procedure Rules, guidance must be sought from Category Management, in consultation with and on behalf of the Council's Chief Legal Officer and such guidance and direction shall prevail.

1.5.3 Where there is a conflict between these Contract Procedure Rules and the Council's Financial Procedure Rules, the former shall prevail, subject to guidance and clarification from the Council's Chief Legal Officer in consultation with the Council's Chief Finance Officer.

1.5.4 Any failure to comply with these Contract Procedure Rules may result in disciplinary action being taken against an Officer and may be seen as gross misconduct.

1.6 Procurement governance structure

1.6.1 The governance structure of procurement within the Council is as follows:

- The Cabinet – for decision making in respect of executive functions
- The Council – for all other decision-making
- The Procurement Board - The Procurement Board acts as a Cabinet Advisory Group to the Chief Legal Officer and the Chief Finance Officer, in order to assist them in the procurement and contract decision-making process.

  The Procurement Board consists of:

  - The Portfolio Holder for Resources (or such other portfolio holder as the Leader of the Council may substitute at his/her discretion).

  - The Portfolio Holder for Adult Services (or such other portfolio holder as the Leader of the Council may substitute at his/her discretion) (Note: the Cabinet appoints Cabinet Members to the Procurement Board).

  - The Chief Legal Officer.

  - The Chief Finance Officer.

  - Head of Category Management.

  - Other key representatives from each of the Council's respective Directorates:

- Category Management Team – Strategic team responsible for providing strategic support and quality assurance to the Council's Directorates as well as representing and acting on behalf of the Council's Chief Legal Officer in all procurement and contract related activities, matters and issues.

- Directorate Management Team – Led by each respective Director, with operational procurement and contract management responsibility delegated to Assistant Directors and / or Heads of Service in accordance with these Contract Procedure Rules.

1.7 General principles

1.7.1 Call Off from existing contracts

1.7.1.1 Where the Council's procurement requirement can be satisfied from an existing approved Contract then any order will be considered an Exception to these rules as long as the call-off arrangements defined within the individual contract are followed or where the original Contract can be varied to meet the requirement. Category Management must be consulted before invocation of any such variation.

1.7.1.2 In all instances goods, services or works should be obtained via appropriate, existing, approved arrangements. These arrangements include and should be reviewed in the following order:

(1) In-house services (including, but not limited to: Category Management, Property & Capital Projects, Legal, Printing and Design, Facilities Management, etc)
   i. Where a team exists to provide the goods, services or works required, they must be engaged with first and foremost. Should they not be able to fulfil the requirement then the following arrangements can be considered.
   ii. For the avoidance of doubt, all Capital funded projects must follow the process of engagement outlined within Appendix D.
(2) Established corporate contracts
(3) Approved nationally negotiated contracts (for example those arranged by the Crown Commercial Service).
(4) Consortia of which the Council is a member (or can join)

1.7.1.3 Before any contract is made, there must be:

(a) The proper authority of the Council in accordance with the processes set out in the Constitution, the Procurement Gateway Process (as specified in **Section 2** of these Contract Procedure Rules) and / or Directorate scheme of delegation, as specified and approved by the appropriate Director of each respective Directorate.

(b) Adequate budgetary provision for the procurement within existing budgets. All such expenditure must be committed in accordance with procedures set out and prescribed by the Chief Finance Officer.

(c) Where ambiguity exists in respects to the availability of budgets, the decision of the Chief Finance Officer must first be obtained and that decision shall prevail in all instances and the procurement direction will be dictated accordingly.

1.7.2 Collaborative/Joint procurement (Public Contracts Regulations 2015, Regulation 38 "PCR 2015")

1.7.2.1 The Head of Category Management, on behalf of the Council's Chief Legal Officer shall approve any joint procurement arrangements with other local

authorities or public bodies including membership or use of purchasing consortia prior to the commencement of any procurement on behalf of the Council as part of the Procurement Gateway Process for Category A Procurements.

1.7.2.2 The Chief Legal Officer, in consultation with the Procurement Board shall approve any joint procurement arrangements with other local authorities or public bodies including membership or use of purchasing consortia prior to the commencement of any procurement on behalf of the Council as part of the Procurement Gateway Process for Category B Procurements.

1.7.2.3 All joint procurement arrangements shall be compliant with the legislation relating to public sector procurement and shall be open to participation by the Council.

1.7.2.4 Where procurements are being carried out jointly there is responsibility to ensure compliance with PCR 2015 even if the other party are conducting the tender process on behalf of Medway Council. Clarity of each contracting authority's responsibilities is therefore needed at the outset to ensure compliance for all elements of the tender both individually and jointly.

1.7.2.5 Where the Council is entering into a contract as an agent for another public body or government department, these Contract Procedure Rules apply only in so far as they are consistent with the requirements of the body concerned.

1.7.3 **Engagement of consultants**

1.7.3.1 Officers may only appoint external consultants or advisors providing professional or consulting services if such services are not available within the Council or if Officers requiring them do not have the resources or capability to meet the needs of the service. All such engagements should be done through consultation with the already established team(s) for example, Category Management or Property & Capital Projects.

1.7.3.2 All contracts for external consultants and advisors shall explicitly require that the consultants or advisors provide without delay any or all documents and records maintained by them relating to the services, and lodge all such documents and records with the appropriate Officer at the end of the contract.

1.7.3.3 Officers shall ensure that any consultant working for the Council has appropriate indemnity insurance and shall liaise with the Insurance Team to verify the level required.

1.7.3.4 Appointment of consultants for projects, where not part of an existing Framework, shall follow the procurement process for services

1.7.4 **Frameworks (Public Contracts Regulations 2015, Regulation 33 "PCR 2015")**

1.7.4.1 A framework agreement in the context of these Contract Procedure Rules is:

- Where the overall terms and conditions and pricing are agreed but the cost of each call-off will vary dependent upon the requirement via a mini-competition

OR

- Where the costs and terms have been expressed whereby the most economic provider is chosen.

1.7.4.2 Officers cannot automatically make use of a framework agreement; any proposed use must by appraised in accordance with the applicable Procurement Process.

1.7.4.3 Where Officers are proposing to use a framework agreement in relation to a Category A Procurement, guidance must be sought from Category Management before use. This is a mandatory requirement to ensure that the framework agreement is available to the Council, provides the best value procurement route and to ensure that Officers understand and adhere to the protocols set by the creator (Central Purchasing Body) of the framework agreement.

1.7.4.4 Where Officers are proposing to use a framework agreement in relation to Category B Procurements, the framework agreement must be appraised against other available procurement options as prescribed within the Procurement Gateway 1 Report.

1.7.4.5 When procuring from (calling-off) a Framework Agreement, Officers must adhere to the protocol set out under the existing Framework Agreement terms and must seek advice from Category Management if in any doubt.

1.7.4.6 The Council is not required to advertise any proposed call off (in excess of the EU Threshold for Supplies (Goods), Services or Works where the Framework being used was subject to an original OJEU advert.

1.7.4.7 The Invitation to Quote procedure set out at **Section 2.3** shall be used in preference to a formal Invitation to Tender where no other formal process is specified within the terms of that Framework.

1.7.4.8 Where Officers propose to create a Medway Framework arrangement for works, goods and/or services, transparency is required as to how the "Call off" mechanism will work. Where the call off process includes a part direct award, part mini competition, the procurement documents will detail how the choice will be made (on objective criteria) between a direct award and a mini competition and specify which terms may be subject to reopening of

competition. This approach could be lot specific, i.e. it does not have to apply across all lots within a framework.

1.7.5 Central Purchasing Bodies (Public Contracts Regulations 2015, Regulation 37 "PCR 2015")

1.7.5.1 Medway Council, in accordance with the guidance above, may acquire supplies or services, or both, from a central Purchasing body in respect of activities conducted on a permanent basis.

1.7.6 Concession Contracts

1.7.6.1 Service concessions are no longer exempt following the implementation of the Concessions Directive 2014/23/EU.

1.7.7 Light Touch Regime (Public Contracts Regulations 2015, Regulations 74-76 "PCR 2015")

1.7.7.1 Under PCR 2006, service contracts were divided into Part A (which were subject to the detailed regulatory regime) and Part B (which were only subject to limited obligations under that legislation). EU Treaty principles, including sufficient advertising and fair and transparent process, also applied to Part B services where there was cross-border interest.

1.7.7.2 Under PCR 2015, Part B services have been replaced by a specific list of social and other services which are subject to the "light touch" provisions. These services are more limited than Part B services and there is no "open ended" service category 27.

1.7.7.3 The service contracts which are limited to a "light touch" regime are listed in Schedule 3 of the Public Contracts Regulations 2015. Under the light touch regime, above threshold contracts must issue an OJEU notice, which contains details of the conditions of participation, time limits and a description of the award procedure that will be applied, and an award notice. There is also a requirement to advertise the contract/award on Contracts Finder. Other than these limited requirements, Medway Council is free to determine the procurement procedure used, so long as it ensures that it adheres to the EU principles of equality and transparency. All procurement documents must still be available electronically when the procedure begins.

1.8 Exceptions and exemptions

1.8.1 Exceptions to Contract Procedure Rules

1.8.1.1 No exception to Contract Procedure Rules can be undertaken where the provision is above the EU tender threshold and subject to European or UK Legislation.

1.8.1.2 The requirements of the Council's Contract Procedure Rules **shall not apply** in the following exceptional circumstances:

- Where for technical or artistic reasons or reasons connected with the protection of exclusive rights the contract can only be awarded to one economic entity.

- Procurements where the procedure to be followed by the Council is the subject of express legislation.

- Where there is a need for urgent action and the urgency provisions in the Council's Constitution relating to Council decisions and Leader/Cabinet decisions can be applied. The urgency provisions for Council- side decisions are set out in the employee delegation scheme (Chapter 3, Part 4, para 4.1) and in the Budget and Policy Framework Rules (Chapter 4, Part 3, para 4). The urgency provisions relating to Leader/Cabinet decisions are set out in the Access to Information Rules (Chapter 4, Part 2, paras 16, 17 and 18). In addition to any reporting related to decisions taken under urgency provisions, any expenditure in excess of £5,000 must also be reported to the Head of Category Management within 1 week of the date of the contract award using the Exemption Request Form. Any contract entered into by the Council under urgency provisions must not be for a term of more than 6 months.

- Contracts for the acquisition and disposal of land or property that are covered within the remit of the Chief Legal Officer and within the Financial Limits as prescribed within part 5 of chapter 3 of the Constitution.

- Contracts for employment for staff, except where an agency is used to supply the staff.

- Works orders with utility infrastructure providers, e.g. Gas Mains.

- Where supplies are acquired from a closing down sale in circumstances permitted by the Regulations.

- Where the provision of services is reserved to the winner of a design contest as specified in the Regulations.

- The disposal of Council Assets that are covered by the Property Procedure Rules and Financial Procedure Rules.

- Where the contract is for replacement goods or installations and contracting with an alternative supplier to the supplier of the initial goods or installation would either result in incompatibility with existing goods or installations or lead to disproportionate costs or technical difficulties in the operation and maintenance of existing goods or installations.

1.8.1.3 The Director of People – Children and Adults Services shall have authority to award without competition a contract where a placement is sought for an

individual with a registered care provider of their choice under the National Health Service and Community Care Act 1990.

1.8.1.4 A Director shall have authority to award without competition a contract where the particular needs of an individual (either an adult or a child) require a particular social care package, or where an individual has special educational needs which are only available from a particular provider in the opinion as appropriate of the Director of People – Children and Adults Services.

1.8.1.5 In relation to **Sections 1.8.1.3** and **1.8.1.4**, The Director of People – Children and Adults Services will through the appropriate scheme of delegation, keep a record of the reasons for the choice of provider, which will be maintained on the individual's case notes. In addition, a record of the annual cumulative expenditure with each provider will be maintained by the Director of People – Children and Adults Services and made available for audit purposes upon request.

1.8.1.6 The Chief Legal Officer may engage a barrister or solicitor without competition. The appointment will be made on the basis of which barrister or solicitor is in the opinion of the Council's Chief Legal Officer, best able to provide the necessary expertise and value for money. The Council's Chief Legal Officer will maintain a departmental record of the amounts of expenditure with external barristers and will ensure that this information is made available for audit purposes upon request.

1.8.1.7 The Chief Legal Officer may procure without competition, emergency accommodation for the homeless for individual service users that are not covered by a Council Framework Agreement or Contract.

1.8.2 **Exemptions to Contract Procedure Rules**

1.8.2.1 Any Officer requesting an exemption must complete an *Exemption Request Form*. This form must be approved and signed by the appropriate Director before submission to Category Management for the Chief Legal Officer to consider.

1.8.2.2 The Council's Chief Legal Officer will review the exemption request and will make a decision in consultation with the Procurement Board as to whether to accept or reject. This decision by the Chief Legal Officer will be minuted and communicated for informational purposes to the appropriate Director as part of the *Procurement Board Process.*

1.8.2.3 All approved exemption requests will be submitted to the Full Council for information purposes.

1.8.2.4 Circumstances where time is lost through inadequate forward planning or a lack of internal resources existing to manage procurement processes will not automatically constitute the basis for an exemption under these Contract Procedure Rules.

1.8.2.5 The Chief Legal Officer will have ultimate discretion to consider resources and time constraints in the overall context of risk of non-delivery when deciding upon whether to accept or reject an exemption request.

1.8.2.6 In the event that a valid reason for urgency exists, the Chief Legal Officer will have ultimate discretion to consider an exemption outside of this formal decision-making mechanism. Any such occurrence shall be reported retrospectively to the Procurement Board by the appropriate Officer as per **Sections 1.8.2.1 – 1.8.2.2.**

1.8.2.7 No Exemption to Contract Procedure Rules can be undertaken where the provision is above the EU tender threshold and subject to European or UK legislation.

1.8.2.8 Teckal Exemption

- The Teckal exemption allows the award of contracts between contracting authorities and controlled entities provided the following conditions are met:

- the contracting authority exercises control over the entity similar to that which it exercises over its own departments;

- more than 80% of activities of the entity relate to the performance of tasks entrusted to it by the authority; and

- there is no direct private capital participation in the entity (with the exception of non-controlling and non-blocking forms of private capital participation required by national law in conformity with the EU Treaties). Contracts can be exempt where contracting authorities jointly control an entity based on similar tests to the above and for “Reverse Teckal” where the controlled entity (if a contracting authority itself) can award a contract to its controlling contracting authority.

1.9 **Delegate authority and officer responsibilities**

1.9.1 Any procurement carried out on behalf of the Council may only be undertaken by Officers with the appropriate delegated authority to carry out such tasks. This delegation must be included in the current scheme of delegation as prescribed within the Council’s *Constitution* or as advised by the appropriate Director.

1.9.2 Each Director is responsible for all procurement activity within their respective Directorate and has the overall responsibility for ensuring Directorate compliance with these Contract Procedure Rules, Procurement Gateway Process, the Council’s Procurement Strategy, Financial Regulations, and all UK and European Legislation.

Through the appropriate scheme of delegation, this authority may be passed down to Assistant Directors, Heads of Service and other appropriate Officers within each Directorate and Department. However,

ultimate responsibility and accountability will remain with the appropriate Director in respects to Officer conformance with these Contract Procedure Rules unless the Constitution sets out otherwise.

1.9.3 Officers must ensure that agents, including consultants, acting on their behalf also comply with these Contract Procedure Rules as prescribed with **Section 1.7.3** of these Contract Procedure Rules,

1.9.4 The Officer responsible for managing any contract or procurement process must comply with the Employee Code of Conduct and Anti-Fraud and Corruption policies, and must not invite or accept any gift or reward in respect of the award or performance of any contract.

1.9.5 The Officer responsible for managing any contract or procurement process **must** establish if an existing Contract or Framework Agreement exists before seeking to let another Contract (See **Section 1.7**). This Contract or Framework Agreement **must** be considered accordingly as part of a robust options appraisal in line with the Procurement Gateway Process for Category A and Category B Procurements as prescribed in **Section 2.3** and **Section 2.4** of these Contract Procedure Rules. In appraising Framework Agreements and existing Contracts, the Officer **must** provide tangible and demonstrable evidence within the *Procurement Gateway 1 Report*, whether or not these arrangements provide Value for Money and whether or not the goods, services or works therein are “fit for purpose” for the particular requirement.

1.9.6 The Officer responsible for managing any contract or procurement Process **must** ensure that when any employee or contractor arrangement may be affected by any transfer arrangement, such as the Transfer of Undertaking Protection of Employment (TUPE), that advice is obtained from HR and/or Legal Services before proceeding with inviting tenders. Officers must consult Pensions and Payroll concerning all TUPE and pension issues before the advert for the contract opportunity is placed, as this will affect the financial value of the contract. Where guidance and confirmation as to the applicability of TUPE is not sought from HR and/or Legal Services, the procurement process will not be permitted to commence nor can be subjected to the Procurement Gateway Process in respects to Category A or Category B Procurements, as prescribed within **Section 2** of these Contract Procedure Rules.

1.9.7 The Chief Legal Officer and the Chief Finance Officer, in consultation with the Portfolio Holder for Resources, shall both have the delegated authority to enter into contractual arrangements on behalf of the Council for all contracts involving the purchase of utilities (i.e. gas, water and/or electricity supply) on behalf of both the Council and schools. This delegation shall apply to both individual contracts let between the Council and the utility supplier, and where the Council enters into any Framework Agreement or Consortia Agreement.

1.9.8 Any such award agreed directly by the Council’s Chief Legal Officer and the Council’s Chief Finance Officer or through delegation to Category

Management, will be reported to the Procurement Board for informational and audit purposes. The Procurement Board will have the discretion to decide whether or not to report any such award(s) to the Cabinet for informational purposes.

SECTION 2
PROCUREMENT PROCESS

2.1 Thresholds and risks

2.1.1 The complexity of the procurement process (Category & Level) to be followed will vary in accordance with the value and risk of the requirement as set out below.

CATEGORY A PROCUREMENTS		
Level	**Value**	**Risk**
0	£0 up to £5k	Low
1	£5kup to £25K	
2	£25K up to £100K	
CATEGORY B PROCUREMENTS (Subject to the Procurement Gateway Process)		
3	£100K+	Medium
4	Any project deemed 'High Risk' by Procurement Board	High

2.1.2 Risk Decision Making

In determining the level at which procurement decisions are taken, regard will be had to requirements relating to key decisions as set out in Article 12 and the Leader and Cabinet rules in the Council's Constitution. Any procurement defined as a key decision will be classified as high risk and referred to Cabinet for determination.

a) A key decision is an executive decision which is likely:

   a. To result in the Council incurring expenditure which is, or the making of savings which are, significant having regard to the Council's budget for the service or function to which the decision relates; or

   b. To be significant in terms of its effects on communities living or working in an area comprising two or more wards in Medway.

2.2 Calculating contract value

2.2.1 In order to identify the appropriate Category and Level of procurement the Total Value should be calculated over the life of the contract.

2.2.2. The Total Value will be calculated as follows:

(a) Where the contract is a capital or one-off purchase or for a fixed period, by taking the total price to be paid or which might be paid during the whole of the period;

(b) Where the purchase involves recurrent transactions for the same type of items, by aggregating the value of those transactions over the contract period, including any anticipated extension periods;

(c) Where the total contract value over the full duration of the contract (not just the annual value) is uncertain, by multiplying the monthly payment by 48 or annual payment by 4;

(d) For Framework Agreements with no guaranteed commitment the contract value will be the estimated value of orders placed/commissions let under the Framework Agreement over the full duration of the contract term;

(e) Where an in house service provider is involved, by taking into Account TUPE workforce matters, redundancy and similar/associated costs as guided by Legal Services, Human Resources, Pensions and Payroll and Category Management Teams;

(f) Where a partnering arrangement is to be put in place, the total value of the likely partnership;

(g) For income generation contracts the Total Value will be the estimated revenue stream payable to the Council over the period of the contract. Where the total revenue stream over the full duration of the contract (not just the annual value) is uncertain, by multiplying the monthly payment by 48 or annual payment by 4;

(h) If the total value of recurring transactions with a single provider exceeds £24,999, the opportunity is deemed Level 2 procurement and must be tendered appropriately.

a. Should the service area envisage the recurring spend exceeding the above threshold, advice from Category Management should be sought.
b. Category Management reserves the right to monitor compliance of the clause 2.2.2.h.
c. Category Management may deactivate an active provider that is in breach of the above thresholds based on the last 4-years' spend analysis.
d. Failure to comply will result in a disciplinary action as per the clause 1.5.4.

(i) Subscription based services are exempt from tendering unless the offer is not unique, can be provided by a number of suppliers in the market and falls within procurement Level 2 or higher;

2.2.3 The Total Value must be calculated in pounds sterling exclusive of Value Added Tax;

2.2.4 Contracts must not be artificially under estimated or disaggregated to avoid the application of these Contract Procedure Rules or EU/UK Procurement Legislation.

2.3 Category A procurement process

2.3.1 Level 0 procurement (Low Risk) £0 - <£5K

- The appropriate Assistant Director and/or Head of Service must sanction the commencement of any procurement activity. These are for one off purchases that are highly unlikely to be required again e.g. low value and risk works projects.

- A **minimum** of one written quotation must be obtained (Officers are encouraged however to seek further competitive quotations where possible).

- The quotation may take the form of a Supplier email, letter or reference to a current/value catalogue or by using the Low Value Quotation Form.

- Officers must keep such quotations on record for audit purposes and make reference to them on the corresponding Financial Purchase Order.

- Category Management must be informed of all award decisions by completing the **Transparency Agenda Form**. Failure to do so will result in revoking rights of award and disciplinary action.

- All orders placed through this means will be made using the Council's standard Purchase Order terms and conditions. Any amendments should be done in consultation with Category Management.

2.3.2 Level 1 procurement (Low Risk) £5k - <£25k

The appropriate Assistant Director and/or Head of Service must sanction the commencement of any procurement activity. These are for one off purchases that are unlikely to be required again e.g. low value and risk works projects.

- A **minimum** of three written quotations must be obtained (Officers are encouraged however to seek further competitive quotations where possible).

- The quotation must be obtained through the Kent Business Portal using the ***Low Value Quotation Form***. Depending on the award criteria, the Most Economically Advantageous Tenderer will be awarded a contract.

- The Kent Business Portal must be updated to keep such quotations on record for audit purposes and make reference to them on the corresponding Financial Purchase Order.

- Category Management must be informed of all award decisions by updating and submitting a Contract's Register entry to Category Management. Failure to do so will result in revoking rights of award and disciplinary action.

- All orders placed through this means will be made using the Council's standard Purchase Order (or industry equivalent as approved by Category Management) terms and conditions. Any amendments should be done in consultation with Category Management.

2.3.3 **Level 2 procurement (Low Risk) £25k - <£100k**

- The appropriate Assistant Director and/or Head of Service must sanction the commencement of any procurement activity.

- Officers from the Service must work in partnership with Category Management to ensure a corporate approach and delivery of the procurement on behalf of the Council

- Officers must ensure that they liaise with their Procurement Board Directorate Representative and place the procurement project on their respective Directorate Forward Procurement Plan before commencing a Level 2 Procurement.

- A **minimum** of three written quotations must be obtained through the Kent Business Portal by Category Management using the *Invitation to Quote* document.

- Category Management must keep such quotations on record for audit purposes and Officers must make reference to them on the corresponding Financial Purchase Order.

2.4 **Category B procurement process**

2.4.1 Category B Procurements are considered either a medium or high risk rating and are subject to management through the Council's Procurement Gateway Process by Category Management, the Procurement Board and the Cabinet (where applicable).

2.4.2 The Procurement Gateway Process is a five-stage process as outlined below:

Gateway 1 – Project commencement/options appraisal – Category Management must (in partnership with Service Departments) complete and submit a *Gateway 1 Report* for review and approval to the Procurement Board dependant upon the risk parameters outlined in **Section 2.1.1** and in accordance with **Sections 2.4.4, 2.4.5** and **2.5**.

Gateway 2 – Tender process (including document creation, advertisement, evaluation) – Category Management must (in partnership with Service Departments) complete all necessary procurement documentation and

tendering formalities in accordance with **Section 3** of these Contract Procedure Rules.

Gateway 3 – Tender process review and contract award - Category Management must (in partnership with Service Departments) complete and submit a *Gateway 3 Report* for review and approval to the Procurement Board dependant upon the risk parameters outlined in **Section 2.1.1** and in accordance with **Sections 2.4.4, 2.4.5** and **2.5**.

Gateway 4 – Procurement post project completion review - Category Management must (in partnership with Service Departments) complete and submit a *Gateway 4 Report* for review and approval to the Procurement Board dependant upon the risk parameters outlined in **Section 2.1.1** and in accordance with **Sections 2.4.4, 2.4.5** and **2.5**.

Gateway 5 – Procurement contract management report (prescribed by the Procurement Board and not automatically mandatory) – Category Management must (in partnership with Service Departments) complete and submit a *Gateway 5 Report* for review and approval to the Chief Legal Officer, in consultation with the Procurement Board as and when prescribed.

(Note: In determining the level at which procurement decisions are taken regard will be had to requirements relating to key decisions as set out in Article 12 and the Leader and Cabinet rules in Chapter 4 of the Council's Constitution).

2.4.3 For Gateway Reporting purposes, Medium Risk reports are reviewed and approved by the Chief Legal Officer in consultation with Procurement board whereas High Risk reports are reviewed and considered for presentation at Cabinet for review and approval.

2.4.4 In addition to the above Category B Procurements are also subject to the requirement of the EU Procurement Regulations where over the relevant threshold for Supplies, (Goods), Services and Works.

2.4.4 **Level 3 procurement (Medium Risk) £100K+**

- Officers must ensure that they liaise with their Procurement Board Directorate Representative and place the procurement project on their respective Directorate Forward Procurement Plan before commencing a Level 3 Procurement.

- Category Management (in partnership with Service Departments) must complete and submit a *Gateway 1 Report* to the respective DMT for review.

- Relevant Director (DMT) must then either approve the report as Level 3 (Medium Risk) or recommend the report to be up-scaled to Level 4 (High Risk) for submission to the Procurement Board for a Gateway 1 review.

- The Authorised Officer will be required to attend the Procurement Board to present the Gateway 1 Report.

- The Chief Legal Officer in consultation with the Procurement Board will review the Gateway 1 Report and either approve the risk rating or upscale the procurement risk and instruct the presenting Authorised Officer to submit the Gateway 1 report for a further review by the Cabinet.

- If the Chief Legal Officer, in consultation with the Procurement Board approves the Level 3 (Medium Risk) decision, then the procurement process will be permitted to continue to Gateway 2.

- The Chief Legal Officer, in consultation with the Procurement Board will also set the risk and reporting stages for the remainder of the procurement process for Gateway 2, 3, 4 & 5 (if so required) as per the parameters prescribed in **Section 2.4.1** of these Contract Procedure Rules.

- If the Chief Legal Officer, in consultation with the Procurement Board upscales the risk rating, then the Gateway 1 decision making process will be decided upon by the Cabinet. The Cabinet will also set the risk and reporting stages for the remainder of the procurement process for Gateway 2, 3, 4 & 5 (if so required) as per the parameters prescribed in **Section 2.4.1** of these Contract Procedure Rules.

- Once the initial Gateway 1 and subsequent Gateway stages have been approved by the Chief Legal Officer, in consultation with the Procurement Board and/or the Cabinet, the Authorised Officer must liaise with the Procurement Board Directorate Representative and update the procurement project on their respective Directorate Forward Procurement Plan.

2.4.5 **Level 4 procurement (any project deemed High Risk by the Procurement Board)**

2.4.6 Level 4 (High Risk) Procurement Process are prescribed by the Chief Legal Officer, in consultation with the Procurement Board with recommendations for the decision-making associated with the initial Gateway 1 Report and subsequent Gateway 3, 4 & 5 Reports being made to the Cabinet.

2.5 **Upscaling Category A to Category B procurements**

2.5.1 Where deemed necessary for the achievement of best value, management of internal/external risk and adherence to EU/UK Procurement Legislation, the Council's Category Management Team, on behalf of the Council's Chief Legal Officer can at any time upscale a Category A Procurement to a Category B Procurement.

2.5.2 Any such decision by the Council's Category Management Team to upgrade a procurement project will require Officers to comply with the Council's Procurement Gateway Process for Category B Procurements.

2.5.3 Any such decision to upgrade a procurement from a Category A to a Category B by Category Management on behalf of the Council's Chief Legal Officer will be final and must be adhered to by Officers of the Council.

2.5.4 Officers through the Procurement Gateway Process for Category B Procurements will have the opportunity to present a case to the Procurement Board. This will provide Officers with an opportunity to review the decision to upgrade a procurement from Category A to Category B.

2.5.5 Any such review against the decision of the Council's Category Management Team by an Officer of the Council will be decided upon by the Chief Legal Officer in consultation with the Procurement Board (except in the case of urgency when the Chief Legal Officer will make the decision in consultation with the Chief Finance Officer).

2.5.6 The decision of the Council's Chief Legal Officer to either uphold the decision made by the Council's Category Management Team or support any such review will be final and binding.

2.5.7 Any such decision will be project and situation specific and cannot be automatically relied upon or assumed by any Officer to apply across the board for reviewing future decisions made by Category Management.

SECTION 3

GENERAL TENDER PRINCIPLES

3.1 Pre-tender market research and consultation (Public Contracts Regulations 2015, Regulation 40 & 41 "PCR 2015")

3.1.1 Officers may review the market for a proposed procurement through discussions with suppliers and other research but may not:

(a) Base any specification on one Contractor's offering such as to distort competition. Bidders may be excluded from the procurement in circumstances where their prior involvement would distort competition (and there are no other means of ensuring equal treatment which can be applied);
(b) Make any indication or commitment to Contractors that their offer may be preferred by the Council;
(c) Suggest any procurement route, which is not consistent with these Rules;
(d) Enter into negotiations about price where a competitive procurement process has yet to take place.

3.1.2 Any pre-market research undertaken, including discussions with Contractors and others must be fully documented on file. Where organisations have been involved at pre-procurement stage (whether in soft market testing or otherwise, eg incumbents), a contracting authority must ensure that there is a level playing field when the tender process starts such as providing information which has been made available at pre-procurement stage.

3.1.3 Any market research must then be proceeded by a compliant procurement process where there is a business case to proceed.

3.2 Third party pre-qualification services

3.2.1 Pre-Qualification Services describes the assessment, by a third party organisation of potential suppliers' generic suitability to contract with a Contracting Authority across a range of requirements (effectively an outsourced pre-qualification process although not specific to any one contract requirement).

3.2.2 Pre-qualification results in the formal accreditation of those potential suppliers, which successfully complete the process.

3.2.3 Pre-qualification services can be commissioned for vetting of potential suppliers where internal resources are unable to undertake such assessments to assist in the expression of interest process subject to approval by Category Management.

3.2.4 Pre-qualification involves suppliers submitting information specified by the Contracting Authority to facilitate its assessment of suppliers' suitability to tender, below EU thresholds, for tenders relating to works capital projects.

3.2.5 These select lists are generally only available for services, works and/or supplies where its estimated value is below the relevant EU threshold value requiring compliance with the procurement Regulations.

3.3 **Advertising Tender Requirements (Public Contracts Regulations 2015, Regulations 106, 108, 110-113 "PCR 2015")**

3.3.1 All requirements above £100K must be advertised on the Kent Business Portal and in the OJEU (where above the EU tender thresholds for goods, services or works).

3.3.2 In addition to the above, Officers (in consultation with Category Management) may consider where appropriate additional advertisement in one of the following to increase awareness and competition:

- A dedicated contracts publication;
- The local press;
- A relevant trade journal;
- Voluntary and Community Sector circulation list or website.

3.3.3 From 1 April 2015 advertising requirements include:

- All contract notices to the Official Journal (OJEU), must also be published on Contracts Finder within 24 hours. The same applies in respect of contract award notices although this is not required within 24 hours;

- The PCR 2015 state that sub-central authority contracts over £25,000, include a requirement to publish contract opportunities and award notices on Contracts Finder. For all opportunities that are published to the open market, this is a mandatory requirement.

- All Public contracts will include a requirement for 30 day payment terms (for undisputed invoices) and these are to be passed down the supply chain. There is also a requirement to report on late payment of invoices. Where express provisions are not included, PCR 2015 imply specific terms into contracts.

3.3.4 Prior Information Notices (Public Contracts Regulations 2015, Regulation 48 "PCR 2015")

- PINs are no longer a mandatory requirement.

- PINs may be used by officers as a call for competition for the restricted or competitive procedure with negotiation. Additional information must be included in the PIN if used for this purpose.

- A contracting authority cannot rely on a PIN until 35 days after sent for publication.

- Maximum validity is 12 months (except for social and other specific services) (i.e. those covered by the “light touch” regime)

3.3.5 Reserved contracts for certain services (Public Contracts Regulations 2015, Regulation 77 “PCR 2015”)

- PCR 2015 allows contracting authorities to reserve the award of contracts for certain specific health, social and cultural services to certain types of organisations as part of its call for competition.

- The organisations entitled to bid must meet the following conditions:

    - the organisation’s objective is the pursuit of a public service mission linked to the delivery of the services;
    - profits are reinvested with a view to achieving the organisation’s objectives;
    - the structure of management/ownership of the organisation performing the contract are based on employee ownership or participatory principles; and
    - the organisation has not been awarded a contract for those services in the past 3 years.

- If a contracting authority decides to reserve these contracts to such organisations, the maximum duration of a contract which can be awarded is 3 years.

3.3.6 Lots (Public Contracts Regulations 2015, Regulation 46 “PCR 2015”)

- Officers may decide to award a contract in the form of separate lots and may determine the size and subject-matter of such lots.

- Officers may, even where tenders may be submitted for several or all lots, limit the number of lots that may be awarded to one tenderer, provided that the maximum number of lots per tenderer is stated in the contract notice or (if a PIN is used as a call for competition) in the invitation to confirm interest. Officers must set out how this will work in practice including the objective criteria which will determine which lots will be awarded where the application of the award criteria results in one tenderer being awarded more than one lot.

- Although not compulsory, if officers decide not to divide an opportunity into separate lots, reasons for this must be included in the Regulation 84 report (Award Report/Gateway 3).

3.3.7 Electronic communication and access to documents (Public Contracts Regulations 2015, Regulations 22 & 53 "PCR 2015")

- Subject to certain limited exceptions, all communication and information exchange must be carried out by electronic means. These exceptions include where the specialised nature of the procurement means that specific tools or file formats are needed which are not open to all and generally available or require a licence or where physical or scale models are required which cannot be transmitted by electronic means. There may also be circumstances in which information of a particularly sensitive nature requires a high level of protection which cannot be ensured by using electronic tools or devices.

- The reasons why electronic communications are not being used must be set out in the Regulation 84 report.

- Contracting authorities must offer unrestricted and direct access (free of charge) to all procurement documents from the date of publication of the contract notice in OJEU and that the contract notice must include a reference to the internet address where the documents can be accessed. The definition of "procurement documents" is widely drafted meaning any document produced or referred to by a contracting authority which describes elements of the procurement or procedure including the contract notice, technical specification, proposed conditions of contract and formats for the presentation of documents by candidates or tenderers (eg pre-qualification questionnaires and invitations to tender). The requirement to make available all procurement documents at the outset applies to every procurement process unless one or more of the listed exceptions for the use of electronic communications apply.

- Oral communication can be used provided that its content is documented to a "sufficient degree". However, oral communication cannot be used in relation to essential elements (defined as including the procurement documents, the request to participate, etc.) of the procurement procedure.

- Oral communications with tenderers which could have a substantial impact on the content and assessment of tenders is also required to be documented by appropriate means which may include audio records.

3.4 Pre-Qualification Questionnaire PQQ (Public Contracts Regulations 2015, Regulations 56-64 "PCR 2015")

3.4.1 A PQQ stage is prohibited to be used for tenders below the EU Threshold level for goods and services. Tenders that fall below the EU threshold values for goods and services will follow an Open Tender Procedure approach i.e. one stage which will encompass selection and award criteria.

3.4.2 All tenders, except where prescribed timelines are in place, must specify a time limit of not less than 10 working days to enable interested parties the

opportunity to Tender. All exercises shall be completed electronically via the Council's Quotation/Tendering System.

3.4.3 Officers undertaking a PQQ will verify that bids submitted comply with the rules and requirements applicable to the tender as well as checking whether grounds for exclusion apply and selection criteria is satisfied.

3.4.4 Officers will check that a tenderer remains "eligible to tender" throughout the process i.e. there are no exclusion grounds or changes in circumstances which would mean an operator fails to meet the selection criteria.

3.4.5 Officers will consider the mandatory and discretionary grounds for exclusion including additional discretionary grounds where conflicts cannot be remedied or where persistent poor performance has led to contract termination or similar sanctions. Bidders are allowed to provide evidence to demonstrate reliability despite the existence of grounds for exclusion. The duration for the exclusion is:

- 3 years from the date of conviction for mandatory grounds and
- 5 years from the date of the event for discretionary grounds.

3.4.6 As part of the evaluation of the Pre-Qualification Questionnaire credit checking must be completed on all those Suppliers expressing an interest. Further financial analysis should be conducted in conjunction with Corporate Finance, dependent on the nature, value or risk of the contract to fully test the financial ability of the bidder. Full details of the nature of the financial analysis to be undertaken must be included in the Pre-Qualification's Questionnaire's evaluation criteria. These will include:

- minimum annual turnover:
  - no more than 2 x estimated contract value, unless justified;
  - applies per lot but can be combined if awarded more than one lot (note there are specific rules for frameworks and DPS).

3.4.7 A supplier's technical ability to undertake the contract requirements is evaluated at this stage. This cannot be re-tested at the Invitation to Tender stage. This will include:

- education and qualifications if not to be used as award criteria.

- a requirement to accept the European Single Procurement Document (ESPD) which is a self-declaration, as preliminary evidence that there are no grounds for exclusion and that the selection criteria is satisfied. Supporting documents referred to in the ESPD can be requested at any time. The winner must provide up to date information to confirm this.

- Ability to have recourse to e-Certis.

- relying on other entities – Officers may require joint liability (if an economic operator is relying on other entities for educational/

professional purposes, that entity must be performing the relevant parts, must be checked for eligibility and there may be requirement to replace them in certain circumstances).

3.5 **The invitation to tender (Public Contracts Regulations 2015, Regulations 22 & 53 "PCR 2015")**

3.5.1 The Council's standard *Invitation to Tender* documentation must be used for all tender exercises involving the procurement of Supplies, (Goods), Services and Works in excess of £100K.

3.5.2 For those procurement exercises involving the procurement of Works and Works related requirements, the appropriate industry standard Invitation to Tender documentation can be used as an alternative to the Council's *Invitation To Tender* document. Any amendments to the industry standard terms must be included in the tender pack and drawn to the attention of all bidders. Legal Services must be consulted on the correct form of contract. used (e.g. JCT, ICE, NEC3)

3.5.3 The Chief Finance Officer (or such other officer as he shall designate) must be consulted on the financial and commercial aspects of the tender documents, including the evaluation process.

3.5.4 Post advertisement at least 3 Contractors must be invited to Tender, unless there is overriding business or legal justification that this is not required and in these circumstances an Exemption must be sought.

3.5.5 The specification and evaluation criteria must take into account Social and Economic, Equality, Sustainability, Health and Safety and Value for Money considerations.

3.5.6 The risks associated with the contract must be assessed and documented. Appropriate actions should be taken to ensure that the Council's potential and actual exposure to risk and challenge is minimised.

3.5.7 A timetable setting out the key stages of the procurement should be set out in the appropriate section of the Council's standard Invitation to Tender documentation.

3.5.8 The Invitation to Tender documentation should include a copy of the relevant *Terms and Conditions of Contract*.

3.5.9 The Legal Services Team must be instructed on the form of contract and any amendments. It is important for Officers to consider the form of contract to be used to ensure that it is fit for purpose and affords the Council the appropriate level of protection.

3.5.10 Where Officers considers that it is not fit for purpose they must liaise with the Legal Services Team with regards to any amendments required to make it fit for purpose.

3.5.11 The Invitation to Tender must explain how information provided in the Tender will be treated with regard to statutory requirements.

3.5.12 For below EU Threshold procurement projects, Tenderers must be given adequate time to respond, consistent with the level of complexity of the requirement.

3.5.13 Tenderers must be required to hold their Tenders open for acceptance for a minimum of 90 calendar days from the date of opening.

3.5.14 Invitations to Tender must include a statement that the Council does not bind itself to accept the lowest Tender or any other Tender.

3.5.15 Every invitation to tender shall be completed electronically via the Council's Quotation/Tendering System.

3.5.16 Dynamic Purchasing System (Public Contracts Regulations 2015, Regulation 34 "PCR 2015")

3.5.16.1 These systems are essentially open frameworks and provide for an electronic process for commonly used supplies, services or works. Contracting authorities must allow all economic operators the ability to participate during the validity of the DPS.

3.5.16.2 To set up a DPS, the restricted procedure must be used. A contract notice or PIN must be used, which confirms that it is a call for competition.

3.5.16.3 The minimum time period for receipts of request to participate is 30 days.

3.5.16.4 The minimum time period for the receipt of tenders is 10 days from the date on which the invitation to tender is sent.

3.5.16.5 The maximum duration must be indicated in the call for competition.

3.5.17 Electronic auctions/catalogues (Public Contracts Regulations 2015, Regulations 35 & 36 "PCR 2015")

To ensure transparency the following provisions must be followed:

3.5.17.1 The use of electronic catalogues must be identified in the call for competition/ ITT.

3.5.17.2 If electronic catalogues are required as part of framework mini-competitions.

3.5.17.3 Tenderers can adapt to requirements and resubmit catalogues; or

3.5.17.4 Contracting authorities can collect information and adapt these to the requirements of the contract in question and then request confirmation from tenderers (tenderers may object to collection).

3.6 **Receipt and tender opening**

3.6.1 Tenders shall be kept secure electronically and unopened until the time and date specified for their opening.

3.6.2 All tenders received by the time and date specified shall be opened within 5 working days of the closing date in the presence of the Officer from the Service or their nominee and a designated Officer from Category Management.

3.6.3 No tender received after the time and date specified shall be considered unless agreed by the Councils Chief Legal Officer either directly or via delegation to the Chief Finance Officer or Category Management.

3.6.4 The formal contract which will include the accepted Tender can be sealed or signed by Authorised Officers within Legal Services. The Authorised Officer must initial every page of a Bill of Quantities or each page of any Schedule to the Form of Tender prepared by the Tenderer.

3.6.5 A record of all tenders signed or sealed will be made and kept by the Legal Services.

3.7 **Errors in tenders**

3.7.1 Officers are entitled to clarify errors, missing or incomplete bids but any clarification is made in full compliance with the principles of equal treatment and transparency.

3.7.2 Where there is an obvious error or omission Category Management may permit a Tenderer to either correct or withdraw their submission. Any such corrections will be completed via the Council's electronic Quotation/Tendering System.

3.8 **Tender Evaluation (Public Contracts Regulations 2015, Regulations 67 & 68 "PCR 2015")**

3.8.1 All Tenders must be assessed in accordance with the pre-determined evaluation criteria and weightings as advertised in the Tender Notice, Pre Qualification Questionnaire and Invitation to Tender documentation as appropriate.

3.8.2 The Tender Evaluation Panel must include relevant representation as appropriate. Where the contract potentially could involve TUPE then HR must be advised at the earliest opportunity and included as part of the Evaluation Process. If a consultant leads on the team then a Head of Service or Assistant Director must sign off their findings.

3.8.3 The Chief Finance Officer or his representative must be consulted on the commercial evaluation of all Category B procurements.

3.8.4 The results of the Tender evaluation must be retained by Category Management.

3.8.5 Abnormally Low Tenders (Public Contracts Regulations 2015, Regulation 69 "PCR 2015")

3.8.5.1 Officers are obliged to seek reasons from bidders to explain prices and costs which appear to be abnormally low in relation to the works, supplies or services.

3.8.5.2 Officers may only reject a tender where the evidence supplied does not satisfactorily account for the low level of price or costs proposed.

3.9 **Negotiation**

3.9.1 Officers may only carry out negotiations if:

(a) An Exemption of these rules has been granted;
(b) A single Tender;
(c) The Tender is above the EU Thresholds and is in accordance with the EU requirements for an EU Competitive Procedure with Negotiation or a Competitive Dialogue (and a Waiver of these Rules has been granted);
(d) They are post tender negotiations in accordance with the rules set out below.

3.9.2 Where a competitive tender exercise cannot be carried out in accordance with the Council's Contract Procedure Rules, a single or multiple negotiated tender exercise may only be sought if a Waiver of Contract Procedure Rules has been granted first. This only applies to a requirement below the OJEU threshold. This Negotiated Procedure must only be used in exceptional circumstances and must be approved in advance by the Council's Chief Legal Officer prior to use as part of the Gateway 1 Process for Category B Procurements.

3.9.3 Where the procurement is conducted through either the *Open* or *Restricted Procedures* within the EU Regulations, no negotiations are permitted (including post tender negotiations), which may have the effect of distorting competition (for example fundamental changes to aspects of the contract, including prices changes and variations to the Council's requirements).

3.9.4 Where dialogue with tenderers is permitted under the EU Competitive Procedure with Negotiation or Competitive Dialogue procedures, negotiations shall be conducted by a team of at least two Officers, at least one of who shall be from Category Management.

3.9.5 Written records must be made and retained by Category Management of all negotiations. If an Officer is in doubt on any negotiations, they should contact Category Management and Legal Services for guidance.

3.9.6 Variants (Public Contracts Regulations 2015, Regulation 45 "PCR 2015")

3.9.6.1 Officers may now require as well as permit bidders to submit variants (and must set out the minimum requirements they must meet).

3.9.6.2 Officers may specify that a variant can only be submitted if a standard bid is submitted or can allow just variants but this must be clear in the procurement documents.

3.9.6.3 Officers must ensure that the award criteria can be applied to both non-variant and variant tenders.

3.9.7 Sub-contracting (Public Contracts Regulations 2015, Regulation 71 "PCR 2015")

3.9.7.1 In the procurement documents, Officers may ask the tenderer to indicate in its tender any share of the contract that it intends to sub-contract to third parties and any proposed subcontractors.

3.9.7.2 Main contractors must notify Officers of the name, contact details and legal representatives of its sub-contractors in so far as known at the time. This relates to works contracts and in respect of services to be provided at a facility under the direct oversight of Medway Council and must take place after the award of the contract but at the latest when the performance of the contract commences. Officers may extend this approach to supply and other services contracts and to lower tiers of sub-contractors.

3.9.7.3 Officers may verify whether there are grounds for exclusion of sub-contractors under Regulation 57 and must require the main contractor to replace a sub-contractor if there are mandatory grounds for exclusion and may require replacement where there are discretionary grounds.

3.10 Award of contracts

3.10.1 A contract may only be awarded by an Authorised Officer with the requisite delegated authority to award contracts in accordance with **Section 2** of these Contract Procedure Rules.

3.10.2 For contracts subject to the full scope of the EU Regulations, Category Management must inform as soon as possible any tenderer the intended award of contract.

3.10.3 The Council must allow a minimum standstill of 10 calendar days between communicating the decision and contract conclusion.

3.10.4 The "Standstill" period must not commence until all internal approvals have been finalised in accordance with the Council's Constitution.

3.10.5 Whilst the mandatory standstill period does not generally apply to procurements below the EU thresholds or procurements otherwise outside

the full scope of the EU Directives, the above process shall be applied unless justified otherwise.

3.10.6 Where a contract exceeding the EU Threshold has been awarded, Category Management must publish a Contract Award Notice in OJEU no later than 48 days after the date of award of the contract.

3.10.7 Award of contracts will be based on the most economically advantageous tender assessed from the point of view of the authority. This may be on the basis of price or cost and may include the "best price quality ratio".

3.10.8 Life-cycle costing is also permitted and rules are set out on how to work out life-cycle costing etc in Regulation 68. The approach must be disclosed to bidders.

3.10.9 Award criteria must still be linked to the subject matter of the contract but may also include "organisation, qualification and experience of staff assigned to performing the contract" where the quality of the staff assigned can have a significant impact on the level of performance of the contract. Care must be taken not to duplicate any "staff" related assessment undertaken at pre-qualification stage.

3.10.10 Individual Reports (Public Contracts Regulations 2015, Regulation 84 "PCR 2015")

- Contracting authorities are required to create and keep a written report on each contract, framework agreement and dynamic purchasing system entered into under PCR 2015. (Gateway 3)

- The information recorded must include information relating to the following (amongst other):

- the qualification and selection of tenderers and the award;

- where applicable, why electronic procurement is not used;

- the use of the negotiated procedure without a call for competition;

- how conflicts of interest have been managed; and

- the non-application of the regulations in certain circumstances.

- In addition to the above, there is a general obligation on contracting authorities to document the progress of all procurement procedures including ensuring sufficient information is kept to justify decisions such as communications with economic operators and internal deliberations, preparation of procurement documents, any dialogue and negotiation, selection and award. Documentation must be kept for three years from the award of the contract.

3.11 Debriefing/ Bidder Feedback (Public Contracts Regulations 2015, Regulation 55 "PCR 2015")

3.11.1 Officers are required to inform each candidate and tenderer (as soon as possible) of decisions reached concerning the conclusion of a framework agreement, the award of a contract or admittance to a dynamic purchasing system.

3.11.2 Economic operators have a right to request information (and a response must be provided no later than 15 days of a request) and the majority of this information should be provided in the standstill letter. There is also a right to request details of the conduct and progress of negotiations and dialogue with bidders which is in addition to information made available in the standstill letter.

3.11.3 Providing unsuccessful tenderers with the information above should in most instances remove the requirement for a further debrief meeting, as there is no further evaluation information to be provided. Where a further request is received in writing from an unsuccessful tenderer (and considered beneficial) a face-to-face debrief meeting may be held with appropriate representation from the Evaluation Panel.

3.12 Contract extensions Modification of contracts (Public Contracts Regulations 2015, Regulation 72 "PCR 2015")

3.12.1 Any contract, which provides for (an) extension(s), may be extended in accordance with its terms subject to a Gateway 5 review at the Procurement Board. Where any contract is extended, Category Management will update the Contract Register accordingly.

3.12.2 Where the terms of the contract do not expressly provide for an extension, an exemption is required and is subject to any necessary authorisation within the scheme of delegation. These should only be extended in exceptional circumstances and advice must be sought from Category Management and Legal Services.

3.12.3 Should there be any contract variations within the first 12 months of the life of the contract which increases the spend on any element within the contract, approval must be given by the relevant Portfolio holder and/or Procurement Board prior to the variation being agreed.

3.12.4 Modifications to existing contracts are permitted without commencing a new procurement in the following circumstances:

- Where the modifications, irrespective of their monetary value, have been provided for in the initial procurement documents in clear, precise and unequivocal review clauses, which may include price revision clauses, or options.

- For additional works, services or supplies by the original contractor, irrespective of their value, that have become necessary and were not included in the initial procurement where a change of contractor:*

- cannot be made for economic or technical reasons; or
- would cause significant inconvenience or substantial duplication of costs for the contracting authority; However, any increase in price cannot exceed 50% of the value of the original contract.

- Where all of the following conditions are fulfilled:*

- the need for modification has been brought about by circumstances which a diligent contracting authority could not foresee;

- the modification does not alter the overall nature of the contract; and

- any increase in price is not higher than 50% of the value of the original contract or framework agreement.

(*Note: the contracting authority must publish a notice in the OJEU when a contract has been modified under these headings.)

- Where a new contractor replaces the one which had initially been awarded the contract as a consequence of either:
  - an unequivocal review clause or option which is clear, precise and unequivocal (referred to above); or
  - universal or partial succession into the position of the initial contractor, following corporate restructuring, including takeover, merger, acquisition or insolvency, of another economic operator that fulfils the criteria for qualitative selection initially established provided that this does not entail other substantial modifications to the contract and is not aimed at circumventing the application of PCR 2015.

- Where the modifications, irrespective of their value, are not substantial. A modification is considered to be substantial where one or more of the following conditions is met:

  - the modification renders the contract or the framework agreement materially different in character from the one initially concluded;

  - the modification introduces conditions which, had they been part of the initial procurement procedure, would have allowed for the admission of other candidates than those initially selected or for the acceptance of a tender other than that originally accepted or would have attracted additional participants in the procurement procedure;

  - the modification changes the economic balance of the contract or the framework agreement in favour of the contractor in a manner

which was not provided for in the initial contract or framework agreement;

- the modification extends the scope of the contract or framework agreement considerably;

- where a new contractor replaces the one to which the contracting authority had initially awarded the contract in other cases than those envisaged above.

- Where the value of the modification (on a cumulative basis) is below both of the following values:

    - the relevant EU procurement thresholds; and
    - 10% of the initial contract value for service and supply contracts and below 15% of the initial contract value for works contracts. Where a modification falls outside of the above circumstances, a new procurement process is required. To proceed in those circumstances without a new procurement will therefore amount to an unlawful direct award.

3.13 **Termination of Contract (Public Contracts Regulations 2015, Regulation 73 "PCR 2015")**

3.13.1 Contracting authorities shall ensure that every public contract which they award contains provisions enabling the contracting authority to terminate the contract where:

- the contract has been subject to a substantial modification which would have required a new procurement procedure;
- the contractor has, at the time of contract award, been in one of the situations referred to in certain of the mandatory grounds for exclusion; or
- the contract should not have been awarded to the contractor in view of a serious infringement of the obligations under the Treaties and the Public Contracts Directive (that has been declared by the Court of Justice of the European Union in a procedure under Article 258 of TFEU).

3.13.2 To the extent that a public contract does not contain provisions enabling the contracting authority to terminate the contract on any of the grounds mentioned above, such a termination term shall be implied into the contract.

3.13.3 Early termination of any contract may be carried out by the Authorised Officer in accordance with the terms of that contract. Advice must be sought from Category Management and Legal Services, in the first instance, prior to termination. Before a contract can be terminated, a Gateway 5 report must be submitted to the Procurement Board to make an informed decision

3.14 Procurement by non-council officers

3.14.1 Where the Council uses non-Council Officers to act on its behalf in relation to any procurement, then the Officer responsible for the procurement shall ensure that the third parties carry out any procurement in accordance with these Contract Procedure Rules.

3.14.2 All non-Council Officers must sign an agreement not to use information gained during employment with the Council, to gain any commercial or pecuniary advantage in relationship to concurrent or future employment/engagement.

3.14.3 No non-Council Officer shall make any decision on whether to award a contract or whom a contract should be awarded to unless specifically empowered to do so in writing by an Officer or body authorised to confer that power.

3.14.4 The responsible Officer shall ensure that the non-Council Officer's performance is monitored.

3.14.5 Non-Council officers includes, but is not limited to:

- Consultants
- Main Contractors
- Sub-Contractors
- External Advisors.

SECTION 4
CONTRACT AND OTHER FORMALITIES

4.1 Contract documents

4.1.1 All Contracts must be in writing using forms of contract approved by Medway Councils legal services team.

4.1.2 Where the procurement is for a Total Value of up to £100K the use of a Purchase Order is an acceptable form of contract, which must make reference to the successful quotation and the Council's Terms & Conditions of Purchase.

4.1.3 Where the procurement is for a Total Value over £100K, a Formal Contract is to be drawn up by Legal Services. The Contract will incorporate the Conditions of Contract included in the Invitation To Tender documentation and any subsequent variations to these made and agreed during the Invitation to Tender procurement process.

4.1.4 Two copies of the contract will be sent to the successful tenderer to duly sign. After signing and returning both copies to the Council, they will both be signed on behalf of the Council. One copy will be retained by Legal Services and one copy will be returned to the successful tenderer for its retention. A scanned copy will be returned by the legal team to category management for storage within the e-tendering system.

4.1.5 Contract documents must be retained in accordance with the Corporate Retention Schedule or for a minimum period of six years from the contract end date and, if under seal, for a period of twelve years from the contract end date. Please refer to **Section 4.5** of these Contract Procedure Rules.

4.1.6 Category Management will record and retain all decisions, correspondence and documentation for audit purposes.

4.2 Contract formalities

4.2.1 Contracts must be completed as follows:

TOTAL VALUE	METHOD OF COMPLETION	BY
Up to £100K	Signature Purchase Order/ITQ Document	Officer with appropriate authority to enter into a contract
£100K+	Signature on Standard Contract & sealed (where appropriate)	Legal Services

4.2.2 All contracts for the Supplies (Goods), Services and Works must be concluded in writing using the appropriate Standard Contract before the contract commences.

4.3 Letters of intent

4.3.1 Letters of intent can only be issued by an Officer of the Council with prior approval of the Chief Legal Officer or Head of Legal Services.

4.3.2 The letter must set out the key contract terms - price, duration, etc, and authorises the Contractor to carry out work up to a specified value before the formal agreement is signed.

4.3.3 In the case of Works contracts, a letter of intent in a form approved by The Chief Legal Officer is acceptable in order to allow work to commence, although the issue of a formal contract must follow without delay.

4.3.4 Letters of intent are only binding on the Council and the contracting Party where the letter expressly states that their Tender has been accepted and the Council agrees to pay them the tender sum. The letter of intent should normally seek to incorporate the terms and conditions of the relevant Council standard contract or relevant industry standard contract (e.g. JCT, ICE, NEC) indicating the Council's intention to enter into a formal, written contract with the contracting party, to carry out the Works/Services and receive Supplies (Goods) described in the letter, such Works/Services and receipt of Supplies (Goods) to commence on a date specified or at any rate before the parties execute the formal, written contract, until then the contracting parties obligations to the Council shall be governed by the Invitation to Tender documentation.

4.3.5 The wording of the letter of intent should be reviewed by Legal Services prior to issue, to ensure the letter is fit for its intended purpose.

4.3.6 A letter of intent is not a substitute for a formal agreement but can be used as an interim measure until the formal agreement has been signed. The tendering procedure set out in **Section 2** of these Contract Procedure Rules shall apply.

4.4 Signature

4.4.1 Contracts may be signed by Directors (in accordance with the Employee Delegation Scheme), the Chief Legal Officer, Head of Legal Services or his/her representative within legal services once the provisions in the Financial Rules and Contract Procedure Rules have been met in each case.

4.4.2 In the case of contracts for commissioning of care services, including educational placements and emergency accommodation for the homeless where the Total Value of the contract is not known, the Solicitor responsible for signing must have been granted authority to enter into commissioning contracts by the Chief Legal Officer.

4.5 Sealing of contracts

4.5.1 A contract must be sealed where:

(a) the Council wishes to enforce the contract for more than six years after its end (e.g. for land or construction works); or
(b) the price paid or received under the contract is a nominal price and does not reflect the value of the goods or services; or
(c) a Performance Bond is established on behalf of the Contractor(s) or their guarantors; or
(d) it is required by parties to the contract; or
(e) the total value of the Supplies (Goods), Services and Works exceeds £250K.

4.5.2 Where contracts are completed by each side adding their common seal, the affixing must be attested by or on behalf of Legal Services. Legal Services are responsible for the process of sealing contracts on behalf of the Council's Chief Legal Officer.

4.6 Bonds, parent company guarantees and insurance

4.6.1 For all Supplies (Goods), Services and Works contracts, over £250K a Parent Company Guarantee shall be required unless agreed otherwise by the Council's Chief Legal Officer in conjunction with the Council's Chief Finance Officer and as part of the Procurement Gateway Process for Category B Procurements. In all other cases consideration should be given to the need for security (a Parent Company Guarantee) to be given for the proper performance of the contract by the contractor.

4.6.2 The Council must never give a bond.

4.6.3 For all Works and Services contracts, the appropriate Director or appointed Authorised Officer, must notify in writing the Council's insurance officer giving full details of the nature, duration and value of the Works and Services being undertaken on any particular project.

4.7 Prevention of corruption

4.7.1 The Officer responsible for the contract must comply with the Council Employee Code of Conduct and the Council's Anti Fraud and Corruption Policy and must not invite or accept any gift or reward in respect of the award or performance of any contract. A breach of this requirement by Council officers is likely to result in disciplinary action and may be gross misconduct.

Officers must not enter into discussions with any tenderer or other interested third party during a procurement process, unless specifically permitted by the procurement process, Category Management or Legal Services.

4.7.2 All clarification received from bidders during a procurement process must be submitted electronically via the Council's electronic Quotation/Tendering System. The question and the response must then be sent to all bidders via the Council's electronic Quotation/Tendering System.

4.7.3 All contracts must contain an appropriate clause that provides protection and the right to terminate the contract in the event of a supplier offering any inducement, committing fraud or committing an offence under the Prevention of Corruption Acts.

4.7.4 The Council participates in anti-fraud and corruption exercises with other public bodies. In order to do this data is exchanged with such organisations. The data exchange is likely to contain information on our contractors.

4.7.5 If an Officer becomes aware that any bidder is lobbying a Member or Officer of the Council then they must report this immediately to the Chief Legal Officer.

4.8 **Declaration of interests/ Conflicts of interest (Public Contracts Regulations 2015, Regulation 24 "PCR 2015")**

4.8.1 If it comes to the knowledge of a Member or an Officer of the Council that a contract in which he or she has a financial, economic or other personal interest which might be perceived to compromise their impartiality or independence, he or she shall immediately give written notice to the Council's Chief Legal Officer and record it on the register of interests.

4.8.2 Conflicts may also arise with incumbent suppliers. Officers are obliged to take appropriate measures to effectively prevent, identify and remedy conflicts of interest. In circumstances where measures cannot be taken to remedy conflicts, a contracting authority may have discretion to exclude the relevant bidder.

SECTION 5
PERFORMANCE AND CONTRACT MANAGEMENT

5.1 All Category A and Category B Procurements must include a set of performance standards (where appropriate) that must be met throughout the contract. Any performance standards must be inserted into the terms and conditions of contract. Key performance indicators or similar benchmarks of quality should be used where available and appropriate.

5.2 All Category B Procurements (and Category A Procurements of a complex nature) must have a designated Contract Manager whose name should be notified to the Contractor. Likewise, the Contractor must have a designated Contract Manager whose name is notified to the Council. These resources must be identified and agreed before the contract is awarded.

5.3 Regular contract monitoring meetings should be held with the Contractor and minutes of agreed actions taken. The frequency of the meetings to be dictated by the nature, value and associated risks of the contract.

5.4 Performance against contract standards must be monitored and recorded on a regular basis, proportionate to the nature, value and associated risks of the contract.

5.5 Where service improvements are enshrined in the contract these must be evidenced for the annual audit inspection and for any Gateway 5 review as prescribed by the Council's Procurement Board.

SECTION 6
RISK MANAGEMENT

6.1 A full risk assessment should be undertaken on all procurement options available to the Council. These should be documented and owners assigned once an option is selected.

6.2 A risk log should be created at the start of the procurement project and managed by the responsible Officer, in the case of High Value/Risk procurements. Risks should be reviewed regularly and appropriate actions taken to manage them. The Director should be kept aware of all risks and provided with a regular report on their status.

6.3 The Risk Management section should be consulted on all high value/risk procurement projects at the commencement of the project.

SECTION 7
ENVIRONMENT/SUSTAINABILITY

7.1 The Council is committed to making Medway Council a greener and more environmentally friendly place to live and work.

7.2 The Council is committed to working towards a 'greener' future, by:

- Taking practical action to reduce, as far as possible, the effect the Council's activities have on the environment.
- Improving the quality of the local environment; and
- Encouraging the people of Medway to live and work in ways that reduce the borough's effect on worldwide environmental problems, to improve the environment now and protect the future.

7.3 The Council's green procurement rules are based on the following principles:

(a) Banning products that damage the environment when an alternative is available.
(b) Promoting products that damage the environment the least.
(c) Understanding that buying environmentally friendly goods and services is part of a process of continuous improvement.
(d) Considering costs such as energy and maintenance when we consider tenders.
(e) Engaging with suppliers who can actively contribute to the reduction in energy use as part of their Contract with the Council.
(f) That all Contractors and Suppliers can demonstrate commitment to carbon reduction in their operations (insofar as they relate to the particular commission)
(g) That all Contractors and Suppliers undertake to supply relevant data to the Council to enable the carbon impact to be monitored.

SECTION 8
EQUALITIES

8.1 Before starting any procurement, Council Officers must make sure that they consider equality issues by liaising with Corporate Performance & Intelligence and completing a Diversity Impact Assessment. This is essential if the procurement outcome will be a service or product that affects the staff or residents of Medway Council. The Equalities Impact Assessment will inform the detail of the contract specification.

8.2 Contractors must adhere to current equalities legislation at all times whilst performing a contract on behalf of the Council.

SECTION 9
SOCIAL AND ECONOMIC VALUE

9.1 The current EU Procurement Directives, and UK legislation, allows the Council to take social and economic considerations into account when procuring Supplies (Goods), Services or Works.

9.2 The Council is required under the Public Services (Social Value) Act 2012 to consider how the services it procures and commissions might improve the economic, social and environmental well-being of Medway.

9.3 For those tender opportunities/contracts where the Council intends to include such social requirements it will ensure that they are drafted in the Invitation to Tender documents, as part of the evaluation criteria and ultimately defined in ways that do not discriminate against any bidders across the UK/EU.

SECTION 10
WHISTLE BLOWING

10.1 The Council is committed to the highest possible standards of openness, probity and accountability. In line with that commitment, it encourages employees and others with serious concerns about any aspect of the Councils' work to come forward and voice those concerns.

10.2 The Councils *whistle blowing policy* encourages our employees to raise concerns in respect of any conduct of officers of the council that:

- may be unlawful;
- may be contrary to the council's policies;
- falls below established standards or practice or that may amount to improper conduct;
- Councils *whistle blowing policy* is intended to encourage and enable staff to raise serious concerns within the council rather than overlooking a problem or blowing the whistle outside. The policy recognises that certain cases will have to proceed on a confidential basis and makes it clear that our staff can raise issues without fear of reprisals.

10.3 The council is anxious to ensure that the employees of its contractors are similarly encouraged and enabled to raise concerns in respect of any misconduct of officers of the council.

10.4 Contractors are also encouraged to introduce similar provisions to apply in the case of any similar misconduct of the Contractors staff when involved in work for the Council.

10.5 Any Member or Officer who believes there has been a breach of these Contract Procedure Rules should report the matter to the Chief Legal Officer or use the Council's Whistle blowing Policy.

SECTION 11

CRIMINAL RECORDS BUREAU CHECKS (Disclosure Barring Service DBS)

11.1 The Council requires all people who, through the delivery of services to The Council, come into contact with the elderly, disabled and children, to have up to date satisfactory Disclosure Barring Service (DBS) report prior to award of any contract. The Council should also require such Contractors' personnel to be registered with the Disclosure and Barring Service (DBS) if and when such registration becomes necessary.

APPENDIX A - GLOSSARY OF TERMS

Contract	A contract that has been created in accordance with the Contract Procedure Rules for call off or use by the Council. If in doubt whether a contract is approved or not contact the Category Management Team (see also Framework Agreement)
Approved Standard Terms	Includes industry standard terms and terms included within the Council's Standard Contracts
Officer/ Authorised Officer	A person with appropriate delegated authority to act on the Council's behalf within their respective Directorate.
Best Value	Under Best Value, each local authority has a duty to 'make arrangements to secure continuous improvement in the way in which its functions are exercised, having regard to a combination of economy, efficiency and effectiveness' as set out in the Local Government Act 1999. This takes into consideration the 4Cs of Challenge, Compare, Consult and Compete.
Code of Conduct	The code regulating conduct of Officers contained within the Council's Constitution
Category Management Team	Strategic Procurement team responsible for providing strategic support, expert advice and quality assurance to the Council's Directorates as well as representing and acting on behalf of the Chief Legal Officer in all procurement and contract related activities, matters and issues.
Directorate Management Team	Led by each respective Director, with operational procurement and contract management responsibility delegated to Assistant Directors and / or Heads of Service in accordance with these Contract Procedure Rules.
EU Competitive Dialogue Procedure	A procedure leading to the award of a contract whereby the Council produces a shortlist through a dialogue with those tenderers who are considered to have appropriate capacity. Based on the solutions discussed, final tenders are sought from the short listed contractors This procedure is most appropriate for complex procurements where significant input is required

	from the market to inform the drafting of the specification.
Contract Register	A register held by Category Management containing details of all contracts entered into by the Council.
PCR 2015	Public Contract Regulations 2015. These replace the PCR 2006 (As amended)
Procurement Board	A Cabinet Advisory Group chaired by the Deputy Leader of the Council or Member as appointed by the Leader of the Council, with representation from across the Council charged with the duty of developing and reviewing procurement and contractual issues. For the avoidance of doubt, the Procurement Board is a Cabinet Advisory Group and has no formal decision making powers.
Contractor	Any person or body of persons providing, or seeking to provide, Supplies (Goods), Services or Works to the Council.
Council's Procurement Strategy	Defines the overall approach to procurement related activity for the Council.
EU Competitive Procedure with Negotiation	A procedure leading to the award of a contract whereby the Council negotiates the terms of the contract with one or more persons selected by it. The procedure is a complex set of rules, and it is extremely difficult for contracting authorities to meet the requirements to allow the use of this procedure.
EU Notice	Notice posted in the Supplement to the Official Journal of the European Union (OJEU). Includes a Prior Indicative Notice (PIN), a Tender Notice or an Award Notice.
EU Open Procedure	A procedure leading to the award of a contract whereby all interested persons may tender for the contract, duly advertised by notice, i.e. there is no limit on the number of tenders received nor may the Council consider the suitability of interested tenderers prior to submission of Tenders.
EU Regulations	The EU public procurement directives implemented into UK legislation by virtue of the Public Contracts Regulations 2015.

EU Restricted Procedure	This is a 2 stage process which uses a Pre-Qualification (PQQ) and an Invitation to Tender (ITT) Stage.
EU Thresholds	The financial threshold at which EU public procurement directives must be applied if it is expected to be exceeded by the Total Value which are attainable from the Category Management Team. Please contact the Category Management Team for advice when considering projects in the following areas Works, Services, Supplies (Goods) and “Light touch” Services.
Exemption	A formal request in writing made by a Director to exempt the proposed requirement from the Contract Procedure Rules in exceptional circumstances.
Financial Reference	A financial risk assessment of the finances of a company, parent or group of organisations in order to establish their liquidity, profitability, stability and capability to support a contract of the value required. This service is available through a credit reference agency such as Dunn and Bradstreet
Chief Finance Officer	The Chief Finance Officer or a senior officer representing the Chief Finance Officer designated by him to provide financial advice to the Council’s Authorised Officers.
Financial Regulations/Finance Procedure Rules	The Financial Regulations contained within the Constitution.
Framework Agreement	An agreement with suppliers whose purpose is to establish the terms governing contracts to be awarded during a given period, in particular with regard price and quality. It allows the Council to make specific purchases (call-offs) in accordance with the terms of that agreement.
Invitation To Quote	A formal written invitation to a minimum number of suppliers to provide written quotations for goods, services or works using the Council’s standard terms (or those approved by the Council’s legal team) for requirements between £25,000 and £99,999.

Invitation to Tender	A formal written invitation to a minimum number of suppliers to provide sealed bid offers for goods, services or works on the Council's standard terms for requirements over £100K
Low Value Quotation	A formal written invitation to a minimum number of suppliers to provide written quotations for goods, services or works using the Council's Purchase Order Terms and Conditions(or those approved by the Council's legal team) for requirements between £0 and £24,999.
Officer	Council employee as defined in the Constitution
OJEU	Official Journal of the European Union
Parent Company Guarantee	A contract, which binds the parent of a subsidiary company as follows: If the subsidiary company fails to do what it has promised under a contract with the Council, the Council can require the parent company to do so instead or for the parent of the subsidiary company to pay the Council's reasonable costs/losses (including damages) for the Council having to procure a third party to meet the promises under the Contract with the Council.
Performance Bond	An insurance guarantee policy: If the Contractor does not do what it has promised under a contract with the Council, the Council can claim from the insurer the sum of money specified in the Bond (often 10% of the contract value). A Bond is intended to protect the Council against a level of cost arising from the supplier's failure.
Pre-qualification Questionnaire (PQQ)	A document that covers economic standing, past experience and technical suitability to determine a shortlist of potential suppliers to invite to ITT. The does not cover delivery questions that will be asked at the ITT stage. The use of pre-qualification questionnaires for below EU threshold contracts is prohibited. For the purpose of clarity, the thresholds are those used for goods and services rather than works or light touch contract.
Official Purchase Order	An order placed through the Integra Finance System (Web Req)
Category Management	means the business improvement process that brings together people from different parts of a

	business. The aim is to analyse and review discrete parts of the overall spend (called "Categories"), with suppliers, and identify the most appropriate and effective approach to sourcing for each Category. The intention should always be to increase the value provided by the supply chain. A Category can be defined as a discrete area of spend with boundaries determined by the market facing nature of the function or attributes of the Goods, Services or execution of Works being purchased.
The Council	Medway Council.
Tenderers	Suppliers/contractors who have been invited to submit a tender to the Council.
Total Value	The whole of the value or estimated value (in money or equivalent value) over the contract term for a group of similar commodities or services, in accordance with Best Value: • whether or not it comprises several lots or stages across the Council as a whole • whether or not it is to be paid or received by the Council as a whole or separate departments within the Council
Value for Money	The optimum combination of through life cycle cost and quality (or fitness for purpose) to meet the user's requirement.
Written Quotation	Quotation provided by a supplier/contractor to the Council containing pricing information and delivery details for requirements

APPENDIX B – PROCEDURES UNDER PUBLIC CONTRACTS REGULATIONS 2015, REGULATIONS 26-32 "PCR 2015"

Officers can choose the Open and Restricted Procedures. The Competitive Procedure with Negotiation and Competitive Dialogue Procedure are available only in specific circumstances. These two processes are available where:

- needs cannot be met without adaptation of readily available solutions;
- contract cannot be awarded without negotiations due to nature, complexity, legal/financial make-up or risks;
- technical specifications cannot be established with sufficient precision;
- they involve design or innovative solutions; or
- irregular (eg late submissions, abnormally low tenders) or unacceptable (eg not required qualifications/ price exceeds published budget) tenders have been received in response to open/ restricted processes.
- The ability to award contracts by way of the negotiated procedure without an advert remains in place provided the specific (considered to be exceptional) circumstances for its use are applicable

There is also the new Innovation Partnership Procedure as set out below.

Open Procedure

Any interested party may submit a tender in response to the call for competition which will be an OJEU notice. The new minimum timescales are set out below. It should be noted that the issue of a prior information notice (PIN) can shorten the timescales under the open procedure but cannot itself be used as the call for competition.

New provisions within PCR 2015 entitle a contracting authority to examine tenders before verifying whether exclusion grounds are absent and selection requirements are satisfied provided a contracting authority does so in an impartial and transparent manner and the contracting authority ensures a contract is not awarded to a supplier which should have been excluded or has failed to meet the selection requirements.

Restricted Procedure

Any economic operator may submit a request to participate in response to a call for competition by providing the information for qualitative selection requested by the contracting authority. The new minimum timescales are set out below. A call for competition can be made by means of a contract notice or, for certain types of contracting authorities, by way of a PIN.

Competitive Procedure with Negotiation

Following qualitative selection, all selected economic operators are invited to negotiate but this procedure can be carried out in successive stages provided this is indicated to bidders upfront (like the competitive dialogue procedure). The procedure has been clarified to confirm that contracting authorities may negotiate initial and all subsequent tenders but not the final tender. Contracting authorities may reserve the right to award following receipt of initial tenders without negotiation but this must be

made clear at the start. The new minimum timescales are set out below. A call for competition can be made by means of a contract notice or, for certain types of contracting authorities, by way of a PIN.

Competitive Dialogue Procedure

The competitive dialogue procedure largely remains the same as that under PCR 2006 except towards the end of the process. Following close of dialogue and receipt of final tenders, tenders may be “clarified, specified and optimised” but this must not involve changes to the essential aspects of the tender or procurement. Post evaluation, the contracting authority may “negotiate” with the winning tenderer to “confirm financial commitments or other terms by finalising the terms of the contract” provided this does not materially modify the essential aspects of the tender or the procurement.

Care must be taken as a contracting authority must ensure that changes do not risk competition being distorted or risk causing discrimination. Minimum timescales are set out below.

Note that a PIN cannot be used as a call for competition so a contract notice must be published.

Innovation Partnership

This is a new for public procurement which is aimed at increasing innovation. The economic operators taking part are known as partners. The basic features of the innovation partnership procedure include:

- seek offers for one or more partners to assist in the development of an innovative product, service or works not yet on the market, and the subsequent purchase of the innovative solution without the need for a separate procurement procedure for the purchase, provided the final purchase corresponds to pre-agreed levels of performance and maximum costs;
- the procurement can be run with one or several partners carrying out separate R&D activities;
- the partnership procurement shall be structured to follow R&D activities and the duration/value of each phase should reflect the degree of innovation and sequence of the activities;
- the partnership procurement shall set intermediate targets to be attained by the partners taking part and provide for payment in appropriate instalments;
- termination after each phase (in full or per partner) can be reserved upfront;
- the procurement can be carried out in successive stages provided this is indicated upfront;
- the initial and each subsequent tender is to be negotiated but the final tender must not be negotiated; and
- the minimum requirements and the award criteria must not be negotiated.. Note that a PIN cannot be used as a call for competition so a contracting authority using this procedure will need to commence its tender process by publishing a contract notice in the usual way.

APPENDIX C – TIME LIMITS UNDER PCR 2015

Without prejudice to these minimum timescales, Officers must have regard to the complexity of the contract and the time required for drawing up tenders when setting the time limits. If the tender documents are not available electronically at the call for competition for one of the grounds set out in Regulation 22 then 5 days must be added on to the tender period, except in cases of substantiated urgency in relation to the open, restricted and competitive procedure with negotiation.

Open Procedure

Minimum time period for tender deadline:

- 35 days.
- may be reduced from 35 to 15 days where a PIN is published not being a call for competition (previously 22 days although could be further reduced).
- may be reduced from 35 to 30 days where electronic tender submission (minimum before was 40 days).
- may be reduced where state of urgency (duly substantiated by the contracting authority) from 35 to 15 days.

Restricted Procedure

Minimum time period for requests to participate:

- 30 days.
- runs from contract notice or invitation to confirm interest if a PIN is used for call for competition.
- may be reduced where state of urgency (duly substantiated by the contracting authority) from 30 to 15 days.

Time period for tender submissions:

- reduced from 40 days to 30 days.
- may be reduced further from 30 days to 10 days where PIN is published (not used as call for competition).
- may be reduced where state of urgency (duly substantiated by the contracting authority) from 30 to 10 days.
- may be reduced from 30 to 25 days where electronic tender submission is permitted.
- sub-central authorities may agree a deadline with all selected bidders. In absence of agreement, period must be at least 10 days.

Competitive Procedure with negotiation

- Minimum time period requests to participate as per restricted procedure.
- Option for sub-central contracting authorities to agree timescales as per restricted procedure.

Competitive dialogue

- Minimum time period for requests to participate = 30 days.
- PIN cannot be used as a call for competition.

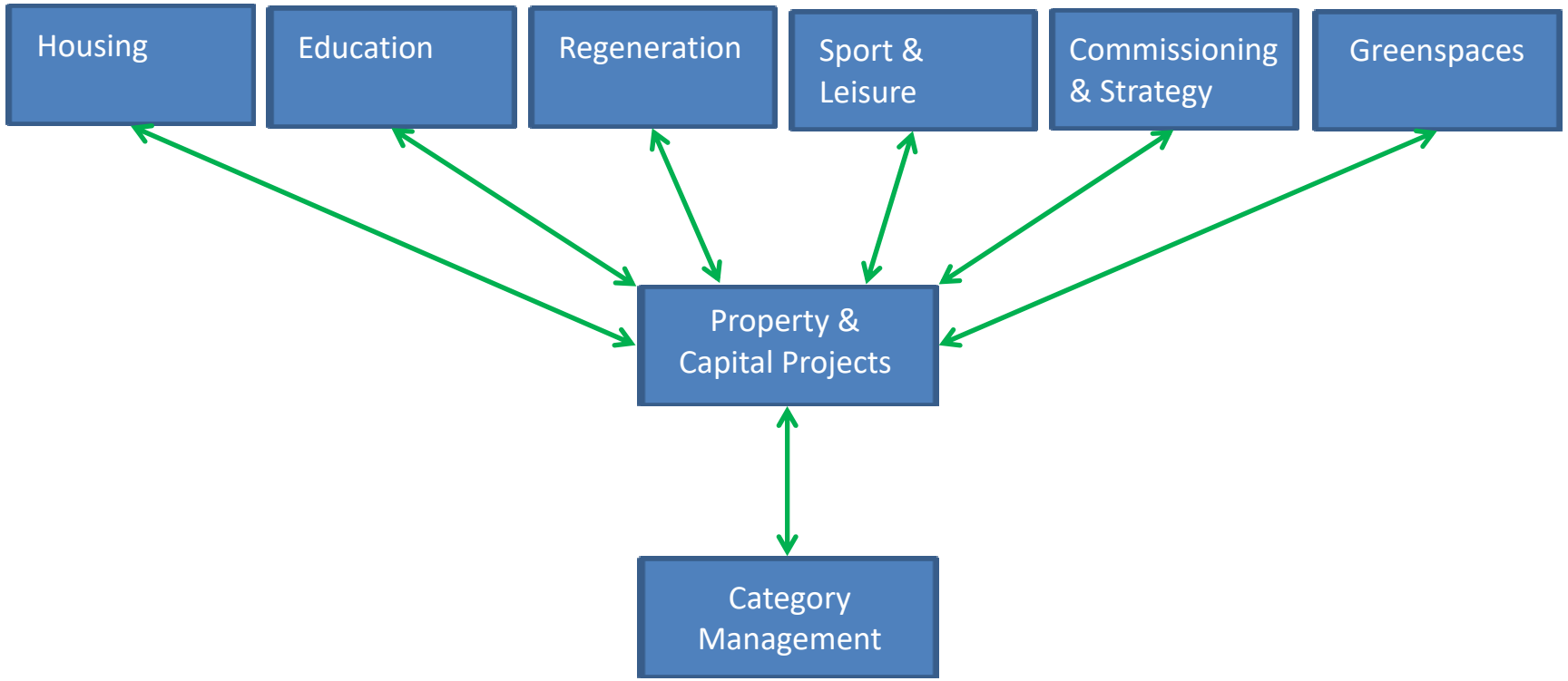
Innovation Partnership

- Minimum time period for requests to participate is 30 days.
- PIN cannot be used as a call for competition.

Negotiated procedure without a call for competition

- No minimum timescales.

Appendix D – Example Process of Engagement Based on Capital Funded Projects



SOUTH EAST
LOCAL ENTERPRISE
PARTNERSHIP

County Hall
Chelmsford
Essex
CM1 1QH

Ministry for Housing, Communities and Local Government
Fry Building
2 Marsham Street
London
SW1P 4DF

19th March 2019

Medway Council HIF Bid: New Routes to Good Growth

Dear Sirs

Following our previous letter of support in relation to the Housing Infrastructure Fund (HIF) bid which was submitted by Medway Council in September 2018, I am writing to reaffirm the South East Local Enterprise Partnership's (SELEP) support for New Routes to Good Growth.

Our aspiration as a LEP is to promote steady, sustained economic growth; with an emphasis on accelerating housing delivery, as set out in our new Economic Strategic Statement. As such, the SELEP fully supports the calls for HIF investment in order to deliver the much-needed infrastructure and housing growth in Medway.

Our geography has a strong track record of accelerated housing delivery, with housing completions having increased by 70% between 2013/14 and 2017/18. However, rapid population and housing growth has led to greater pressure on our infrastructure and is acting as a constraint to growth in specific locations. The HIF bid is focused on two main areas of infrastructure improvement:

- Investment in rail infrastructure of £64m, including: a station at Sharnal Street, partial double tracking for continuing freight services; and a new addition to the Medway Chord connecting at Higham. These works will reintroduce passenger services from the area to and from London and other parts of Kent, alleviating pressure on the road network and, with the potential for additional services, adding future resilience and development capacity. With the potential for further services, the project will promote modal shift above the 8.7% assumed under the initial planned service.
- Investment in road infrastructure of £86m, including: a new connection between the A228 and the A289 through Woodfield Way and Islingham Farm Road, a wider package of highway improvements providing additional capacity and enabling development resilience at the Four Elms junction (A289), presently the main access for the Hoo Peninsula and improvements to the local roads (A228) on the Main Road, Bells Lane and Ropers Lane roundabouts, as well as a signalised junction on the Ratcliffe Highway to connect to the new station at Sharnal Street.

The project put forward by Medway Council demonstrates real value with measurable benefits in terms of housing and will make a positive contribution to the economic growth within the area.

We look forward to a favourable announcement regarding this application to the Housing Infrastructure Fund.

SOUTH EAST
LOCAL ENTERPRISE
PARTNERSHIP

County Hall
Chelmsford
Essex
CM1 1QH

Yours sincerely,

[redacted]

Managing Director
South East Local Enterprise Partnership

[redacted]
Medway Council
Gun Wharf
Dock Road
Chatham ME4 4TR

[redacted]
Lead Route Freight Manager | Anglia & Southeast
Freight and National Passenger Operators
2nd Floor
1 Eversholt Street
London NW1 2DN

[redacted]

27th February 2019

Dear [redacted]

Re: **Medway Council Housing Infrastructure Fund Bid**

I write in support of your application to the Housing Infrastructure Fund regarding the proposal to build a new passenger station(s) on the Isle of Grain Branch in North Kent; providing the infrastructure links suitable for unlocking both residential and wider commercial economic development on the Hoo Peninsula.

Whilst the schemes passenger volume benefits (an expansion of the passenger rail network) are obvious, Network Rail recognise this project's alignment with Government policy aspirations for promotion of freight modal shift.

The operational enhancement of the Isle of Grain Freight Branch will serve to sustain current rail freight volumes and deliver the necessary capacity to host future growth. Specifically, the Hoo Eastern Curve connecting the Grain Branch via Higham and the Medway Valley line to the established London / Channel Tunnel route at Paddock Wood, will offers significant benefits to the rail freight sector, variously in terms of (i) shorter, faster and so more resource efficient routings to / from London and destinations thereon in the Midlands and North West (ii) capacity relief on the already intensively trafficked North Kent route toward London.

Notably, an alternative routing opportunity for some proportion of current and future Isle of Grain traffics will also release capacity to better provide for known rail freight traffic and terminal developments further along the North Kent line at Angerstein's Wharf, Plumstead and potentially Howbury Park near Slade Green.

Enabling the operational conditions for an economically robust and competitive rail freight offer will underpin freight modal shift in Kent and creating the capacity to accommodate such growth is key. This scheme demonstrably helps to provide routing flexibility and network capacity gain.

Network Rail look forward to working with you to understand how we can further grow both passenger and freight traffic on this line and the wider Medway area in the coming years.

Yours sincerely

[redacted]

Lead Route Freight Manager | Anglia & Southeast
Freight and National Passenger Operators

System Operator Planning a better network for you

NetworkRail

[redacted]
Senior Valuation Surveyor
Medway Council
Gun Wharf
Dock Road
Chatham
ME4 4TR

James Forbes House
27 Great Suffolk Street
London
SE1 0NS

21 January 2019

Medway Council Housing Infrastructure Fund bid

Dear [redacted]

Thank you for closely engaging with us on your aspirations to provide capacity and sustainable transport to facilitate housing growth on the Isle of Grain. By involving us from an early stage we've been able to establish a productive working relationship and support your preparation of a bid for Housing Infrastructure Fund.

Upgrading the Grain Branch to enable operation of passenger services would represent an important strategic investment and Network Rail supports the project in principle. As with all projects at an early stage scope details and risks need to be addressed and resolved.

Our capacity analysis report reviewed several options and recommended doubling the single track alignment enabling passenger services to operate alongside the existing and growing freight traffic from Cliffe and Grain. However, your consultants (Pell Frischmann) have proposed a reduction in scope to include a section of single track via a bay platform or dynamic loop at Sharnal Street.

We want the following to be noted at this stage:

- The reduced scope option would only be able to accommodate one passenger train per hour assuming no increase in existing freight traffic.
- Freight traffic on the branch has fluctuated over recent years. To provide flexibility to the market freight paths are booked on a train by train basis rather than pre-determined access rights sold as part passenger

franchises. Therefore, it is difficult to predict future freight volume hence our preference to provide capacity for both passenger and freight growth via a double track upgrade.

- Capacity analysis to date assumes that rolling stock is provided capable of operating on both the electrified DC third rail network and the non-electrified Grain Branch. At present the Southeastern fleet does not provide such capability. "Bi-mode" trains are coming onto the market, so we are happy to help investigate opportunities.
- We are assuming that the operating costs of the proposed passenger service will need to be funded from fares without the need for subsidy. However, this matter will be further reviewed and tested by Department for Transport as part of the HIF fund bid appraisal purpose.
- We will discuss funding for additional scope with the Department for Transport, which could potentially be otained through the new Rail Network Enhancement Pipeline process, subject to the strength of the business case.

Network Rail is committed to assisting you with the continued development of the project as we feel it is a strategic opportunity to unlock housing and provide connectivity in Medway.

Yours sincerely,

[redacted]

Head of Strategic Planning (South East)

For and on behalf of Network Rail Infrastructure Limited

highways england

Our ref:

[redacted]g South East
Bridge House
Walnut Tree Close
Guildford
Surrey
GU1 4LZ

[redacted]

Andrew Bull
Senior Planner - Policy
Medway Council
Gun Wharf, Dock Road,
Chatham, ME4 4TR

21 March 2019

Dear Andrew,

Thank you for your recent consultation on Medway Council's Housing Infrastructure Fund (HIF) proposal.

Highways England has been appointed by the Secretary of State for Transport as strategic highway company under the provisions of the Infrastructure Act 2015 and is the highway authority, traffic authority and street authority for the strategic road network (SRN). The SRN is a critical national asset and as such Highways England works to ensure that it operates and is managed in the public interest, both in respect of current activities and needs as well as in providing effective stewardship of its long-term operation and integrity.

We note that the HIF bid aims to support the preparation of your local plan by unlocking land which would otherwise be unavailable for development due to a lack of infrastructure. The council's HIF proposal is intended to mitigate the transport impact of 10,600 new homes by 2035 on the Hoo Peninsula. The transport elements of the Council's HIF proposal comprise improvements to six existing roundabouts, a new relief road with a new access on to the A289 and the reintroduction of rail passenger services on the Grain branch.

All of the proposed improvements are remote from Strategic Road Network and accordingly Highways England is not concerned with these schemes as they are considered to have no physical impacts on our network. However, we are interested in the cumulative effects of the Local Plan allocations on the safe and efficient operation of our network and will continue to engage with the Council to determine what these might be and whether or not further works may be required.

[redacted]

Yours sincerely

[redacted]

Area 4 Spatial Planning Manager (Acting)

www.highwaysengland.co.uk

southeastern

[redacted]
[redacted]
Medway Council
Gun Wharf
Dock Road
Chatham
ME4 4TF
4th March 2019

[redacted]
Train Services Director
Southeastern
Friars Bridge Court
41 – 45 Blackfriars Road
London SE1 8NZ

Dear [redacted]

Thank you for meeting with us last Friday to present Medway Council's proposals to develop housing growth on the Isle of Grain, supported by proposals to upgrade the Grain Rail Branch to enable passenger train services from new stations at Sharnal street and Hoo with a new bay platform at Higham.

Southeastern recognises the potential benefits to the region of developing this scheme and Southeastern supports the project in principle.

We look forward to working with the Council more closely in the future to provide input on the feasibility of operating the desired level of passenger and freight services on the proposed infrastructure which at this stage has only been discussed with us at high level.

Southeastern would like it noted that currently there are no suitable bi-mode trains to operate the scheme as proposed. We look forward to working more closely with the Council to investigate opportunities to deliver the service.

Southeastern would need to have a better understanding of the funding mechanism required to operate the new passenger services with input from Network Rail and the Department for Transport.

Southeastern looks forward to working with Medway Council to understand how we can assist with the continued development of the project, which we believe is an opportunity to enhance service provision in order to meet the continual growth in demand for rail from Medway and to improve connectivity in the area.

Yours sincerely

[redacted]

March 8th, 2019

[redacted]
Greenspace Access and Bidding Programme Manager
Medway Council, Gun Wharf, Dock Road
CHATHAM
ME4 4TR

Dear [redacted]

I am writing to outline our position in relation to Medway Council's bid to the Housing Infrastructure Fund.

The RSPB maintains serious concerns regarding the ability to deliver large numbers of new housing on the Hoo Peninsula while protecting its important wildlife assets. Robust assessment of the sustainability of the proposed housing growth options for this area is still necessary through the Medway Local Plan.

However, the delivery of strategic environmental management measures, alongside other infrastructures, will be absolutely critical to delivering sustainable growth. Therefore, if the HIF bid is successful and funds are allocated to the development and delivery of strategic environmental measures then the RSPB would be willing to support Medway Council to evidence, inform and design such measures, subject to the outcomes of the Medway Local Plan housing growth assessments.

Regards,

[redacted]
RSPB South East Conservation Manager

South East England Regional Office
1st Floor, Pavilion View
19 New Road
Brighton
BN1 1UF

Tel: 01273 775333
Facebook: @RSPBSouthEast
Twitter: @RSPB_SouthEast
rspb.org.uk

Date: 18 March 2019

Andrew Bull
Medway Council,
Gun Wharf,
Dock Road,
Chatham,
ME4 4TR

Dear Andrew,

HIF Bid
Medway Development Company Ltd.

Medway Development Company (MDC) is an independent, wholly Council owned housing developer set up to create high quality affordable, social and market homes for local people in Medway.

MDC welcomes the council's Housing Infrastructure Fund bid to help ensure that the area can meet its housing needs.

MDC has an important role in promoting diversification of the housing market. In addition, in the event that housing delivery is slower than anticipated, in the longer term, the MDC has the potential to contribute in the delivery of housing on the Hoo Peninsula, including in the delivery of affordable housing.

Yours sincerely

[redacted]

INFORMATION NOTE

Project Name: **New Routes to Good Growth HIF**

Project Ref: **45426**

Note Title: **Assessment of Additional Utility Provision**

Date: **21/03/2019**

Prepared By: [redacted]

Electricity

1.1.1 2 overhead lines (**Appendix 8a** shows electricity & gas infrastructure) from Kingsnorth Power Station cross the east of the overall site. A 400kV electric cable runs along the edge of Vicarage Road.

1.1.2 Full development (10,600 homes) will require an estimated 18MW. Strood substation has available capacity of 30MW (UK Power Networks records). There is sufficient available capacity.

Gas

1.1.3 A major National Grid High Pressure gas main runs from Grain Liquified Gas Hub to Gravesend. SGN has also identified High Pressure gas mains running through the northern parts of the site. The masterplan has been developed on the basis that these will be retained in their present locations.

Water Supply and Foul Drainage

Water

1.1.4 Kent County Council has a growth target of 40,00 dwellings by 2031 in the Kent - Medway area. Due to differences in the timing of their respective plan periods Southern Water Water Resource Plans has projected a lower growth forecast (c. 85% of Kent County Council projection) which may lead to a water demand shortfall of 2.15ML/D. This shortfall will be addressed in various ways.

1.1.5 Southern Water has demand management policies in its AMP plans. AMP6 provides for water efficient network improvements and Catchment Management to improve water quality. In AMP7 (2020-2025), a Water Reuse scheme is proposed for Medway area with further water efficiency measures and leakage reduction measures planned in AMP8 (2025-2030).

Foul Drainage

1.1.6 The nearest Waste Water Treatment Works (WWTW) to Hoo St. Werburgh is Whitewall Creek. By 2031 it is anticipated to be over capacity by 625m^3/day. Upgrades will be required accommodate flows from new developments.

1.1.7 Southern Water is determining the technical specifications in its AMP 7 to ensure Whitewall Creek WWTW can treat to the permitted levels of BOD and ammonia. It is estimated that the permit related technical upgrades to Whitewall Creek will cost £600k (Southern Water Infrastructure 2018).

RFI3964 - Annex B

SGN

Your gas. Our network.

Long Term Development Statement 2017

Network Capacity

October 2017

Contents

Foreword

Welcome to our Long Term Development Statement (LTDS) for 2017.

Each year we produce our LTDS and Demand Forecasting Document (DFD). These companion documents allow our stakeholders to identify and evaluate connection or transportation opportunities by detailing planned major reinforcement projects and associated investment, significant completed projects and network developments and our view of how demand may change over the ten year period.

This year we looked at ways to make the information more accessible. As a result, we have combined the LTDS and DFD into one publication and included links to allow you to explore the content more easily. We hopeyou will find this approach helpful.

If you would like to discuss the changes, or any aspect of capacity management, our network capacity team, which produces our LTDS each year, can be contacted at network.capacity@sgn.co.uk

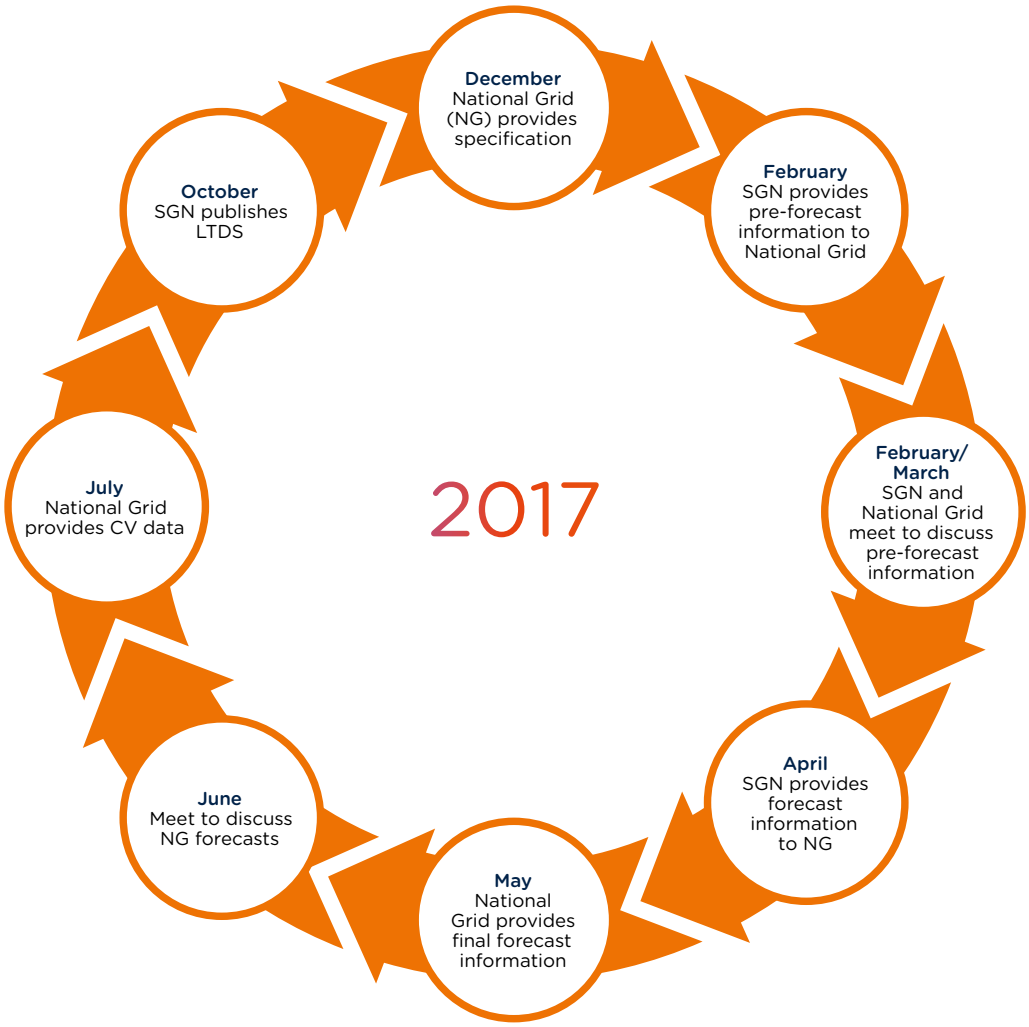
Paul Denniff
Network & Safety Director, SGN

Overview of LTDS process

The publication of our LTDS is the product of a yearly cycle of planning and consultations with our stakeholders.

The forecasts are updated each year with learning from the previous year applied to give a more accurate picture of what may occur.

This gives interested parties an understanding of how we see gas demand developing over the next ten years so they may plan accordingly with consideration to connection and transmission opportunities.



Introduction

The information within this document is presented within four sections.

The first section, ‘The next ten years’, supplies an overview of our forecasts and how we arrived at them.

The second section, ‘Further reading’, expands upon several items from section one.

The third and fourth sections, ‘More detail’ and ‘Appendix 1’, provides the background data and tables behind our forecasts.

Look out for the blue circle links within the text to help you navigate between the sections allowing you to explore the information in greater detail then easily return to where you were previously reading.

Disclaimer

This document is produced for the purpose of and in accordance with Scotland Gas Network plc’s and Southern Gas Networks plc’s, collectively known as SGN, obligations.

These are Standard Condition 25 and Standard Special Condition D3 of their respective Gas Transporter Licences and Section O 4.1 of the Transportation Principal Document in the Uniform Network Code in accordance with information supplied pursuant to Section O of the Transportation Principal Document in the Uniform Network Code. Section O 1.3 of the Transportation Principal Document in the Uniform Network Code applies to any estimate, forecast or other information contained in this document.

This document is not intended to have any legal force or to imply any legal obligations as regards capacity planning, future investment and the resulting capacity.

The next ten years

At the end of the ten year forecast period we expect to have seen a net reduction in annual demand of 8.2% and Peak Day of 4.5% across our three LDZs.

In this first section, we will outline how we arrived at these figures and discuss some of the variables we have considered before finalising our forecast.

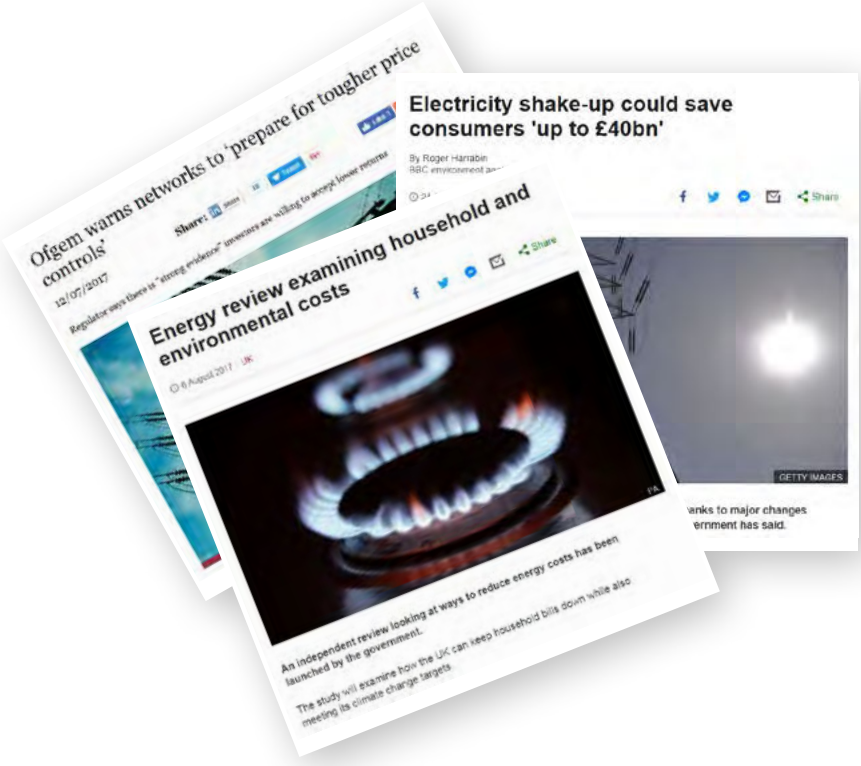
The key factors influencing our current forecasts are:

- Inflation and gas price impacting on domestic customer behaviour.
- GDP and manufacturing output as measures of economic growth and industrial activity.

Manufacturing
Forecasts predict production during 2017/18 show some minor increases.

GDP
The Office for Budget Responsibility (OBR) is forecasting growth of 2% for 2017. However, independent organisations forecast 1.5%.

Inflation
The latest forecast for 2017 is 2.4%, but is expected to fall to a target of 2% by 2019.



Our forecasts were produced in May prior to the June 2017 UK general election.

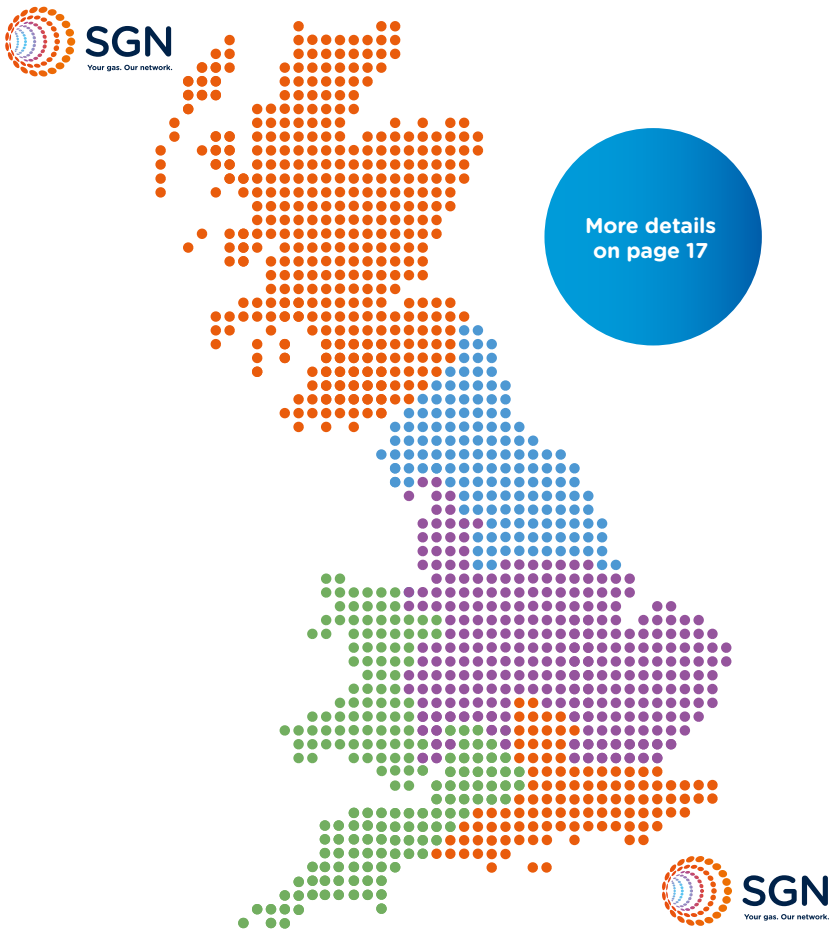
Following the general election, the government began consultations and released policy papers on energy and potential future energy strategies.

These policies indicate the future direction of change in the UK energy market and the potential to influence our forecasts, in the same way the existing UK Climate Change Act committing the UK to reduce emissions by 80% of 1990 levels by 2050, did.

However, until these translate into legislation or government strategy they cannot form part of our forecasting considerations.

We have not made a specific allowance within our forecasts for the potential impact of the UK leaving the EU.

We will continue to monitor events, revising our forecasts as required.



More details on page 17

We own and operate the gas networks in Scotland and the south of England comprising three Local Distribution Zones (LDZs).

Over the last year, we have seen an increase in house building across all three LDZs. However, despite this there has been an overall decrease in net demand.

Of note, Scotland continues to see a high number of requests for commercial and industrial connections whilst the south east's proposed garden villages, announced in 2015, continue to generate a lot of interest.

Although a change in government policy in 2016 removed the obligation of house builders to design within carbon neutral guidelines, a lot of work had already been done within the construction industry to incorporate the standards into new housing stock.

Until data is available to attribute the effect of this to a specific change in demand, we do not intend to make alterations to our approach in demand management nor make an allowance within our forecasts.

More details on page 21

At a local level we recognised the Greater London Authority (GLA) introduced a zero carbon policy for new homes and we will be monitoring the impact of this.

These figures show how we see demand altering year on year for the next ten years.

Scotland
Annual -0.76% av
Peak -0.34% av

South
Annual -0.90% av
Peak -0.54% av

South East
Annual -0.83% av
Peak -0.48% av

SGN Overall
Annual -0.82% av
Peak -0.45% av

The reasons for the demand reductions are:

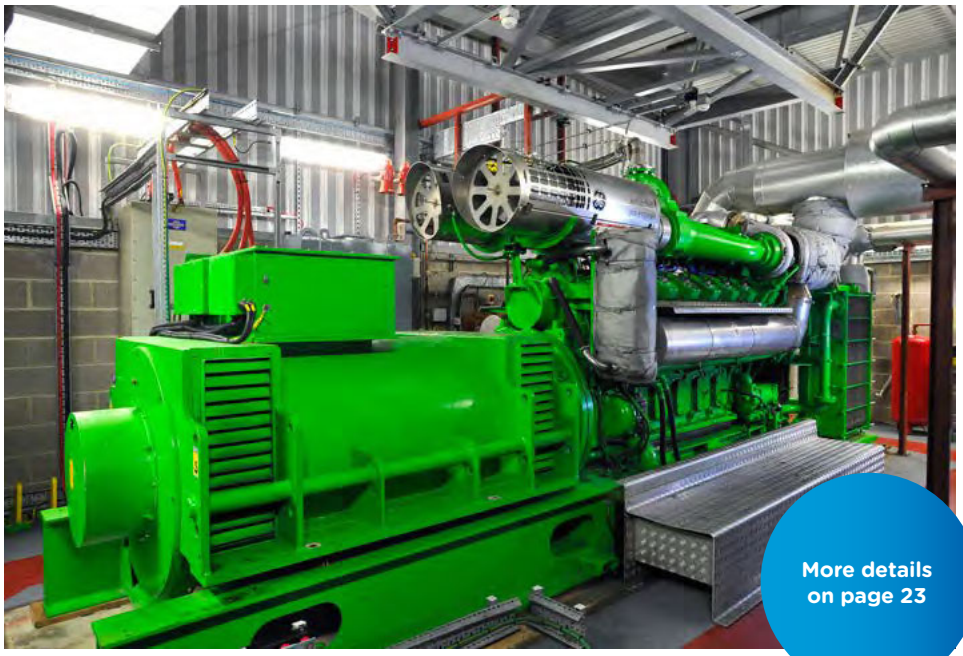
- Efficiency improvements to existing insulation and heating systems
- Increases in domestic and non-domestic gas bills resulting in changes to consumer behaviour
- Uptake of renewable technologies
- Changes to energy tariffs driving industry to manage energy more efficiently
- Government's commitment to climate change targets

More details on page 26

Government policy has resulted in many requests for embedded power stations across all three LDZs over the last year. However, not all requests have developed into actual connections.

These are a relatively new development intended to provide resilience within the local electricity power grid by generating electricity according to varying daily and yearly operational and market factors.

Once connected, due to the variations in operational profiles, these connections create further challenges when forecasting demand. We will continue to examine how this customer base grows before adjusting our forecasts.



More details on page 23

UK government has highlighted the importance Embedded Power Stations will play in the future energy mix. Embedded Power Stations are also referred to as STOR – Short Term Operational Reserve.

We have analysed the impact of renewable energy sources, primarily solar panels and heat pumps, on both annual and peak demand.

Specific adjustments have been made to this year's forecasts for both the annual and peak forecasts taking account of how renewable energy could impact over the ten year period.

It is probable we will need to make further adjustments to both the annual and peak figures, however, any adjustment to the Peak Day demand will be smaller as there is no guarantee renewables would be available at peak periods.

More details on page 21

More details on page 21

Image courtesy of anoukprodcuctions.com

The Queen's speech in June 2017 announced a Smart Energy bill restating that every consumer should be offered a smart meter by 2020.

We continue to support the deployment of smart meters, however with regards to our forecasts currently there is insufficient data to determine the specific impact this technology may have on demand profiles.

We will continue to monitor the evidence and review our approach as more information becomes available.

This is our view of demand over the next ten years along with the factors which we see as impacting upon any changes which might occur. As mentioned in the introduction, if you wish to discuss any aspect of what we discuss here, or network capacity in general, please feel free to get in touch with the team at network.capacity@sgn.co.uk

We will now show you some of the changes to our systems detailing investment and innovation projects. We will also supply details of how you may get in touch should you wish to discuss a connection opportunity.

The gas we distribute to our customers enters our networks via the National Transmission System (NTS) operated by National Grid, biomethane sites feeding green gas, Wytch farm and Grain LNG terminal which receives Liquefied Natural Gas (LNG) from overseas.

Currently there are no third party-owned storage installations connected to our networks. If you wish to discuss storage or biomethane injection opportunities with us please contact Joel Martin on 0131 469 1813 or alternatively email joel.martin@sgn.co.uk

All supply points are governed by Network Entry Agreements (NEAs). These include all biomethane sites injecting into our network.

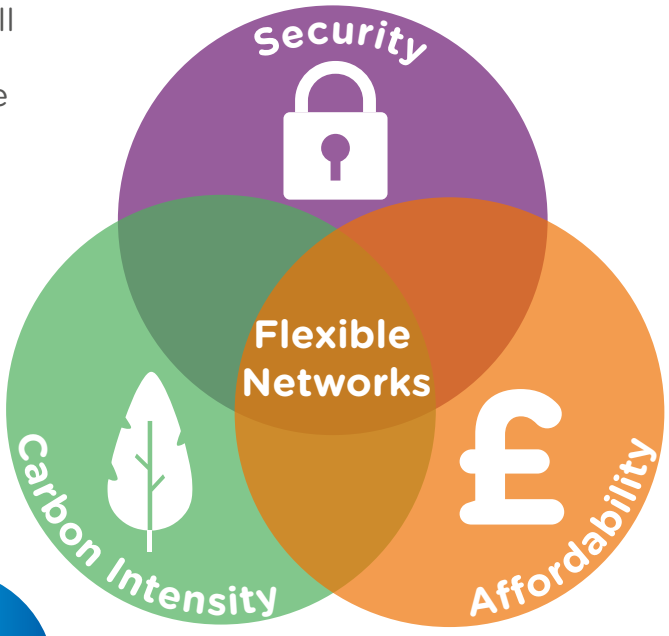
The Isle of Grain Import terminal is also a road tanker filling facility for supplying our SIU networks.

Further reading on page 12

Following the success of our Opening Up the Gas Market project in Oban, we are currently looking at how we can apply what we have learnt to our four mainland Scottish Independent Undertakings (SIUs).

For more information on Innovation visit SGNs website

The success of this project will not only ensure a cost-effective energy supply is available to our customers in these areas of our networks, but will also give further evidence to support changes to the gas quality specification contained within the Gas Safety Management Regulations (GS(M)R).



"Our strategy is very much shaped by our customers and stakeholders, and it's important we really listen to questions they may have about costs, how safe unconventional gases such as hydrogen will be, and how new replacement/maintenance technology might affect their daily lives. Their feedback ultimately helps shape our portfolio by validating the projects we decide to progress."

John Morea, CEO, June 2017

Further reading on page 13

During 2016/17 we spent £4.5m on Network Innovation Allowance projects and £5.4m on our three major Network Innovation Competition projects.

In a speech to the Utility Week energy summit in June 2017, our CEO John Morea highlighted the importance of green gas within the future energy mix.

"We realise no one solution fits all but modernising our gas networks gives us options which underpin the lower carbon UK economy of the future.

"The use of renewable gases will allow customers to continue to benefit from our valuable gas network infrastructure and, with the right incentives, will provide an affordable, low carbon solution we all want, with the security of supply we all need."

Further reading on page 14

If you have a biomethane project and are interested in injecting into our network you can contact Joel Martin on 0131 469 1813 or alternatively email joel.martin@sgn.co.uk who will be happy to discuss the process for getting connected.

At present, there are no large projects > £1m in planning across our Local Transmission System extending our network.

Further reading on page 15

For more information on connections visit SGN's website

Customers looking to discuss making a connection to our systems should in the first instance contact our third party connections team at soe_gtuip_sgn@sgn.co.uk.

This team is our primary customer facing department in relation to Independent Gas Transporters (iGTs) and Utility Infrastructure Providers (UIPs).

Customers should be aware several areas across our systems are now subject to Planning and Advanced Reservation of Capacity Agreements (PARCAs).

For more information on PARCAs visit National Grid's website

Further reading on page 16

June 2017 saw the successful implementation of Project Nexus. This was the result of over two years of work on the replacement of a number of legacy systems over ten years old. The impact of this was throughout the gas industry, not just restricted to the distribution networks (DNs).

We operate in a regulated environment with an agreed licence that sets out the principles we must adhere to as we manage the network, the standards our customers should expect us to operate to and the industry codes through which we manage our networks.

We have commenced year five of the eight year price control period RIIO GD1 and have been consistently delivering defined regulatory outputs across the range of our activities. The current price control period will come to an end in April 2021. We are now starting to look forward to our next price control which will run from 2021 onwards. Our regulator, Ofgem, has set out the key principles that will govern the next price control period in an Open Letter in July 2017 and how it is looking to ensure network companies deliver value for money and services that consumers want and need. We will build on our existing engagement programme listening to our stakeholders to ensure we can reflect their feedback during the development of RIIO-GD2. If there is anything you would like to discuss with us regarding the next price control period, please get in touch by emailing lets.chat@sgn.co.uk.

"Energy networks should prepare for tougher price controls" Link to Ofgem website

We believe that in ten years' time, how the UK produces and uses energy will be very different to today, although, how fast that change happens and in what direction is still uncertain.

All players in the UK energy industry will need to be adaptive to new technology and ways of working to ensure UK consumers have the energy they need when they need it. We are working on a number of innovative projects to support credible options going forward.

Until the specifics of RIIO - GD2 are known, our forecasting approach is based on RIIO - GD1 with an awareness of existing government targets.

Further reading on page 16

Further reading

In this section, we further explore items covered in section 1 'The next ten years'.

Supply

Developments of our transportation networks are primarily demand driven. National Grid covers the overall UK supply position and security of supply assessment in detail for the National Transmission System (NTS) within its 10-year statement and in its publication Transporting Britain's Energy 2016; UK Future Energy Scenarios. The majority of the gas entering the LDZs flows through national offtakes from the NTS. There are currently several other locations where gas flows directly into the LDZs and these are detailed below.

These facilities are governed by Network Entry Agreements and the amount of gas flowing into the network is currently increasing as viable alternatives to conventional gas are explored. There are no third party-owned storage installations connected to our networks. The main source of gas supplies has predominantly been from the UK Continental Shelf (UKCS), however, this has changed as the gas available from the UKCS diminishes. The last few years have seen a higher level of gas imports from the European interconnector and Norway, and while the dependency on these sources is expected to increase, there is also an increase in LNG importation to meet the nation's requirement, notably at Isle of Grain in Kent and Milford Haven in Wales. The global demand for gas will ensure there is unlikely to be a significant reduction in the price of gas to the UK consumer. The impact of the shale gas industry in the USA is likely to be negligible as few export facilities currently exist and the impact may be felt by the spread of technology potentially allowing other countries to begin large scale production. It should be noted that by its nature as the main source of gas that can be sold to any market in the world, LNG is likely to remain susceptible to periods of short term price volatility.

Gas Supply Facilities

Offtakes

The majority of the gas entering the LDZs flows through 30 national offtake sites from the NTS. These sites are where gas is metered as it enters our networks. The gas pressure is then reduced in line with our requirements. It is also where odorant is added.

Grain LNG (South East LDZ)

Grain LNG, formerly the Isle of Grain storage facility, has now been developed as an LNG import terminal. The first shipment of imported LNG was unloaded in July 2005. Since then Grain LNG has steadily expanded the facilities. In late 2015 a new road tanker loading facility was commissioned and SGN use it as a source of LNG for our SIUs.

Wytch Farm (South LDZ)

The onshore oil and gas field at Wytch Farm in Dorset has been supplying gas into the LTS as a by-product of oil extraction for over 30 years. While gas is still being supplied in small quantities, these are much lower than the original flow-rates due to the field depleting.

Biomethane

Biogas (a renewable source of gas) can be produced from a variety of sources; the prevalent one being anaerobic digestion. Through this process organic material such as sewage, food waste and energy crops is broken down to produce biogas. Once the biogas is treated, the resulting biomethane can be injected into the gas network.

Back to 'The next ten years' - Supply

Innovation

Opening Up the Gas Market

We deliver gas safely and reliably to customers in Scotland and Southern England. The UK is reliant on its gas supply so we need to make sure that the supply is clean, secure and affordable. With the changes in gas supply, especially in the depletion of the North Sea, the UK is increasingly reliant on gas supplies from other countries, all of which have different compositions and therefore quality, depending on its source. While sources of new gas are numerous, the UK's specification for gas composition is prescriptive therefore, restricting the sources of gases that can be used in their pure form and thus limiting the gas market.

To prove the usability of other gas composition within the UK gas networks, SGN carried out a research project, 'Opening Up the Gas Market', which sets out to demonstrate that these regulations could be widened to accommodate more gases without the need for processing, but not compromising on safety. This looked to increase competition for network entry, improving energy security and reducing the cost of gas for customers. This was demonstrated through trials carried out in Oban.

Given the results of the trials this innovation project has been very successful. The outcome we are looking for is a change to the legislation which requires cross industry support. For this to happen, it is hoped the industry will come together and support the use of different gas blends.

If this can be achieved it will result in reduced costs to the customer through avoided composition processing and will have a wider impact on the gas market in terms of widening the number of sources.

The learning from this project should be disseminated through the Institute of Gas Engineers and Managers (IGEM) Gas Quality Standard Working group in support of the changes to GS(M)R.

Readers wishing to discover more about our opening up the gas market may do so at **sgn.co.uk/Publications/Innovation/**

Real-Time Networks

Our Real-Time Networks (RTN) project, funded by Ofgem through the Network Innovation Competition (NIC) scheme, aims to demonstrate how a more flexible and intelligent gas network will meet the needs of the changing gas industry in the UK.

The project follows a pilot trial methodology with the procurement and installation of innovative sensor technologies across pressure tiers in a representative section of the UK gas network. These technologies, combined with novel power and communications and a cloud-based data system, will help to create a comprehensive understanding of demand at a distributed level. The technology will be used to develop a prototype real-time energy model. From this we aim to demonstrate the viability and practical reality of a mixed-source, energy-centric gas network for the future.

The project, which commenced in 2016, is expected to deliver its initial outcomes and benefits in 2018 following successful sensor installation, data collection and real time model development.

100% Hydrogen Networks

The UK has an advanced and efficient gas network that currently supplies the energy to heat to over 80% of the UK's buildings also supplying the vast majority of the UK's industrial heat. This gas network delivers six to seven times more of the UK's peak energy than the electricity network. The gas network therefore has a major role to play in the journey to decarbonisation.

Reducing and eliminating carbon can be done in a variety of ways in the short, medium and long term. In the short term by substituting bio fuels such as biomethane for natural gas and by widening the range of gases the networks can accommodate without processing. In the medium term by blending zero carbon gas such as hydrogen, or in the long term by removing carbon completely and using hydrogen as the medium.

Through a proposed collaborative project with all the other DNs we are continuing to undertake, projects to support the future of energy in the UK, where we are looking to build on specific evidence in support of a future physical demonstration of a 100% hydrogen network. We are also progressing an additional hydrogen network innovation allowance (NIA) project.

Back to 'The next ten years' - innovation

Greening the gas

The UK has a legally-binding target to obtain 15% of its energy consumption from renewable sources by 2020, and the target for 2050 is to reduce greenhouse gas emissions by at least 80%, relative to 1990 levels. We believe there is significant potential benefit from the development of alternative sources of gas.

Biomethane is derived from biogas which is produced by anaerobic digestion. During this process, organic material is broken down in the absence of oxygen to produce biogas and digestate; a nutrient rich fertiliser.

The most efficient use for this biogas is to clean it up and inject it into the gas network. Biomethane is regarded as a low-cost and scalable form of renewable and low carbon heat, which can help towards the country's energy goals.

We believe the gas distribution networks will continue to play a crucial role in the domestic heating market and will provide the most cost effective path for low carbon transition with significant social benefits in terms of energy security and fuel poverty.

A number of independent studies have shown the gas networks can be a major component of a low carbon energy system. We also know from our own research people are generally happy using gas for heating and so, if we can decarbonise the gas flowing to people's homes this then saves households from switching to other more expensive forms of low carbon heat in the future while allowing carbon targets to be met.

Biomethane injection projects are currently supported by the government's 'Renewable Heat Incentive' (RHI). These key incentives have supported the development of renewable heat technologies allowing us to make considerable progress on our declared target of the equivalent of 250,000 houses supplied by biomethane by 2021.

Portfolio of biomethane sites		
LDZ	**Total**	**Equivalent houses**
Scotland	13	86,868
Southern	20	107,387
Total	33	194,255

Table 1: Portfolio of biomethane sites

During 2017 we further expanded the portfolio of biomethane sites in our networks. These sites can potentially provide an additional connected capacity in our networks. Further sites are currently in the process of construction and will be connected in the future. The portfolio as of end August 2017 is as shown in Table 1.

Biomethane for injection into the gas network is produced by cleaning and upgrading biogas that has been created through either an anaerobic digestion or gasification process.

The biomethane may need propane to be added by the biogas producer to ensure it has the required energy content, prior to injecting into the network. To ensure the biomethane meets the requirements for the gas grid, it passes from the producer's plant through a Network Entry Facility where it is checked for both gas quality and energy content, before being metered and odorised to give it the characteristic smell.

Before being injected into the gas network the biomethane must be sold to a gas shipper. Ofgem can provide details of licensed gas shippers.

Back to 'The next ten years' - Greening the gas

Below 7 Bar distribution system

The distribution system is designed and reinforced to meet a peak six-minute demand level, which is the maximum demand level (averaged over a six-minute period) that can be experienced in a network under cold winter conditions. We will continue to invest for reinforcement and new connections consistent with the change in Peak Day demand forecast in this document. Detailed below are the projects to ensure we deliver these conditions. These can be the result of localised growth in a given area.

<7Bar projects under consideration in Scotland		
Project	**Build year**	**Scope**
Glasgow MP	2018/19	2.0Km x 630mm PE / 24" ST
Edinburgh MP (Newcraighall)	2018/19	0.93Km x 500mm PE
Inverness IP	2018/19	1Km x 355mm HDPE / 12" sST
West Mains Rd, Edinburgh MP	2019/20	1km x 500mm PE
Haddington - Dunbar IP (Ph 1)	2019/20	1.8Km x 315mm HDPE
Aberlady - Gullane (Ph 1)	2020/21	2.6Km x 355 mm PE

Table 2: < 7Bar projects in Scotland under consideration

<7Bar projects under construction in southern England		
Project	**Build year**	**Scope**
Wavendon MP	2017/18	2.36km x 355 PE
Allington MP	2017/18	2.3Km x 400mm PE

Table 3: < 7Bar projects in southern under construction

<7Bar projects under consideration in southern England		
Project	**Build year**	**Scope**
London IP	2018/19	0.5km x 24" ST
Gosport MP	2020/21	0.6Km x 355mm PE + 1.6Km x 400mm PE

Table 4: Projects in southern under consideration

Back to 'The next ten years' - < 7Bar distribution system

Regulation and commercial developments

Gas Distribution Price Control (RIIO-GD1)

As a gas distribution company, our activities and revenues are subject to economic regulation by Ofgem. Periodic reviews, known as Price Control Reviews (PCR), are conducted by Ofgem. In April 2013, we entered a new PCR period known as RIIO-GD1. This will run until March 2021. RIIO encapsulates the direct link between the network company charges and the level and quality of the outputs and service provided to its customers.

Revenue = Incentives + Innovation + Outputs

For more information on RIIO - GD1 visit Ofgems website

Uniform Network Code (UNC) developments

As noted in the start of the document, we are obliged to operate the network in accordance with a set of rules, the UNC. There have been several UNC modifications, some key ones are detailed below:

- *Mod 90; Interruption Reform*. This review of interruptible loads resulted in all loads becoming firm as of 1 October 2011. However, where possible we can run annual or ad-hoc interruption tenders. This will allow us to consider specific areas where allowing certain large customers to tender for an interruption contract we can defer of eliminate the need to invest in reinforcement. These annual tenders occur in early June.
- *Mod 390; AQ Review*. This allows an annual review of hourly capacity values with large users through the shipper community. This process ensures that the end user hourly capacity values, used by us for network capacity management, are as accurate as possible and not over or understated. By achieving accurate values we not only protect the safety of the network and security of supply but also maximise the amount of capacity available for use.
- *Mod 420; New Connection*. This modification allows requests from new connection users in areas where their capacity requirements were not immediately available. This modification implemented an application process whereby customers wishing to connect to our network can apply to do so, on an interruptible basis until their full capacity is available.
- *Mod 458; Seasonal Large Supply Points*. We lead the development of this modification to create a process which enables customers to apply for summer capacity only, thus removing the barrier associated with potential reinforcement. This has been put in place to enable summer usage of gas for seasonal businesses, such as drying crops, and will potentially enable more new gas connections in areas of limited capacity and maximising the capacity usage on the network during the off-peak summer season while retaining the security of the network during the peak winter months. From 1 April 2016, we have accommodated a number of these loads. This mod has proven to be of interest to companies keen to improve their environmental credentials by reducing their dependence on heavy fuel oil and has also supported business by providing a wider choice of fuel sources.

Back to 'The next ten years' - Regulation

Project Nexus

Project Nexus was the largest industry change programme the gas industry has undertaken in many years. The scope of the programme was for Xoserve to replace its disparate end of life systems with a new centralised SAP solution. The new systems create improvements to data processing and settlement, resulting in more accurate allocation of energy, which in turn provides the consumer with a more accurate bill. The programme included changing and migrating all existing meter points into the updated systems.

This was an industry-wide programme which required extensive co-ordinated market trials testing. All GDNs had network obligations to deliver the programme within timeframe. Ofgem took over the formal programme sponsor's role in April 2016 and the programme was successfully delivered on 1 June 2017.

SGN mobilised an IT lead programme team to deliver Project Nexus for the business. The internal programme was complex covering five directorates, 293 functional requirements, development, testing and implementation to 16 downstream applications, and changes to 104 interfaces.

SGN was influential during Project Nexus, representing the gas networks at the monthly steering group meetings and risk advisory boards. We worked closely with Ofgem, Xoserve and assurance partners to support a successful implementation.

Back to 'The next ten years' - Project Nexus

More detail

This section with Appendix 1 provides details of the econometric assumptions used for the forecasts and more details of the demand forecasts.

The LTDS provides an overview of the ten-year forecast of annual and Peak Day demands we use. This is in accordance with the obligations within our Gas Transporter Licence and Section O of the Uniform Network Code Transportation Principal Document.

The Uniform Network Code Offtake Arrangements Document sets out the framework for exchanging the necessary information to assist transporters to generate long term demand forecasts. The publication of our LTDS forms part of this process.

Development of our transportation networks is primarily demand driven, although, there have been some onshore gas production enquiries in the past in the form of biogas which has necessitated capacity analysis and development.

The overall UK supply position and security of supply assessment is covered in detail by National Grid in its Ten Year Statement for the National Transmission System and in its various publications and consultations associated with the Future Energy Scenarios 2017 process.

The data and assumptions used to develop the 2017 demand forecasts were collated and compiled in the first quarter of the year when there has been continued growth in the UK economy. However, the impact on the economy of the decision to leave the European Union will depend heavily on the ongoing negotiations with the EU. This may affect the final demand that will be seen by the end of this year and subsequent years.

Demand forecasting performance

The following section provides an assessment of the forecast process used last year and outlines the conclusions that were reached regarding the performance of last year's process. It also outlines the high-level developments incorporated into this year's process as a result of the performance assessment. Each LDZ's load band is examined separately.

0 to 73 MWh – Domestic

In Scotland, we saw a rise in the level of demand in this sector (3.9%), compared to last year. Our analysis has shown this to be due to a lower than expected gas price.

In the south east, there has been no overall change in demand in this sector compared to a decline in demand last year of 3.7%.

The south LDZ has seen a small increase in the level of demand in the last two years of 0.5%.

73 to 732 & >732 MWh – Industrial/Commercial

There has been sustained growth in the economy during 2016 despite the referendum vote on the 23 June 2016 to leave the EU, with all four quarters showing quarter on quarter growth. This seems to have had an impact on the level of demand with all three LDZs showing growth in this sector, continuing the trend from last year.

The data on customer numbers appears to show a fall in the number between 2015 and 2016 for all LDZs, compared to a rise in the previous year.

This whole sector has seen some unexpected results where there are pockets of growth and decline, some counter to previous years' behaviour. This volatility is not particularly surprising in a period where the future stability of the economy is uncertain after the EU referendum, but gas prices are still falling, driven by the decline in oil prices.

UK Outlook

Medium to long-term LDZ economic outlook

This section provides a general overview of the UK economy to give some context to the data that is provided in this report. It also outlines some of the key econometric assumptions used to develop the forecasts.

Inflation

After a period of instability during 2009 to 2012 the Consumer Price Index (CPI) had started to stabilise in the 2 to 3 per cent range in 2013 and then fallen steadily to end up hovering around zero towards the end of 2015; see figure 1. However, during 2016 and into the first half of 2017 the CPI has steadily risen to around 2.5%.

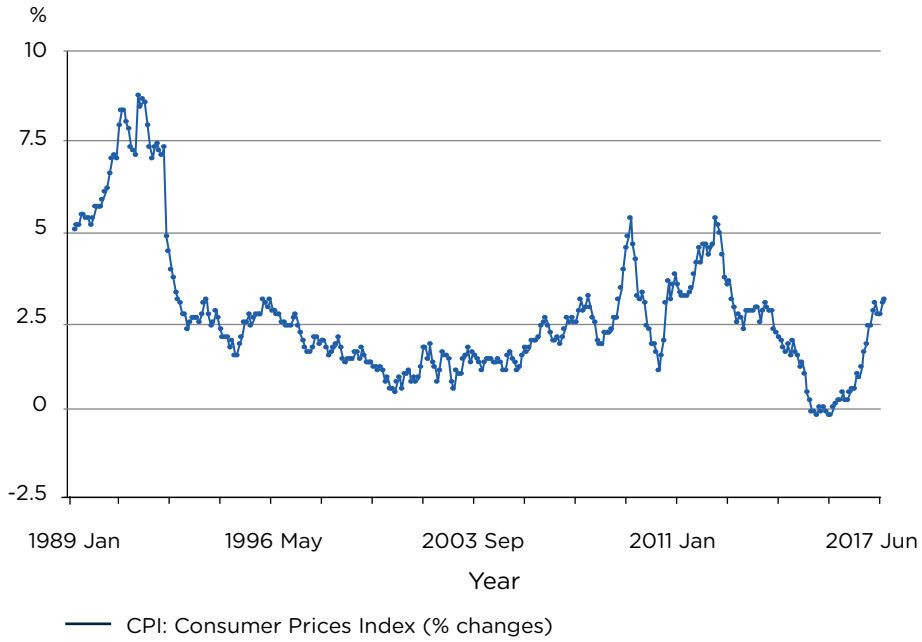


Figure 1: Change in rate of CPI

The latest forecast for the whole of 2017 as provided by the Office of Budget Responsibility (OBR) in March 2017 is 2.4%, but expected to fall to the target of 2% by 2019.

UK Gross Domestic Product (GDP) and Gross Value Added (GVA)

Gross Value Added (GVA) measures the contribution to the economy of each individual producer, industry or sector in the United Kingdom. GVA is used in the estimation of Gross Domestic Product (GDP). GDP is a key indicator of the state of the whole economy and equates to GVA plus taxes on products minus subsidies on products. A significant decline in GDP occurred during 2008/9 set against a long period of growth from 1992. However, there has been some sustained recovery in GDP since that time.

The latest economic figures included in the graph taken from the Office of National Statistics show a sustained growth in the economy during 2016 of 1.8%. The Office for Budget Responsibility (OBR) is forecasting growth of 2% for 2017. Independent external forecasters are forecasting in the range 1.1% to 2.0% for 2017. The overall average of these external forecasters is a rather pessimistic 1.5%, presumably resulting from the ongoing uncertainty of the impact of the UK leaving the European Union.

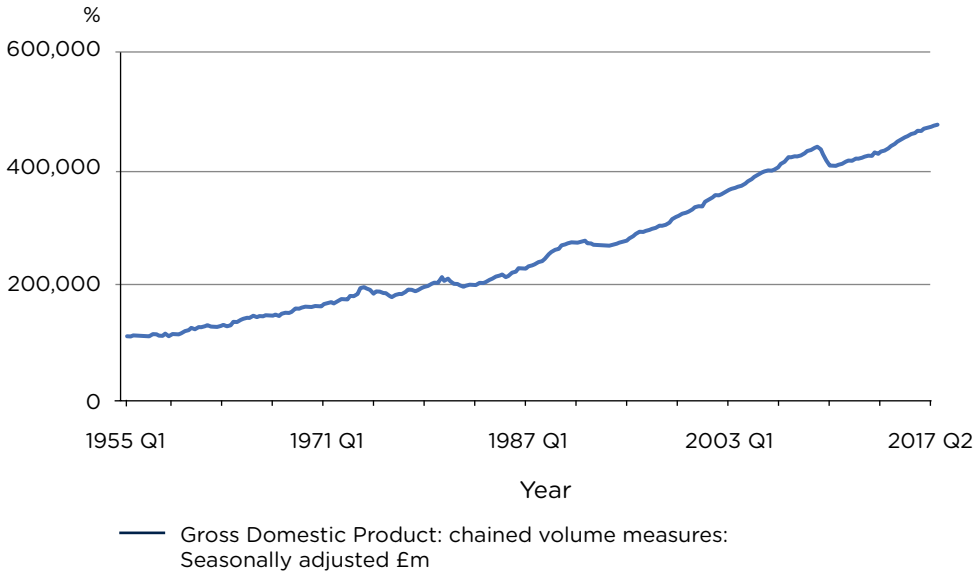


Figure 2: Change in GDP

The OBR published its central forecast for inflation in March 2017 which is shown in figure 3.

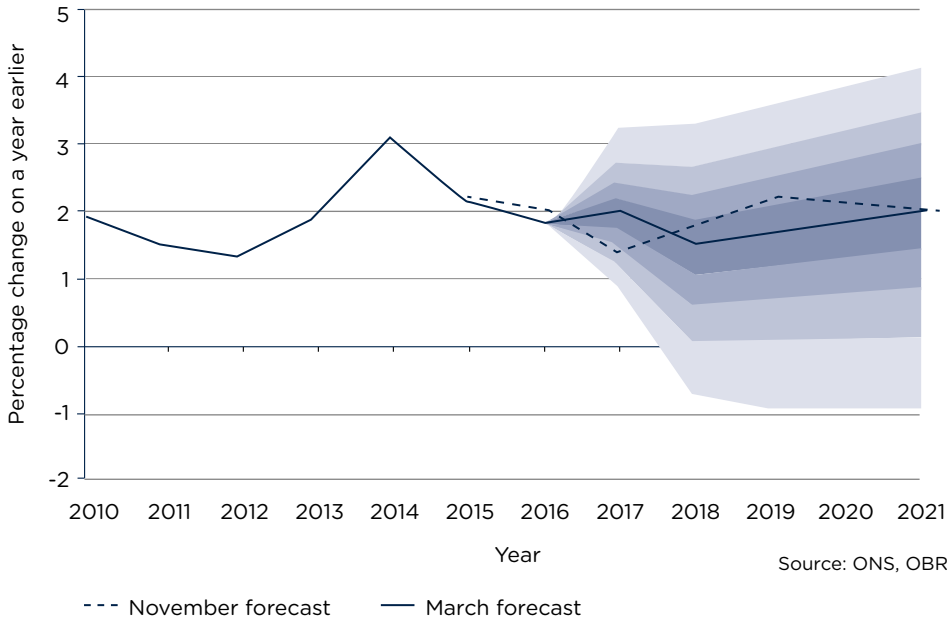


Figure 3: Forecast inflation rate

Gross Disposable Household Income (GDHI)

This can be used as an indicator of householders' ability to absorb rising energy prices and provides a reasonable indication of how affluent households are in a particular area.

Manufacturing output

Manufacturing output trends provide an assessment of how this type of industry is performing. There was a significant downturn in manufacturing during 2009 but it has shown recovery and decline since then. This can be seen in the figures for the Manufacturing Index from the Office of National Statistics.

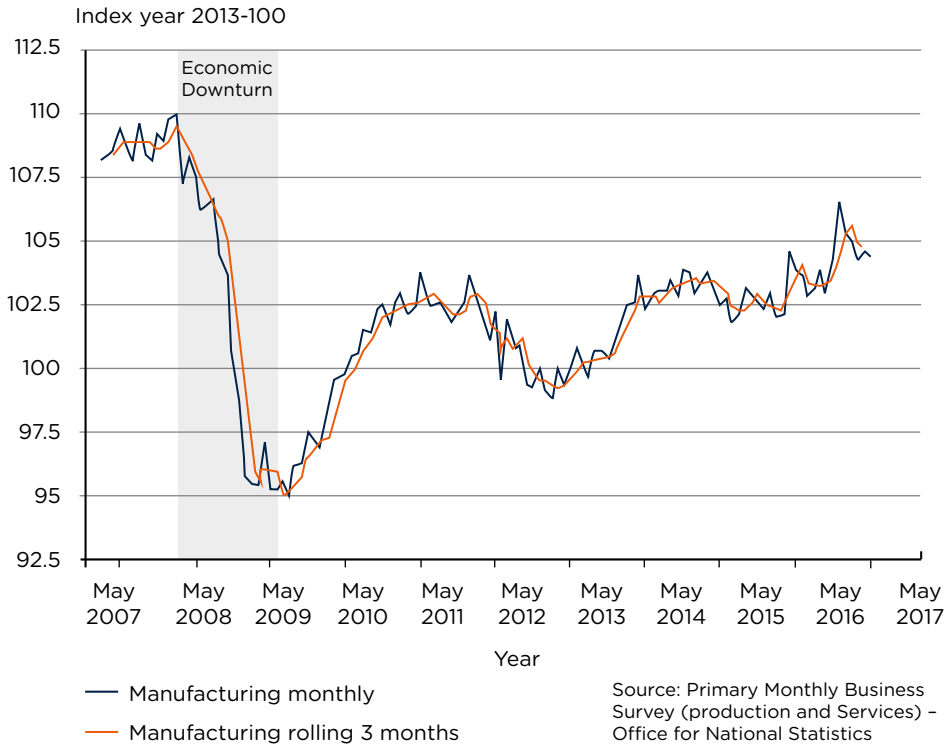


Figure 4: Change in rate of manufacturing output

Household numbers

The historical data provided is based on the Department for Communities and Local Government (DCLG) website reported data (mid-year) adjusted to year end and is broadly consistent with historical data provided by our data service provider last year.

Employment

After a steady rise in employment for nearly 20 years, there has been a quite steady decline in the number of workforce jobs between 2007 and 2009, with a small recovery in 2010 and 2011, dip in 2012 and stronger recovery in 2013 to 2015. In 2016 300,000 jobs were created of which 160,000 were employee jobs as opposed to self-employed. This pattern is reflected in the commercial/services sector with 247,000 jobs created. Manufacturing has seen a steady decline since 1998 after a period of small growth from 1992 to 1998. The figures for 2011 to 2014 however show a small rise of around 160,000 over the three years, but then a fall of 70,000 by 2016.

Regarding the future employment levels in the commercial/service sector we are expecting the level of rise in the number of jobs created in 2015 will not be repeated in the short term and therefore, there will be a pattern of growth that reflects the pattern that has been seen over the last 10 years.

Future employment levels in manufacturing are expected to decline in line with a pattern reflected over the last 10 years.

Gas/fuel price

Prices in all markets have shown, until very recently, rises from 2002 for households and effectively from 1999 in the non-domestic market. This has been driven by the wholesale gas price rises, which has in turn been driven by rising oil prices. However, this has been turned around significantly with the recent sharp decline in oil price, driven by the entry into the market of the shale oil in North America, decline in worldwide consumption and the refusal of OPEC to cut back production until recently.

On balance, it can be expected that oil prices may fluctuate a little before rising again slowly unless there is a major supply disruption, which would almost certainly see a significant rise in oil prices and hence wholesale gas prices. Any assertions made by commentators in the past regarding the delinking of gas prices from oil do appear to have been unfounded given the fact that wholesale gas prices have fallen broadly in line with oil prices although not as dramatically.

Efficiency Improvements

In general gas demand has been declining in recent years, although there are some instances of growth in some sectors in parts of the country, possibly driven by falling gas prices and the improving economy. However, it is difficult to separate the impact of efficiency improvements from the impact of variations in gas prices and the effects of variations in the number of supply points.

There has been a programme of gas fired domestic boiler replacement and improved insulation initiatives for many years. The higher levels of efficiency achieved with these is a contributory factor in the decline of gas demand. However, the increases in efficiency may in some circumstances have been used to provide warmer comfort levels resulting in higher than expected gas usage especially in winter.

Energy Bill 2011 (Updated 2017)

There are a range of provisions in the bill to encourage energy efficiency and to remove barriers to investment in energy efficiency:

Private rented sector

Powers established for the Secretary of State, which will, in the event of continued poor energy efficiency performance in the private rented sector, prevent private residential landlords from refusing a tenants' reasonable request for energy efficiency improvements to be undertaken in their properties, where a finance package is available. It will also require private landlords in the domestic and non-domestic sector to improve some of the least energy efficient properties where finance is available.

Energy Company Obligation (ECO)

This is the government's new domestic energy efficiency programme which has replaced the existing CERT and CESP programmes, both of which closed at the end of 2012. ECO works to provide additional support for packages of energy efficiency measures. ECO also provides insulation and heating packages to low income and vulnerable households and insulation measures to low income communities.

ECO creates a legal obligation on energy suppliers to improve the energy efficiency of households. The scheme is administered by Ofgem.

Further measures to improve energy efficiency

- Amendment of the smart meters powers in the Energy Act 2008
- Amendment of the Energy Performance of Buildings (Certificates and Inspections) (England and Wales) Regulations 2007
- Establish powers for the Secretary of State to require energy companies to provide information on the cheapest tariff on energy bills

As high level principles the provisions cannot be seen as providing the only solution to cut carbon emissions to the target levels. Relatively low cost measures to improve efficiency like boiler replacement and cavity wall and loft insulation benefit from some government incentives, but higher cost solutions like renewable heat or solid wall insulation would need to allow protracted payback periods (approaching 50 years or more) to be viable, unless a significant subsidy is obtained. This is noticeable when the Warm Homes Fund is examined. This is a fund aimed to provide heating solutions to fuel poor households who do not currently use gas. The current bidding round is due be announced in October 2017 and is heavily oversubscribed.

Back to 'The next ten years' - Demand forecasting

In summary it appears there are still some barriers to major investment in efficiency savings, although recent incentive developments have reduced these, but the key driver, at least in the short term, will be the price of gas when compared to the cost of installing new energy efficient appliances or means of reducing heat loss from premises.

Smart meters

Ofgem's report for the Energy Demand Research Project (EDRP) in December 2010 recognised the evidence suggesting smart meters can be a vehicle for effective action to reduce domestic energy demand. However, there was no distinction between gas and electricity meters.

The most recent formal update on the full roll-out programme was from the DECC 4 Annual Report. This stated that it had been delayed again until mid-2016 compared to the previous date of autumn 2015. The target date for completion of the full roll-out stays at the end of 2020 however the Queen's speech in June 2017 contained a Smart Meter Bill which restated every consumer should be offered a smart meter by 2020.

Back to 'The next ten years' - Smart metering

It is widely acknowledged that smart meters have the potential to alter how consumers use energy, however, as yet there is insufficient data available for us to alter our approach to demand forecasting.

Carbon neutral housing

The previous government policy on carbon neutral new housing, or sometimes called 'zero carbon' housing, has been interpreted by some as being taken literally from the headline title. This was planned to come into force but the current government axed this policy last year. It should therefore not be necessary to make any specific adjustments to forecasts of household demand for this issue but to keep this area under review for future forecasts. As many groups have been involved in trying to achieve carbon neutrality there could still be many new housing sites that will be developed as if the policy was still in place.

Back to 'The next ten years' - Carbon neutral housing

Renewables

In March 2011, the government announced the introduction of the Renewable Heat Incentive Scheme (RHI).

The RHI was aimed at helping to accelerate deployment of renewable heat sources by providing a financial incentive to install renewable heating in place of fossil fuels. Initially, in the first phase, long-term tariff support was targeted at the big emitters in the non-domestic sector. This sector, which covers everything from large-scale industrial heating to small business and community heating projects, was anticipated to provide the majority of the renewable heat needed to meet the targets and represents the most cost-effective way of increasing the level of renewable heat.

Under the revised domestic RHI scheme introduced in April 2014 there is financial support for renewable heat, targeted at, but not limited to, off gas grid households. The support is paid at a set rate per unit of renewable heat produced (kWh), for seven years, to the owner of the heating system.

The scheme is administered by Ofgem, to control costs a system of tariff reductions has been introduced, triggered as threshold spend figures are reached.

On 14 December 2016, the UK Government published its response to the consultation on the Renewable Heat Incentive scheme as a result the Department for Business, Energy & Industrial Strategy (BEIS) announced there will be further reductions in certain tariffs effective from 1 July 2017.

Back to 'The next ten years' - Renewables

Regional economy

Scotland

Scotland LDZ possesses a strong commercial and services sector base, accounting for over 75% of the Scottish economy. Financial and insurance services growth underpinned by the presence in Edinburgh and Glasgow of many leading financial institutions is the third largest in GVA terms in the UK behind London and the south east. The recent economic downturn did have a negative effect as banks consolidated offices and functions. There is some speculation that banks based in the UK could move their operations to another EU country when the UK leaves the EU and this could have an impact on the large number of banking and finance related jobs in Scotland.

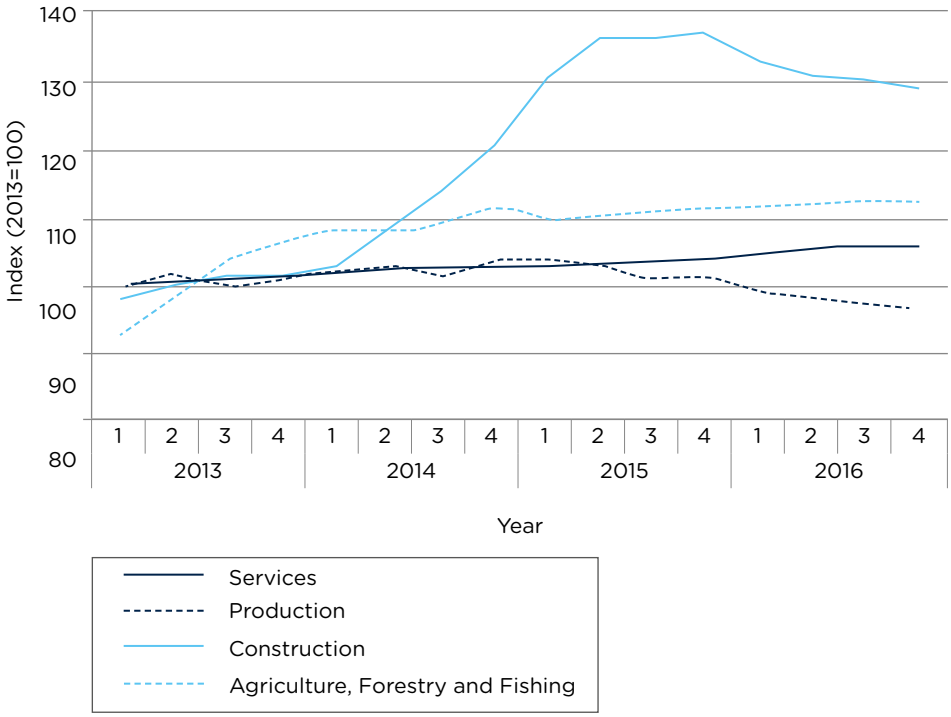


Figure 5: Change in activity in Scottish industry

The growth in the different sectors has been quite variable over the last few years with the greatest fluctuation in the construction sector, with exceptional growth in 2014 and 2015 as illustrated by the graph above. This is starting to downturn in 2016, however, but is still the largest and any economic upturn will be reflected in this sector as shown in figure 5.

There is reliance on exports to the EU (43% in 2015), the largest markets are those of the Netherlands, France and Germany. This trade could be affected by any sustained impacts of the ongoing economic problems in the Eurozone, and there could be greater uncertainty resulting from the exit of the UK from the EU. There could be some impact of the UK leaving the EU on this market, depending firstly on the result of new trade deals with the EU and secondly on the ability to set up new trade deals with the US. There is also significant potential for exports, particularly whisky, under new trade deals with India, China and possibly the USA. Whisky currently has a 150% tariff applied to it for sales to India.

In the medium term the Scottish economy will continue to develop opportunities in renewable technology with the Scottish Parliament targeting a potential 16,000 to 70,000 new job opportunities in these emerging areas of employment. It is estimated that 26,000 jobs are supported by the renewables industry which is driven largely by onshore wind if you exclude those in the hydro industry which accounts for nearly half of those jobs. These industries do however rely on the continuance of certain incentive schemes, which can be removed at short notice, but the Scottish Parliament has set a target of 50% renewables by 2030. There are concerns from the Scottish parliament that recent changes to subsidies for technologies which generate renewable electricity and uncertainty about future support have affected the confidence of investors in supporting the deployment of new generating capacity. The removal of the subsidy for onshore wind is of particular concern within this region.

South East

In South East LDZ, the strong representation in financial and business services and transport and communications, the best-performing sectors of the national economy, are further encouraged by favourable demographics. This should be boosted by a steady economic recovery. This will be especially significant should confidence in London as a banking stronghold be adversely affected by the various enquiries into the banking sector, changes in regulation and the impact of the UK leaving the EU. Some banks have already indicated their desire to move to another country within the EU but speculation of widespread moves seems to be unlikely given that London is still ranked as the highest financial centre in the world. The next ranked is Frankfurt at no. 23.

The pattern of growth and development remains unbalanced, with economic hot and cold spots in the region. Manufacturing is still an element of the south east economy at 7.8% with some small levels of growth in recent years followed by a small decline in 2015, but remains the lowest manufacturing base outside London. The impact on this sector of the level of economic recovery could still be significant assuming there is to be continued growth, but the uncertainty created by the UK leaving the EU could depress any economic growth. The sector of the economy that has generally performed the best appears to be the wholesale and retail sector (12.6% of south east GVA). This is noticeable with the agriculture trade in high value fruit and vegetables for supermarket and catering industries.

Strong expansion of tourism, both internal and international provides opportunities for south east region, given London's attraction as a tourist centre and the ongoing lower value of the pound against several currencies such as the dollar and the euro.

Housing development is forecast to grow by UK Government in this region, this includes the Thames Gateway regeneration project where there are plans to build river side and park side homes over the next 20 years.

South

In South LDZ, the rail, sea and airport links provide a favourable environment for investment opportunities and employment growth. This combined with a reasonably broad mix of commerce, industry, housing and tourism should create the ideal opportunity for sustained economic growth.

Further cuts by the Ministry of Defence to three sites in this area were planned for 2017 and this will have some effect on the local economies in the vicinity of these facilities in the South LDZ. However this also results in ex-MOD land becoming available for development as barracks are rationalised and regiments are merged. This is despite the continued commitment by UK Government to meet the NATO target of spending 2% of GDP on defence.

Housing development is forecast to grow, which will be boosted by the fact that money raised from the right-to-buy scheme for council houses may be used to build replacement houses. It is not clear how this will impact the number of new homes given the substantial discounts being offered to potential buyers will reduce the revenue. Constraints on development and infrastructure could further dilute the growth in new housing. A new development that may impact housing in the area is the inclusion of housing association tenants in the right-to-buy schemes. This will reduce the housing stock available for low income families which may result in pressure on government and local authorities to build more homes. The government has stated it is committed to building 1.5 million new homes, which would require at least a doubling of the current level of house building nationally. As with the south east there is growth in power and heat generation.

Embedded power and heat generation

Recent areas of growth across all three LDZs is embedded power and heat generation. Several power stations connecting to our networks are currently in progress or have connected for this winter coming. This is to provide back-up termed Short Term Operational Reserve, or STOR, to the electricity networks. These sites will be called on in periods of high electricity demand and will create challenges for our networks in terms of planning and running networks. A secondary aspect of this is the potential growth in bulk heating systems where a single Combined Heat and Power (CHP) system will provide heat and power for an estate or development. The combined effect these two developments will have on annual and peak demands is undefined.

Back to 'The next ten years' - Embedded power

Forecast methodology

General assumptions

The starting point for production of the full set of demand forecasts is the annual average demand. The following general assumptions were used to assist in the development of the annual forecasts.

- All forecasts are seasonal normal demands calculated using the latest Seasonal Normal Composite Weather Variable basis otherwise known as EP2
- Historic annual demand data provided by SGN is provided on the same basis and daily demand data is available broken down by load band
- The historic data was corrected using the reconciliation data provided by SGN as part of the Pre-forecast information.
- SIU demand is not incorporated into the Scotland LDZ numbers
- Shrinkage was forecast on a fixed daily basis irrespective of demand levels to be consistent with UNC
- Retail gas price forecasts used as part of the demand modelling process continue to be developed by our service provider and then agreed with ourselves
- Load band 0-73 MWh is assumed to consist predominantly of households and that the behaviour patterns are linked to household behaviour
- Load band 73 to 732 MWh is predominantly small commercial/retail premises with some small industrial. Although there are some households within this band it is assumed that the behaviour patterns will be linked to predominantly commercial/retail behaviour
- The load bands >732 MWh will be predominantly industrial and commercial premises and therefore exhibit behaviour related to these types of load

General methodology

The forecasting models for the different load bands have been refined over a number of years. The underlying principle is that the models make specific linkages between the load bands and traditional market categories like households and industrial and commercial customers. These models are tailored specifically to each LDZ, although the underlying approach is the same across the whole of our networks.

An important factor affecting recent demand levels has been the decline in the price of gas over most of the last two years, which has resulted in growth in some demands. Many consumers may have already taken action with regard to energy saving, including a switch to renewable energy sources, as a result of sustained price rises in earlier years. However, as a result of lower prices there may be some consumers who are retaining their comfort levels. Despite the loss of non-domestic customer numbers, there are pockets where growth is being seen. This may be partially a result of holding off investment in efficiency measures due to uncertainty about the future of certain businesses following the EU referendum or the fact that energy prices have been falling for some time.

The latest economic figures taken from the ONS show a sustained growth in the economy during 2016 of 1.8%. The Office for Budget Responsibility (OBR) is forecasting growth of 2% for 2017. Independent external forecasters are forecasting in the range 1.1% to 2.0 for 2017. The overall average of external forecasters is a rather pessimistic 1.5%, presumably as a result of the ongoing uncertainty of the impact of the UK leaving the European Union.

A further factor influencing annual demand is the gradual introduction of renewable sources of energy but the true extent of this is not fully known at this stage. Clear assumptions regarding the impact of renewables is made within the renewable section.

0 to 73MWh – Domestic

The primary driver in this sector is still believed to be the behaviour of households. Annual demand growth has traditionally been driven by the number of houses being built and how many will be using gas.

Data was collected on all aspects of the housing market and regression analysis was carried out to establish if there is any need to amend the models from last year.

Average consumer gas bills had fallen again in 2016 but some quite substantial price rises have been announced by two of the major suppliers in early 2017. The models were tailored to each LDZ, as customer behaviour proved to be materially different in each LDZ and a current retail gas price forecast specifically developed for the purposes of this project each year. Consideration will need to be taken, when analysing Scotland LDZ in future years, of a Scottish Parliament target that 80% of households should be heated using low-carbon technologies by 2032.

73 to 732MWh – Commercial

Traditionally this sector is influenced by energy prices and economic drivers. Following detailed evaluation of alternative econometric models as part of last year's analysis, the best fit was achieved by using a multi-variable model that related annual gas consumption to a combination of drivers:

- Current and real retail gas prices for this type and size of load
- Average non-domestic retail gas price
- GDP indices, actual GDP (seasonally adjusted) and GDP growth, regional GVA
- Manufacturing output
- Consumption per unit of GDP
- Efficiency improvements
- Impact of renewables

>732MWh – Large Industrial

This sector can be significantly affected by the behaviour at a small number of large loads and therefore the forecasts continue to be split into two elements. The large loads are forecast individually and separately from the rest of the market sector. The remaining demand is forecast as a whole. As mentioned earlier the increase in embedded power stations will have an impact.

Peak demand forecasts

General assumptions

The traditional primary basis for calculating the Peak Day demand in any market is the relationship between average daily demand and Peak Day demand, typically known as the load factor, where:

Peak Day Demand = Average Daily Demand divided by Load Factor

The following assumptions were made when producing the 1 in 20 Peak Day demand:

- The modelling method results in no additional requirements for demand diversity analysis
- The use of 1 in 20 CWVs, provided by Xoserve to calculate the 1 in 20 Peak Day meets the requirements of the licence and UNC with respect to the specified methodology for determining 1 in 20 peak day demand
- No allowance will be made in calculating the base case 1 in 20 Peak Day for the differences between the calculated peak demand and the SOQ booked by shippers for larger loads
- No demand reduction will be allowed associated with demand management products offered by Shippers
- No allowance will be made to take account of any capacity buy-back contracts that may have been negotiated between SGN and its customers

LDZ specific assumptions

All the general assumptions are applied across all the LDZs and there were no specific assumptions that relate to the individual LDZs used in this analysis, unless the weather demand analysis suggests this should be considered.

Methodology

Forecast base case Peak Day demands were calculated from projections of annual demands by using the following relationship:

Peak demand = (Annual demand/365)/load factor

The relationship was applied in each of several different market sectors, for which the load factor may be assumed to be constant over the forecast period. The following market sectors have been used as the starting point for producing the base case Peak Day forecasts:

- - NDM Firm 0 to 73.2 MWh
- - NDM Firm 73.2 to 732 MWh
- - NDM Firm >732 MWh
- - DM Firm Consumption

Load factors for each market sector were estimated from historical daily demand and other data.

Forecast demands

This section provides an overview of our latest annual and peak gas demand forecasts through to 2026/27. A more detailed view can be found in Appendix 1, which includes the forecasts for both annual and peak demand on a year-by-year and LDZ basis. These forecasts have been developed around the UNC load band categories and relate only to gas that is transported through SGN systems.

Annual demand

These figures show historical gas demand growth and the forecast going forward. Note specifically the sudden demand reduction in historical demand in 2009 followed by a minor recovery in 2010 and then a further decline between 2011 and 2014. Note that Interruption ceased to exist in 2011 as a standard type of load, this is shown in blue in these graphs.

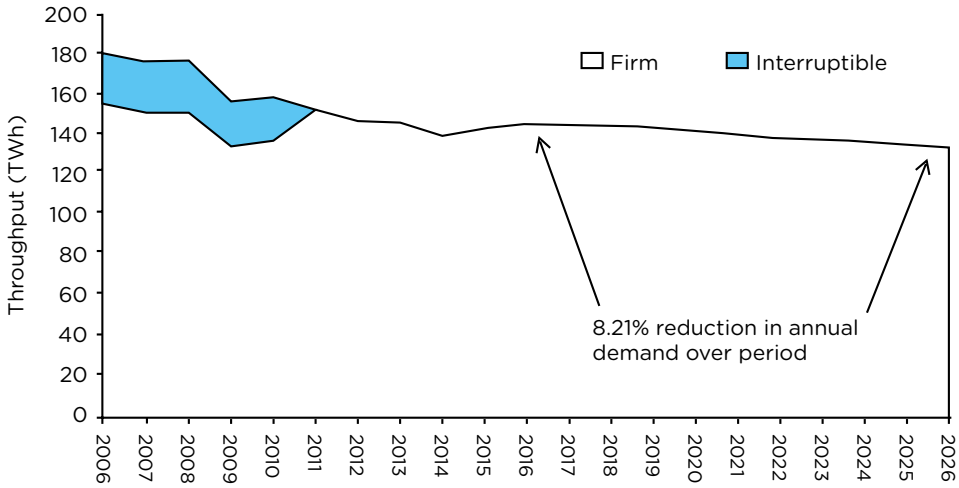


Figure 7: Change in historic and future annual demand – SGN overall

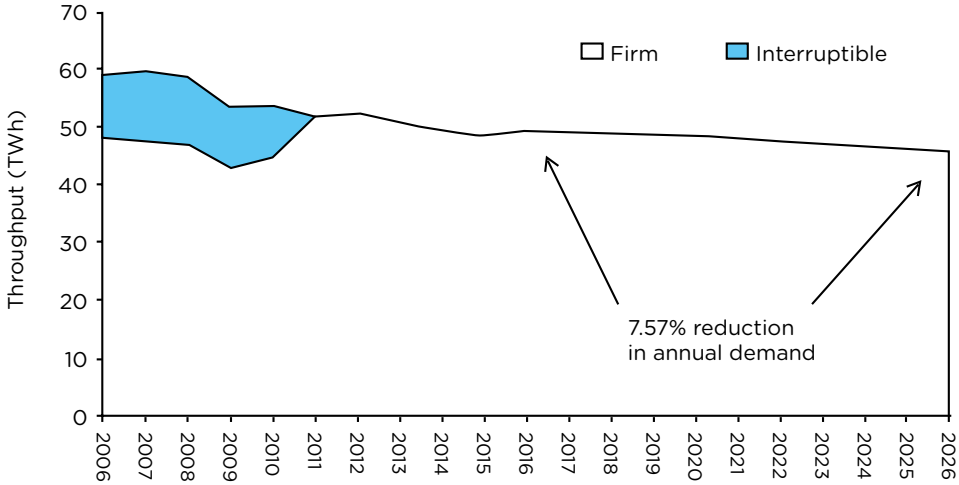


Figure 8: Change in historic and future annual demand – Scotland

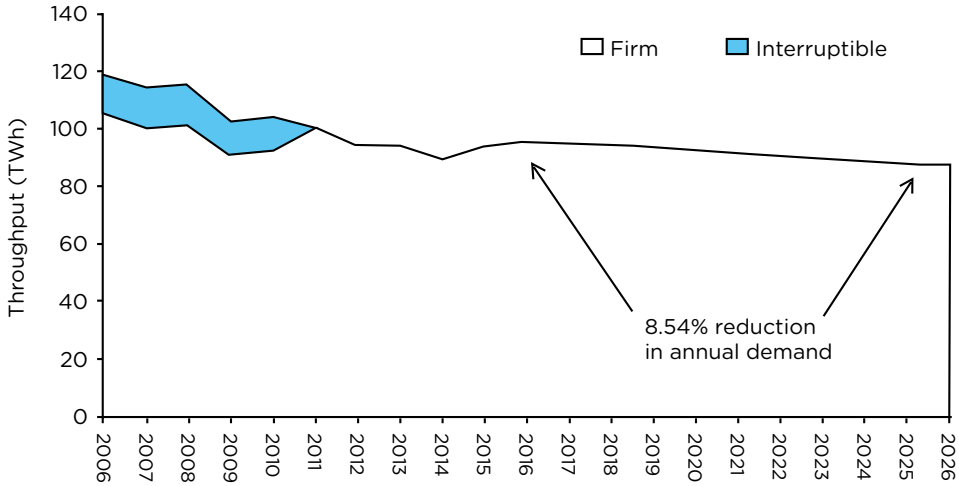


Figure 9: Change in historic and future annual demand – South & South East

Change in forecast annual growth (2017 – 2026)				
	SGN	Scotland	South East	South
Annual Demand Change	-8.21%	-7.57%	-8.26%	-8.96%

Table 5: Change in forecast annual growth (2017 – 2026)

Peak demand

The following figures show the equivalent view for peak demand, the key driver for investment in SGN. Note again the down turn in demands in 2009/10 due to the recession followed by a recovery.

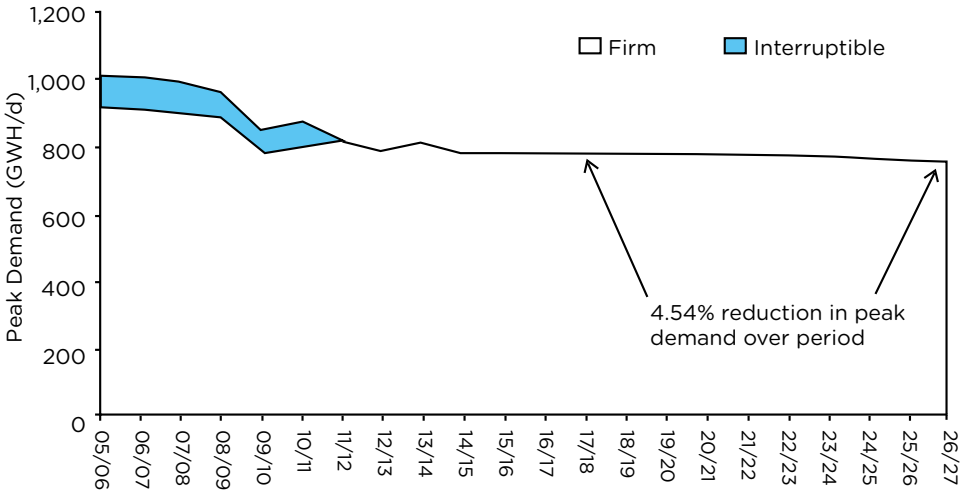


Figure 10: Historic demand and forecast change of peak gas demand – SGN overall

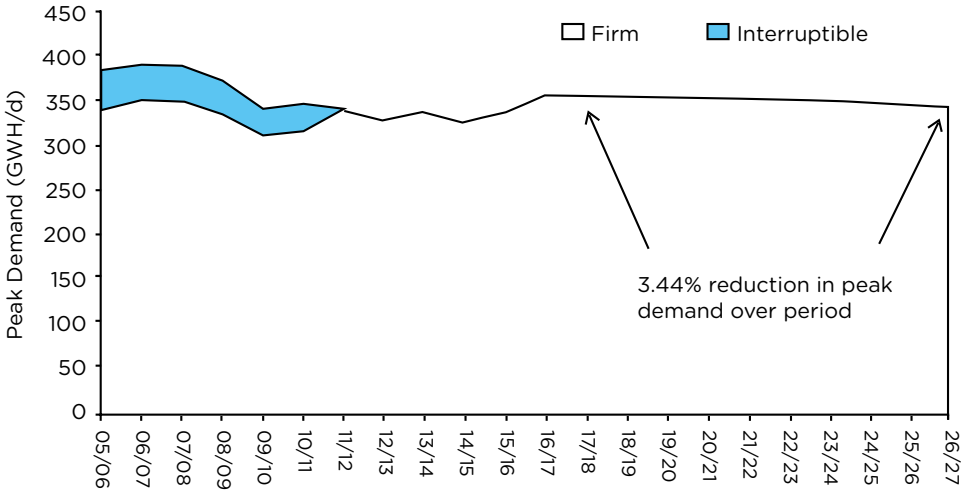


Figure 11: Historic demand and forecast change of peak gas demand – Scotland

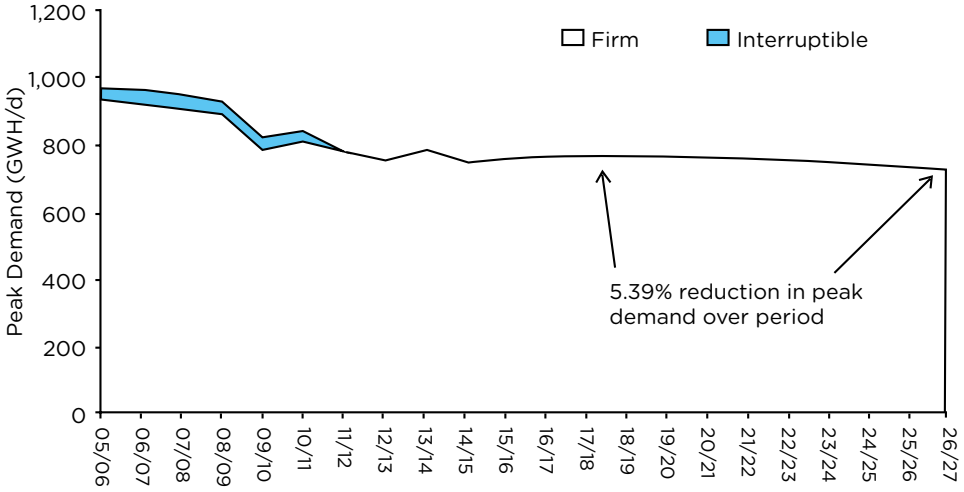


Figure 12: Historic demand and forecast change of peak gas demand – South & South east

Change in Peak Day demand (2016/17 – 2026/27)			
	SGN	Scotland	Southern
Peak Demand	-4.54%	-3.44%	-5.39%

Table 6: Change in Peak Day demand (2016/17 – 2026/27)

Forecast comparisons

The following figures provide a comparison of the current forecasts with those that were produced in 2016.

The latest annual demand forecasts for Scotland, southern and SGN in total are higher over the period of the plan than last year. The driver for the difference in the forecasts is primarily due to the fact that the 2017 forecasts have taken account of the difference between the forecast for 2016 and the actual demand in 2016.

There is some increase in the domestic and small commercial sector due to lower retail gas price forecasts and higher long term economic forecasts. The increase in demand driven by these factors is counteracted by marginally lower levels of housing growth forecasts in Scotland and southern than the previous year. There is forecast a modest decline in demands throughout the forthcoming forecast period.

Greater consumer awareness on environmental issues and their 'carbon footprint' will also have an effect on the annual gas demands during the forecast period. Typical measures for domestic consumers include double glazing, loft insulation, cavity wall insulation and energy efficient boilers. These are administered in the UK government domestic energy efficiency programme, CERT (Carbon Emissions Reductions Target) and community programme, CESP (Community Energy Saving Programme). The drop in gas price as a result of a combination of the reduction in the environmental levy and lower wholesale prices will affect all markets along with national and local government initiatives. Also of importance is the effect of UK and EU renewable energy targets such as '20 - 20 - 20 Targets'. This European Directive is to reduce the European Union's greenhouse gas emission by 20% below 1990 levels, ensure 20% of energy is generated from renewable sources and reduce primary energy use by 20% by improving energy efficiency. These initiatives should continue to have an impact on non-domestic and domestic demand as gas is used more efficiently and have a positive impact as new types of business are created to cope with emerging industrial opportunities.

This could have a substantial impact on consumption year to year or may not materialise in the near or possibly even mid-term future if gas prices remain low. The sustainability of lower gas prices in the long term may be dependent on the success of shale gas development, which is supported by the current government.

Back to 'The next ten years' - Demand forecasting

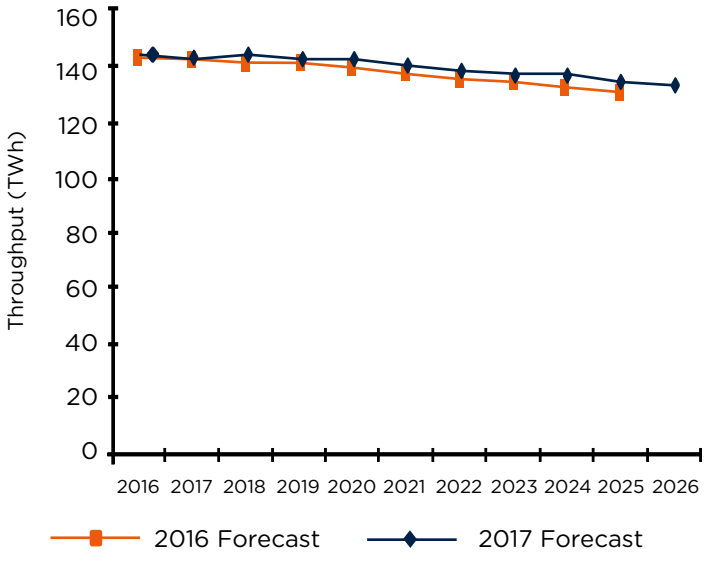


Figure 13: Comparison of total annual demand forecasts – SGN overall

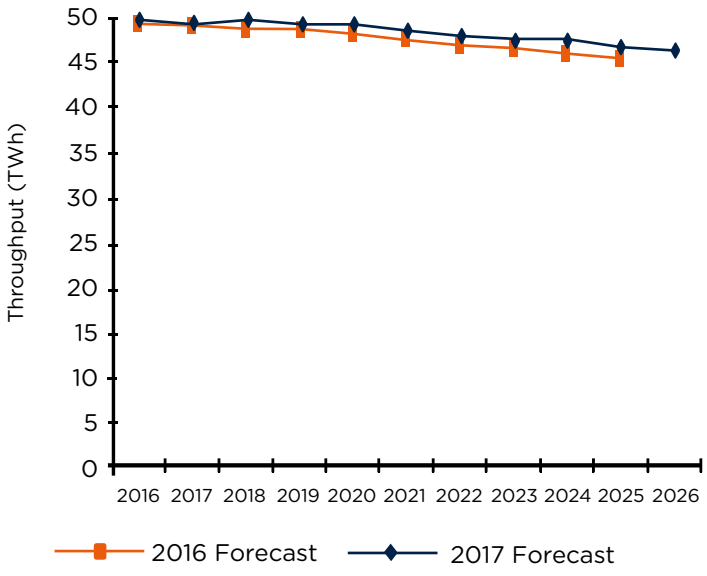


Figure 14: Comparison of annual demand forecasts – Scotland

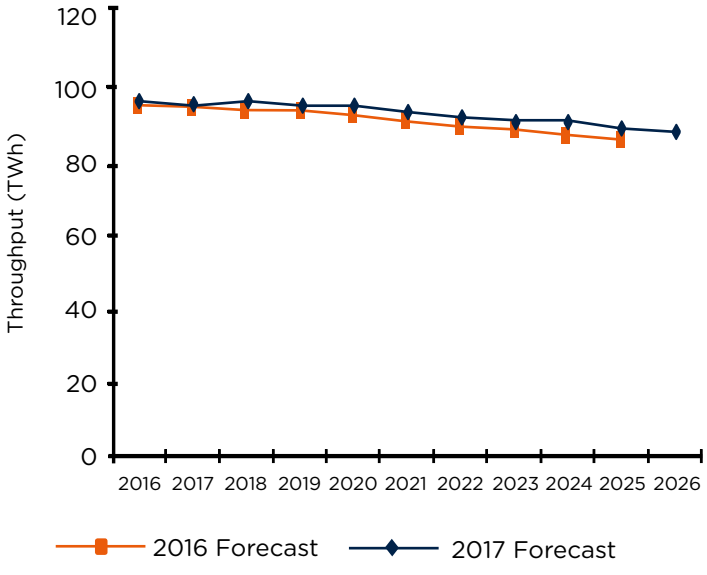


Figure 15: Comparison of annual demand forecasts – Southern

Appendix 1

Demand forecasts tables

Annual demand forecast by load category – SGN overall											
Calendar year	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
0 - 73.2 MWh	89.2	89.1	89.0	88.8	88.9	88.1	87.6	87.2	87.2	86.4	86.0
73.2 - 732 MWh	13.6	13.9	14.0	13.9	13.9	13.7	13.6	13.5	13.4	13.3	13.2
732 - 2196 MWh	6.6	6.4	6.3	6.1	5.9	5.6	5.4	5.1	4.9	4.7	4.5
2196 - 5860 MWh	4.1	4.1	4.0	3.8	3.7	3.5	3.4	3.2	3.1	2.9	2.8
Total Small User	113.4	113.5	113.3	112.7	112.3	110.9	109.9	109.0	108.7	107.3	106.4
Firm >5860 MWh	7.3	7.2	7.0	6.8	6.5	6.2	6.0	5.7	5.5	5.2	5.0
DM Firm Consumption	24.0	23.0	23.5	23.1	22.9	22.6	22.3	22.1	21.9	21.6	21.3
DM Interruptible Consumption	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Large User	31.2	30.1	30.5	29.9	29.4	28.8	28.3	27.8	27.4	26.8	26.3
Total LDZ	144.7	143.7	143.8	142.5	141.7	139.7	138.2	136.8	136.0	134.1	132.8
Firm Shrinkage	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Interruptible Shrinkage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Shrinkage	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Total Throughput	145.4	144.4	144.5	143.3	142.4	140.4	138.9	137.5	136.8	134.8	133.5
Gas Supply Year	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
Total Throughput	145.2	144.6	143.7	142.9	140.9	139.3	137.9	137.1	135.3	133.9	132.6
Total Firm Demand	145.4	144.4	144.5	143.3	142.4	140.4	138.9	137.5	136.8	134.8	133.5
Total Interruptible Demand	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 7: Forecast annual demand – SGN load categories (TWh)

Annual demand forecast by load category – Scotland LDZ											
Calendar year	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
0 - 73.2 MWh	29.0	29.1	29.2	29.2	29.2	29.0	28.9	28.8	28.9	28.7	28.6
73.2 - 732 MWh	4.6	4.7	4.7	4.7	4.7	4.7	4.6	4.6	4.6	4.5	4.5
732 - 2196 MWh	2.7	2.6	2.6	2.5	2.4	2.3	2.2	2.2	2.1	2.0	1.9
2196 - 5860 MWh	1.9	1.8	1.8	1.7	1.7	1.6	1.6	1.5	1.4	1.4	1.3
Total Small User	38.2	38.3	38.3	38.1	38.0	37.6	37.3	37.1	37.0	36.6	36.3
> 5860 MWh	3.2	3.2	3.1	3.0	2.9	2.8	2.7	2.6	2.5	2.4	2.3
DM Firm Consumption	7.9	7.8	7.7	7.6	7.5	7.4	7.3	7.2	7.1	7.0	6.9
DM Interruptible Consumption	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Large User	11.1	11.0	10.8	10.6	10.5	10.2	10.0	9.8	9.7	9.4	9.3
Total LDZ	49.3	49.3	49.1	48.8	48.5	47.8	47.3	46.9	46.7	46.0	45.6
Firm Shrinkage	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Interruptible Shrinkage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Shrinkage	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total Throughput	49.5	49.5	49.3	49.0	48.7	48.0	47.5	47.1	46.9	46.2	45.8
Gas Supply Year	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27
Total Throughput	49.5	49.4	49.1	48.9	48.2	47.7	47.2	47.0	46.4	45.9	45.5

Table 8: Forecast annual demand – Scotland LDZ load categories (TWh)

Annual demand forecast by load category – South East LDZ											
Calendar year	**2016**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2023**	**2024**	**2025**	**2026**
0 - 73.2 MWh	36.4	36.3	36.2	36.1	36.1	35.7	35.5	35.3	35.3	34.9	34.7
73.2 - 732 MWh	5.2	5.3	5.4	5.3	5.3	5.2	5.2	5.1	5.1	5.0	4.9
732 - 2196 MWh	2.1	2.0	2.0	1.9	1.8	1.7	1.6	1.5	1.5	1.4	1.3
2196 - 5860 MWh	1.3	1.2	1.2	1.2	1.1	1.0	1.0	0.9	0.9	0.8	0.8
Total Small User	44.9	44.9	44.8	44.5	44.3	43.7	43.3	42.9	42.7	42.2	41.8
Firm >5860 MWh	1.8	1.8	1.7	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1
DM Firm Consumption	10.4	9.8	10.3	10.1	10.0	9.9	9.8	9.7	9.7	9.6	9.5
DM Interruptible Consumption	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Large User	12.2	11.6	12.0	11.7	11.6	11.4	11.2	11.0	10.9	10.7	10.6
Total LDZ	57.1	56.5	56.8	56.2	55.9	55.1	54.5	54.0	53.7	52.9	52.4
Firm Shrinkage	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Interruptible Shrinkage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Shrinkage	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Total Throughput	57.4	56.8	57.1	56.5	56.2	55.4	54.8	54.3	54.0	53.2	52.7
Gas Supply Year	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
Total Throughput	57.3	57.1	56.7	56.4	55.6	55.0	54.4	54.1	53.4	52.8	52.3

Table 9: Forecast annual demand – South East LDZ load categories (TWh)

Annual demand forecast by load category – South LDZ											
Calendar year	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
0 - 73.2 MWh	23.7	23.7	23.6	23.5	23.5	23.3	23.2	23.0	23.0	22.8	22.7
73.2 - 732 MWh	3.8	3.9	3.9	3.9	3.9	3.8	3.8	3.8	3.8	3.8	3.8
732 - 2196 MWh	1.8	1.8	1.7	1.7	1.6	1.5	1.5	1.4	1.4	1.3	1.2
2196 - 5860 MWh	1.0	1.0	1.0	0.9	0.9	0.9	0.8	0.8	0.8	0.7	0.7
Total Small User	30.4	30.3	30.2	30.0	29.9	29.6	29.3	29.0	29.0	28.6	28.4
Firm >5860 MWh	2.3	2.2	2.2	2.1	2.0	1.9	1.8	1.8	1.7	1.6	1.5
DM Firm Consumption	5.7	5.3	5.5	5.4	5.3	5.3	5.2	5.1	5.1	5.0	4.9
DM Interruptible Consumption	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Large User	7.9	7.5	7.7	7.5	7.4	7.2	7.0	6.9	6.8	6.6	6.5
Total LDZ	38.3	37.8	37.9	37.5	37.3	36.7	36.3	35.9	35.7	35.2	34.8
Firm Shrinkage	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Interruptible Shrinkage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Shrinkage	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total Throughput	38.5	38.0	38.1	37.7	37.5	37.0	36.5	36.1	35.9	35.4	35.0
Gas Supply Year	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
Total Throughput	38.3	38.1	37.9	37.6	37.1	36.7	36.3	36.0	35.5	35.2	34.8

Table 10: Forecast annual demand – South LDZ load categories (TWh)

1 in 20 Peak Day firm demand forecast – by LDZ											
Financial year	**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**
Scotland	354	355	355	354	352	351	349	347	346	344	342
South East	467	466	465	463	461	458	455	452	450	447	445
South	330	329	328	326	324	322	320	318	316	314	312
SGN	1,151	1,151	1,147	1,143	1,137	1,131	1,123	1,117	1,112	1,106	1,099

Table 11: Forecast 1 in 20 Peak Day firm demand (GWh per day)

1 in 20 Peak Day firm demand forecast – SGN overall by load category											
Financial year	**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**
0 - 73.2 MWh	813.3	812.9	812.9	812.0	810.5	808.6	805.5	803.7	802.0	799.6	796.7
73.2 - 732 MWh	118.2	121.8	121.6	121.7	121.4	121.0	120.6	120.0	119.7	119.5	119.1
732 - 2196 MWh	45.5	44.7	44.1	43.2	42.1	41.0	40.0	39.0	38.1	37.2	36.3
2196 - 5860 MWh	28.4	27.9	27.5	27.0	26.3	25.6	25.0	24.4	23.8	23.2	22.7
> 5860 MWh	50.4	49.5	48.8	47.8	46.6	45.4	44.3	43.2	42.2	41.2	40.2
Total NDM Consumption	1055.7	1056.9	1054.9	1051.7	1046.9	1041.8	1035.3	1030.3	1025.8	1020.7	1014.9
DM Firm Consumption	93.5	91.7	90.5	89.4	88.3	87.2	86.1	85.1	84.1	83.1	82.2
Total Firm Consumption	1149.2	1148.6	1145.4	1141.1	1135.2	1129.0	1121.5	1115.4	1109.9	1103.8	1097.1
Firm Shrinkage	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Total Firm Demand	1151.2	1150.5	1147.3	1143.0	1137.1	1130.9	1123.4	1117.4	1111.9	1105.7	1099.0
DM Interruptible Consumption	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Interruptible Shrinkage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Interruptible Demand	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total DM Consumption	93.5	91.7	90.5	89.4	88.3	87.2	86.1	85.1	84.1	83.1	82.2
Total Shrinkage	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Total LDZ Demand	1151.2	1150.5	1147.3	1143.0	1137.1	1130.9	1123.4	1117.4	1111.9	1105.7	1099.0

Table 12: Forecast 1 in 20 Peak Day demand – SGN by load categories (GWh)

1 in 20 Peak Day demand forecast – Scotland LDZ by load category											
Financial year	**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**
0 - 73.2 MWh	238.1	239.1	239.7	239.9	240.0	239.8	239.4	239.3	239.3	239.0	238.5
73.2 - 732 MWh	37.3	38.4	38.4	38.4	38.3	38.2	38.2	38.0	37.9	37.9	37.8
732 - 2196 MWh	17.1	16.9	16.6	16.3	15.9	15.6	15.2	14.8	14.5	14.2	13.8
2196 - 5860 MWh	11.9	11.7	11.6	11.3	11.1	10.8	10.5	10.3	10.1	9.8	9.6
> 5860 MWh	20.8	20.5	20.2	19.8	19.3	18.8	18.4	18.0	17.6	17.2	16.8
Total NDM Consumption	325.2	326.6	326.4	325.8	324.6	323.3	321.7	320.4	319.4	318.0	316.5
DM Firm Consumption	28.7	28.3	27.9	27.6	27.2	26.9	26.5	26.2	25.8	25.5	25.2
Total Firm Consumption	353.9	355.0	354.3	353.4	351.8	350.1	348.2	346.6	345.2	343.5	341.7
Firm Shrinkage	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total Firm Demand	354.4	355.5	354.9	353.9	352.3	350.7	348.7	347.1	345.7	344.0	342.2
DM Interruptible Consumption	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Interruptible Shrinkage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Interruptible Demand	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total DM Consumption	28.7	28.3	27.9	27.6	27.2	26.9	26.5	26.2	25.8	25.5	25.2
Total Shrinkage	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total LDZ Demand	354.4	355.5	354.9	353.9	352.3	350.7	348.7	347.1	345.7	344.0	342.2

Table 13: Forecast 1 in 20 Peak Day demand – Scotland LDZ by load categories (GWh)

1 in 20 Peak Day demand forecast – South East LDZ by load category											
Financial year	**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**
0 - 73.2 MWh	344.3	343.2	342.8	342.0	341.1	340.0	338.4	337.3	336.3	335.0	333.6
73.2 - 732 MWh	45.1	47.2	47.0	46.9	46.6	46.4	46.1	45.7	45.4	45.2	44.9
732 - 2196 MWh	14.5	14.3	14.1	13.8	13.5	13.1	12.7	12.4	12.1	11.8	11.5
2196 - 5860 MWh	8.8	8.7	8.6	8.4	8.2	7.9	7.7	7.5	7.3	7.2	7.0
> 5860 MWh	12.5	12.3	12.2	11.9	11.6	11.3	11.0	10.7	10.4	10.2	9.9
Total NDM Consumption	425.3	425.6	424.6	423.1	421.0	418.7	415.9	413.7	411.6	409.4	406.9
DM Firm Consumption	40.7	39.8	39.4	39.1	38.8	38.4	38.1	37.8	37.5	37.2	36.9
Total Firm Consumption	466.0	465.4	464.0	462.2	459.7	457.2	454.0	451.5	449.1	446.6	443.8
Firm Shrinkage	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Total Firm Demand	466.8	466.2	464.9	463.0	460.6	458.0	454.9	452.3	450.0	447.4	444.6
DM Interruptible Consumption	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Interruptible Shrinkage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Interruptible Demand	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total DM Consumption	40.7	39.8	39.4	39.1	38.8	38.4	38.1	37.8	37.5	37.2	36.9
Total Shrinkage	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Total LDZ Demand	466.8	466.2	464.9	463.0	460.6	458.0	454.9	452.3	450.0	447.4	444.6

Table 14: Forecast 1 in 20 Peak Day demand – South East by load categories (GWh)

1 in 20 Peak Day demand forecast – South LDZ by load category											
Financial year	**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**
0 - 73.2 MWh	230.9	230.7	230.5	230.1	229.5	228.8	227.7	227.1	226.4	225.6	224.7
73.2 - 732 MWh	35.8	36.2	36.2	36.4	36.4	36.4	36.4	36.3	36.3	36.4	36.4
732 - 2196 MWh	13.8	13.5	13.3	13.0	12.7	12.4	12.0	11.8	11.5	11.2	10.9
2196 - 5860 MWh	7.7	7.5	7.4	7.2	7.1	6.9	6.7	6.5	6.4	6.2	6.1
> 5860 MWh	17.1	16.8	16.5	16.1	15.7	15.3	14.9	14.6	14.2	13.9	13.5
Total NDM Consumption	305.3	304.7	303.9	302.8	301.3	299.8	297.8	296.2	294.8	293.3	291.6
DM Firm Consumption	24.1	23.6	23.1	22.7	22.3	21.9	21.5	21.2	20.8	20.4	20.1
Total Firm Consumption	329.4	328.2	327.0	325.6	323.7	321.7	319.3	317.4	315.6	313.7	311.6
Firm Shrinkage	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Total Firm Demand	330.0	328.8	327.6	326.1	324.2	322.2	319.9	317.9	316.2	314.3	312.2
DM Interruptible Consumption	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Interruptible Shrinkage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Interruptible Demand	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total DM Consumption	24.1	23.6	23.1	22.7	22.3	21.9	21.5	21.2	20.8	20.4	20.1
Total Shrinkage	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Total LDZ Demand	330.0	328.8	327.6	326.1	324.2	322.2	319.9	317.9	316.2	314.3	312.2

Table 15: Forecast 1 in 20 Peak Day demand – South LDZ by load categories GWh)

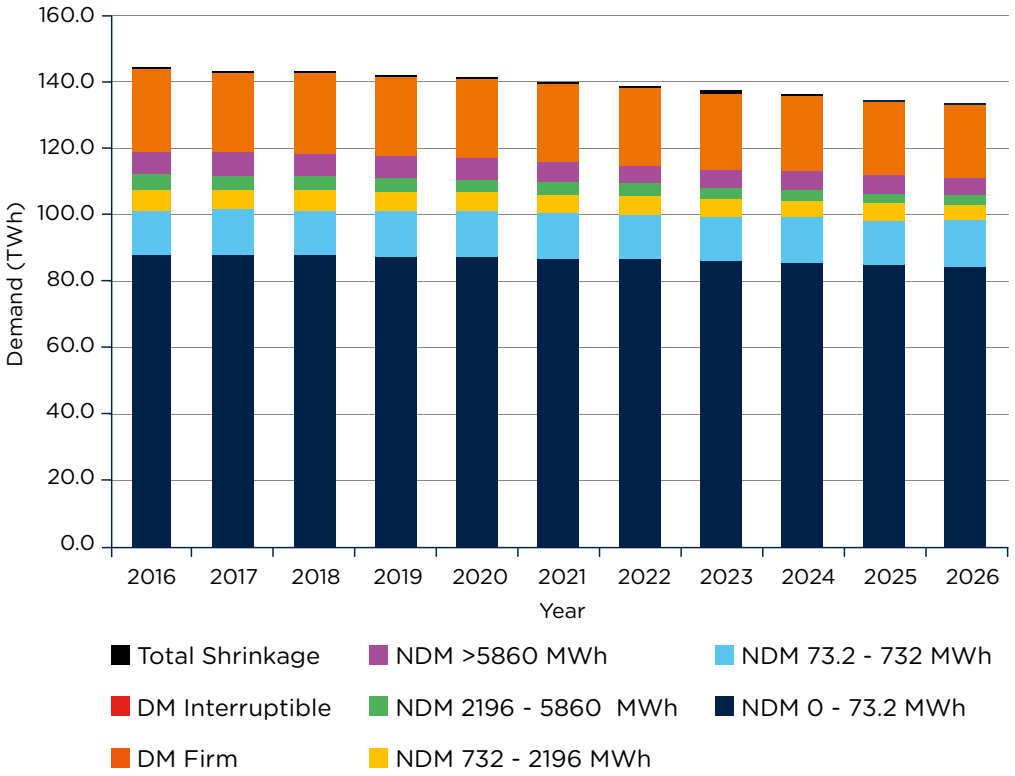


Figure 16: Annual forecast demand SGN overall

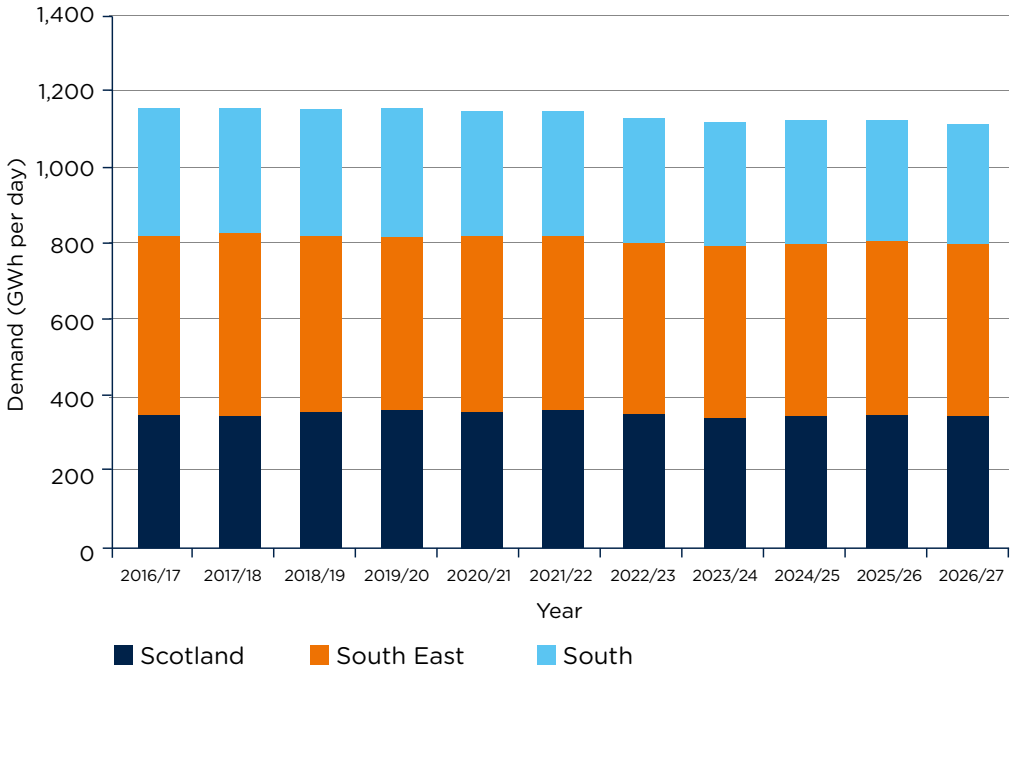


Figure 17: Forecast 1 in 20 Peak Day firm demand SGN overall

Back to 'The next ten years' - Demand forecasting

Appendix 2

2016 flows

This appendix describes annual flows during the calendar year 2016.

Annual flows
Forecasts of annual demand are based on average weather conditions. Therefore, when comparing actual demand with forecasts, demand must be adjusted to take account of the difference between actual weather conditions and seasonal normal weather. The result of this adjustment is the weather corrected demand.

Recent winters have included some of the warmest of any in the weather data history employed for demand modelling, dating back to 1960-61. Consequently, the basis of the average weather condition used for demand forecasting purposes has been adjusted to better reflect these conditions. Anecdotal evidence to the contrary is based on specific days or weeks and not the entire winter period. As a result of this, the 2016 weather corrected annual demands and forecasts are based on the industry's current view based on research in cooperation with the Hadley Centre, which is part of the Met Office.

Tables 16 to 18 provide a comparison of actual and weather corrected demands during the 2016 calendar year with the forecasts presented in the 2016 LTDS. Annual demands are presented in the format of LDZ load bands/ categories, consistent with the basis of system design and operation.

Note: Figures may not sum exactly due to rounding.

Annual demand for 2016 (TWh) – Scotland LDZ			
	Actual demand	Weather corrected demand	2016 LTDS forecast demand
0 - 73.2MWh	30.1	28.7	29.6
73 - 5860MWh	9.1	8.8	8.5
>5860MWh Firm	12.7	12.6	12.6
Total LDZs	51.9	50.1	50.7
Shrinkage	0.2	0.2	0.2
Total Throughput	52.1	50.3	50.9

Table 16: Annual demand for 2016 (TWh) – Scotland LDZ

Annual demand for 2016 (TWh) – South East LDZ			
	Actual demand	Weather corrected demand	2016 LTDS forecast demand
0 - 73.2MWh	38.7	36.7	36.1
73 - 5860MWh	8.8	8.4	8.3
>5860MWh Firm	9.3	9.2	11.5
Total LDZs	56.8	54.4	55.9
Shrinkage	0.4	0.4	0.3
Total Throughput	57.2	54.8	56.2

Table 17: Annual demand for 2016 (TWh) – South East LDZ

Annual demand for 2016 (TWh) – South LDZ			
	Actual demand	Weather corrected demand	2016 LTDS forecast demand
0 - 73.2MWh	24.5	23.2	22.7
73 - 5860MWh	6.8	6.5	6.2
>5860MWh Firm	8.5	8.4	8.7
Total LDZs	39.8	38.0	37.6
Shrinkage	0.2	0.2	0.2
Total Throughput	40.0	38.2	37.8

Table 18: Annual demand for 2016 (TWh) – South LDZ

LDZ winter severity statistics

Sourced from the May 2017 National Grid report on winter severity statistics 2016/2017. These statistics cover the gas industry interpretation of winter lasting from October to March inclusively.

By way of explanation a winter can be either warm, cold or average. The 1 in "X" is a measure of how far away from average it is and if it is either cold or warm. The most severe cold winter is the one that has happened once in the last 56 years. This would be a 1 in 56, cold winter and this occurred in 1962/63.

Winter 2016/17 was the ninth warmest winter recorded in the last 56 years.

1 in X winter severities per LDZ	
LDZ	1 in "X"
Scotland	1 in 9, warm
South East	1 in 5, warm
South	1 in 4, warm
National	1 in 6, warm

Table 19: 1 in X winter severities per LDZ

Maximum and minimum flows

Table 20 indicates the highest and lowest daily demands seen between October 2016 and September 2017 and when they occurred.

Actual flows on the maximum and minimum demand day of gas year 2016/17		
LDZ	Maximum Day 2016/2017	Minimum Day 2016/17
Scotland	23.30 mscmd (24 November 2016)	4.69 mscmd (27 May 2017)
South East	33.09 mscmd (26 January 2017)	4.57 mscmd (21 June 2016)
South	20.97 mscmd (10 February 2017)	3.44 mscmd (18 June 2017)

Table 20: Actual flows on the maximum and minimum demand day of gas year 2016/17

Percentage flows

Table 21 shows the forecast Peak Day flow. It then converts the maximum and minimum values from table 20 above to percentages of the peak flow. Demand in the South varied from 20.97mscm or 67% of Peak Day down to 3.44mscm or 1% of Peak Day.

Maximum and minimum percentage flows of gas year 2016/17			
LDZ	Forecast Peak Day for 2016/17 (% of peak)	Maximum Day 2016/17 as %age	Minimum Day 2016/17 as %age
Scotland	31.71 mscmd	73.5%	14.8%
South East	43.64 mscmd	75.8%	10.5%
South	31.28 mscmd	67%	11%

Table 21: Maximum and minimum percentage flows of gas year 2016/17

Appendix 3

Glossary

Annual Quantity (AQ)
The AQ of a supply point is its annual consumption over a 365 or 366-day year, under conditions of average weather.

Bar
The unit of pressure that is approximately equal to atmospheric pressure (0.987 standard atmospheres). Where bar is suffixed with the letter g, such as in Barg or mbarg, the pressure being referred to is gauge pressure, ie relative to atmospheric pressure. One-millibar (mbar) equals 0.001 Bar.

Biomethane
Biogas that has been cleaned in order to meet GSMR requirements.

Calorific Value (CV)
The ratio of energy to volume measured in Mega joules per cubic meter (MJ/m3), which for a gas is measured and expressed under standard conditions of temperature and pressure.

Cubic Metre (m^3)
The unit of volume, expressed under standard conditions of temperature and pressure, approximately equal to 35.37 cubic feet. One million cubic metres (mcm) are equal to 106 cubic metres, one billion cubic metres (bcm) equals 109 cubic metres.

Daily Metered Supply Point
A supply point fitted with equipment, for example, a data-logger, which enables meter readings to be taken daily.

Distribution Network (DN)
An administrative unit responsible for the operation and maintenance of the local transmission system (LTS) and < 7Barg distribution network's within a defined geographical boundary, supported by a national emergency services organisation.

Distribution System
A network of mains operating at three pressure tiers: intermediate (7 to 2Barg), medium (2Barg to 75mbarg) and low (less than 75mbarg).

Diurnal Storage
Gas stored for the purpose of meeting within day variations in demand. Gas can be stored in special installations, such as storage facilities, or in the form of linepack within transmission, ie > 7Barg pipeline systems.

DECC
Department of Energy and Climate Change. In 2016 absorbed into Department for Business, Energy & Industrial Strategy.

Embedded Entry Points
Entry point which is not an offtake from NTS. Can be a biomethane or other unconventional source of gas.

Exit Zone
A geographical area within a LDZ, which consists of a group of supply points, which on a Peak Day, receive gas from the same NTS Offtake.

Formula Year
A twelve-month period commencing 1 April predominantly used for regulatory and financial purposes.

Future Energy Scenarios (FES)
National Grid's annual industry-wide consultation process encompassing the Ten Year Statement, targeted questionnaires, individual company and industry meetings, feedback on responses and investment scenarios. Previously called Transporting Britain's Energy.

Gas Day
Used by gas industry for buying and selling gas on open market. Defined as running from 05:00 on one day to 05:00 on the following day.

Gas Transporter (GT)
Formerly Public Gas Transporter (PGT). GTs such as SGN, are licensed by the Gas and Electricity Markets Authority to transport gas to consumers.

Gas Supply Year
A twelve-month period commencing 1 October also referred to as a Gas Year.

GS(M)R
Gas Safety (Management) Regulations 1996.

HMG
Her Majesty's Government.

Interconnector
This is a pipeline transporting gas from or to another country.

Kilowatt hour (kWh)
A unit of energy used by the gas industry. Approximately equal to 0.0341 therms. One Megawatt hour (MWh) equals 103 kWh, one Gigawatt hour (GWh) equals 106 kWh and one Terawatt hour (TWh) equals 109 kWh.

Linepack
The usable volume of compressed gas within the national or local transmission system at any time.

Liquefied Natural Gas (LNG)
Gas stored in liquid form. Can be firm or constrained (CLNG). Shippers who book a constrained service agree to allow us to use some of their gas to balance the system.

Local Distribution Zone (LDZ)
A geographic area supplied by one or more NTS offtakes. Consists of high pressure (> 7Barg) and lower pressure distribution system pipelines.

Local Transmission System (LTS)
A pipeline system operating at > 7Barg, that transports gas from NTS offtakes to distribution systems. Some large users may take their gas direct from the LTS.

National Balancing Point (NBP)
An imaginary point on the UK gas supply system through which all gas passes for accounting and balancing purposes.

National Transmission System (NTS)
A high-pressure system consisting of terminals, compressor stations, pipeline systems and offtakes. Designed to operate at pressures up to 85Barg. NTS pipelines transport gas from terminals to NTS offtakes.

National Transmission System Offtake
An installation defining the boundary between NTS and LTS or a very large consumer. The offtake installation includes equipment for metering, pressure regulation, etc.

Odorisation
The process by which the distinctive odour is added to gas supplies to make it easier to detect leaks. Odorisation is provided at all Network Entry points.

Office of Gas and Electricity Markets (Ofgem)
The regulatory agency responsible for regulating the UK's gas and electricity markets.

Offtake
An installation defining the boundary between NTS and LTS or a very large consumer. The offtake installation includes equipment for metering, pressure regulation, etc.

ONS
Office for National Statistics.

Peak Day Demand (1 in 20 Peak Demand)
The 1 in 20 Peak Day demand is the level of demand that, in a long series of winters, with connected load held at the levels appropriate to the winter in question, would be exceeded in one out of 20 winters, with each winter counted only once.

Price Control Review
Ofgem's periodic review of Transporter allowed returns. The current period has been called RIIO and will cover April 2013 to March 2021.

PRI - Pressure Regulating Installation
The replacement term for PRS, district governor and all other local terms (such as STRS or TRS) when IGEM standard TD13 was introduced.

Seasonal Normal Temperature (SNT)
Seasonal Normal Temperature is the average temperature that might be expected on any given day, based on historical data.

Shipper or Network Code Registered User (System User)
A company with a shipper licence able to buy gas from a producer, sell it to a supplier and employ a GT to transport gas to consumers.

Shrinkage
Gas that is input to the system but is not delivered to consumers or injected into storage. It is either Own Use Gas or Unaccounted for Gas.

Supplier
A company with a supplier's licence contracts with a shipper to buy gas, which is then sold to consumers. A supplier may also be licensed as a shipper.

Supply Hourly Quantity (SHQ)
The maximum hourly consumption at a supply point.

Supply Offtake Quantity (SOQ)
The maximum daily consumption at a supply point.

Therm
An imperial unit of energy. Largely replaced by the metric equivalent: the kilowatt hour (kWh). One therm equals 29.3071 kWh.

Unaccounted for Gas (UAG)
Gas lost during transportation. Includes leakage, theft and losses due to the method of calculating the Calorific Value.

Uniform Network Code (UNC)
The Uniform Network Code covers the arrangements between National Grid, shippers and the DNs following the selling of four of the networks.

UK-Link
A suite of computer systems that supports Uniform Network Code operations. Includes Supply Point Administration; Invoicing, and the Sites and Meters database.

VLDMC
Very Large Daily Metered Customer. A site which uses greater than 50,000,000 therms per annum.

Appendix 4

Links and contacts

SGN contacts

sgn.co.uk
You can apply for a new gas connection online through our website and learn more about our Help to Heat scheme. You can also find further information about our planned and emergency works in your area.

network.capacity@sgn.co.uk
Our dedicated email address for any questions regards the Long Term Development Statement.

GT1.GT2@sgn.co.uk
Mailbox for requests for increased loads at existing sites where meter capacity may be an issue.

linesearchbeforeudig.co.uk
Safety is our number one priority, before you dig always request details of our pipework's location via this online service.

customer@sgn.co.uk
Our 24-hour Customer Service team can be reached by email or by calling 0800 912 1700.
You can also find us on Facebook or follow us on Twitter at @SGNgas.

lets.chat@sgn.co.uk
We are always interested in engaging with our stakeholders This is how we look to improve the way we do things by listening to your feedback.

paul.denniff@sgn.co.uk
Network & Safety Director

joel.martin@sgn.co.uk
Regulatory Finance Manager – point of contact for storage and biomethane enquiries.

External contacts

ofgem.gov.uk
Office of Gas and Electricity Markets. Regulating authority for gas industry and markets.

Joint Office of Gas Transporters
The Joint Office is where the UNC can be found. There are also details of live modifications to the document and the various working bodies relating to the gas industry.

BEIS - Department for Business Energy & Industrial Strategy
BEIS brings together responsibilities for business, industrial strategy, science, innovation, energy, and climate change. Formerly the department of Energy and Climate Change (DECC).

www.xoserve.com
One of several service providers supporting the UK Gas Industry.

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Water Resources Management Plan

2010–2035

Main Report

October 2009

Southern Water

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GLOSSARY OF TERMS

Term	*Meaning / Definition*
AA	Annual Average
ADO	Average Deployable Output
AISC	Average Incremental Social Cost
AMP4	Asset Management Plan 4 (for the period 2005-10)
AMP5	Asset Management Plan 5 (for the period 2010-15)
ASR	Aquifer Storage and Recovery
BAG	Benefits Assessment Guideline
BSWE	Base Service Water Efficiency target
BWHW	Bournemouth and West Hampshire Water, a neighbouring water company
Capex	Capital expenditure
CC	Climate Change
CDD	Cistern Displacement Device
CP	Critical Period
CWA	Commercial Water Audit
Defra	Department for Food and Rural Affairs
DI	Distribution Input
DO	Deployable Output
DWRMP	Draft Water Resources Management Plan, submitted for consultation in March 2008
DYAA	Dry Year Annual Average planning scenario
DYCP/PDO	Dry Year Critical Period planning scenario
DYMDO/MDO	Dry Year Minimum Deployable Output planning scenario
EA	Environment Agency
ELL	Economic Level of Leakage
EU	European Union
FDWS	Folkestone and Dover Water Services, a neighbouring water company
HA	Hampshire Andover Water Resource Zone
HHA	Household Water Audit
HK	Hampshire Kingsclere Water Resource Zone
HS	Hampshire South Water Resource Zone
IOW	Isle of Wight Water Resource Zone
JR07	June Return 2007
KM	Kent Medway Water Resource Zone
KT	Kent Thanet Water Resource Zone
l/h/d	Litres per head per day

LoS	Levels of Service
MDO	Minimum Deployable Output
Ml	Megalitres
Ml/d	Megalitres per day
MLE	Maximum Likelihood Estimation
NYAA	Normal Year Annual Average planning scenario
Ofwat	Office of Water Services; the water industry's financial regulator
Opex	Operational expenditure
PCC	Per Capita Consumption
PDO	Peak Deployable Output
PET	Potential Evapo-transpiration
PR	Periodic Review
PR04	Periodic Review conducted in 2004
PR09	Periodic Review 2009
PWC	Portsmouth Water, a neighbouring water company
RSA	The Environment Agency's Restoring Sustainable Abstraction programme
SAC	Special Area of Conservation
SB	Sussex Brighton Water Resource Zone
SDB	Supply Demand Balance
SDS	Strategic Direction Statement – outlining strategic priorities for water and wastewater services
SEA	Strategic Environmental Assessment
SELWE	Sustainable Economic Level of Water Efficiency
SEW	South East Water, a neighbouring water company, which, as of December 2007, incorporates the former Mid Kent Water
SESW	Sutton and East Surrey Water, a neighbouring water company
SH	Sussex Hastings Water Resource Zone
SN	Sussex North Water Resource Zone
SW	Sussex Worthing Water Resource Zone
SWS	Southern Water Services Ltd; also called 'the company' in this WRMP
TWUL	Thames Water, a neighbouring water company
WAFU	Water Available For Use
WFD	The EU's Water Framework Directive
WRMP	Water Resources Management Plan – as required for PR09
WRP	Water Resources Plan – as formulated for PR04
WRPG	Water Resources Planning Guidelines, produced by the Environment Agency
WRSE	Water Resources in the South East Group; a group chaired by the EA and comprising representatives from water companies, Ofwat, SEERA and Natural England

WRZ	Water Resource Zone
WSW	Water Supply Works
WTP	Willingness To Pay
WTW	Water Treatment Works

Executive Summary

This Water Resources Management Plan sets out in detail how Southern Water proposes to ensure that there is sufficient security of water supplies to meet the anticipated demands of all its customers over the 25-year planning period from 2010 to 2035.

There are many challenges over the next 25 years to be faced by the water industry in general, and the South East of England in particular. These challenges include: Increased demand from housing growth; the effects of climate change and the need to reduce energy use; and maintaining high levels of environmental protection. Our plan has to be robust enough in the light of these challenges to maintain security of supplies and provide the best value for customers.

Southern Water also faces a number of specific challenges including constraints on the development of new resources; the complexity of its own separated areas of supply; and the need to reach the best regional solution with the other companies within the region.

This plan shows how Southern Water has responded positively to these challenges by taking a robust approach to planning a resilient system for the future. The plan is consistent with the views expressed in the company's Strategic Direction Statement which was published in December 2007.

All water company Water Resources Management Plans have for the first time been subject to full public statutory consultation with regulators, stakeholders, customers and other interested parties. This has come at a critical time for water resources planning and Southern Water welcomes the opportunity to receive the views of all parties as it plans for the future.

The final version of this Water Resources Management Plan has taken into account the views expressed in the 125 representations received during the consultation process on the draft Water Resources Management Plan (draft WRMP) and reinforces the statements made in the company's Statement of Response to the representations received.

A draft Environmental Report was produced at the time of the draft WRMP as part of the Strategic Environmental Assessment (SEA) process. Since then the Environmental Report has been revised and an SEA Statement produced. A high-level appropriate assessment has also been undertaken of the plan.

The plan is firmly "demand management-led" and assumes: The completion of a programme of universal metering by 2015; further reductions in leakage; and the continued promotion of water efficiency initiatives to meet both the Ofwat baseline water efficiency target and as part of a least cost strategy. There will also need to be some new resource developments. We have been an active member of the Water Resources in the South East (WRSE) group whose results have informed this plan. This means that the strategy also firmly incorporates the requirement for a regional solution and therefore takes the needs of other water companies into account.

The strategy for our Western Area takes account of discussions with Ofwat and the Environment Agency and additional work since submission of the draft WRMP to explore options for implementation of Sustainability Reductions on the River Itchen. The Testwood schemes included in this plan for Hampshire South Water Resource Zone (WRZ) are required to allow the progressive implementation of Sustainability Reductions from 2015.

The value of the 25-year company preferred regional strategy is £283.4 million (based on NPV costs), of which the majority, £175.6 million, will be for reducing our abstraction from the environment through the introduction of demand management measures, and £107.8 million for new resource developments.

This significant water resources investment strategy demonstrates how Southern Water is committed to achieving security of supplies for the next 25 years, and represents the least-cost environmentally sustainable solution.

A summary of the 25-year strategy is as follows:

Water Resource Zone	Schemes During AMP5	Schemes beyond AMP 5 – company only solution	Schemes beyond AMP 5 – Water Resources in the South East of England
Isle of Wight	• Enhanced Metering • Asset improvement schemes for groundwater sources (1.55 Ml/d peak, 1.05 Ml/d average) • Optimisation of inter-zonal transfers (cross-Solent main)	• Water Efficiency kits • 1.1 Ml/d further leakage reduction • Refurbishment of L536 borehole • Refurbishment of K628 borehole	As previous column
Hants South	• Universal Metering • Asset improvement schemes for groundwater sources (12.00 Ml/d peak, 8.00 Ml/d average) • Increase Testwood WSW to licence limit • Development of the enabling Testwood to Otterbourne transfer • Optimisation of inter-zonal transfers (cross-Solent main)	• Candover & Alre augmentation schemes • 7.8 Ml/d of leakage reduction • R176 borehole rehabilitation And, subject to satisfactory completion of AMP5 schemes: • River Itchen Sustainability Reductions residual at end of AMP5	As previous column
Hants Kingsclere	• Universal Metering • Asset improvement schemes for groundwater sources (1.2 Ml/d peak only)		
Hants Andover	• Universal metering • Asset improvement schemes for groundwater sources (0.2 Ml/d peak & average)		
Sussex North	• Universal metering • Renewal of the existing bulk supply contract from Portsmouth Water • Asset improvement schemes for groundwater sources (0.30 Ml/d peak, 0.10 Ml/d average) • Optimisation of inter-zonal transfers (from Sussex Worthing) • River Arun Abstraction	• Renewal of the bulk supply of contract to South East Water	As previous column

Sussex Worthing	• Universal metering • Asset improvement schemes for groundwater sources (1.75 Ml/d peak, 4.25 Ml/d average) • Optimisation of inter-zonal transfers (to Sussex North and Sussex Brighton)		
Sussex Brighton	• Universal metering • Asset improvement schemes for groundwater sources (7.25 Ml/d peak & average) • Optimisation of inter-zonal transfers (from Sussex Worthing)		• Provision of a 4 Ml/d bulk supply to South East Water
Sussex Hastings	• Universal metering • Asset improvement schemes for groundwater sources (0.25 Ml/d peak only) • Optimisation of inter-zonal transfers (Bewl-Darwell transfer)	• Renewal of bulk supply to South East Water • Licence variation at Darwell reservoir • Re-introduction of the S556 source • 0.5 Ml/d leakage reductions	As previous column
Kent Medway	• Universal metering • Asset improvement schemes for groundwater sources (10.25 Ml/d peak, 8.75 Ml/d average) • Optimisation of inter-zonal transfers (to Kent Thanet)	• Renewal of the C522 scheme bulk supply to South East Water • Licence variation to the River Medway Scheme • Licence variation of S271 groundwater source • 6.5 Ml/d of further leakage reduction	As previous column, but additional schemes • Aylesford wastewater recycling scheme • Raising Bewl Water An the assumption that these will enable the following • Bulk Supply from Bewl Water to South East Water • Bulk Supply from Burham to South East Water
Kent Thanet	• Universal metering • Optimisation of inter-zonal transfers (from Kent Medway) • Renewal of the bulk Supply to Folkestone and Dover	• 0.1 Ml/d of further leakage reduction	As previous column, but additional schemes • Enhancement of the bulk Supply to Folkestone and Dover

1 Introduction

1.1 Purpose of this Water Resources Management Plan

This Water Resources Management Plan (also referred to as WRMP) sets out in detail how Southern Water proposes to ensure that there is sufficient security of water supplies to meet the anticipated demands of all its customers over the 25-year planning period from 2010 to 2035. The company currently supplies a total of 2.26 million customers across an area of some 4450 sq. kms in the South East of England, from East Kent in the east, through Sussex, to Hampshire and the Isle of Wight in the west.

This is the first time that all water company WRMPs have been subject to statutory consultation with regulators, stakeholders, customers and any other interested parties. This comes at a critical time for water resources planning in the South East. Southern Water welcomes the views expressed in the 125 representations received during the consultation process.

In looking at the next 25-year planning period, there is no doubt that major challenges face water companies in the South East region, including Southern Water in particular. Although not all are new to WRMPs, a number of factors have brought these challenges into much sharper focus since the last Water Resources Plan (WRP) which was published in 2004. These factors include:

- The need to ensure there is a robust and resilient water supply system that will not fail, even under the most severe conditions;
- The additional demands from the growth in new housing proposed by the Government and the likelihood that current projections of growth will be further increased;
- The need to deliver a regional solution with other companies that constitutes a least cost and sustainable solution;
- The need to take into account the growing impact of climate change on all aspects of forward planning (including energy use), not just drought-related impacts;
- The requirement under recent EU environmental legislation (Habitats Directive) for potentially very sizeable reductions in the water available for supply from some of the company's existing sources. These reductions are much greater than envisaged for the last WRP in 2004;
- The need to take account of the lessons learnt from the severe drought of 2004-06;
- The company's robust investigation and re-evaluation over the last three years of the reliable yield from its sources;
- The marked increase in the frequency and severity of droughts in the last two decades, and a growing acknowledgement in recent years within the industry of the need to plan for further increases in the frequency and severity of future droughts;
- The potential for further reductions in water available for supply as other related legislative provisions are implemented in the future (e.g. the Water Framework Directive, and the Restoring Sustainable Abstraction programme), although companies have been instructed not to include them in the WRMP;
- The requirement to take into account how the Strategic Environmental Assessment (SEA) has informed the WRMP; and

- The opportunity to take into consideration the various issues raised during the consultation process.

Southern Water has responded positively to these challenges in this WRMP which sets out a robust approach to planning a resilient system to ensure security of supplies for the next 25 years. The WRMP demonstrates that the company preferred regional strategy to address all these challenges comprises a combination of measures across different parts of its supply area. The balance of such measures will include: demand management measures such as increased meter installation; reduced leakage and water efficiency initiatives; as well as new resource developments and infrastructure improvements, as required. This strategy has taken into account a range of economic, environmental, and political and social considerations, including those concerning carbon footprint and energy usage, along with the results of the SEA. The certainty with which each of the particular measures will deliver the required outcomes will also be critical, as will the requirement placed on all water companies to, wherever possible, develop "least-cost" solutions in order to minimise increases in customer bills.

In summary, this WRMP shows how Southern Water proposes to ensure that it can supply the needs of its customers over the next 25 years in a manner that is: robust; resilient; flexible; and economically, politically and socially acceptable; whilst being environmentally sustainable.

1.2 Statutory Requirements for this Water Resources Management Plan

Water companies have previously prepared WRPs on a voluntary basis. Companies are now required to prepare and maintain WRMPs on a statutory basis. The process also now requires these WRMPs be subject to public consultation.

This WRMP has been prepared according to the requirements as set out by the following statutory provisions:

- Sections 37A and 37B of the Water Industry Act 1991, inserted by virtue of Section 62 of the Water Act 2003;
- The Water Resources Management Plan Regulations 2007 (SI 2007/ 727);
- The Water Resources Management Plan Direction 2007;
- The Water Resources Management Plan (No.2) Direction 2007;
- The Water Resources Management Plan (No.2) (Amendment) Direction 2007;
- The Southern Water Services Limited Water Resources Management Plan Direction 2007; and
- The Water Resources Management Plan Direction (England) 2008.

Copies of relevant statutory provisions are given in Appendix A.

Table 1.1 shows the statutory requirements as part of the above provisions, and cross-references them to the relevant sections of this WRMP.

The WRMP has to be maintained, and is therefore a live document which Southern Water will be keeping under review. Southern Water is required to send to the Secretary of State a statement of its conclusions following each review, which is to be conducted on at least an annual basis. Southern Water will prepare a revised WRMP where:

- The review indicates a "material change of circumstances"; or
- The Secretary of State directs it to; and
- In any event, not later than 5 years after this WRMP is published.

Southern Water published its Drought Plan in September 2008, which was also subject to the process of statutory consultation. The Drought Plan demonstrates how the company would manage the security of supplies in the event of impending or actual drought events, which are normally of shorter duration than the planning period for the WRMP.

It should be noted that, according to Section 37B (10) of the Water Industry Act 1991, this WRMP does not include any information that is considered commercially sensitive, nor does it include any information that is adjudged to be contrary to the interests of national security.

		Contents of a WRMP as specified by legislation	WRMP Ref.
(a)	WIA 1991 S.37A (3) (a)	Southern Water's estimate of the quantities of water required to meet its obligations.	Section 10.3.5, Section 10.4.5, Section 10.5.5
(b)	WIA 1991 S.37A (3) (b)	The measures which Southern Water intends to take or continue to take to meet its obligations.	Table 10.8, Table 10.16, Table 10.24
(c)	WIA 1991 S.37A (3) (b)	The likely sequencing and timing for implementing those measures.	
(d)	Dir 2007 S.2	Planning period means 25 years from 1st April 2010.	Section 1.1
(e)	Dir 2007 S.3 (a)	How frequently Southern Water expects that it may need to impose prohibitions or restrictions on its customers in relation to:	Section 3.3.1, Table 3.1
		(i) The provisions of a Drought Order restricting "non essential uses" under s.76 WRA 1991.	As above
		(ii) A Drought Order restricting "non essential uses" under s.74(2)(b) WRA 1991; and	Section 3.3.1
		(iii) The provisions of an Emergency Drought Order under s.75 WRA 1991.	As above
(f)	Dir 2007 S.3 (b)	The appraisal methodologies which Southern Water has used in choosing the measures it intends to take or continue for the purpose of making its WRMP.	Section 8
(g)	Dir 2007 S.3 (c)	The emissions of greenhouse gases which are likely to arise as a result of each measure which Southern Water has identified to meet its obligations.	Section 11
(h)	Dir 2007 S.3 (d)	How the supply and demand forecasts contained in the WRMP have taken into account the implications of climate change.	Section 5.7, Section 6.5.7
(i)	Dir 2007 S.3 (e)	How Southern Water has estimated future household demand in its area over the planning period.	Section 6.5
(j)	Dir 2007 (2) S.2 (a)	Its estimate of the increase in the number of domestic premises in its area, over the planning period, in respect of which it will be obliged to fix charges by way of a water meter by reason of a notice served by the consumer under s.144A WIA 1991.	Section 6.5.3
(k)	Dir 2007 (2) S.2 (b)	Where the whole or part of its area has been determined by the Secretary of State to be an area of serious water stress, Southern Water's estimate of the number of domestic premises which are in that area and in respect of which it will fix charges by way of water metering.	Section 6.5.3

		Contents of a WRMP as specified by legislation	WRMP Ref.
(l)	Dir 2007 (2) (Am) S.2 (c)	Its estimate of the increase in the number of domestic premises in its area over the planning period in respect of which Southern Water may be able to make a charges scheme[1] because the conditions for prohibiting such a charge scheme[2] are not met (excluding domestic premises which are in the estimate in (k) above).	Section 6.5.3
(m)	Dir 2007 (2) S.2 (d)	Full details of the likely effect of what is forecast pursuant to the estimates provided under paragraphs (j), (k) and (l) above.	Section 10.3.8, Section 10.4.8, Section 10.5.8
(n)	Dir 2007 (2) S.2 (e)	The estimated cost to the water undertaker in relation to the installation and operation of water meters to meet what is forecast pursuant to the estimates provided under paragraphs (j), (k) and (l) above, and a comparison of that cost with the other measures which it might take to manage demand for water, or increase supplies of water, to meet its obligations.	Section 10.3.13, Section 10.4.13, Section 10.5.13
(o)	Dir 2007 (2) S.2 (f)	A programme for the implementation of what is forecast pursuant to paragraphs (k) and (l)	Section 6.5.3
(p)	SWS Dir 2007	Submission of draft water resources management plan to Secretary of State by 15th March 2008	Appendix A
(q)	Dir (England) 2008	Revised submission date for statement of response, to 29th January 2009 for Southern Water	Appendix A

Table 1.1 References to Statutory Requirements

[1] Defined under s.143 WIA 1991 to be a scheme which fixes, over a 12 month period, the charges to be paid for any services provided by the undertaker in the course of carrying out its functions

[2] Those conditions are set out in s144B and the Water Industry (Prescribed Conditions) Regulations 1999 as amended

1.3 Consultation Requirements

There have now been three phases of the consultation process for this WRMP. Firstly, in accordance with Section 37A (8) of The Water Industry Act 1991, water companies must undertake pre-consultation with Ofwat, the Environment Agency, the Secretary of State and any licensed suppliers in its supply area. Southern Water took the opportunity to widen the scope of this pre-consultation phase to include a number of other bodies, namely, neighbouring water companies, RSPB, the Wildlife Trusts and the Consumer Council for Water (CCW). A copy of the pre-consultation letter and full list of pre-consultation parties is given in Appendix B.

In accordance with the requirement for full public consultation, the draft Water Resources Management Plan (DWRMP) was sent to those parties prescribed in Section 2(2) of The Water Resources Management Plan Regulations 2007 (SI 2007/ 727), in accordance with the requirements of Section 37B of The Water Industry Act 1991. Southern Water has again taken the opportunity to widen the basis of its consultation, and a full list of consultees is given in Appendix B.

The company published the DWRMP on 1st May 2008, and the twelve week consultation period lasted from then until 25th July 2008.

The DWRMP was published for consultation in a variety of formats to ensure that it was available for both technical review/comment and also for wider public consultation.

The DWRMP was published as:

- The main consultation document comprising the Main Report and the Appendices, and a 14-question questionnaire;
- The Non-Technical Summary, giving an overview of the DWRMP; and
- A brochure giving the high level summary of the DWRMP.

As part of the consultation process, a letter was sent to more than 900 stakeholders to advise them that the consultation period had started and that the DWRMP was available on the internet.

An Environmental Report that described the outcomes from a Strategic Environmental Assessment (SEA) of the DWRMP was published for public consultation at the same time as the DWRMP.

Southern Water received 125 representations to the consultation, all forwarded via Defra.

In accordance with Section 4 of the Water Resources Management Plan Regulations 2007, water companies had to prepare and publish a Statement of Response to the representations received during the consultation process. Southern Water published its Statement of Response to the representations received, according to the Water Resources Management Plan Direction (England) 2008, on 29th January 2009. The Statement of Response was available on its website. A link to the site was emailed to all those respondents who had provided an email address. A letter and CD were sent to all respondents who had provided an address, with the offer of a paper copy of the Statement of Response, if requested.

The actions described in the Statement of Response were taken into account in the WRMP - Revised Draft following Consultation which was issued to Defra and the Environment Agency in March 2009.

On 3rd August 2009, Defra announced that the company should publish its WRMP in its final version.

1.4 Strategic Environmental Assessment (SEA)

The requirement to undertake an SEA in the European Union (EU) came about when the EC Directive (2001/42/EC) 'on the assessment of the effects of certain plans and programmes on the environment', known as the 'SEA Directive', came into force in 2004. The Directive was transposed into UK law by the Environmental Assessment of Plans and Programmes Regulations (SI 1633/2004). The Directive and associated regulations make an SEA a mandatory requirement for certain plans and programmes which are likely to have significant effects on the environment.

The Directive's overall objective is to "provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development, by ensuring that, in accordance with this Directive, an environmental assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment."

The previous PR04 WRP did not require an SEA because it was prepared before the SEA Regulations came into force. However, the options appraisal process conducted during the AMP4 Water Resources Investigations did take account of environmental issues and the results of these assessments were taken into account in the SEA. Southern Water considers the WRMP currently being prepared as a "water management plan", within the terms of the SEA Directive, and will set the framework for future development. An SEA is therefore required to be undertaken of the WRMP.

In compliance with the appropriate sets of guidance on the SEA process, an SEA Scoping Report was produced and was published for consultation. The responses received were addressed and included in the preparation of the Draft Environmental Report. The Report summarised the findings and results of the SEA process and presented information on the likely significant effects of the WRMP options considered.

The Environmental Report was published for information and consultation alongside the draft WRMP and the results of the SEA were taken into account in the formation of the final WRMP.

The Environmental Report has been revised to incorporate consultee comments and changes to the WRMP. An Environmental Statement will be published shortly after the final WRMP, indicating how the information and results in the final WRMP and Revised Environmental Report have been influenced and informed by each other.

A high-level strategic assessment has been undertaken of the possible impact of the proposed plan on the integrity of European and Ramsar sites under the Conservation (Natural Habitats &c) Regulations 1994 (the Habitat Regulations). A report of the assessment will be published with the final WRMP.

1.5 Content and Structure of the Plan

The sections of this WRMP aim to provide a clear and logical explanation of the development of the WRMP as follows:

- **Section 2: The Southern Water Supply Area**

  Gives a brief overview of Southern Water's Supply Area, summarises the location and nature of the Water Resource Zones (WRZ), its boundaries with other companies, the main sources of water for supply, and the inter-connections with other water companies and WRZs.

- **Section 3: The Challenges Addressed in this Plan**

  Describes the major challenges that face the industry in general and also those specific to Southern Water as it seeks to plan and manage water supplies for the next 25 years.

- **Section 4: Principles of Water Resource Planning**

  Sets out the fundamental principles for developing a WRMP to ensure security of supplies, through the use of the supply demand balance.

- **Section 5: The Supply Forecast**

  Provides the details of, and results from, the extensive work undertaken to develop a robust Supply Forecast. The results are then used to develop the baseline supply demand balances and thus the WRMP strategy.

- **Section 6: The Demand Forecast**

  Describes the means by which the Demand Forecast is developed over the same period as the Supply Forecast. Forecasting demand is a particularly complex process involving a range of assumptions for the various components of demand. Clear explanations of these assumptions are provided where relevant.

- **Section 7: Dealing With Uncertainty**

  Shows how estimation of both the baseline Supply and Demand Forecasts are subject to some uncertainty, especially over a 25-year planning period. This section shows how these uncertainties are taken into account in this WRMP.

- **Section 8: Options Appraisal**

  Summarises the options appraisal process, and how both supply and demand side options have been considered in the WRMP.

- **Section 9: Formulation of the Water Resource Strategy**

  Explains the investment modelling methodology and the investment model itself, and how the robustness of the solution can be tested using scenario modelling and sensitivity testing.

- **Section 10: The Water Resources Strategy**

Describes in detail the formulation of the company preferred regional strategy for each sub-regional areas and WRZ. Starting from the baseline supply demand balance and the options available, the company preferred regional strategy is given and justified against other potential strategies under different scenarios.

- **Section 11: Overview of the Water Resources Strategy**

Summarises the key components of the company's proposed investment strategy to ensure that it provides security of supplies, in order to meet the demands for water over the 25 years between 2010 and 2035. This forms a key component of the company's detailed Business Plan for the five-year period from 2010 to 2015, as part of the proposals for revised price limits for which the approval of Ofwat will ultimately be required.

2 The Southern Water Supply Area

2.1 Overview

The Southern Water area of supply is complex in nature due to the fragmented geographical areas of supply and the inter-connections between its own supply areas as well as those with a number of other water companies. The area supplied by Southern Water covers a total of some 4,450 sq. kms, and extends from East Kent in the east, through parts of Sussex, to Hampshire and the Isle of Wight in the west. The total number of customers served is 2.26 million, with water supplied to 619,000 unmeasured properties (households and non-households) and 388,000 measured properties. Around 334,000 (35%) of the company's domestic customers are currently metered; around 93% of the households on the Isle of Wight were metered in the late 1980s as part of the National Metering Trial areas.

2.2 Water Resource Zones and Sub-Regional Areas

The geographically separate supply areas, known as Water Resource Zones (WRZs), supplied by Southern Water, and also the geographical relationship with other water companies in the region, are shown in Figure 2.1.

Figure 2.1 Southern Water's Current Area of Supply

Water resources planning takes place at the level of the Water Resource Zone (WRZ) which is the largest area in which all customers bear the same risk of restrictions during drought. There are ten WRZs in the Southern Water area. However, some of these WRZs are, or may be, connected by means of treated or raw water transfers. Therefore, for the purposes of strategic planning, where actions in one WRZ can have an impact in connected WRZs, it is possible to amalgamate some of these WRZs into larger, sub-regional areas.

The spatial basis for water resources planning within the Southern Water supply area is as follows:

Western sub-regional area (Western area), which includes the following WRZs:

- Isle of Wight WRZ;
- Hampshire South WRZ;
- Hampshire Andover WRZ; and

- Hampshire Kingsclere WRZ.

Central sub-regional area (Central area), which includes the following WRZs:

- Sussex North WRZ;
- Sussex Worthing WRZ; and
- Sussex Brighton WRZ.

Eastern sub-regional area (Eastern area), which includes the following WRZs:

- Kent Medway WRZ;
- Kent Thanet WRZ; and
- Sussex Hastings WRZ.

The number of WRZs has been increased since the previous WRP in 2004, with the division of the previous Sussex Coast WRZ into the Sussex Worthing and Sussex Brighton WRZs. This division arose because the capacity of the only inter-connection between the two areas was identified as a constraint on the free movement of water between the areas. When this transfer capacity is increased, the two WRZs can again be treated as a single WRZ.

It should be noted that these new WRZs will be used for reporting purposes from the start of AMP5, in 2010-11, and are therefore used for the formulation of the strategy within this plan.

2.3 Boundaries with Other Water Companies

Southern Water also has boundaries with seven other water companies. These are:

- Bournemouth and West Hampshire Water;
- Wessex Water;
- Portsmouth Water;
- Thames Water;
- Sutton and East Surrey Water;
- South East Water, which includes the area of the former Mid Kent Water, and
- Veolia South East, formerly Folkestone and Dover Water Services.

There are a number of bulk supplies between the companies. The bulk supplies are described in more detail in section 5 (The Supply Forecast), and section 10, which describes the individual Area strategies. Clearly, the number of boundaries, and the existing and potential future inter-connections, with so many water companies raises a number of opportunities for optimising the strategic use of resources across the region. However, it also adds significantly to the complexity of the planning process, and the selection of a single “company preferred” strategy, within a regional context. These issues are discussed further within section 3.3.4 which addresses the challenges of planning in a regional context and also in section 10.

2.4 Licensed Suppliers and Competition

There are currently no licensed suppliers within the Southern Water area of supply.

The final report of Defra’s Cave Review of competition within the water industry was published in April 2009. This Water Resources Management Plan does not include or assume any effects from competition, given the uncertainty about its future scope or pace. However, the WRMP will be developed to reflect competition as it develops, as part of maintaining the WRMP as described in section 1.2.

2.5 Southern Water Sources of Supply

The majority (68%) of Southern Water's supplies comes from groundwater, predominantly from the Chalk aquifer which is widespread across the region. A further 28% comes from river abstractions: most notably the Eastern Yar on the Isle of Wight; the Test and Itchen in Hampshire; the Western Rother in West Sussex; the Eastern Rother in East Sussex; and the Medway and Stour in Kent.

The remaining 4% of supplies come from the surface water impounding reservoirs, all of which are owned and operated by the company. The largest of these is Bewl Water. This is a pumped storage reservoir, with water being abstracted from the River Medway, stored and subsequently released as required for re-abstraction further downstream. The reservoir is owned and operated by Southern Water, but South East Water has an entitlement to 25% of the scheme yield.

The other three reservoirs in the Southern Water supply area are Darwell, Powdermill and Weir Wood. Darwell and Powdermill are used to supply the Sussex Hastings WRZ, with Darwell also providing a bulk supply of water to South East Water. Weir Wood, in north Sussex, supplies parts of Crawley and Horsham and also provides bulk supplies to South East Water.

It is winter rainfall that determines the status of sources and hence the ability to abstract water from them. Southern Water is situated in the South East of England, one of the driest regions in the country. Total annual rainfall averages about 730 mm. a year. However, it is the rainfall during the autumn and winter periods that is critical to the availability of water resources in the region. It is only during this period that rainfall can infiltrate through the soil to recharge groundwater reserves, store river baseflow for the following year and replenish surface water storage. Rainfall during this critical period averages about 400 mm. Most of the rainfall over the rest of the year (on average about 330 mm.) is lost to the atmosphere through evaporation and transpiration from plants during the spring and summer periods, or runs off the land directly into rivers, and is thus of little value in replenishing groundwater resources.

Experience has shown that it is often not the case for customers in different sub-regional areas to endure the same degree of supply shortages in what appear to be very similar drought conditions. The primary reason for this is that different "types" of droughts, or droughts with different characteristics (e.g. dry winters; dry summers; a dry winter followed by a dry summer; successive dry winters etc.) affect various different types of sources in different ways, and the particular shortages in a given sub-regional area will be a factor of the type of drought being experienced and its affects on the mix of the types of sources in that Area. A secondary issue is that quite subtle variations in rainfall across the region can also have significant effects on the availability of water in different WRZs and thus the sub-regional areas. These issues were explored in some depth as part of the Drought Permit/Order applications made by the company during the 2004-06 drought and the recent 2008 revision of the Southern Water Drought Plan.

2.6 The "Twin-Track" Approach

Fundamental to the development of a water resources strategy is the "twin-track" approach. This comprises the parallel approach of: reducing demand through demand management; such as leakage reduction, appropriate metering policies and the promotion of water efficiency initiatives; and the associated development of new sources, inter-zonal transfers or inter-company bulk supplies, as required.

Since privatisation in 1989, Southern Water has proactively pursued the twin-track approach. The profile of investment is given in Figure 2.2 and shows that Southern Water has invested nearly £244 million on maintaining security of supplies, of which some £84 million has been

invested on water resource schemes, whilst twice this amount, some £160 million, has been spent on demand management measures.

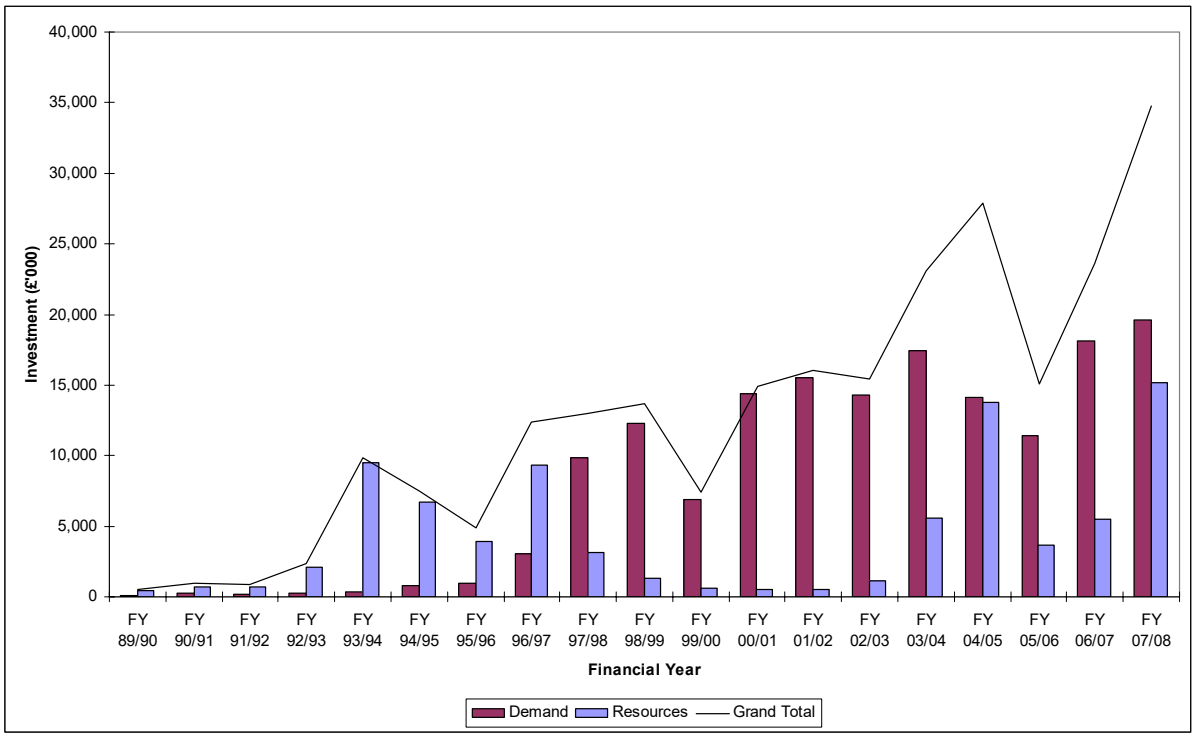


Figure 2.2 Annual Investment on Demand Management and Water Resource Schemes since 1989

3 Challenges Addressed in this Plan

3.1 Introduction

There are a number of major challenges that Southern Water needed to address in the formulation of this WRMP to develop a cost-effective and sustainable plan for maintaining the security of water supplies to its customers over the next 25 years. These challenges fall into two broad categories: the "generic" challenges which face the water industry in general; and also the specific challenges facing companies in the South East region, and Southern Water in particular.

3.2 Generic Challenges

3.2.1 Security of Supplies

A water supply system must be planned to be robust and resilient, and be able to maintain the security of supplies under the most severe conditions. Furthermore, its design must ensure the provision of essential water supplies under all foreseeable circumstances. The conclusions from the recent House of Lords Select Committee Report on Water Resources indicated that the introduction of standpipes and/or rota cuts would not be acceptable. This view was supported by Defra in its Drought Direction 2007, which instructed companies to state what measures, in the event of a severe drought, could be taken to ensure that such events would not occur. This WRMP shows how Southern Water plans to ensure that security of supplies is maintained so that such measures are not required.

3.2.2 New Housing

The number of households that will need to be supplied with water will grow significantly under the Government's plans for new houses. This issue is especially acute in the South East. Current plans, the Draft South East Plan, including the proposed amendments by the Secretary of State and published September 2008, suggest that around 30,000 new houses will be built every year for the next 25 years, of which about a quarter will be in the Southern Water supply area. This growth in housing and the associated impact on demand are taken into account in the Demand Forecast described in section 6. It is possible that the requirement for new houses will grow beyond current projections, with some planning scenarios suggesting that the effect of more than 40,000 new properties per annum in the southern region should be investigated.

3.2.3 Climate Change

The increased climatic variability, as well as a pattern of warmer drier years that would not necessarily be classified as drought years, is set within what is now acknowledged to be a period of rapid and irreversible climate change. In the light of such changes, what remains unclear is the magnitude of that future change, and WRMPs must therefore address the probability that climate change will increase the frequency, duration and magnitude of drought events.

The company's response to this fundamental concern has resulted in significant refinements in several aspects of water resources planning. It recognises that it must plan for a wider range of possible conditions than has hitherto been the case and must, in the process, significantly enhance the resilience of its supply system under this extended range of drought conditions. The need for this was highlighted during the 2004-06 drought. Given the severe conditions that were experienced, and the real possibility of them extending into a third dry winter, Southern Water undertook a very robust re-evaluation of the water available from its

sources under drought conditions and a fundamental review of the principles underlying the design of its water resources supply system. It now believes that design scenarios should more explicitly take into account the fact that essential supplies must be maintained during even the most severe drought.

Accordingly, it has extended its analysis to take into account the historic records of droughts over a longer period than previously considered in order to build in the need for security of supplies. Southern Water believes that, by considering this longer historic sequence, it will enable planning for enhanced security of supplies, not only for the present, but also in the future, in view of the all the major uncertainties that are faced.

3.2.4 Energy Use

Directly related to the issue of climate change has been a sharply increased focus on energy use within the water industry. Whilst the financial cost of energy has always been a significant component of the industry's operating and planning processes, the potential environmental costs associated with greenhouse gas emissions are now an equally important consideration. The increased focus on energy use extends not only to existing operations but is now a major factor in the evaluation of potential new resource developments, as will be discussed in this WRMP.

3.2.5 Impacts of Environmental Legislation

The environmental sustainability of existing abstraction licences, many of which were granted more than 40 years ago, has been under intense review in recent years. New EU and national legislative requirements enhancing the degree of protection afforded to the water environment is likely to mean that more water will now need to be left in some rivers, particularly during dry years.

Recent, and forthcoming, decisions by the Environment Agency as a result of its interpretation of European environmental legislation including the Habitats Directive and the Water Framework Directive, and consequential UK law and regulations deriving from the European Directives are likely to affect the company's abstraction licences. This means that in dry years much less water could be available.

It is anticipated that future further reductions in abstraction licences may be made as a result of the Environment Agency's Restoring Sustainable Abstraction (RSA) Programme which will implement the legislative requirements of the EU Habitats Directive and the EU Water Framework Directive as well as recognising the objective of protecting sites of more local environmental interest. However, as will be seen later, companies have been instructed not to take into account these potential further losses in this WRMP. Also, once the relevant determinations have been made under the RSA programme, the results of such determinations on the supply forecast may constitute a "material change in circumstances" which would require Southern Water to prepare a revised WRMP.

3.2.6 Providing Best Value to Customers

Finally, it is important to explicitly state that, despite the Government's commitment to robust planning that ensures the security of water supplies under a wide range of climatic conditions, its commitment to the environmental sustainability of the water supply industry and its commitment to the provision of additional housing in the South East, it remains, through Ofwat, the economic regulator, equally committed to the principle that customer bills should not rise by more than is absolutely necessary to fulfil these foregoing requirements.

This "least-cost" challenge remains a key focus of this WRMP and, in this context, the broader consultation on the plan was extremely timely. Southern Water welcomed the responses on all aspects of its proposals for the next 25 years received as part of the consultation process.

3.3 Specific Challenges for Southern Water

The previous section considered a number of the more generic challenges faced by all water companies in the development of WRMPs, although in many respects the magnitude of these challenges is greatest for companies in the South East. However, in addition to these, there are also a number of challenges that are specific to Southern Water, as it seeks to fulfil its commitment to provide excellent service to its customers. Following consultation with customers, stakeholders and regulators, the company has set itself a wide range of equally challenging targets to achieve this commitment in its Strategic Direction Statement, published in December 2007, which are discussed in following sections. This WRMP has also been subject to public consultation and has taken any comments into account, as detailed in its Statement of Response.

3.3.1 Target Levels of Service

Southern Water has stated targets for Levels of Service that set out the design standard to which it is planning in its WRMP and that are consistent with those in the Drought Plan. There are two Target Levels of Service directly related to the WRMP. The first, customer Target Levels of Service, relates to the frequency and nature of restrictions that customers may experience, in the form of sprinkler bans, hosepipe bans and bans on "non-essential uses" under drought conditions. The second relates to the environmental Target Levels of Service, which relates to the frequency of Drought Permits/Orders, that allow increased abstraction from some of its sources. Table 3.1 shows these Target Levels of Service.

Target Levels of Service (TLoS) **Type of restriction/ measure**	**Target Levels of Service Frequency** **(% of years)** **(taken as the no. of years, irrespective of duration during the year)**
Customer TLoS	
Sprinkler/ Unattended hosepipe ban	1 in 8 years (12.5%)
Full hosepipe ban	1 in 10 years (10%)
Drought Order for non-essential use	1 in 20 years (5%)
Environmental TLoS	
Source Drought Permit/Order	1 in 20 years (5%)

Table 3.1 Target Levels of Service

It is worth noting that in 2007 the Government undertook consultation as to whether the existing powers under the hosepipe ban, and the non-essential use bans under Drought Orders, needed to be rationalised. Changes in legislation have not yet been introduced but there are provisions included in the draft Floods and Water Bill (published in April 2009) that have the potential to change the risk of bans and/or other restrictions. If enacted, such provisions may lead in turn to a change in the Target Levels of Service.

The Regulations state that each company should publish the potential frequency with which it expects to impose restrictions under Emergency Drought Orders, that is, rota cuts and/or standpipes. The company considers that the design standards that it is trying to adopt would reduce the likelihood of recourse to such measures to an absolute minimum, and, to that end, has added an additional section in its Drought Plan to cover the management of severe droughts. The current design is based on drought events within the period of over 100 years of historic record, and as such the company considers that such measures would take place at a lesser frequency than this. It also considers that, before any consideration of such events, there would likely be prior government designation of some form of national or regional emergency.

3.3.2 Actual Levels of Service

The South East of England has experienced a number of droughts within recent years, notably 1989-1992, 1995 and more recently 2004-2006. These have placed great stress on the water resources in the area. During these periods, Southern Water undertook a number of initiatives, including accelerating investment in the re-introduction of some disused sources and carrying out improvements to a number of existing sources to alleviate the effects of the drought, and reducing leakage by nearly 10%, to well below the Ofwat target. However, the situation became sufficiently serious that the company considered it necessary to introduce restrictions on the use of water during these drought events, and to apply for Drought Permits/Orders to maintain supplies from sources. The need for such measures illustrates that the company has been unable to meet its Target Levels of Service.

3.3.2.1 Customer Level of Service

Two measures can be used to demonstrate that, despite its best endeavours to alleviate the effects of the droughts, Southern Water was unable to meet its customer Target Levels of Service:

- The number of years that restrictions have been in force, irrespective of the duration within the year (expressed as a percentage). Using this measure, the company has in some of its WRZs introduced sprinkler/full hosepipe bans in eight out of the last 20 years (40%), although this varied from no restrictions (i.e. 0%) in the Hampshire WRZs to eight years (40%) in some of the Sussex WRZs; and
- The amount of time on average that customers have been subject to restrictions, calculated as the percentage of the actual (population times weeks of restriction) compared to the total (population times weeks under review). This measure could be considered to be a more accurate reflection of actual Levels of Service, as it takes into account of both the population affected, and the total time for which it was affected. Again, it would be expected that, for Target Levels of Service to be met, this measure would be a maximum of 10%. However, the company average for this measure is 15% (varying from 1% in the Western Area to 23% in the Central Area).

The potential scale of restrictions in the 2004-06 drought went beyond hosepipe bans and, for the first time since 1992, the company applied for, and was granted, Drought Orders to enable it to limit or restrict so called “non-essential uses”. In the event, the powers under these Drought Orders were not implemented, but the impact of the applications for these Drought Orders and the possible effects had they been implemented were felt very keenly by many businesses, stakeholders and customers.

Area	Target Levels of Service		Actual Levels of Service	
	1 in x years	% years	Percentage of reporting years, for most frequently affected WRZ in Area	Time expressed as % of (population x weeks)
Hosepipe ban / Sprinkler/unattended hosepipe ban				
Western	1:10	10%	10%	1%
Central	1:10	10%	40%	23%
Eastern	1:10	10%	40%	22%
Company	**1:10**	**10%**	40%	15%
Drought Orders implemented "Non essential use" ban				
Western	1:20	5%	-	-
Central	1:20	5%	**-**	**-**
Eastern	1:20	5%	5**%**	9%
Company	**1:20**	5%	**5%**	**3%**

Table 3.2 Summary of Restrictions in the Areas since 1989

Table 3.3 shows that the frequency of restrictions and drought authorisations in the Central and Eastern Areas does not meet the Target Levels of Service and this is of considerable concern to the company. Southern Water considers that, with increased pressure on water resources in the future, and the potential effects of climate change on the frequency and variability of drought, this past performance must be corrected as a matter of urgency through the formulation of this WRMP.

3.3.2.2 Environmental Levels of Service

A number of Drought Permits and Drought Orders have also been granted throughout the company's area in order to change licence conditions to improve security of supplies (Table 3.3). A summary of the sources subject to, and the conditions attached to, these Drought Permits/Orders, will be described in more detail in the analysis of the individual Areas in section 10.

Area	Number of Source Drought Permits/Drought Orders
Western	1
Central	4
Eastern	37
Company	**42**

Table 3.3 Number of Source Drought Permits and Drought Orders since 1989

It should be noted, however, that whilst abstraction did not always take place under the terms of the Drought Permits/Orders, it was nonetheless necessary to apply to have the powers in place should they have been required to maintain supplies. This is an important point for design of the supply system for the future, when estimates of past system performance are

based in the full knowledge of the nature, severity and duration of the design event, and it is not possible to say whether applications for drought authorisations would have been made in these design events to cover the possibility that the situation deteriorated.

3.3.2.3 The impact of a Supply Demand Balance deficit

In the event that a WRZ, or Area, has a supply demand balance deficit, there is a theoretical risk that, in the event of drought conditions, the supplies will be put under more stress than would normally be the case, and it there is an increased risk that the activities associated with the Drought Plan may have to be introduced, which could involve any of the following:

- Demand side measures, such as appeals for restraint up to the introduction of restrictions;
- Supply side measures, if available, to create more deployable output; and
- Applications for Drought Permits/Orders to allow abstraction to continue beyond current licence constraints.

The likelihood of the need to resort to such measures depends on, amongst other things, the extent of the supply demand balance deficit.

At the start of, and during, AMP5, there are a number of WRZs that have supply demand balance deficits, even after taking into account the optimisation of inter-zonal transfers to reduce baseline supply demand balance deficits. The extent of AMP5 deficits in the various Areas can be summarised as follows:

- In the Western Area, there are no supply demand balance deficits in any of the WRZs, namely the Isle of Wight, Hampshire South, Hampshire Andover and Hampshire Kingsclere WRZs, in the AMP5 period;
- In the Central Area, the Sussex North WRZ has a supply demand balance deficit at the start of AMP5 of about 11 Ml/d reducing to about 6 Ml/d at the end of AMP5 for the MDO condition, and about 7 Ml/d reducing to about 3 Ml/d at the end of AMP5 for the PDO condition;
- The Sussex Worthing WRZ does not have a supply demand balance deficit during the AMP5 period;
- The Sussex Brighton WRZ has a supply demand balance deficit for the first two years of the planning period of roughly 1 and 2 Ml/d for the MDO and PDO condition respectively;
- In the Eastern Area, the Sussex Hastings WRZ does not have a supply demand balance deficit during the AMP5 period;
- The Kent Medway WRZ has a supply demand balance deficit for the first four years of the planning period for the ADO condition only, of about 7 Ml/d for the first two years, reducing to about 3 and then 0.5 Ml/d; and
- The Kent Thanet WRZ has a supply demand balance deficit for the first two years of AMP5 for the PDO condition only, of about 4 Ml/d reducing to 3 Ml/d by the end of AMP5.

3.3.2.4 Willingness to Pay

Whilst it is recognised that it would be uneconomic and environmentally unsatisfactory to plan for a supply system that has no restrictions/Drought Permits/Orders under any condition, it is nevertheless important to consider the balance between the cost to provide a resilient supply system against the potential requirement for restrictions on occasion. An indication of this balance can be made by considering the willingness to pay.

As part of the formulation of the Strategic Direction Statement, Southern Water commissioned a Willingness to Pay (WTP) survey. Further details are provided in Appendix K. The results

show that customers' Willingness to Pay for a system that would achieve Target Levels of Service amounted to a Net Present Value (NPV) over the 25-year planning period of £70.2 m. with a lower and upper bound at 95% confidence limit of £52.0 m. and £102.4 m.

3.3.3 The Need for Effective Demand Management

Southern Water and its customers have made significant progress in managing the demand for water. In line with the twin track approach described in section 2.6, a number of issues have faced the company in the preparation of this WRMP, as it seeks to meet the challenge of ensuring that effective measures are implemented to optimise the efficient use of water. These issues are discussed further in the sections below under the headings of: increased household metering; enhanced leakage reduction; and water efficiency initiatives.

Demand management measures were also assessed as part of the SEA, and were found in general to have a net positive effect, though leakage and metering programmes can have some short term negative impacts.

3.3.3.1 Increasing Household Metering

Southern Water stated in its Strategic Direction Statement, issued in December 2007, that it is committed to delivering high levels of meter installation as soon as possible. Southern Water believes that metering has a number of benefits to customers, the environment, the company and many other stakeholders, and is therefore committed to achieving high levels of meter installation as soon as possible. Metering is the fairest way to pay for water; it enables customers to influence their own bills; it is consistent with sending out economic signals which will assist in the development of competition, and will enable greater focus to be given to reducing customer side supply pipe leakage. The company believes that this will not only encourage immediate reductions in demand, which will have benefits for the environment and in energy reduction, but it will also enable further reductions to be realised through the introduction of tariff structures when appropriate. The company also believes that this commitment would be supported by its customers and stakeholders, and this was confirmed in the consultation responses.

It should be noted that, at present, it is only when there is a change of occupier in the Sussex WRZs, or where a customer specifically requests the installation of a meter, that the company can install a meter at a household. Over 80,000 meters have been requested by customers in the past five years and if this rate of installation were to continue throughout the planning period, then a further 330,000 properties would become metered by 2035. At that point, around 77% of domestic customers would be receiving a metered supply.

However, the company's supply area has now been designated as an "area of serious water stress" by the Environment Agency. This designation requires Southern Water to consider universal metering, within its WRMP and, if accepted, will mean that it can introduce this metering policy throughout its supply area.

It is currently the intention to achieve a level of 100% meter installation by 2015, and this level has been included in the Demand Forecast in section 6.

3.3.3.2 Reducing Leakage

Southern Water continues to maintain its position as the best performing company for leakage levels among the water and sewerage companies in the country. This has resulted from its commitment to, and investment in, leakage reduction which has yielded savings since 1989 of more than 157 million litres of water per day (equivalent to the consumption from more than 400,000 households).

The current internal company target and 2007-08 out-turn figure for leakage is 82 Ml/d, which is the lowest level per property of all the UK water and sewerage companies. It is already significantly below the company's short-term "Sustainable Economic Level of Leakage"

(SELL) target of about 117 Ml/d and the Ofwat target for the period 2004-05 to 2009-10 of 92 Ml/d, and, under the long term SELL, which was estimated as 89.5 Ml/d. The SELL is the level at which evidence suggests that further efforts to reduce leakage are likely to be uneconomic from a purely financial viewpoint, taking into account the "external" (i.e. the environmental and social impacts) costs of leakage control activities. This approach ensures that that leakage targets are set at a level that is optimal for customers and society as a whole.

A range of surveys suggests that customers are willing to play their part in conserving water if they believe that the water company is also playing its part. It is in this context that Southern Water has determined that it will continue its extensive efforts to reduce leakage to the optimum of 60 Ml/d, which is in line with the aspirations set out in the Strategic Direction Statement.

Southern Water recognises the magnitude of the task it is setting itself, and the number of other enabling factors that will need to be in place to support this initiative, such as: mains replacement; a high level of metering; advances in meter reading technology; but believes that effective leakage control will be vital as it faces the many other challenges described in this section. The consideration of the potential ultimate level of leakage reduction is considered outside the scope of the timescale addressed in this WRMP, but will continue to be investigated.

3.3.3.3 Water Efficiency

Southern Water recognises the importance of water efficiency and will continue to encourage its customers, through a variety of initiatives, to reduce their demand for water, to both help reduce bills and to protect the environment.

The promotion and sponsorship of community events; water audits in domestic and commercial premises; publicity campaigns; provision of horticultural advice; a schools education programme; the provision of water efficient products for the home and garden are all examples of the initiatives that the company has used to promote water efficiency in the home and in the workplace.

The company is also required to meet the new Ofwat target for water efficiency, known as the Base Service Water Efficiency (BSWE) target. This is a minimum target for water saved in relation to the number of properties served. For the company to successfully meet its water efficiency target, it must ensure that 1.01 Ml/d is saved through water efficiency activity each year in AMP5 (from 2010-11 to 2014-15).

Companies are also expected to achieve a Sustainable Economic Level of Water Efficiency (SELWE) as part of their economic, sustainable approach to balancing supply and demand over the planning period. This is in addition to measures introduced to achieve the baseline Ofwat targets.

3.3.4 Planning in a Regional Context

3.3.4.1 The Nature of the Supply System

Southern Water's current water supply system is the result of the historic development and integration of a number of local systems over more than a century. Thus, the structure of the supply system and WRZs is complex, due to the fragmented geographical areas of its own supply system, and also due to the inter-connections with a number of other water companies.

3.3.4.2 Bulk Transfer Agreements

Over the years, the company has introduced a number of schemes to increase the security of supplies by increasing the connectivity between different WRZs in order to enhance its

capacity to transfer water from areas of surplus to areas of deficit, and further options in this regard have been assessed in developing this WRMP.

There are also a number of inter-company transfers of water, which take place under conditions stated in the relevant bulk supply agreements between the companies, which have been developed over the last 50 years.

One issue of inter-company importance for strategic planning is the consideration of these various bulk supply agreements to other companies in this WRMP. Nearly all inter-company agreements specify, as a minimum, such factors as quantities available, charges and duration of contract. With regard to the latter, a number of the agreements to provide exports of water from Southern Water to other companies will terminate during the planning period. Over that same period, several of the WRZs that provide these bulk supplies are forecast to develop a supply demand balance deficit. This means that, in order to maintain supplies to other companies, Southern Water will have to develop new resources, or introduce further demand management measures. The company has taken the view that it will continue to renew all existing bulk supply agreements to other companies throughout the planning period, subject to the volumes that are applicable at the time of contract renewal. This could result in Southern Water having to develop additional resources, and adopt further demand management measures, in order to maintain these inter-company bulk supplies.

The influence of these bulk supplies on the formulation of the strategy is discussed further in section 5.

The possibility of further bulk transfers is discussed in general terms in section 3.3.4.4 and section 9.5, with discussion of the individual Area strategies section 10.

3.3.4.3 Water Resources Development Constraints in South East England

A major challenge facing future planning of water resources is the range of potential constraints in the South East of England on the development of new sources. The entire region has been designated as being in an “area of serious water stress” by the Environment Agency. There has for many years been an Environment Agency policy of no increase in abstraction from groundwater for consumptive purposes. In addition, the high population density gives rise to a very high premium on space and this, combined with large areas of outstanding natural beauty that are rightly afforded a high degree of environmental protection, significantly reduces the options available for new abstraction, storage, treatment and supply infrastructure. For example, there are very few remaining sites in the South East that might be suitable for a new reservoir. Southern Water believes that, given such constraints, all the potential sites for development of new resources during the planning period, provided they are socially, economically and politically acceptable and environmental sustainable, should be identified and reserved for future development.

3.3.4.4 The Water Resources in the South East Group

Southern Water has boundaries with a number of other companies. This emphasises the importance of inter-company co-operation in strategic planning, as well as the need for consistency in the interface between companies and regulators. Southern Water, together with all of the other companies, has therefore played an active role in the Water Resources in the South East Group (WRSE). This group is chaired jointly by the Environment Agency and a company representative, and comprises members from water companies, Ofwat, SEERA and Natural England. It meets at managing director, technical and specialist sub-group levels.

The WRSE considers the shared strategic development of water resources in South East England, which has led to the development of some further bulk supplies between water companies during recent years, the majority of which have involved Southern Water. Southern Water also continues to be actively involved in the WRSE modelling work which is being undertaken by the Group to inform possible future regional solutions for optimising the use of resources.

However, whilst the work of the WRSE Group helps to facilitate appropriately integrated solutions across the region, each company remains responsible for developing its own strategy in line with the requirements of its own Board. Thus, whilst it may be quite reasonable for Southern Water's company preferred strategy to differ from that which might have arisen from work undertaken by the WRSE Group, some justification may be required if regulatory approval for the individual company preferred strategy is to be forthcoming. The water resources strategy in the WRMP presents the "company preferred regional strategy" which is consistent with the latest available results from the WRSE modelling work. This aspect is further discussed in general terms in section 9.5 with discussion of the individual Area strategies in section 10.

3.3.5 The Need for System Resilience

It is important to note that groundwater and the different types of surface water sources will react differently to differing hydrological conditions. Similarly, WRZs may incur differing degrees of stress under the same hydrological conditions due to their different mix of types of source. This has been well illustrated during recent droughts, with different, often adjacent, WRZs and companies experiencing markedly different levels of stress in the supply system.

The implications of this for Southern Water are that, in order to develop a system that is as resilient as possible to different design droughts, due consideration must be given to the optimum balance of the type of sources that it has in any given WRZ and how they will respond under a variety of design scenarios. This should be an important factor in the choice of new resources. For instance supply a forecast deficit at times of peak demand might be met through increased treatment capacity, whereas average or minimum resource period deficits may require the development of more storage or the provision of a drought resilient solution such as transfers, wastewater recycling or desalination.

4 Principles of Water Resources Planning

4.1 Introduction

This section gives a brief introduction to the water resources planning process, and introduces some of the key concepts, including the supply demand balance, which is the difference between the supplies available and the anticipated demand, the planning period and critical planning periods. These concepts will be described, and addressed, in further detail in sections 5 to 10.

4.2 Objective of Water Resources Planning

The building block for water resource planning is the Water Resource Zone (WRZ), which is defined as the largest area in which all customers bear the risk of restrictions during drought. There are ten WRZs in the Southern Water area. The over-riding objective of a water resources plan is to ensure that there are always enough supplies available to meet anticipated demands in all WRZs and for every design critical period, even under the conditions of greatest water supply stress. This is known as meeting the supply demand balance.

Such design conditions normally occur when there has been a lack of rainfall during the previous autumn and winter recharge period, coupled with high demands as a result of hot and dry summer conditions. As such, these conditions do not often occur, and therefore water resources planning normally has to consider simulating how the water supply system would have reacted during previous drought events that have been identified in the historic record. There are a number of historic droughts which are normally used to represent design events, such as 1900-03, 1920-22, 1930-33 and sometimes 1976. It is worth noting that the recent drought of 2004-06 is not included in this list, but if the lack of rainfall had continued for only a relatively short period of time then it would have moved into the design event category.

Therefore, in the water resources planning process, the aim is to ensure that there are sufficient supplies available to meet anticipated demands over the long term planning horizon for every year of the planning period under the various critical design events.

4.3 The Supply Demand Balance

The supply demand balance is, quite simply, the difference between supplies available and anticipated demands. It is determined from the Supply Forecast, which is the forecast of the supplies available, and the Demand Forecast, which is the forecast of anticipated demands. The difference between the Supply Forecast and the Demand Forecast is known as available headroom. However, as will be seen later, estimates of both supplies available and demands are subject to sources of uncertainty, which is known as headroom uncertainty. Therefore, a buffer between the Supply Forecast and the Demand Forecast is included in the supply demand balance. This buffer is known as the Target Headroom and is the amount of available headroom that is considered to be an acceptable planning allowance in the supply demand balance.

If available headroom becomes less than Target Headroom at any time, or for any critical period, during the planning period in the “baseline” supply demand balance, some form of intervention option is needed to redress the balance. A number of options may be available to meet any supply demand balance deficit. These options can be on the supply side, to

increase supplies available to meet demands, or on the demand side, to reduce the supplies that are needed.

4.4 Planning Period and Critical Planning Periods

There are two conditions for which the supply demand balance has to be satisfied:

- For each year of the 25-year planning period from 2010 to 2035; and
- For each critical period during each year of the planning period.

4.4.1 Planning During the Planning Period

Figure 4.1 shows how the baseline supply demand balance over the planning period can be used to determine whether the supply demand balance is in surplus or deficit, and when this change from surplus to deficit occurs and thus when some form of supply or demand intervention is required to maintain security of supplies.

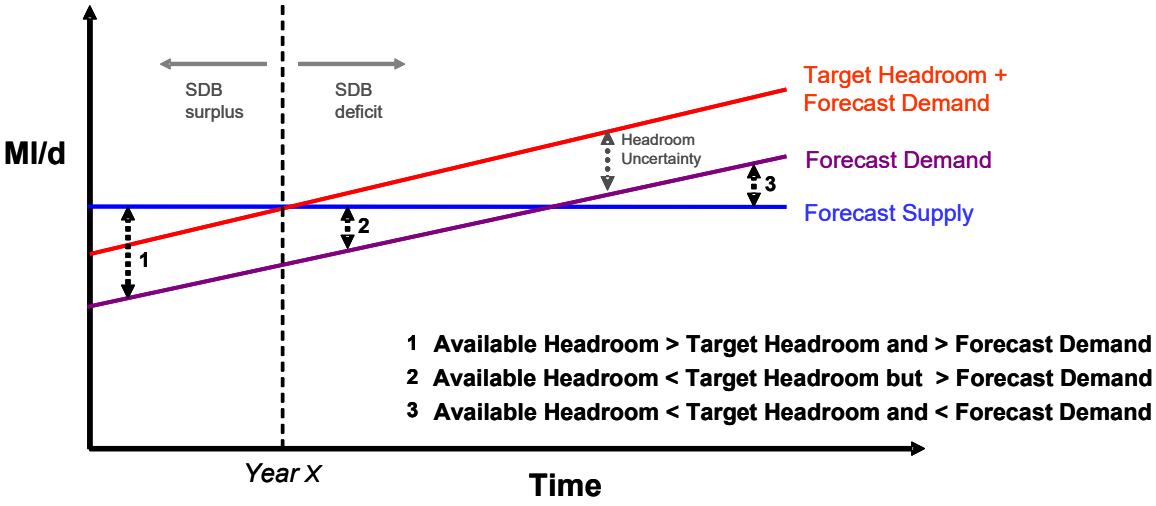


Figure 4.1 Schematic of Supply Demand Balance

4.4.2 Critical Period Planning Scenarios

The status of the supply demand balance will vary throughout the year, as both supplies available and demands vary within the year. This "within year" variability is described in detail in section 6.2, but can be summarised as leading to the definition of three "critical periods" that must be considered for each year of the planning period. These critical periods are all based on a design "Dry Year" condition, since it is in such years that the supply demand balance will be under most stress.

The three critical periods are as follows:

- The "average annual period", whereby average demand over the year is compared against the average annual supplies that are available. This is known as the average deployable output (ADO) scenario;
- The "peak demand period", whereby the demands over the period of peak demand during the year, normally defined as a week, are compared against the supplies available during that period. This is known as the peak period deployable output (PDO) scenario; and

- The "minimum resource period", whereby demands over the period are compared with supplies when supplies available are expected to be at their minimum. This minimum resource period normally occurs during late summer/early autumn when river flows are at their minimum and groundwater levels are at their lowest prior to the onset of the winter recharge period. This is known as the minimum deployable output (MDO) scenario.

It should be noted that, for Southern Water, and this WRMP, the average annual period is not normally the most relevant in terms of the supply demand balance, and is only the driver for investment in the Eastern Area. This is due to the nature of the sources within the Southern Water supply area.

Surface water storage reservoirs, which can be most easily seasonally managed to cope with the average annual condition, only account for 4% of the supplies available to Southern Water. Groundwater sources, which can also, but to a more limited extent, be used to seasonably manage supplies over the year, account for 68% of supplies. However, they are still prone to depletion of available output at times of peak demand and at times of minimum groundwater levels late in the year. Run-of-river abstractions, with no associated storage facility, account for 28% of supplies, and are least able to be managed for the average annual condition. This is because they can only abstract from the flows available at the time of the peak demand period and the minimum flow condition. If flows are not sufficient, then abstraction cannot take place, or could be severely curtailed. Thus, the average amount of abstraction available throughout the year, defined as total annual abstraction divided by 365 days, is meaningless when designing for the annual average condition in such cases.

Therefore, the discussion and design of the supply demand balance for Southern Water throughout this WRMP, will only address the peak period (PDO) and minimum resource period (MDO) conditions for the Western and Central Areas, and the Annual Average (ADO) and PDO conditions for the Eastern Area.

4.5 The Water Resources Planning Process

The water resources planning process, to ensure the supply demand balance is maintained for each year, and for each critical period, during the planning period, is undertaken according to the following steps, for each WRZ and sub-regional area:

- Estimation of the baseline Supply Forecast (See section 5);
- Estimation of the baseline Demand Forecast (See section 6);
- Estimation of the uncertainties and Target Headroom required (See section 7);
- Calculation of the baseline supply demand balance for each year and critical period of the planning period, to determine if there are any years or critical periods where there is a supply demand balance deficit. (See section 10);
- Identification of all feasible supply and demand options which could be used to reduce or close the supply demand balance deficit (See section 8 for general discussion, and section 10 for WRZ and Area specific details);
- Undertaking investment modelling to determine the water resources strategy and further undertake scenario modelling and sensitivity testing to determine the robustness of the solution (See section 9); and
- Formulation of the final planning solution for the company-preferred regional strategy, which will specify the chosen supply and demand side options selected, their timing for implementation and the justification for their selection. (See section 10 for WRZ, and Area details and section 11 for the company preferred strategy).

5 The Supply Forecast

In order to plan effectively to ensure security of supplies, it is important to know what supplies will be available in the design event. Southern Water has developed and refined its understanding of what supplies would be available in a variety of design events through the development of a number of advanced mathematical models. Southern Water believes that, in order to provide the desired level of security of supplies in the future, it should plan for the worst historic event, including the possibility of a "third dry winter" design scenario. This scenario was close to being realised, had the drought of 2004-06 extended into the third winter. In the event, it did not extend, but the Government had asked that all companies in the South East region prepared plans for such an eventuality.

Since publication of the DWRMP, a summary report on the approach to the calculation of surface water deployable output has been prepared[1]; the report has been audited[2]. A complementary report on severe droughts and climate change impacts on groundwater deployable output has also been prepared since the DWRMP[3]. The groundwater report brings together the various elements of work undertaken for the AMP4 Water Resources Investigations and this WRMP.

The Halcrow audit report states:

> "We strongly support the overall approach of using conjunctive use DOs in an extended period simulation with the objective of enabling Southern Water to meet its stated levels of service with the defined frequencies over the long term. The company, probably in common with many others, has clearly not met its water availability LoS objective with the required frequency. The company is, therefore, to be commended on the work it is doing to address this issue."

5.1 Elements of the Supply Forecast

It has been mentioned previously that the Supply Forecast refers to the estimation of the total supplies available to meet demands in the WRZ, for each year, and for each critical period, throughout the planning period.

The value of the total supplies available is made up from a number of elements, as follows:

- Water Available for Use (WAFU), where WAFU is calculated as deployable output less outage:
  - Where, deployable output is the volume of water that can be pumped into supply from a given source (borehole, river intake, or reservoir) on a daily basis under the three *dry year* planning scenarios described in the section 4.4.2. Thus, the following different values of *deployable output* can be defined:
    - *Average deployable output (ADO)* – this is the deployable output of a source for the "average annual period";
    - *Peak deployable output (PDO)* – this is the deployable output of a source during the "peak demand period"; and
    - *Minimum deployable output (MDO)* – this is the deployable output of a source during the "minimum resource period";

[1] Southern Water WRMP Support, Technical note: Surface water Deployable Output, Atkins July 2008, (Ref: 5050675/70/DG/036)
[2] Southern Water, Deployable Output Assessment Audit, Halcrow, September 2008
[3] Assessment of impact of severe drought and climate change on groundwater DO, Atkins, March 2009 (Ref: 5050675/70/DG/092)

- Outage, which is the deployable output that may be unavailable for supply at any given time due to unplanned events such as mechanical, electrical or treatment failures, or pollution incidents upstream of a river abstraction.

Once WAFU, which is `the water available for use from sources indigenous to the WRZ, has been calculated, there are a number of other elements which need to be taken into account in the calculation of total supplies available, as follows:

- Total supplies available equals:
  - WAFU, from above;
  - Less treatment works losses and operational use, which accounts for potential reductions in WAFU due to losses arising from the water treatment process or losses in the local raw water distribution system before the treated water is pumped into the supply network;
  - Less inter-zonal or inter-company bulk exports from the WRZ;
  - Plus inter-zonal or inter-company bulk imports to the WRZ;
  - Less Sustainability Reductions. These are reductions in the deployable output of a source arising from the implementation of environmental legislation to protect the water environment; and
  - Plus/less climate change effects. The scenarios for future climate change will all have varying degrees of impact on the deployable output of water supply sources. In the vast majority of cases deployable output will be reduced, but in a few cases a small increase in deployable output is possible. The calculation by water companies of the potential impacts of climate change on the deployable output of sources is based on protocols agreed the Environment Agency.

The methodologies used to describe the estimation of the above elements of the Supply Forecast are presented in sections 5.2 to 5.7.

5.2 Deployable Output

This section sets out the methods the company has used to assess the deployable output of its sources for both groundwater and surface water, together with the results of these assessments. The company has carried out a significant re-assessment of the deployable output of its sources since the last Water Resources Plan, in 2004, due to: improved collection of data; work undertaken as a result of the observed effects of the recent severe drought; and the modelling of sources that has been undertaken during the AMP4 Water Resources Investigations.

It should be noted that the following sections detail the investigations, analysis and results that will be used for the planning period, from 2010-11 to 2034-35. They will not be introduced into the baseline Supply Forecast until the start of the planning period in 2010-11. This is to ensure that there are no inconsistencies or discontinuities in the reported supply demand balance during the rest of the current AMP4 period. A full presentation of the sequencing of the introduction of various design assumptions in the build-up of the Supply Forecast over the entire planning period is given in section 5.2.3.

A prerequisite for the calculation of deployable output is the definition of the design event that is used for planning purposes. During recent droughts water use restrictions were introduced and Drought Permits/Orders were granted that modified the conditions of some abstraction licences. This experience highlighted the difference between actual and target Levels of Service. The company therefore considered it appropriate to review the design principles for the estimation of deployable output for both its surface water and groundwater sources. This resulted in a complete re-assessment of deployable output in all Areas based on detailed modelling of individual sources, drought back-casting, technical re-evaluation of source capabilities during droughts and conjunctive use modelling. Two key improvements were

carried out as part of AMP4 Water Resources Investigations to enable a much better understanding of the drought capability and drought supply risk associated with Southern Water's sources:

- All surface and groundwater sources have now been assessed on a consistent basis, which allows the output of surface and groundwater sources to be assessed as a combined total during historic drought events. This is known as the 'Unified Methodology' [4]of deployable output assessment and represents a significant improvement in gaining an understanding of Southern Water's overall source capability during drought conditions. For previous deployable output assessments, outputs for surface and groundwater sources were derived from different droughts, of different severity; and
- Detailed water resource models were produced for the Western, Central and Eastern Areas using the MISER water resource modelling application. These models allow the distribution of sources, demand and strategic transfers to be spatially and temporally modelled.

These improvements in turn enabled the achievement of the following two key objectives:

- It allowed the 'conjunctive use' of sources to be modelled. For example, in the Central Area, the S466 groundwater source and Weir Wood reservoir can be used to supplement abstraction from the S648 river source during dry periods in the summer, but they can be rested following rainfall 'spate' events where river flows are temporarily higher. The MISER model allowed the significant deployable output benefit of this combined operation to be evaluated and quoted for the MDO period; and
- It provided a better understanding of the impact and significance of key strategic infrastructure constraints. This allowed additional resource development options to be identified, and meant that constraints could also be reflected in the cost and deployable output of new resource development schemes where appropriate.

In order to apply the Unified Methodology referred to above, it was first necessary to model the outputs that could have been obtained during a long record of historical droughts. Historic surface water flows were therefore reviewed and modelled as far back as the 1890s[5]. This allowed the worst historic drought for each sub-regional area to be calculated, based on the make up of its sources, the nature of demand and available storage. Realistic, pragmatic assessments of groundwater capability under the identified key surface water droughts were evaluated, and compared with the severity of the more recent drought events that formed the 'baseline' groundwater deployable output assessments. As it allowed combined deployable output under more severe, historic droughts to be evaluated, application of the Unified Methodology inevitably resulted in a reduction in the total deployable output available in a WRZ, taking into account the simultaneous impact on both surface and groundwater sources. However, Southern Water believes that the adoption of the Unified Methodology provides a much more realistic and prudent approach to developing a robust supply system that can actually provide the required levels of supplies during future drought events. Further details of the analysis of surface and groundwater deployable output are given in sections 5.2.1 and 5.2.2 respectively.

The conjunctive use modelling approach using the MISER models has reduced the deployable output impact of historic drought events by presenting a realistic assessment of the operational capability of sources. This would not have been possible if simple, separate analyses of minimum drought outputs for the different types of sources had been used for individual sources, and, thus results in an improved representation of the supply system.

[4] Halcrow Group Ltd. / Imperial College London, 2000. A Unified Methodology for the Determination of Deployable Output from Water Sources Volumes 1 & 2. UKWIR Ref 00/WR/18/1, EA Ref W258. (UK Water Industry Research / The Environment Agency.)

[5] The impact of climate change on severe droughts, Major droughts in England and Wales from 1800 and evidence of impact, Environment Agency

It should be noted that previously only historic droughts for which operational records exist were used to calculate the deployable output of a source. Should droughts occur with a greater severity than has previously been observed, then the supplies available to the company might be less than current deployable output estimates. It is also important to recognise that in making assessments with behavioural modelling, there is perfect knowledge of the start, duration and end of droughts included in the simulation. The company does not have this prior knowledge to inform operational practice during extreme droughts. In order to maintain security of supplies it may decide on actions to conserve its resources should the duration of the drought continue beyond the length assumed for planning and until it is certain that the drought is over. During such very extreme events, the company would also be working to its Drought Plan, to ensure continued supplies of water would be available to its customers during the drought.

5.2.1 Surface Water

Since the DWRMP, a summary report that describes the approach to the assessment of surface water deployable output undertaken for the AMP4 Water Resources Investigations and then the WRMP processes has been written. As noted previously, the approach taken has been audited and endorsed[2].

Surface water sources include direct 'run-of-river' abstractions and surface water impounding reservoirs, which can be supported by pumped inflow. The potential impact of drought events on these sources will differ depending on the conditions of the abstraction licence and the nature of the source. In order to review the widest range of droughts possible, analyses were carried out to develop a flow series back to the 1890s using a rainfall-runoff model. This flow series was then used to assess the critical drought period for each surface water source.

The general approach to calculating the surface water source deployable output was as follows:

- Analysis of the available flow records within each catchment, at relevant gauging stations to assess the availability of long-term flow data, and an assessment of the catchment and factors affecting runoff;
- Derivation of the naturalised flow series at each of the assessment points, using the finalised data series for observed flow and all artificial influences (i.e. discharges and abstractions);
- Development and calibration of rainfall-runoff models;
- Derivation of a long term flow series using long term rainfall and potential evapo-transpiration (PET) records for South East England;
- De-naturalisation of the long term flow series to include all artificial influences apart from Southern Water abstractions; and
- Use of the long term flow series to calculate the deployable output of each surface water source using MISER.

Much of this work was carried out as part of the AMP4 Water Resources Investigations and additional detail about the modelling work carried out is included in Appendix D.

Following this analysis, the critical droughts within each sub-regional area as a whole were identified and used for water resource planning purposes. The worst surface water historic droughts for each Area were identified as follows:

- Western Area: 1920-1922;
- Central Area: 1920-1922; and
- Eastern Area: 1900-1903.

The range of design events result from the different responses in each Area due to the mixture of sources in the individual Areas. The critical event for the Western and Central Areas is 1920-1922, as the sources are prone to the effects of relatively short, two year, very

severe droughts. Conversely, the sources in the Eastern Area are most sensitive to the effects of conditions during 1900-1903, when there was an extended three year drought which progressively eroded reservoir and groundwater storage.

5.2.2 Groundwater

Since the DWRMP, the company has undertaken more work on the assessment of groundwater deployable output. Work focussed on the impacts of severe drought conditions that occurred before the period for which operational data are available and on the impacts of climate change.

The assessment of groundwater deployable output used for the planning period follows the Unified Methodology[4]. The deployable outputs estimated for the last Water Resources Plan, in 2004, were based on the 2003 re-assessment of deployable outputs. These estimates have subsequently been updated by re-assessments of groundwater deployable outputs in both 2005 and 2006. These groundwater deployable output assessments are all based on historically observed values of water levels and outputs. Often, the drought event used to define the deployable output is from 1990-1992, 1996-1998 or the recent 2004-2006 drought, as these are the only ones for which actual observed data is generally available. However, these estimates are not consistent with the drought periods used to define the deployable output of surface water sources, which are based on either the 1900-1903 or the 1920-1922 droughts. Thus, in order to apply the Unified Methodology, it is necessary to estimate the value of groundwater deployable output which would have been available at the same time, during these earlier, more severe, drought events.

Assessment of the potential impact of historic droughts on groundwater deployable outputs is complicated when there is little or no data available from such historic events on which to base estimates of groundwater levels. In order to make an assessment of the potential reduction in deployable output during the critical 'surface water' drought, the following general approach was taken for all WRZs (but with variations to take account of the different availability of historic data and robust recharge and/or groundwater models in each WRZ), following a peer review:

- Conceptualisation of all groundwater sources to identify those at risk from extreme drought (e.g. in particular sources where adits or other hydrogeological constraints such as fissures define the deployable output);
- Groundwater recharge modelling over the long term record using either existing models or lumped recharge calculation, depending on what techniques are available for the WRZ;
- Estimation of regional groundwater levels during the critical drought, based on the extended recharge series using either the existing groundwater models or a regression analysis using observation boreholes with sufficiently long records;
- Estimation of source rest water levels at boreholes which are considered to be vulnerable; and
- Assessment of the potential impact of this change in water level on the source deployable output by downshifting the assessment diagrams.

The approach is described in more detail in the summary groundwater report[3].

This process enabled a consistent estimate of deployable output for each WRZ and Area to be made between the surface and groundwater assessments for the design event.

5.2.3 Summary of Deployable Outputs

This section sets out the values of deployable output that have been used in this WRMP for the different time periods in which the differing design standards have been applied.

For surface water deployable outputs, the following values have been used, for different time periods, as follows:

- From the baseline year 2007-08 to the end of AMP4 (2009-10), the values used will be the original PR04 values, in line with the PR04 baseline condition, together with any AMP4 improvements; and
- From the start to the end of the planning period (2010-11) to 2034-35, the values used will be as calculated from the methodology described in the section 5.2.1 above.

For groundwater, the situation is more complex, as there will be a progressive series of values used, to reflect the changing assumptions, as follows:

- The baseline year 2007-08, will use the original PR04 values, in line with the PR04 baseline condition, or 2006 re-assessments (where available);
- For 2007-08 these values will also include any AMP4 improvements in deployable output to date and will remain constant until the start of the planning period (2010-11);
- For the start of the planning period (2010-11), the values used will take into account the 2006 re-assessments, together with the results from application of the Unified Methodology;
- During the AMP5 period, up to 2014-15, these values will be modified to take into account any AMP5 planned source improvements; and
- Up to the end of the planning period in 2034-35, the values used will be those used at the end of AMP5.

The deployable output values used in the baseline supply demand balance have therefore changed from those presented in the last WRP in 2004. These changes are presented graphically in Appendix I for each Area at both MDO and PDO, showing the value of deployable output both increasing and decreasing as a result of the work carried out to re-assess the deployable output of both ground and surface water sources. Table 5.1 summarises the PR09 baseline (2010-11) deployable output for the company by WRZ and source type.

Enhancements to groundwater deployable output are planned during AMP5 and these will be included in the baseline Supply Forecast during AMP5, but these are not shown in Table 5.1 which is the PR09 baseline at 2010-11. A review of the methodologies used, and results of all surface and groundwater deployable output assessments is included in Appendix D.

Area	WRZ	Groundwater (Ml/d)		Surface Water (Ml/d)		Total (Ml/d)	
		MDO	PDO	MDO	PDO	MDO	PDO
Western	HS	96.33	114.77	149.46	149.46	245.79	264.23
	HA	22.47	28.20	0.00	0.00	22.47	28.20
	HK	8.68	9.48	0.00	0.00	8.68	9.48
	IoW	20.72	25.49	10.00	12.00	30.72	37.49
	Total	**148.20**	**177.94**	**159.46**	**161.46**	**307.66**	**339.40**
Central	SN	23.85	39.29	16.20	24.50	40.05	63.79
	SB	89.30	108.52	0.00	0.00	89.30	108.52
	SW	57.85	68.98	0.00	0.00	57.85	68.98
	Total	**171.00**	**216.79**	**16.20**	**24.50**	**187.20**	**241.29**
Eastern	SH	1.82	3.50	38.66	42.85	40.48	46.35
	KM	109.98	135.67	34.60	46.90	144.58	182.57
	KT	50.97	57.29	3.50	3.50	54.47	60.79
	Total	**162.77**	**196.46**	**76.76**	**93.25**	**239.53**	**289.71**
Company	**Total**	**481.97**	**591.19**	**252.42**	**279.21**	**734.39**	**870.40**

Table 5.1 PR09 Baseline (2010-11) Deployable Output by Source Type and WRZ

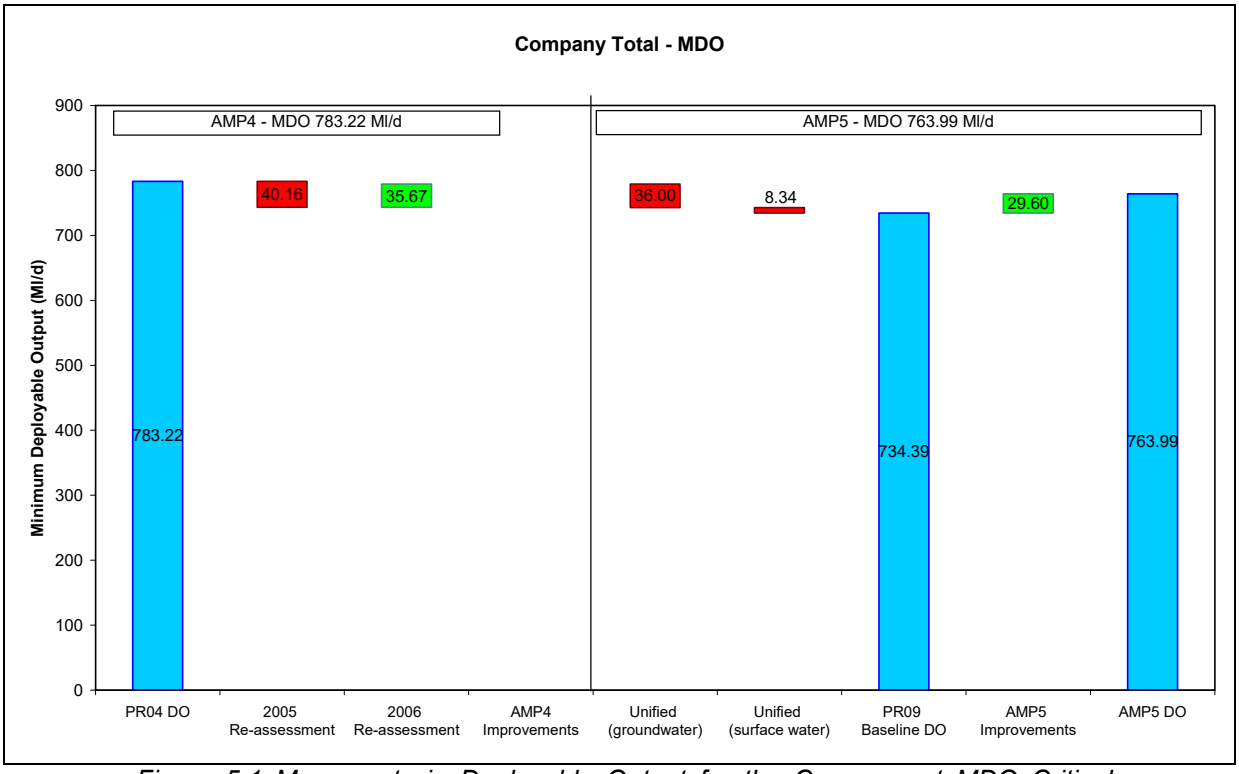


Figure 5.1 Movements in Deployable Output for the Company at MDO Critical Period (Ml/d)

For the MDO critical period condition Figure 5.1 shows the following,:

- There is a net reduction in MDO from the PR04 baseline to the start of the planning period for PR09 of 4.49 Ml/d due to;
  - a reduction of 40.16 Ml/d as a result of the 2005 reassessments; and
  - an increase of 35.67 Ml/d as a result of the 2006 reassessments.
- A decrease of 36.00 Ml/d from the 2006 reassessment due to the adoption of the Unified Methodology for groundwater sources;
- A decrease of 8.34 Ml/d due to the adoption of the Unified Methodology for surface water sources; however
- There will be an increase in MDO of 29.60 Ml/d during AMP5 due to assumed groundwater source improvements.

Therefore, overall in the baseline Supply Forecast there will be a net reduction in MDO from AMP4 baseline to AMP6 baseline of 19.23 Ml/d (from 783.22 Ml/d to 763.99 Ml/d) equivalent to 2.5%.

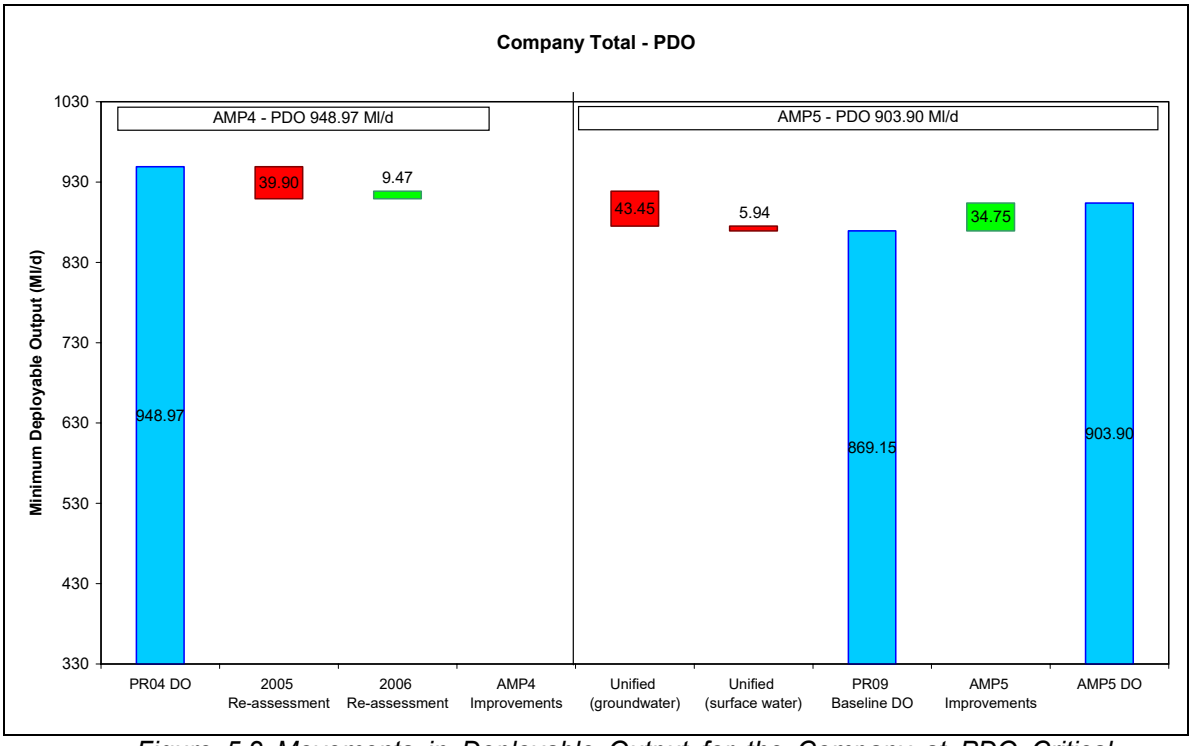


Figure 5.2 Movements in Deployable Output for the Company at PDO Critical Period (Ml/d)

Figure 5.2 for the PDO critical period condition shows the following:

- There is a net reduction in PDO from the PR04 baseline to the start of the planning period for PR09 of 30.43 Ml/d due to;
  - a reduction of 39.90 Ml/d as a result of the 2005 reassessments; and
  - an increase of 9.47 Ml/d as a result of the 2006 reassessments;
- A decrease of 43.45 Ml/d from the 2006 reassessments due to the adoption of the Unified Methodology for groundwater sources;
- A decrease of 5.94 Ml/d due to the adoption of the Unified Methodology for surface water sources; however

- There will be an increase in MDO of 34.75 Ml/d during AMP5 due to assumed groundwater source improvements.

Therefore, overall in the baseline supply forecast there will be a net reduction in PDO from AMP4 baseline to AMP6 baseline of 45.07 Ml/d (from 948.77 Ml/d to 903.90 Ml/d) equivalent to 4.7%.

5.3 Treatment Works Losses and Operational Use

The treatment of water from most sources will result in process and operational losses, except when treatment is in the form of simple chlorination. The following data therefore relates to the treatment process water, i.e. the net loss of water, excluding water returned to the source.

A review of the estimation of such losses has been made for all Southern Water's Water Supply Works (WSW). This shows that there are 106 sources at which there will be some form of process loss, nine are surface water sources, and 97 are groundwater sources. Estimates of the revised process losses are summarised by WRZ, sub-regional area and company level for both the MDO and PDO condition in Table 5.2.

Area	WRZ	Estimated Treatment Works Losses and Operational Use (Ml/d)	
		MDO	PDO
Western	IoW	0.49	0.50
	HS	1.18	1.18
	HK	0.04	0.04
	HA	0.13	0.13
	Total	**1.84**	**1.85**
Central	SN	0.44	0.39
	SW	0.60	0.60
	SB	0.50	0.50
	Total	**1.54**	**1.49**
Eastern	SH	0.34	0.38
	KM	1.20	1.20
	KT	0.61	0.61
	Total	**2.15**	**2.19**
	Company total	**5.53**	**5.53**

Table 5.2 Summary of Treatment Works Losses and Operational Use by WRZ

Although the volume of process losses will be kept under review, it is not considered that there are any opportunities for further reductions in process losses through investment with the exception of B513 which is the location of an AMP5 asset maintenance scheme. The potential scale of the reduction in process losses has been estimated and is included in Table 5.2.

5.4 Outage

Outage refers to the planning allowance made for the temporary unplanned loss of deployable output from a source. This can result from such factors as mechanical, electrical or treatment failure or any form of unplanned event which leads to the temporary loss. An allowance for outage is made in the supply demand balance, calculated at the level of the WRZ.

Estimates of outage have previously been made on the pragmatic basis of taking either the value of the average deployable output of independent groundwater sources in a WRZ, or 5 Ml/d, whichever is the smaller. However, this had the potential to give unrepresentative values, particularly in small WRZs with relatively few sources. Therefore, a risk based approach was derived to give what were considered to be more representative values.

A revised assessment of the outage allowance has been carried out for this WRMP using a risk-based approach, based on actual recorded data, which is described in more detail in Appendix D. The results of this analysis are summarised at the level of WRZ, area and company in Table 5.3.

Area	WRZ	Outage allowance (Ml/d)	
		MDO	PDO
Western	IoW	1.93	2.34
	HS	4.59	6.54
	HK	0.77	1.49
	HA	1.52	2.44
	Total	**8.81**	**12.80**
Central	SN	2.34	2.30
	SW	3.07	4.39
	SB	3.63	5.18
	Total	**9.04**	**11.87**
Eastern	SH	1.62	3.94
	KM	4.06	5.90
	KT	3.62	4.64
	Total	**9.29**	**14.48**
Company total		**27.15**	**39.16**

Table 5.3 Summary of Outage Allowances by WRZ (Ml/d)

The outage allowances presented in Table 5.3 are based solely on outage at groundwater sources, with the sole exception of Sussex Hastings WRZ, where the estimates take into account known outages to surface water sources.

It is the intention to continue to monitor actual outage on a continuous basis. In particular the following aspects will be reviewed:

- Any changes as a result of ongoing data collection;
- The possible inclusion of a partial, significant loss of deployable output from surface water sources, as it is considered that this would constitute a legitimate, and experienced, form of surface water outage;

- The partial reduction in groundwater source deployable outputs given the historical occurrence of pollution events and single borehole failure at multiple borehole source sites;
- Whether an allowance should be made for flooding events; and
- The potential for reducing the outage allowance through an enhanced asset maintenance regime.

However this will require the current enhanced data collection procedures to have been in place for a longer period so that the required data are available for a more representative period of time.

5.5 Raw and Potable Water Transfers and Bulk Supplies

There are a number of bulk transfers of water, both raw and potable, within the Southern Water area of supply. These can be both from a WRZ (export), or to a WRZ (import). There are two basic types of transfer, as follows:

- Inter-zonal, whereby the transfer takes place between Southern Water WRZs (see Table 5.4); and
- Inter-company, whereby the transfer takes place between a Southern Water WRZ and another water company (see Table 5.5).

Area	From	To	Capacity (Ml/d)
			Exports
Western	HS	IoW	14.00
Central	SW	SN	15.00
	SN	SW	15.00
	SW	SB	7.00[1]
Eastern	KM	SH	35.00 (raw)
	KM	KT	22.80

Note: [1] scheme becomes available once strategic scheme completed

Table 5.4 Summary of Inter-Zonal Transfers from 2010-11 (Start of Planning Period)

Area	WRZ	Imports		Exports	
		MDO (Ml/d)	PDO (Ml/d)	MDO (Ml/d)	PDO (Ml/d)
Western	IoW	-	-	-	-
	HS	-	-	23.00	23.00
	HK	-	-	-	-
	HA	-	-	0.31	0.41
	Total	**0.00**	**0.00**	**23.31**	**23.41**
Central	SN	15.00	15.00	5.40	5.40
	SW	-	-	-	-
	SB	-	-	-	-
	Total	**15.00**	**15.00**	**5.40**	**5.40**
Eastern	SH	-	-	8.00	8.00
	KM	-	-	18.12	19.32
	KT	0.01	0.01	4.00	-
	Total	**0.01**	**0.01**	**30.12**	**27.32**
Company total		**15.01**	**15.01**	**58.83**	**56.13**

Table 5.5 Summary of Inter-Company Bulk Transfers from 2010-11 (Start of Planning Period) (Ml/d)

Southern Water is a net exporter of water, with exports of about 60 Ml/d at both MDO and PDO, compared to imports of about 15 Ml/d at both MDO and PDO. Currently, these contractual volumes have to be taken into account in the baseline supply demand balance.

There are a number of issues to consider regarding bulk transfers within the context of the WRMP, which are briefly addressed below.

There are a number of existing inter-zonal transfers between the WRZs within Southern Water. These allow the transfer of supplies from WRZs with a surplus supply demand balance to those with a deficit. The transfers will have a given capacity, which may not need to be fully utilised at the start of the planning period for all conditions because the transfer is optimised to meet the deficit year by year. Thus, spare capacity may exist for future increases in transfers to support the recipient WRZ. This in turn allows for the possibility of increasing the capacity of the transfer if further spare supplies become available in the donor WRZ. It also has the implication that, should further supplies be required in the inter-connected WRZs, then it may be more appropriate to develop resources in either the donor, or recipient, WRZ. This gives flexibility to the choice of scheme option selection within the investment model.

There are also a number of inter-company transfers, some of which are of significant volume, although others, such as the small metered supplies, serve only a few properties. The terms and conditions of the larger inter-company transfers are set out in some form of agreement. These agreements will normally state such aspects as: volume; duration of the agreement; and financial arrangements, although no two agreements are the same. However, many of the current agreements are due to expire during the current planning period, one as early as 2012.

Furthermore, all of the donor WRZs (apart from Hampshire Andover) which provide for these bulk exports will develop a supply demand balance deficit during the planning period. It has already been stated that Southern Water has included in the baseline supply demand balance renewal until the end of the planning period of all existing bulk supplies at the volumes that are applicable at the time of contract renewal.

Southern Water has reaffirmed its commitment to the development of a regional solution within the context of the WRSE companies. A number of potential inter-company transfers have been identified as part of the work of the WRSE group modelling work. These additional bulk transfers are summarised in Table 5.6 and are included in the investment model for the WRSE scenario only. In addition, a number of resource development schemes that formed part of the WRSE regional solution are proposed to be introduced. This is likely to result in a surplus of water which will be available for bulk transfer in the Eastern Area; however, the magnitude of such a transfer or transfers has not yet been agreed.

Transfer	Peak (Ml/d)	MDO (Ml/d)
Sussex Brighton		
SB export SEW Mid-Sussex	Constant from 2028-29: 4.0	Constant from 2028-29: 4.0
Kent Thanet		
KT export Folkestone & Dover – Deal High	Additional from 2027-28: 2.0	-

Table 5.6 Summary of Additional Inter-Company Bulk Transfers for WRSE Scenario

5.6 Sustainability Reductions

5.6.1 Overview

All abstractions are subject to the terms of the existing abstraction licences. Many of these licences were issued in 1965, when the provisions of the 1963 Water Resources Act came into force. The Environment Agency considers that the terms of some of these licences are such that the abstraction could cause environmental damage, or could have an impact on sites with environmental designations. Thus, there is a possibility that some licences may be varied, or even revoked, if it is proven that they could cause environmental damage. In order to manage the requirements of recent European and national environmental legislation and initiatives, the Environment Agency has set up the over-arching Restoring Sustainable Abstraction (RSA) Programme.

During AMP4, a number of investigations have been undertaken, mostly under the Habitats Directive, to determine if the abstractions under investigation could cause environmental damage, and thus needed to be revised. Such revisions are generally known as Sustainability Reductions. Most of these investigations are ongoing and final results have only been indicated for the River Itchen SAC. It should be noted that although the investigations have been carried out during AMP4, there is no strict timetable for the implementation of any measures, although at the time of the DWRMP the Environment Agency indicated that it expected all measures to be completed by 2015. In the period since the DWRMP, the company has worked with the Environment Agency, Ofwat and Portsmouth Water to explore options for the implementation of the proposed Sustainability Reductions. A draft Memorandum of Understanding (MoU) was prepared by the company following that work to set out the roles and responsibilities of the various parties to progress the development of options that would allow the proposed Sustainability Reductions to be implemented. The MoU (reproduced in Appendix A) has now been approved by all parties, and the Environment Agency has indicated that there could be a progressive timetable for implementation of the Sustainability Reductions up to the end of AMP6.

At various times during preparation of this WRMP, the Environment Agency has provided figures for the Sustainability Reductions to be included in the supply demand balance. Southern Water received the first set of figures for Sustainability Reductions in June 2007

(letter is included in Appendix D.4). This gave an "indicative" Sustainability Reduction for only the River Itchen SAC investigation. The impact of the proposed licence revisions is extremely significant for the Hampshire South WRZ and the Western sub-regional area, as described in section 10.3. The "indicative" Sustainability Reductions advised in 2007 were confirmed by the Environment Agency in its letter dated 28th November 2008 (included in Appendix D.4) as "Certain"; the letter also included information on NEP (National Environment Programme) schemes to be included in AMP5.

Table 5.7 gives a summary of the Sustainability Reductions set out in the Environment Agency letters. Table 5.8 gives a summary of the schemes and investigations to be undertaken during AMP5 that the Environment Agency identified in the NEP letter dated November 2008.

Area	WRZ	Reference no.	Site name	Priority	Details
Western	IoW	4SO501002	Brading Marshes	Medium	No Sustainability Reductions advised by EA.
	HS	3POSW5106	River Itchen SAC	High	Sustainability Reductions advised by EA comprise at S517 and Y841 totalling 107 Ml/d at MDO and 86 Ml/d at PDO due to a proposed MRF of 198 Ml/d.
	HK	None			
	HA	None			
Central	SN	4SW00301	Arun Valley SPA, Ramsar, SSSI	Medium	Potential impact on the S466 groundwater abstraction. Removed by the EA in its December 2008 letter.
	SW	None			
Eastern	SH	None			
	KM	3MK3000801	North Kent Marshes	Medium	Potential impact on groundwater sources in this WRZ. No Sustainability Reductions advised by EA in its December 2008 letter.
	KT	Little Stour 3SO3000301 Wingham River 4SO300101	Little Stour, Wingham River	-	The EA advises that it does not have sufficient information to provide details on potential Sustainability Reductions to the X868, R168 and A853 sources. Options appraisal to be undertaken in AMP5

Table 5.7 Summary of Sustainability Reductions to be included in the Southern Water WRMP

Area	WRZ	Reference no.	Site name	Priority	Details
	HS	3POSW5106	River Itchen SAC	High	**Implementation**
		RSA-SOHA0003	River Test	Not given	**Investigation** New scheme that was not identified by EA in 2007.
	HK	None			
	HA	None			
Central	SN	None			
	SW	None			
	SB	GB107041012450	Lewes Winterbourne	Not given	**Investigation** New scheme that was not identified by EA in 2007 and not advised to the company in advance of December 2008 letter.
Eastern	SH	None			
	KM	None			
	KT	Little Stour 3SO3000301 Wingham River 4SO300101	Little Stour, Wingham River	-	**Options appraisal**

Table 5.8 NEP investigations to be undertaken during AMP5

At the time of the DWRMP, the only information provided regarding the magnitude of possible Sustainability Reductions related to the River Itchen SAC. As shown in Table 5.7, there remains the possibility that further proposals will be made that affect the remaining sites. Whereas most of the investigations to date have been associated with the Habitats Directive Review of Consents, the Table 5.8 illustrates that further reviews of abstraction licences under Restoring Sustainable Abstraction programme and the Water Framework Directive drivers may lead to further pressures on the company's resource base.

At the time of the DWRMP, and further confirmed in the NEP letter (dated November 2008), all companies were instructed by the Environment Agency in its Water Resources Planning Guideline that they would be told by the Environment Agency what Sustainability Reductions should be included in their WRMPs. Companies were instructed not to include any allowance for any other Sustainability Reduction, or any allowance for the possibility of the non-renewal of time dated licences, either as a reduction in deployable output, or as a factor in the calculation of headroom uncertainty. Southern Water is of the view that this continues to represent a major source of uncertainty in this WRMP and could adversely affect its robustness in future years.

5.7 Climate Change Effects on Supply

At the time of the DWRMP, it was expected that the results of UKCIP08 would have been released in time for them to inform the final WRMP, but the new scenarios (under the name UKCP09) were only released in July 2009. Additional work undertaken since the DWRMP has therefore been restricted mainly to the refinement of the previous analysis on groundwater sources, and to reviews of the operation of the River Medway Scheme in the context of AMP4 Water Resources Investigations. There has also been additional guidance from both Ofwat[6] and the Environment Agency[7] on how the impacts of climate change on supplies should be taken into account.

The impacts of climate change on surface water sources were assessed using three different climate change models to determine the minimum, 'most likely' and maximum expected climate change impacts. The 'most likely' model has been used as the central reduction in deployable output, with the maximum and minimum models providing the bounds for headroom uncertainty using a triangular distribution. Impacts on deployable output and Target Headroom limits were interpolated linearly, providing an incremental impact and increase in headroom over the planning period.

In the Eastern Area, the operation of Bewl Water is currently constrained by the operational need for a minimum input to P647 of 30 Ml/d. With this constraint in place, it is not possible to successfully run the MISER model over the design scenario, as there is insufficient water in the Medway to allow effective re-fill of Bewl to support the P647 abstraction. The medium and high scenarios were thus based on modelling with the minimum P647 flow constraint removed. This suggests that the operation of the system is particularly sensitive under high climate change scenarios, and will therefore need to be kept under review.

The output of the three reservoir system (Bewl, Darwell and Powdermill) has thus been considered in combination. The climate change input on the whole system was calculated for the three climate change scenarios, and this impact was apportioned equally between Kent Medway and Sussex Hastings WRZs.

One further issue associated with the Eastern Area is that due to the way in which the system operates, the 'most likely' climate change impact on the peak week is actually slightly less than the minimum climate change scenario. The impact of climate change on the company's surface water sources is shown in Table 5.9.

Analysis has been undertaken since the DWRMP to assess the impact of climate change on groundwater sources. Details of the work are given in the summary report on groundwater deployable output [3]. The results of the assessment of the impact of climate change on groundwater are shown as Table 5.10.

The assessment of the impact of climate change on both surface water and groundwater supplies will need to be kept under review, particularly following release of the UKCP09 climate change scenarios. Further guidance from UKWIR and other bodies on how to apply use the new scenarios in future planning is expected following review and interpretation of the new scenarios. Delay in the release of the new scenarios means that it has not been possible to include their impact in this WRMP. However the approaches used for this WRMP can be applied to the new scenarios.

The recent Ofwat policy[6] states:

> "Companies will need to provide robust evidence for any step changes to the estimates of existing supply capacity (for example, deployable output) and demand that they use in their investment planning for the 2010-15 period, whether those changes are related to new information on climate change or to other factors. In preparing their evidence, companies should take account of their experience during the 2005-06 drought, which tested supply capacity and demand."

[6] Water supply and demand policy, Ofwat November 2008
[7] Revision to Water resource planning guideline, Environment Agency, December 2008

Section 5.2 describes how the reassessment of source yields and assessment of climate change impacts were undertaken and refers to separate reports that provide the robust evidence required by Ofwat. The potential impacts of climate change on deployable output have not been included in the baseline values of DO during AMP5. The impact is assumed only from the start of AMP6 onwards; climate change does not therefore affect any investment decisions during AMP5.

Area	WRZ	MDO Reduction, 2025			PDO Reduction, 2025		
		Headroom			Headroom		
		Min	Most Likely	Max	Min	Most Likely	Max
Western	IoW	0.0	0.0	0.0	1.40	2.09	2.77
	HS	0.0	0.0	0.0	0.0	0.0	0.0
	HK	-	-	-	-	-	-
	HA	-	-	-	-	-	-
	Total	**0.0**	**0.0**	**0.0**	**1.40**	**2.09**	**2.77**
Central	SN	0.0	0.0	0.0	0.0	0.0	0.0
	SW	-	-	-	-	-	-
	SB	-	-	-	-	-	-
	Total	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Eastern	SH	2.71	5.02	6.90	3.41	5.68	7.83
	KM	4.57	8.46	13.16	10.61	17.68	24.51
	KT	-	-	-	-	-	-
	Total	**7.28**	**13.48**	**20.06**	**14.02**	**23.36**	**32.34**
	Company	**7.28**	**13.48**	**20.06**	**15.42**	**25.45**	**35.11**

Table 5.9 Climate Change Impacts on Surface Water Deployable Output in 2025 (Ml/d)

Area	WRZ	MDO Reduction, 2025			PDO Reduction, 2025		
		Headroom			Headroom		
		Min	Most likely	Max	Min	Most likely	Max
Western	IoW	-0.07	0.08	0.29	-0.06	0.09	0.31
	HS	-1.25	0.00	1.50	-1.10	0.05	2.05
	HK	0.00	0.00	0.00	0.00	0.00	0.00
	HA	-0.04	-0.01	0.02	-0.04	0.00	0.04
	Total	**-1.36**	**0.07**	**1.81**	**-1.20**	**0.14**	**2.40**
Central	SN	-0.05	0.03	0.05	-0.05	0.03	0.05
	SW	-0.69	0.18	0.69	-0.92	0.23	0.92
	SB	-1.54	0.39	1.54	-0.95	0.24	0.95
	Total	**-2.28**	**0.59**	**2.28**	**-1.92**	**0.50**	**1.92**
Eastern	SH	-0.10	0.20	0.40	-0.10	0.25	0.50
	KM	0.00	3.89	6.43	0.00	2.71	5.92
	KT	-1.20	2.58	6.00	-3.09	3.28	10.03
	Total	**-1.30**	**6.67**	**12.83**	**-3.19**	**6.24**	**16.45**
	Company	**-4.94**	**7.33**	**16.92**	**-6.31**	**6.88**	**20.77**

Table 5.10 Climate Change Impacts on Groundwater Deployable Output in 2025 (Ml/d)

6 Demand Forecast

6.1 Introduction

This section sets out how Southern Water's Demand Forecast has been derived. During the Reporting Year 2007-08, the company supplied 564 Ml/d on average each day. This is about 40% greater than that supplied in the early 1960s. Despite the challenges to be faced by the company during the planning period and in particular the forecast increase in population and households, demand is forecast to decrease by 2.3% as a result of the significant demand management measures included in this Plan. The headlines for the demand forecast are:

- Total population supplied is forecast to rise from 2,257,000 in 2007-08 to 2,701,000 in 2034-35;
- Total connected properties are projected to increase from 1,043,000 in 2007-08 to 1,328,000 in 2034-35;
- The normal year average daily demand is forecast to decrease to 551 Ml/d by 2034-35, as a result of universal metering. If only optant metering policies were adopted, the NYAA demand would still be expected to fall, but only slightly, to 560 Ml/d (a decrease of 0.6%); and
- The average PCC for the company under "normal year" conditions is forecast to decrease from 152 l/h/d in 2007-08 to 127 l/h/d in 2034-35. In 2030-31, the overall household PCC is forecast to be 128 l/h/d, which is ahead of the government's aspirational target of 130 l/h/d by 2030.

Figure 6.1 shows how the annual average daily volume of water supplied by the company and the former statutory water undertakers from which the company was formed has varied since the 1960s. The volume supplied (called Distribution Input) peaked in 1989 at around 720 Ml/d, from which it has fallen back to levels not experienced since the 1970s. This trend in declining consumption is attributed to reductions in domestic customer use in response to: changes in lifestyle; customer awareness of the environment; ongoing water efficiency campaigns; increases in domestic metering; reductions in commercial demand, and a significant decrease in leakage. The impact of the forecast increase in population on demand is described in section 6.5.

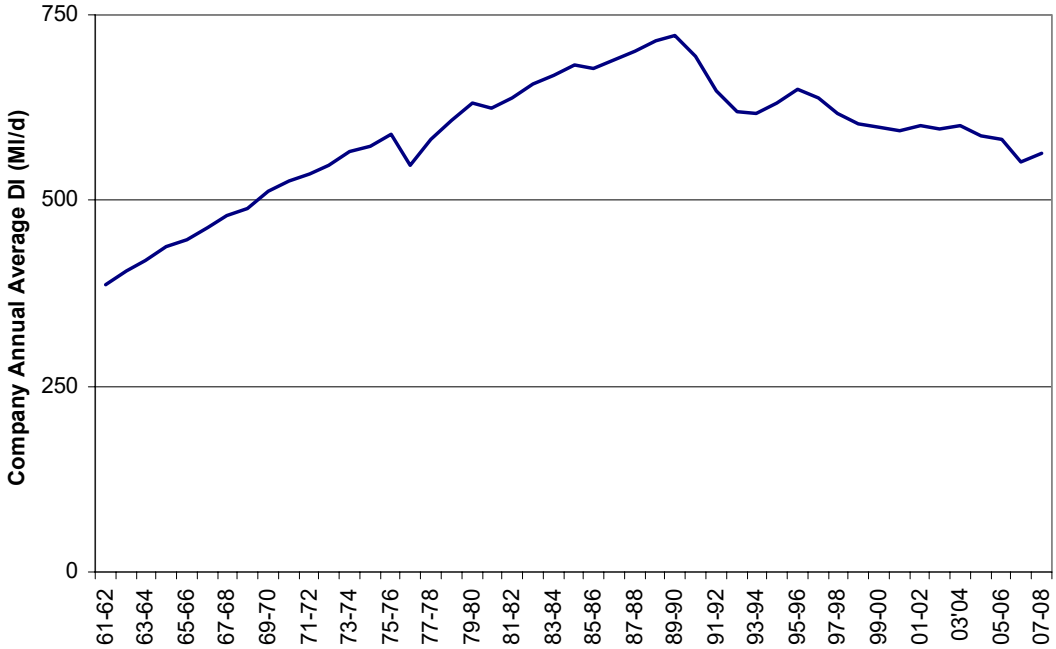


Figure 6.1 Company Annual Average Distribution Input, 1961-2007

Demand for water varies seasonally and with the prevailing weather conditions, peaking during the late spring/summer months as discretionary use increases, and then falling to a minimum during the autumn and winter. Figure 6.2 show the daily variation in demand during 2007-08 in which a peak week demand of 628 Ml/d was recorded in May, while the minimum weekly demand of 540 Ml/d was recorded during October.

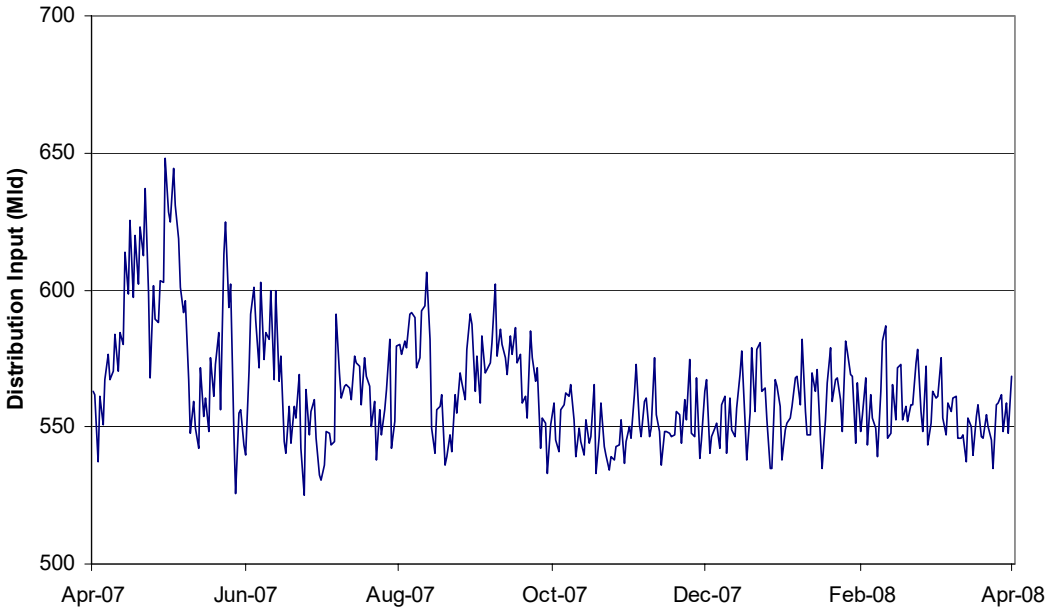


Figure 6.2 Variations in Distribution Input during 2007-08

Hot, dry summer weather, as for example in 1995, leads to significant increases in daily demand, although in times of drought, as in 1976 and 2004-05, the introduction of demand restrictions can bring about rapid reductions in customer use.

Variations in discretionary use throughout the day, particularly during the warmer summer months are generally considered the main reason behind the observed increases in summer

demands. Figure 6.3, based on work carried out by WRc[8], shows the variation in recorded household demands on typical winter and summer days.

Indoor consumption is relatively constant between the two periods, but outdoor discretionary use during the summer period, due principally to garden watering, is considerably greater during the summer than the winter.

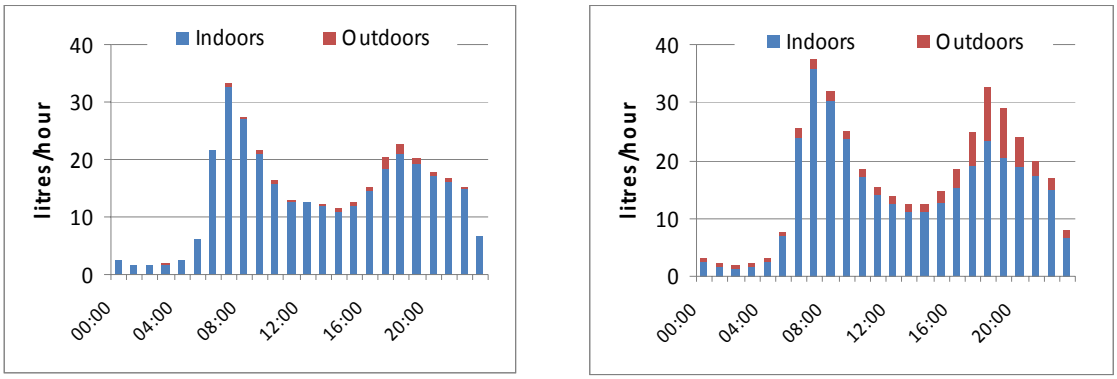


Figure 6.3 Typical Daily Household Consumption Profiles in Winter (left) and Summer (right) (After WRc 2005)

For planning purposes, the measure used for describing peak demand is the average daily consumption taken over seven consecutive days; the maximum annual figure being the so-called "average day peak week" or critical period demand, or PDO demand. In 2007-08, the peak week demand was 628 Ml/d, some 11% above the average and 15% greater than that recorded in the autumn. Demand forecasts are presented in this document for both average annual and critical period, (AA and CP) demands as required by the Water Resource Planning Guideline, and also during the autumn period, when groundwater sources are at their lowest levels – known as the minimum deployable output (MDO) period.

Historic peak week demands have been reviewed to assess the maximum that might be expected under the required forecast design scenarios during the planning period to 2034-35. In 2007-08, 35% of households supplied by the company were metered; a figure which has increased steadily since the compulsory metering of the Isle of Wight in the late 1980s, (carried out as part of the National Metering Trials). Metered domestic customers tend to use less water than unmetered customers, so the historic peak demand record has been rebased to reflect the current level of meter installation. The revised annual peak series has subsequently been used to derive the dry year demand estimates.

The base year for this new forecast is 2007-08, and demands recorded during that year are considered to be reasonably representative of what may be termed a *normal* year. The derivation of base year demands under the normal year, and for the dry year planning scenarios (DYAA, DYCP, and DYMDO) are described in section 6.3.

In 2007-08, the company supplied water to 945,000 domestic households (excluding void households), 334,000 of which were metered (35%) and to a further 61,000 commercial customers (excluding void non-households), 88% of which were metered. In addition, water was used for operational purposes by the company, water was taken but was unbilled (both by legal and illegal means), and the remainder was lost through leakage from the distribution system and from the supply pipes which connect individual properties to the distribution main. Table 6.1 lists the Components of Demand and shows the proportion of water attributed to each component.

[8] WRc (2005), *Increasing the value of domestic water use data for demand management*, Report P8832

Component of Demand	Company (Ml/d)	%DI
Unmeasured households (umHH)	244.3	43%
Measured households (mHH)	89.7	16%
Unmeasured Non-households (uNH)	5.7	1%
Measured Non-households (mNH)	131.6	23%
Distribution System Losses	65.3	12%
Customer Supply Pipe Losses	16.2	3%
Operational Use & Unbilled	10.7	2%
Total Demand	563.6	100%

Table 6.1 The Components of Demand, 2007-08

During the year, domestic household consumption accounted for around 59% of Distribution Input, while commercial customers used a further 24%. Leakage, including that lost from customers' supply pipes accounted for 15%, while the minor components accounted for the remaining 2% of supply.

Many of the assumptions on which this forecast is based are subject to uncertainty. But overall, this forecast reflects Southern Water's current view of the impact of factors such as the projected growth in population and housing numbers and changing levels of commercial activities on future demands, given existing policies and preferred options regarding metering and other demand management measures.

6.2 Demand Scenarios

This WRMP presents demand forecasts for a range of design scenarios, as specified in the Environment Agency's Water Resource Planning Guideline. The required scenarios are:

- **Normal Year Annual Average demands (NYAA)** – developed by normalising the base year (2007-08), where necessary, to compensate for the influence of weather and demand restrictions. The idea is to derive estimates of demand that would occur under 'normal' conditions;
- **Dry Year Annual Average demands (DYAA)** – the annual average demand in a year with low rainfall, but without any demand restrictions in place. This demand is used with the average deployable output (ADO) supply scenarios;
- **Dry Year Critical Period demands (DYCP)** – a scenario to look at the peak week demand during summer in a dry year. Peak week demand is the average daily value in the seven day period for which the largest demand is seen. This demand is used with the peak deployable output (PDO) supply scenarios; and
- **Dry Year MDO demand (MDO)** – the autumn demand in a dry year. Autumn is the period when ground water levels and river flows are generally at their lowest and sources are operating close to their minimum deployable outputs (MDO). Whilst demand in this period is generally not as high as in the summer, it is important to investigate this scenario because the available supplies are generally vulnerable.

Figure 6.4 illustrates the definitions of these periods in relation to the baseline demands observed in the Hampshire South WRZ during 1995-96, a period which included the very dry summer of 1995. All water companies are required to provide forecasts for the NYAA and DYAA scenarios because this allows comparison between the various companies. However,

the dry year peak week demand (DYCP) or the MDO demand may be the more important investment driver in some WRZs; depending on local characteristics, for example, the volume of storage available and the composition of sources. For this reason, forecasts for these two periods are also presented.

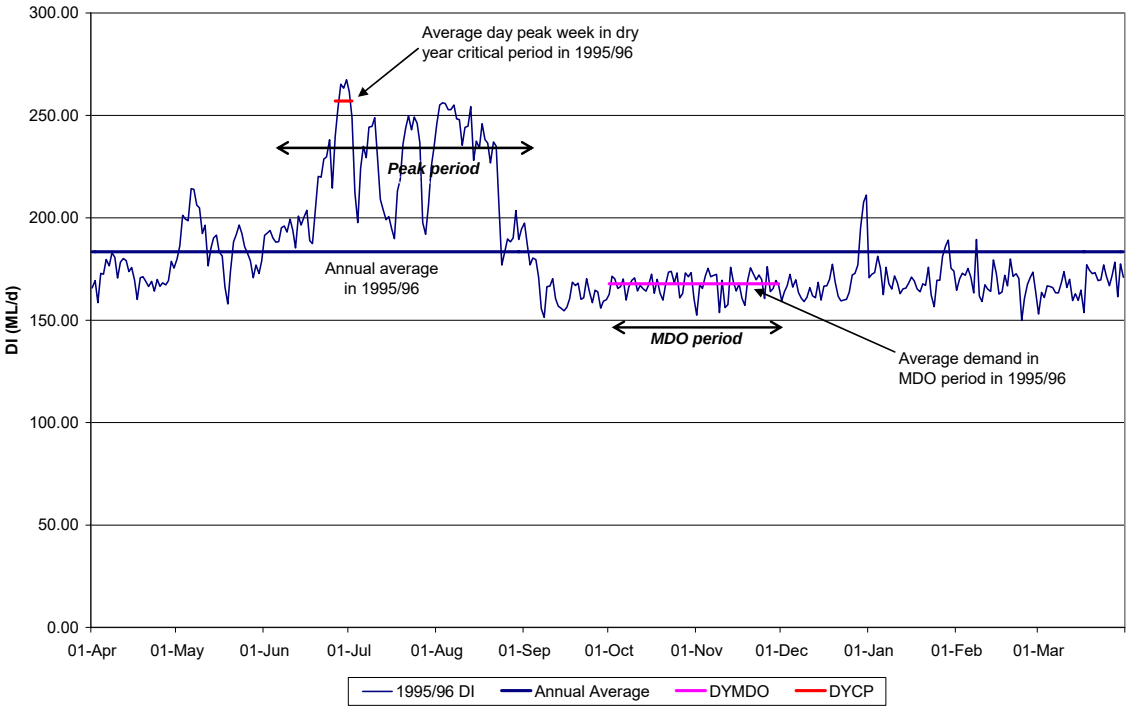


Figure 6.4 Definition of Demand Scenarios and Planning Periods

6.3 Base Year Demand

6.3.1 Normalisation of the Base Year Demand

The base year for this demand forecast is 2007-08 and component data are available at the WRZ level, based on the annual returns submitted to Ofwat and the Environment Agency.

Demand, particularly that used by households, is influenced by rainfall and temperature. During the summer months rainfall reduces the demands from garden watering and other outside activities. Conversely, drought conditions, particularly when accompanied by sustained periods of high temperature, can lead to rapid increases in demand. Long term rainfall and temperature records were used to assess the summer conditions, i.e. occurring in the period from April to September. This period was considered to be the one of most relevance to demand, as illustrated in Figure 6.5. During the summer of 2007-08 total rainfall was only slightly less than average compared with other years, although it was warmer than average. However, July was unusually wet and demands in that month were less than those observed earlier in the year with the peak week demand of 628 Ml/d being observed in May.

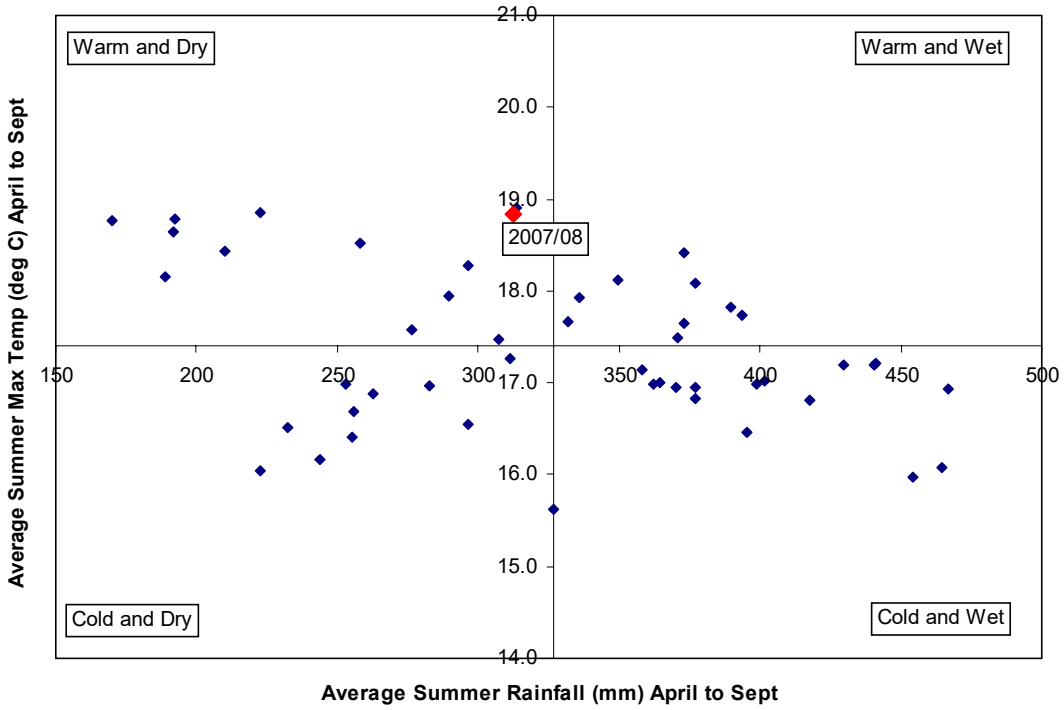


Figure 6.5 Classification of Dry/Wet and Warm/Cold Years (1959-60 to 2007-08)

On balance it is considered that in demand terms, at least, the year was not exceptional and the recorded demands have not been adjusted to compensate for unseasonal consumption. Thus we assume that 2007-08 was a normal or typical year, and the average daily demand during the year (the Normal Year Annual Average or NYAA) was 564 Ml/d.

6.3.2 Dry Year Demands

Distribution Input data for the years 1995-96 to 2007-08 were analyzed with leakage removed from Distribution Input to focus on trends in actual demand rather than on total Distribution Input. Non-household demand was also removed from Distribution Input because it is not generally subject to seasonal variation in the company supply area. Data for the early 1990s, whilst available, was considered to be less robust than current data and is also less representative of the current customer base.

The resulting series was subsequently rebased to produce estimates of the demands which would have been experienced in previous years if the base year conditions (i.e. current meter installation levels and customer numbers) had been in place. Rebasing of household demand in each WRZ over the period 1995-96 to 2007-08 was undertaken using the assumed suppression effects of metering on the actual un-metered customer base.

A dry year is one with very low summer rainfall but unconstrained demand (i.e. it is a year without demand restrictions in place). The company's published Target Levels of Service is for hosepipe restrictions to be introduced no more frequently than once in ten years.

Dry year annual average (DYAA) demand was determined from the rebased historic demand series for each WRZ as the 90th percentile of the annual average series of rebased demands. This is considered equivalent to the 1 in 10 year demand.

Historic peak and MDO household demands were rebased using the maximum peak week demand observed in each year and the maximum rolling 30-day average demand over the period October to November respectively.

The 90th percentile of the rebased historic peak and MDO demands was used to provide estimates of the dry year (unconstrained) demand for these two periods. Thus, the rebased

peak week and MDO demands are also considered to represent a 1 in 10 year demand. The demands resulting from this analysis are presented in Table 6.2.

Area	WRZ	Base year Dry Year Demand (Ml/d)	Base year Peak Period Demand (Ml/d)	Base year MDO Period Demand (Ml/d)
Western	IoW	34.96	44.36	33.70
	HS	157.83	206.41	152.33
	HK	5.24	7.13	4.95
	HA	16.62	21.30	17.51
Central	SN	67.57	85.20	65.92
	SW	42.95	51.57	41.94
	SB	86.47	103.80	84.39
Eastern	SH	26.95	32.69	26.69
	KM	122.33	148.95	116.47
	KT	46.39	59.81	43.67

Table 6.2 Calculated Dry Year Demand in the Base Year (2007-08)

The dry year demand (in Ml/d) has been used as the starting point for the demand forecast presented in this report. A dry year factor has been calculated and applied to the base year household PCC to match the dry year demand (in Ml/d), assuming the normal year factor and non-household factor are both unity.

6.4 Base Year Components of Demand

The base year from which the demand forecasts are derived is 2007-08 because this is the latest complete year for which data are available.

6.4.1 Base Year Population and Property Estimates

Base year population and property estimates, and the split in these between different components of demand have been taken from the latest June Return (JR08 out-turn data). A summary of the base year estimates of total properties and population for each resource zone is given in Table 6.3.

Area	WRZ	Base year properties	Base year population
Western	IoW	67,230	135,201
	HS	257,726	589,154
	HA	28,017	63,902
	HK	6,619	14,814
	Total	**359,592**	**803,071**
Central	SN	107,079	242,607
	SW	88,046	168,384
	SB	154,942	320,824
	Total	**350,067**	**731,815**
Eastern	SH	51,795	101,033
	KM	192,115	441,309
	KT	89,729	180,186
	Total	**333,639**	**722,528**
Company Total		**1,043,298**	**2,257,414**

Table 6.3 Summary of Base Year Properties and Population (2007-08)

6.4.2 Reconciliation of the Base Year Water Balance

The components of demand comprise household and non-household customer use, operational use; losses from the company's distribution system and other non billed losses. Table 6.1 (above, in section 6.1) lists the components as reported to Ofwat in January, 2009, being a re-statement of the corresponding Table10b(1) from the JR08 returns to Ofwat, reflecting the up to date property and population forecasts described earlier and minor changes to other components.

6.4.3 Base Year Per Capita Consumption

In 2007-08, the company-wide estimate of the Per Capita Consumption of unmeasured customers (uPCC) was 159 l/h/d, while that of measured customers (mPCC) was around 13% lower, at 138 l/h/d.

The unmeasured customer PCC is currently derived from data obtained from the Southern Area Group Control Area Monitoring Programme which is a collaborative data sharing exercise involving several of the water companies in the South East. The metered customer PCC is derived from consumption data held on the Company's billing system.

Unmeasured and measured PCC varies between WRZs because of differing socio-economic, climatic and geographic factors. The 2007-08 estimates of PCC, derived for each WRZ based on the water balance, and considered representative of normal year (NYAA) consumption, are presented in Table 6.4.

Area	WRZ	Unmeasured household PCC Base year 2007-08	Measured household PCC Base year 2007-08
Western	IoW	138.5	120.1
	HS	153.6	136.9
	HA	158.2	140.1
	HK	159.2	159.6
Central	SN	151.6	148.4
	SW	168.1	145.3
	SB	168.5	139.9
Eastern	SH	168.0	138.8
	KM	157.9	146.1
	KT	158.3	142.8
Company		**158.5**	**138.1**

Table 6.4 Base Year PCC Comparisons (l/h/d)

6.5 Demand Forecast

The 2007-08 out-turn estimates of the components of demand form the base from which the forecast has been developed. The demand forecast is built up from the population and property forecasts, together with assumptions on changes in PCC and commercial activities over the planning period, plus consideration of the company policies on metering, water efficiency and leakage reduction.

6.5.1 Population and Property Forecast

Population and property estimates through the planning period have been developed for the company by Experian, using the best practice methodology published by the Environment Agency (EA 2007)[9]. This methodology produces two forecasts: the first is based on historical trends projected forward; whilst the second derives estimates based on policy as presently promulgated in draft regional plans.

Experian were commissioned by several companies, including Southern Water (Experian, 2007), to provide the most likely scenario based on a combination of the population growth from the policy based projections but constrained to the total national trend based projection. This work has now been updated to take account of recently published regional data (Experian 2008). This analysis provided a "best estimate" forecast on which the demand forecast has been developed.

In summary, the total base year population and property numbers have been derived from the June Return (JR08) data, with expected annual changes from the Experian forecasts.

The most likely scenario forecast suggests that the total population in the company's supply area will grow by approximately 444,000 from 2,257,000 in 2007-08 to 2,701,000 in 2034-35. Over the same period, the number of properties connected to the company's distribution system is predicted to rise by 285,000 from 1,043,000 in the base year to 1,328,000 by 2034-35. Household occupancy rates are expected to fall over the same period, from approximately 2.32 in the base year to 2.16 in 2034-35.

The split between metered and unmetered household properties through the planning period depends on the metering policy adopted. This is discussed in detail in section 6.5.3.

The total number of metered and unmetered non-household properties has been assumed to remain constant through time, which is consistent with the general trend observed in recent years, as discussed in section 6.5.4.

Void properties are those which are connected to the company's distribution system but are temporarily not being billed. The proportion of empty properties at any one time can be expressed as a percentage of the total housing stock (taken from JR08 data) and this proportion is assumed to remain constant over the planning period.

6.5.2 Household demand – the Per Capita Consumption Forecast

Changes in Per Capita Consumption (PCC) can be forecast by:

- Extrapolating long-term historical trends; or
- Developing a model which builds PCC from forecast changes in the underlying micro-components of demand.

Both approaches have limitations, because there is uncertainty in predicting how customers' water use may change over the long term. Extrapolation on the basis of historical trends has the benefit of providing a reasonably realistic short term forecast, but does not allow for any

[9] Environment Agency, Methods of Estimating Population and Household Projections. Report SC030238, 2007

long term changes in regulations or customer behaviour. Nor does it allow consideration of technological advances in water using appliances.

Figure 6.6 shows the annual estimates of company wide unmeasured and measured PCC from 1994-95 onwards as published in the Ofwat June Returns. The figure shows year on year variations in both unmeasured and measured PCC but there is no apparent long term trend in the unmeasured PCC series. It could therefore be plausible to assume that there will be zero change in unmeasured PCC from the baseline position over the planning period.

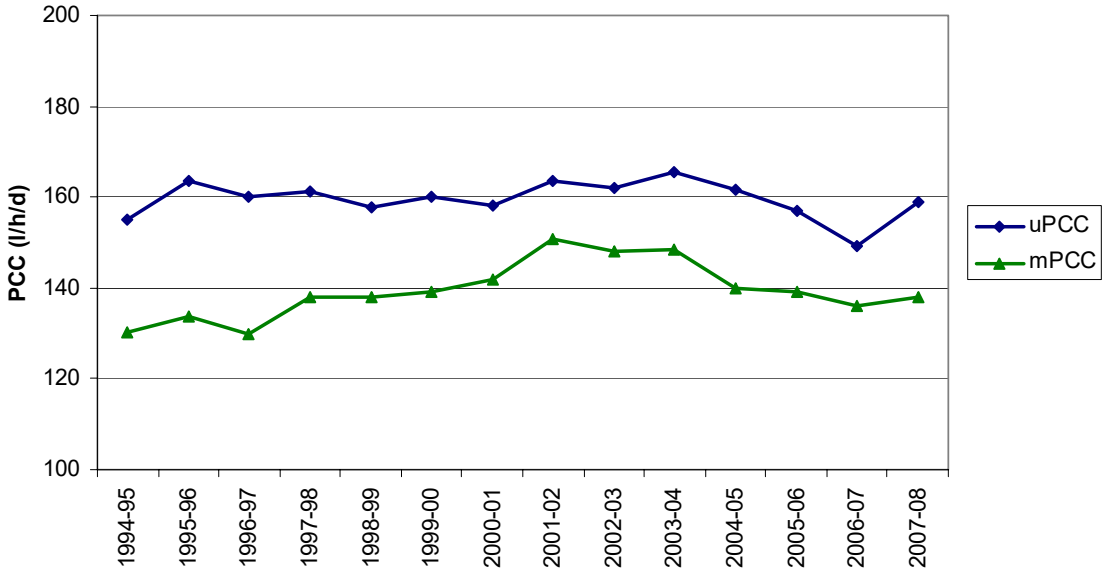


Figure 6.6 Trends in Company PCC from 1994-95

Figure 6.6 also shows the measured household PCC series. The relatively low measured PCC in the early 1990s reflects the reduced consumption of the compulsorily metered customers on the Isle of Wight and the small number of metered properties elsewhere at that time. The more recent data, however, shows no significant trends over time. For this reason it could also be plausible to assume that there will be no change in the PCC of existing metered customers from the current figure over the planning period.

Micro-component modelling, on the other hand, can be used to predict long term changes in demand, although the accuracy of this approach is highly dependent on the validity of the assumptions made about the likely impact of technological change on appliance water use, of the nature and timing of any regulatory controls and of behavioural changes in water using activities by the customer. Clearly, there will be a significant degree of uncertainty in any forecasts developed using the approach.

Nevertheless, following the requirements of the Water Resources Planning Guideline, predictions of future PCC have been based on the micro-component approach. The unmeasured NYAA PCC forecast resulted in a 7-9% decrease by the end of the planning period, depending on WRZ specific assumptions. The existing measured customer base PCC at NYAA was also forecast to decrease over the planning period by 9-11%.

A significant number of new homes are proposed for the South East over the planning period, many of which are expected to be flats or smaller dwellings, with a lower occupancy level than existing properties. In general, the lower the household occupancy rate, the higher the individual consumption. However, it has become mandatory for all new socially funded housing to meet the *Code for Sustainable Homes* code level 3 of 105 l/h/d (Defra 2008, *Future Water*). In the demand forecast it has therefore been assumed that, from the start of the planning period (2010-11) all new socially funded housing would have a PCC of 105 l/h/d.

Consumption in recently built properties, relative to that in the older housing stock, is generally unknown. However, for this demand forecast, the remainder of new houses have been assumed to meet the equivalent of a code level 0, which equates to a design standard

of 125 l/h/d. However, without regulation and enforcement it is unclear how such a consumption target can be achieved or sustained over time.

The forecast for optant and selective measured PCC is based simply on an assumed saving from the unmeasured household micro-component PCC forecast. Selective PCC in this case refers to customers metered under change of occupancy, company selective (high water users), and universal metering programmes. It has been assumed, based on available literature and expert judgement, that the average saving for optants is 8% of unmeasured PCC, while the equivalent for selective is assumed to be 10%.

The consequence of these assumptions is that the average household PCC for the company under "normal year" conditions is forecast to decrease from 152 l/h/d in 2007-08 to 127 l/h/d in 2034-35. In 2030-31, the overall household PCC is forecast to be 128 l/h/d, which is lower than the government's aspirational target of 130 l/h/d by 2030. The forecast of overall household PCC is presented in Figure 6.7.

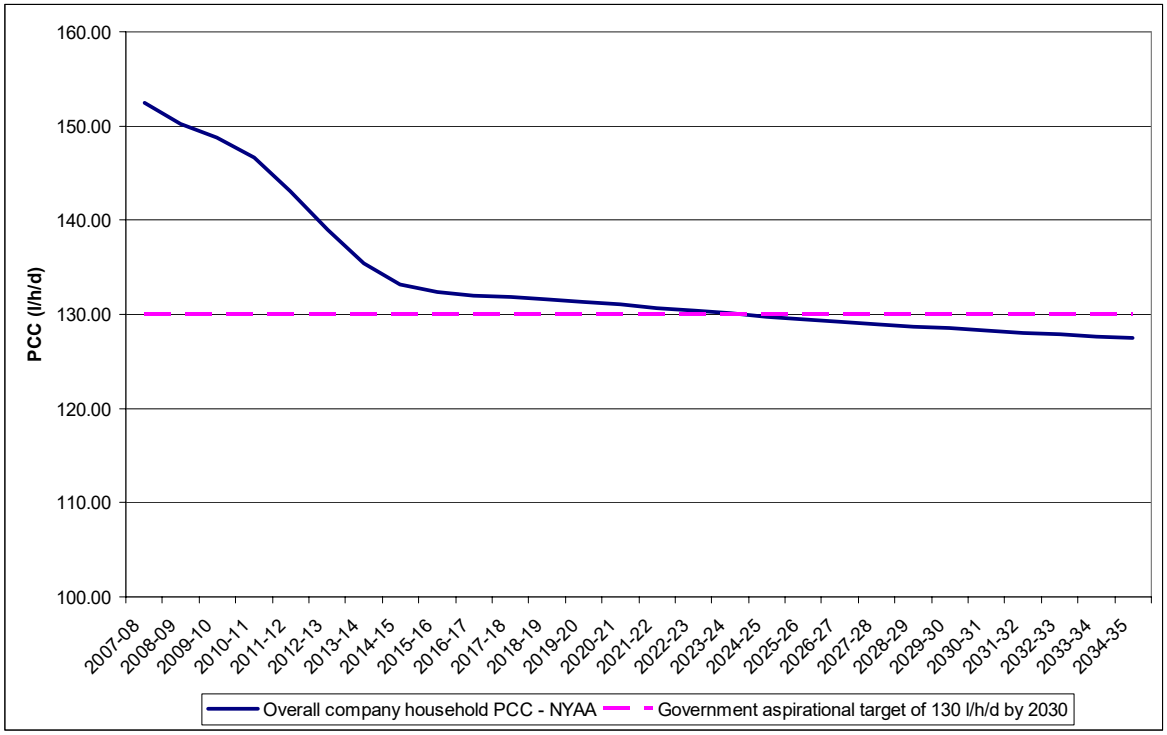


Figure 6.7 Overall Household PCC at Company Level for the Normal Year

The normal year PCC forecasts are multiplied by derived factors, in order that the base year distribution input matches the calculated demand in each WRZ under each demand forecast scenario, presented in Table 6.2. During peak periods (the DYCP design scenario), an additional 5% saving is attributed to all measured PCC forecasts, to account for documented additional reductions in demand in summer periods due to metering. However, this has not been applied to new build properties, which are assumed to already incorporate measures to reduce PCC in summer periods in their base level of PCC.

The micro-component based PCC forecast applies to all newly metered customers in the year immediately following meter installation. Assumptions regarding the baseline water efficiency target and climate change impacts are also incorporated into the calculation of measured household demand and these are discussed in sections 6.5.6 and 6.5.7 respectively.

The sensitivity of the forecast to assumptions surrounding PCC growth have been tested and included in the headroom component of the supply demand balance.

6.5.3 Meter Installation Policy

Meter installation is generally considered to be one of the best means of reducing household demand because it enables customers to monitor their consumption through their water bill. It also enables the company to develop a better understanding of demands on the distribution system which in turn helps tackle leakage. The SEA identified that although metering has the potential for disturbance to local communities in the short term during their installation, this negative effect is outweighed by the overall environmental benefits of metering.

The impact of metering on domestic demand is dependent upon a range of factors including: property type, customer demographics, the number of occupants in the property, whether the meter installation was voluntary or not, and the amount of external water use. It is also dependent on the location of the meter, which can be sited either within the property, or external to it. Installing the meter externally has the benefit of helping to alert customers to any leakage associated with their supply pipes; and timely repairs to leaking supply pipes helps to reduce overall losses from the distribution system.

It has long been Southern Water policy to require meters to be installed in new build properties, while metering on change of occupier has also been in operation in Sussex since 2005. Meters are installed externally wherever possible.

The company supply area has now been designated by the Environment Agency as an “area of serious water stress”. This has been an important consideration in the drive towards the company preferred approach of universal metering, with the installation programme proposed to be carried out between 2010 and 2015, by which time it is expected that all households will be metered. However, a range of future metering policies have also been examined for this WRMP:

- **Optant metering policy** – assumes optants, selectives (high water users), and new properties would be metered throughout the company supply area. Under this scenario the existing policy of change of occupier metering in the Sussex WRZs would cease at the end of AMP4.

  Under this policy, it is anticipated that the number of optant households will increase over the period 2010-11 to 2034-35 by 471,000. The number of selective (high water user) is expected to increase by 4,000;

- **Change of occupier metering (universal)** – extends the existing policy of metering on change of occupancy throughout the Sussex WRZs to all other WRZs. This would be in addition to the baseline policy for optant, selective, and new property metering

  Under this policy, it is anticipated that the number of change of occupier households will increase over the period 2010-11 to 2034-35 by 246,000, while the number of optants will increase by 285,000 over the same period, and selectives (high water users) by 2,000; and

- **Universal metering in AMP5** – assumes all properties in all WRZs will be metered in the period 2010-15. All new properties would continue to be metered. It is assumed that this policy would also produce associated benefits due to reduced supply pipe losses.

  Under this policy, it is anticipated that the number of universally metered households will increase over the period 2010-11 to 2034-35 by 523,000, while the number of meters installed under the optants and selective (high water users) meter programme will increase by 33,000 over the same period. Optant and selective metering will only occur ahead of the commencement of the universal metering programme in each WRZ. A likely profile of universal metering is presented in Table 6.5.

Area	WRZ	AMP5				
		2010/11	2011/12	2012/13	2013/14	2014/15
Western	IoW					✓
	HS		✓	✓	✓	
	HK	✓				
	HA	✓				
Central	SN	✓				
	SW					✓
	SB		✓			
Eastern	SH			✓		
	KM			✓	✓	✓
	KT				✓	

Table 6.5 Likely Profile of Universal Metering, 2010-15

6.5.4 Non-Household Demand

The company supplies water to some 61,000 non-household customers, 88% of which are metered. Analysis of historic non-household consumption data derived from published June Returns data (see Figure 6.8) suggests that demand in this sector is decreasing with time, albeit relatively slowly, and there is no evidence to suggest that this trend is likely to reverse, at least in the short term. Conversely, local increases in commercial demand could accompany the growth in housing construction referred to above but, as yet, there is no indication of where or if such commercial developments will take place.

For the purposes of this WRMP therefore, it has been assumed that non-household demand will continue its gradual decline until the end of AMP6, from which point it is assumed to remain at a constant level until the end of the planning period.

Furthermore, it has been assumed that non-household consumption is generally unaffected by weather. This assumption is consistent with the observation that there has been relatively little variation in this component of demand in recent years despite the variable summer weather conditions. Therefore, the dry year, MDO and peak factors for non-household demands have been taken as unity and the base year demands for these scenarios have been derived from the JR08 out-turn figures.

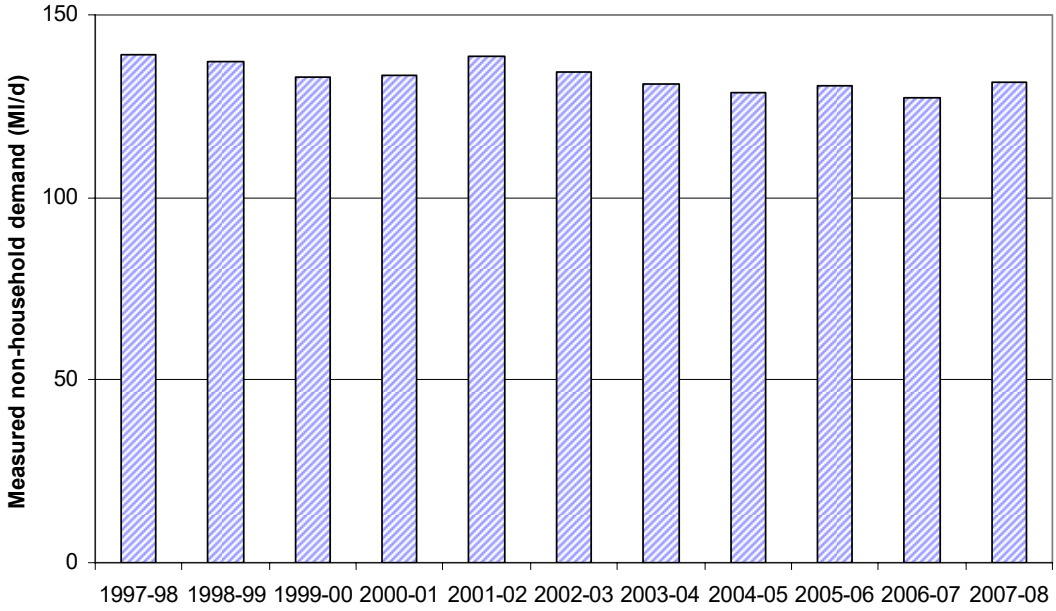


Figure 6.8 Measured Non-Household Demand at Company Level, 1997-98 to 2007-08

6.5.5 Leakage

Leakage is comprised of two components:

- Distribution losses – which includes losses from trunk mains, distribution mains, service reservoirs and communications pipes; and
- Underground supply pipe losses – which are those losses occurring between the point of delivery at the property boundary and the point of consumption.

Distribution losses are the responsibility of the company. Supply pipe losses are the responsibility of the householder, but the company has provided a free supply pipe repair service for many years in order to contain this component of leakage.

A low level of leakage is desirable because it defers the need for investment in new resources which would otherwise be required to meet increases in demand over time. However, it is not necessarily economic to reduce leakage to very low levels, because to do so could involve large incremental costs for relatively small savings in demand. In such circumstances, it may be preferable to develop other options which can achieve the same water savings but at far lower costs. Thus, a balance must be found between reducing leakage to levels that can offset investments in new resources, and the cost of a given level of leakage reduction. The concept of the Economic Level of Leakage (ELL) is used for this purpose.

The Economic Level of Leakage (ELL) is the level of leakage where the marginal cost of active leakage control equals the marginal cost of the leaking water. Active leakage control refers to those management policies and processes used to locate and repair unreported leaks from the water company supply system and from customer supply pipes. There is now also a requirement for water companies to focus on ensuring that leakage levels are set to fully reflect the preferences of society. In order to achieve this, costs and benefits included in the Economic Level of Leakage (ELL) calculations must include not only the impacts borne directly by the water companies, but also the “external” (i.e. the environmental and social impacts) of leakage control activities. This approach ensures that leakage targets are set at a level that is optimal for customers and society as a whole. In this case, ELL becomes the Sustainable Economic Level of Leakage (SELL).

In 2007-08, leakage from Southern Water's distribution system and customer supply pipes was 82 Ml/d, following MLE adjustments. This is significantly below the latest estimates[10] of the company's short-term ELL of 118.5 Ml/d, and short-term SELL of 116.5 Ml/d. The long term SELL was estimated as 89.5 Ml/d. Figure 6.9 shows the steady state relationships, as derived by WRc, between leakage rate and the 2007-08 cost of maintaining that rate. For comparison the mandatory company target level of leakage set by Ofwat[11] for the period 2004-05 to 2009-10 is 92 Ml/d.

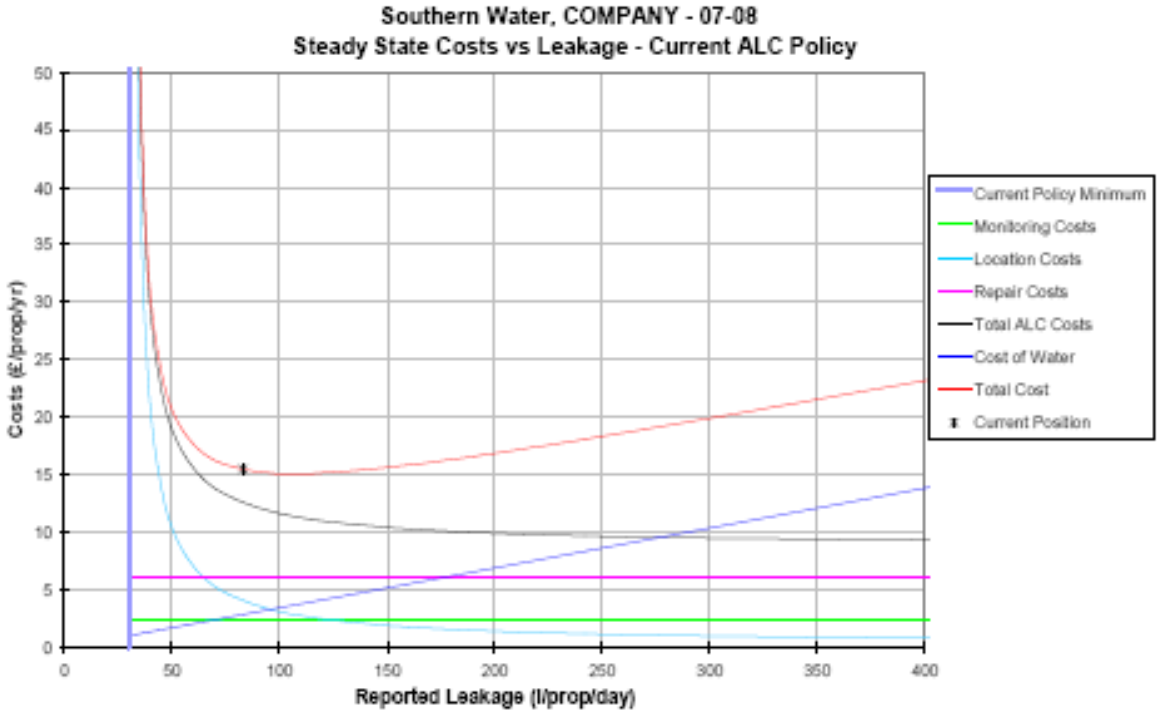


Figure 6.9 Leakage/Cost Relationship for Current Leakage Policy, (after WRc, 2008)

Both short-run and long-run SELL are above the current level of leakage. Therefore allowing leakage to rise, particularly in resource zones in which there is no supply demand balance deficit, is an option to be considered. But in general it is not economic or politically acceptable to do so because leakage would need to be reduced back down to near current levels within the short to medium term to again balance supply and demand. Due to the risks and uncertainties surrounding both the savings that could be achieved by allowing leakage to rise and the costs of bringing it back down, WRc considered it prudent for the company to maintain leakage at current levels (WRc, 2008)

Notwithstanding the comments above, the company has evaluated the following leakage policy options:

- Maintain leakage at the 2007-08 out-turn level of 82 Ml/d (post-MLE adjustment) throughout the planning period;
- Reduce leakage in conjunction with the programme of universal metering to achieve reductions in supply pipe leakage. This is expected to result in a reduction in leakage down to approximately 76 Ml/d by the start of AMP6;
- Allow leakage levels in each WRZ to rise to the Ofwat target (calculated on a WRZ basis); and

[10] WRc (Feb 2009), Sustainable Economic Level of Leakage Analysis, 2007-2008, Final report, Ref UC7893.06
[11] Ofwat, 2004, Security of Supply, leakage and the efficient use of water, 2003-04 Report

- Using one of the above leakage scenarios, allow investment modelling to select further leakage reduction schemes on a WRZ by WRZ basis, whereby, if selected, such schemes would form part of the least cost strategy to balance supply and demand, in conjunction with water efficiency and other resource development options.

This last option could lead to a reduction in leakage for the company as a whole, because in some WRZs it may be economic to undertake further leakage reductions to offset the need for additional resource developments. However in those WRZs, which do not have a supply demand balance deficit, or already operate below their own ELL, it may not be economic to further reduce leakage.

6.5.6 Water Efficiency Targets

Since the DWRMP, Ofwat have published their proposals regarding water efficiency targets (*Future Water Efficiency Targets*, 2008). These targets aim to build on water companies' existing duty to promote the efficient use of water to their customers to ensure that companies play their part in helping to meet the Government's aspirational target, set out in *Future Water* (Defra 2008) of reducing individual water usage to 130 litres per person per day by 2030.

Each company must meet a minimum target for water saved in relation to the number of properties served. Ofwat has proposed that the annual base service target of saving shall be one litre of water per billed property per day through approved water efficiency activity.

If Southern Water is to successfully meet its water efficiency target, it must ensure that 1.01 Ml/d is saved through water efficiency activity each year in AMP5 (from 2010-11 to 2014-15). This target is to be met through both household and non-household activity.

A review of potential water efficiency options was carried out using the latest literature available, including that from Ofwat and Waterwise. Those options considered feasible were ranked by their Average Incremental Social Cost (AISC) to indicate their cost effectiveness and the results of this analysis have been used to formulate the least cost strategy to achieve Ofwat's baseline water efficiency target.

In line with current best practice, the deterioration in the effectiveness of each water efficiency measure over time due to various reasons such as breakdown, lack of maintenance, removal or replacement, has been modelled using a time varying yield curve assumption, based on exponential decay and dependent on the asset life of each measure. Thus, although the proposed programme will meet the 1.01 Ml/d target in each year of AMP5 (as shown in Figure 6.10), the total water efficiency saving will not reach 5 Ml/d over the five year period from 2010-11 to 2014-15, due to decreasing yield assumptions (as presented in Figure 6.11).

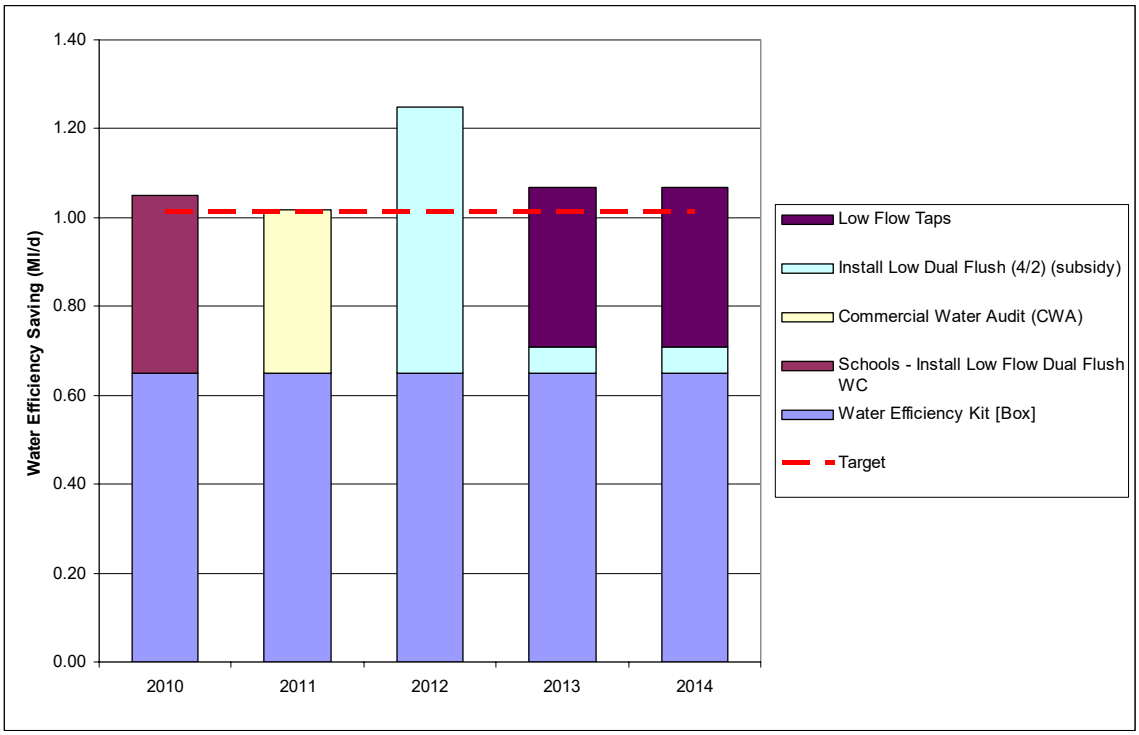


Figure 6.10 Company Level Water Efficiency Schemes to meet the Ofwat Target in Each Year of AMP5

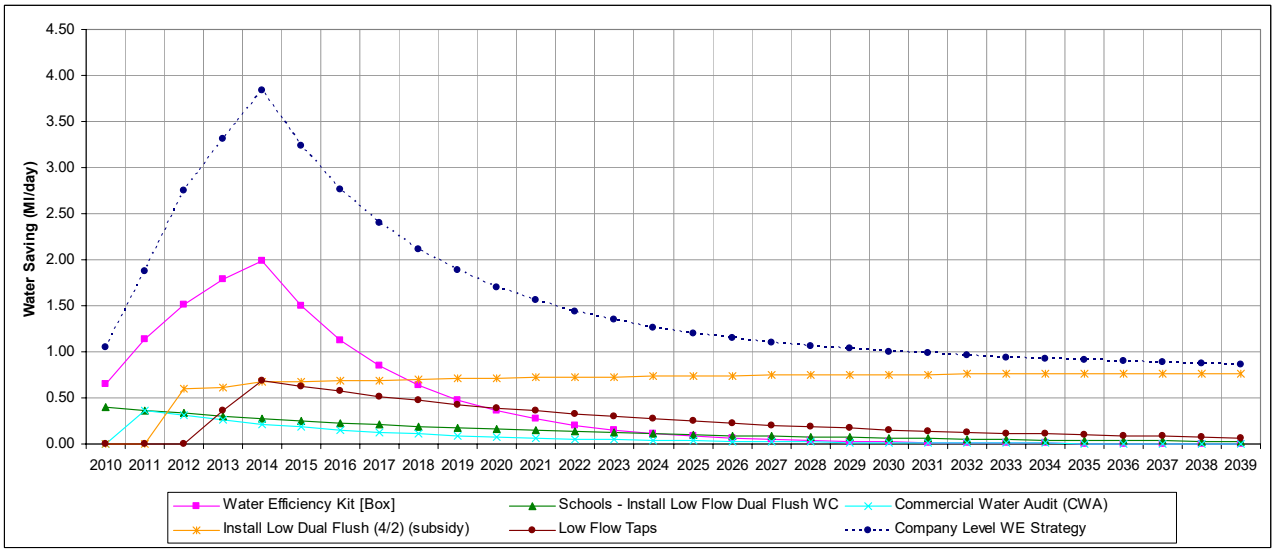


Figure 6.11 Company Level Ofwat Target Water Efficiency Activity Through the Planning Period

6.5.7 Climate Change Effects on Demand

The effects of climate change on demand have been estimated using the results from the *Climate Change and Demand for Water (CCDeW)* report[12], which was published in February 2003 as an update to a benchmark study by Herrington in 1996[13] .

[12] SEI (2003), Climate Change and Demand for Water, Stockholm Environment Institute, Oxford.
[13] Herrington P, (1996), Climate Change and the Demand for Water. HMSO

The CCDeW study examined the impact of the UKCIP02 climate change scenarios across a number of socio-economic customer groups to provide a range of potential impacts on water demands extending from the 2020s to the 2050s.

The Beta socio-economic scenario, entitled 'World Markets', has been used as this is most similar to conventional development. There is little difference between the climate change scenarios for the 2020s, and so the medium-high emissions scenario has been used because most information is provided on this within CCDeW. For domestic demand, this gives a 1.45% mean increase in the 2020s, while for the 2050s factors the mean increase is 2.92%. For commercial / industrial demand, a mean of 2.7% has been used in the 2020s, while for the 2050s the mean was 5.7%.

The methodology adopted to apply the CCDeW factors is described in detail in Appendix E.

6.6 Summary of Forecast Demands

A number of different demand forecast scenarios have been use in the development of this WRMP. More details are given in section 9 and section 10. An illustration of the impact on demands of different metering assumptions is given here.

The baseline forecast assumes continuation of existing policies, namely "optant only" except in the Sussex WRZs where meters are installed on change of occupier:

- Normal year average annual demand is forecast to decrease from 564 Ml/d in the 2007-08 to 559 Ml/d at the end of the planning period;
- Dry year annual average demands are forecast to reduce from 607 Ml/d in the base year to 604 Ml/d in 2034-35; while
- Peak week dry year demands are predicted to decrease from 761 Ml/d in 2007-08 to 744 Ml/d at the end of the planning period.

Under the universal metering programme (scenario 3):

- Normal year average annual demand is forecast to decrease from 564 Ml/d in the 2007-08 to 550 Ml/d at the end of the planning period;
- Dry year annual average demands are forecast to reduce from 607 Ml/d in the base year to 595 Ml/d in 2034-35; while
- Peak week dry year demands are predicted to decrease from 761 Ml/d in 2007-08 to 732 Ml/d at the end of the planning period.

By contrast, if the "optant only" metering forecast is used (scenario 1), i.e. without universal metering or change of occupier metering, then:

- Normal year average annual demand is forecast to decrease only slightly from 564 Ml/d in the 2007-08 to 560 Ml/d at the end of the planning period;
- Dry year annual average demands are forecast to reduce slightly from 607 Ml/d in the base year to 605 Ml/d in 2034-35; while
- Peak week dry year demands are predicted to decrease from 761 Ml/d in 2007-08 to 746 Ml/d at the end of the planning period.

The figures below (Figure 6.12 to Figure 6.15) illustrate these forecasts at the company level for these three demand forecast scenarios. Each figure includes the actual and rebased historical demand compared to the three modelled demand forecasts: the baseline is for the continuation of current policies; scenario 1 is the optant scenario (i.e. optant and selective (large water users) only); scenario 3 is for universal metering and consequent reductions in supply pipe leakage.

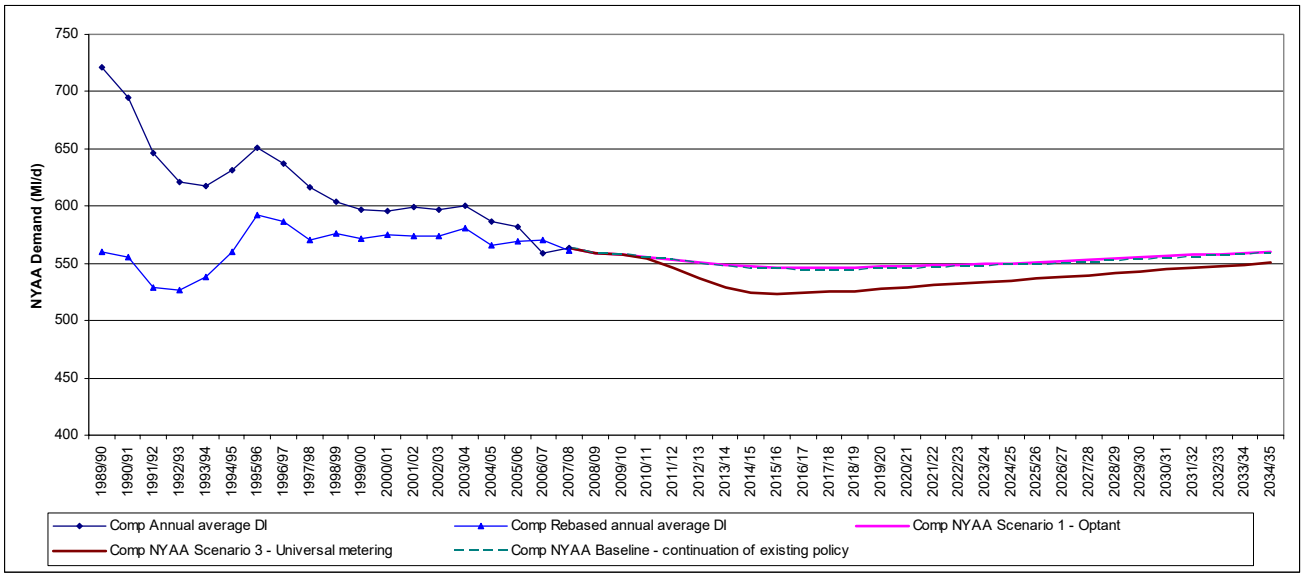


Figure 6.12 Normal Year Annual Average Company Forecast

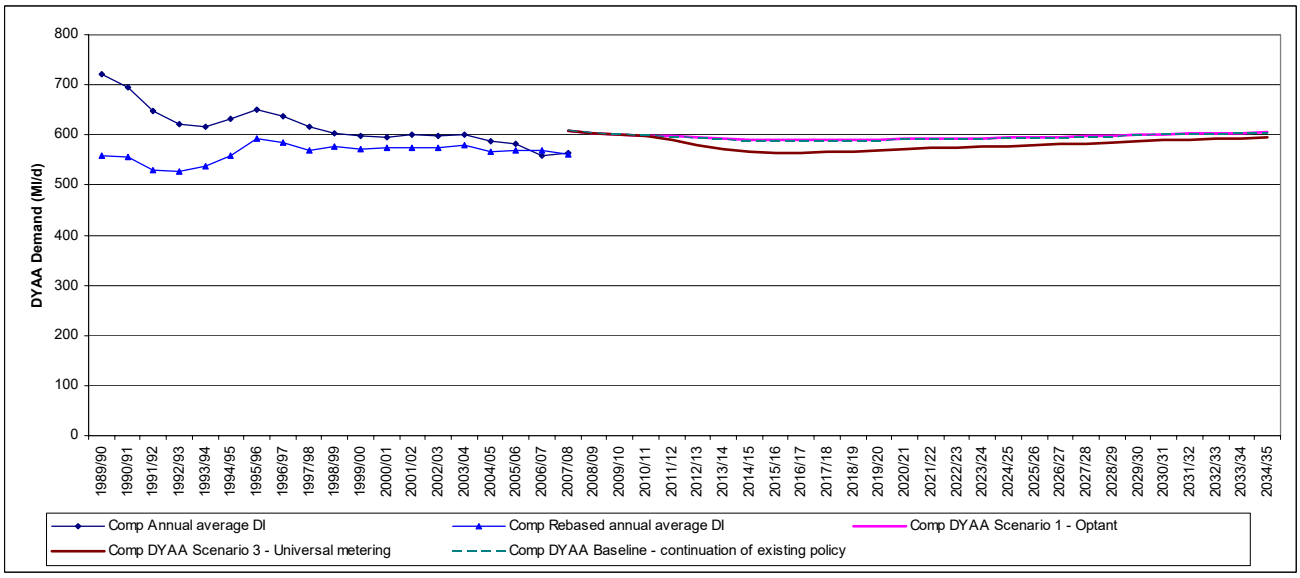


Figure 6.13 Dry Year Annual Average Company Forecast

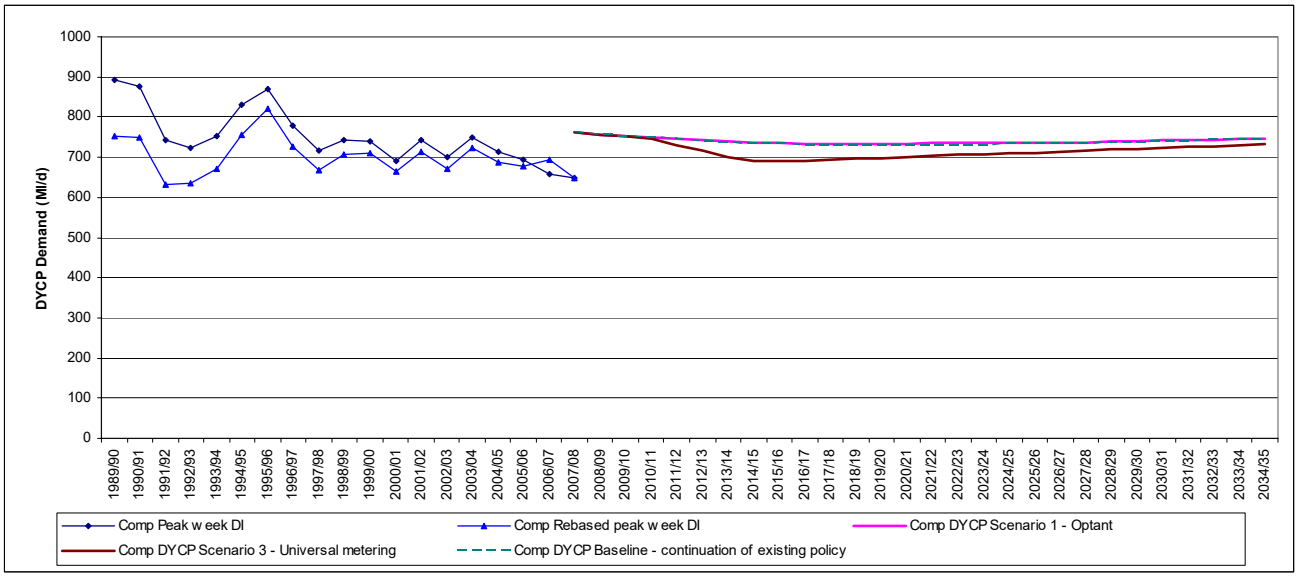


Figure 6.14 Dry Year Critical Period Company Forecast

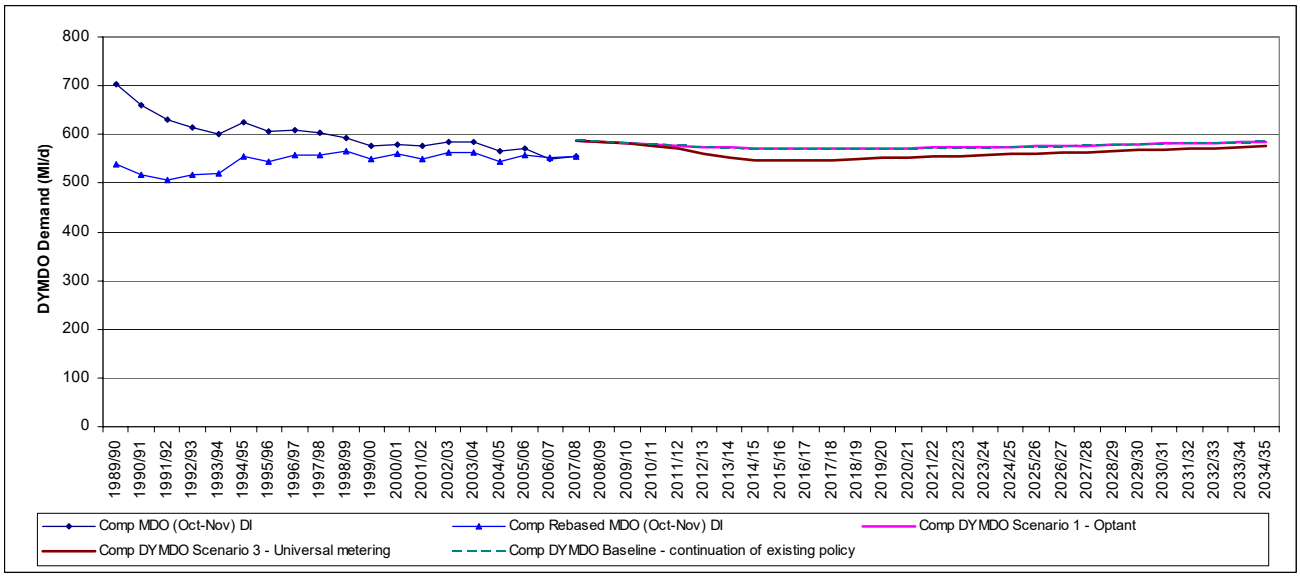


Figure 6.15 Dry Year MDO Company Forecast

The figures below (Figure 6.16 to Figure 6.19) present, at the company level, the demand forecasts for the key metering scenarios investigated during the development of this WRMP.

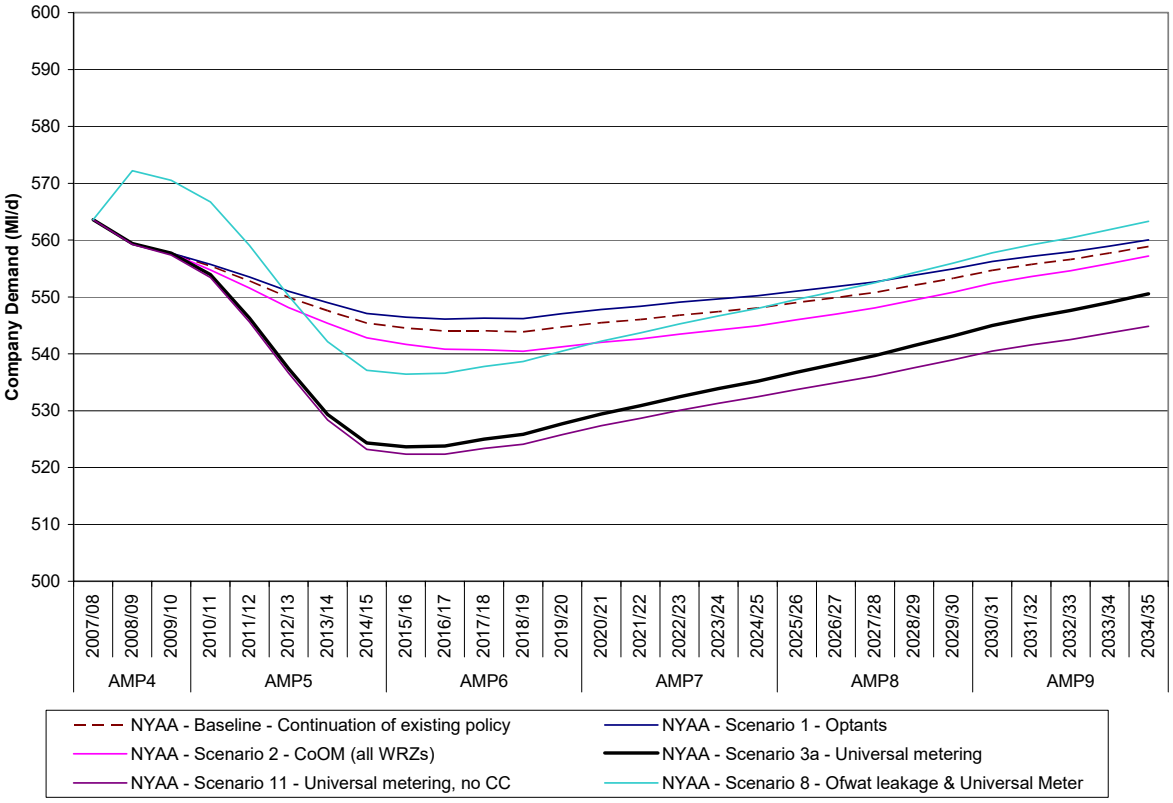


Figure 6.16 Normal Year Annual Average Company Forecasts for all Demand Scenarios

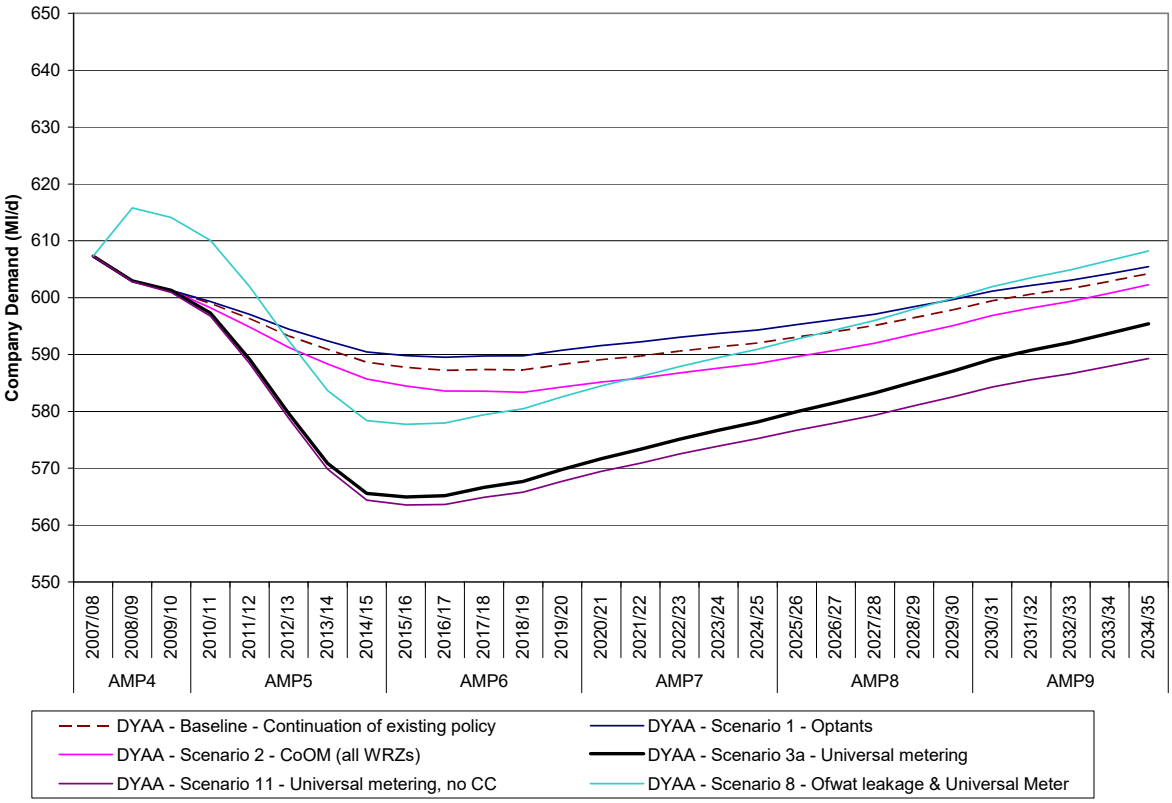


Figure 6.17 Dry Year Annual Average Company Forecasts for all Demand Scenarios

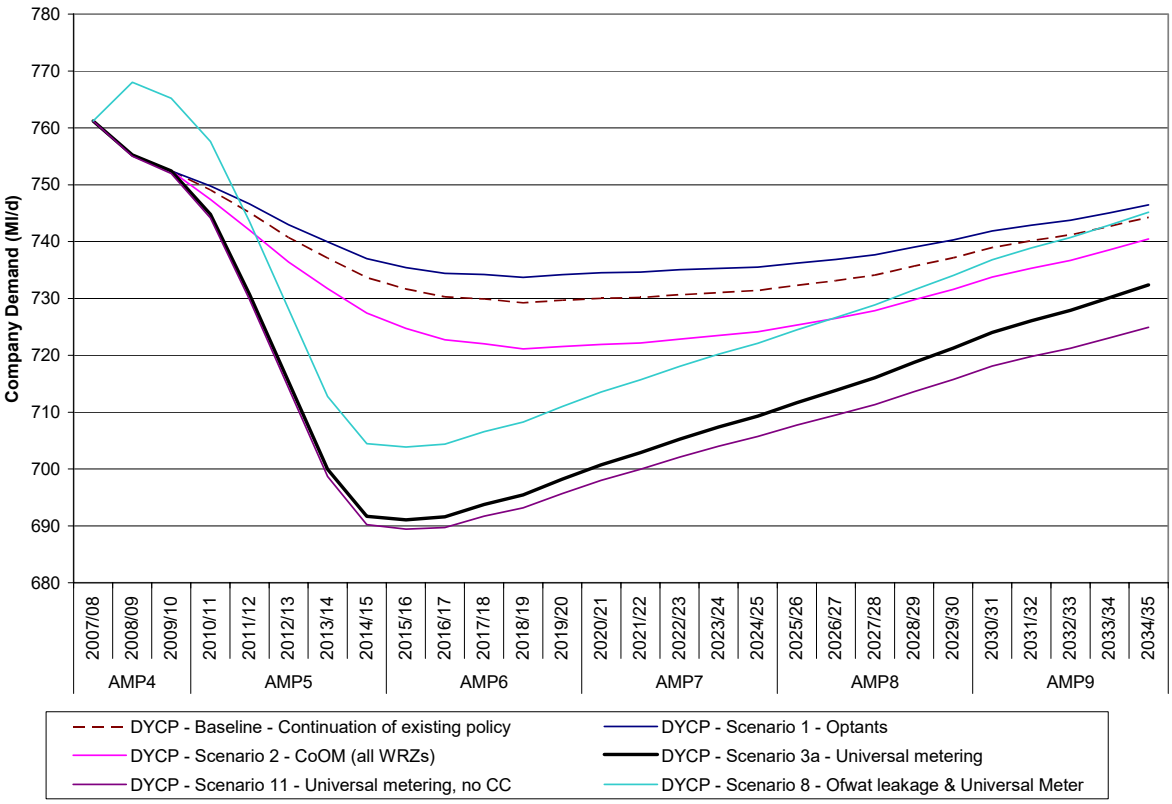


Figure 6.18 Dry Year Critical Period Company Forecasts for all Demand Scenarios

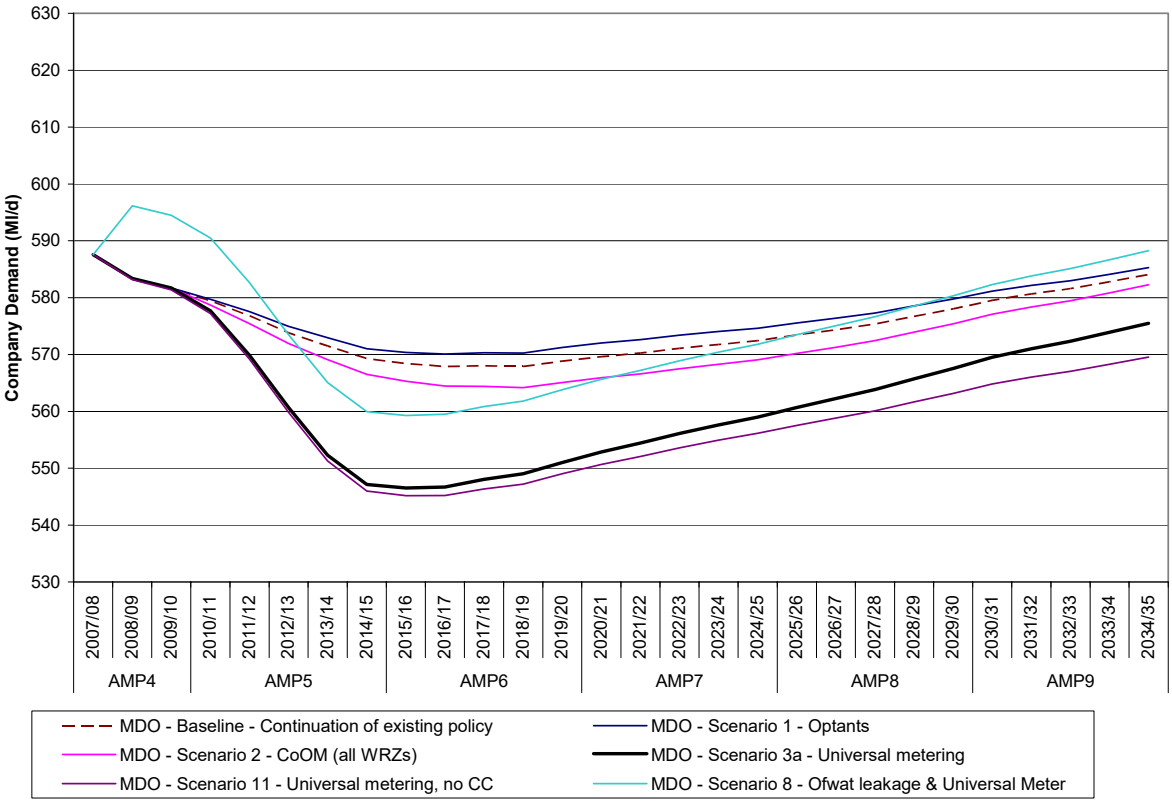


Figure 6.19 Dry Year MDO Company Forecasts for all Demand Scenarios

7 Dealing with Uncertainty

7.1 Introduction

The previous sections have outlined how the estimates for the elements of the supply demand balance have been derived. It is acknowledged that each of these estimates will, by definition, be subject to some degree of uncertainty. This section reviews how uncertainty has been included in this WRMP to ensure the supply demand balance is not put at risk, and also describes what known sources of future uncertainty the company has been advised should not be included in this WRMP.

Uncertainty in the supply demand balance falls into six broad categories:

1. Natural variability in the hydrological/hydrogeological conditions that affect the output available from sources. This uncertainty is typically taken into account when Deployable Output is calculated;
2. Uncertainty in the operational availability of supplies from sources. These are typically specified risks that are taken into account in outage allowances;
3. Variability in the magnitude of forecast demands depending on the assumptions made. This variability is usually taken into account through scenario analysis;
4. Specified uncertainties affecting the supply side and the demand side values used in the supply demand balance. These uncertainties are taken into account in the Target Headroom allowance;
5. Uncertainty in whether and/or when any given demand side or supply side option can in fact be delivered. This form of uncertainty, which includes uncertainties in obtaining planning and other consents, is generally treated deterministically by including an assumed lead time into the option selection process; and
6. Uncertainty due to outcomes from legislation/regulations not having been determined by the relevant regulatory bodies and government departments, including the RSA programme, further Habitats Directive decisions, the Water Framework Directive and other local sites of environmental interest, although some of these uncertainties may be addressed through NEP schemes.

The Tables and Figures in this section have been updated to take account of revisions to the following components of the supply demand balance:

- Deployable Output;
- Impacts of climate change on Deployable Output;
- 2007-08 as the base year for the demand forecast instead of base year of the 2006-07 used for the DWRMP;
- Revisions to forecast PCC; and
- Changes in metering policy.

The selection of the appropriate percentile of headroom uncertainty is referred to as the glidepath. Since the DWRMP, the company has also reviewed the percentile or % risk profile over time on which the selection of Target Headroom was based. Following the review and consideration of comments on the DWRMP, a gradually falling glidepath has been assumed for the first three AMP periods.

7.2 Headroom Uncertainty and Target Headroom

In all planning for future events, it is inevitable that there will be uncertainties about what might happen in the future, and so it is important that the sources of uncertainties are understood, and, wherever possible, managed. Protection against specified uncertainties can be built into the supply demand balance by including a headroom allowance. Headroom is defined as "a planning allowance that a prudent water company should take into account when developing plans to balance supplies and demands and to deliver its Target Levels of Service". This allowance is called "Target Headroom" and is designed to cater for specified uncertainties in both demand side and supply side uncertainties.

Target Headroom is the threshold of minimum acceptable headroom, which, if breached, would represent an increased risk to the company that it would not able to meet its Target Levels of Service. This would then be the trigger for options to either increase the available supplies, reduce demands or a combination of both. If options are not implemented to provide Target Headroom then the occurrence of drought conditions might trigger Drought Permits and/or Drought Orders more frequently than intended. The guidance does not prescribe what level of security of supply a company should aim for, and therefore what level of headroom allowance to use. It is left to each company to determine the Target Headroom that is used in its WRMP.

7.3 Application of the Improved Headroom Methodology

The analysis of headroom used in this WRMP is the Improved Methodology[14], which was first used for the previous PR04 WRP. This methodology requires the uncertainty for each of the headroom components to be defined as a probability distribution. All the headroom components are then combined using Monte Carlo simulation to give overall headroom uncertainty.

The full list of sources of headroom uncertainty is as follows, although it should be noted that the Environment Agency has specifically advised companies not to include some of these elements, as identified below:

Supply side sources:

- S1 Vulnerable surface water sources (included);
- S2 Vulnerable groundwater licences (included);
- S3 Time limited licences (not included);
- S4 Bulk transfers – imports from other companies (included);
- S5 Gradual pollution (included);
- S6 Accuracy of supply side data (included);
- S6/1 Uncertainty for yields constrained by source infrastructure (included);
- S6/2 Meter uncertainty for licence critical sources (included);
- S6/3 Uncertainty for aquifer constrained groundwater sources (included);
- S6/4 Uncertainty for surface water (included);
- S7 Sustainability Reductions (included as described in section 10.3);
- S8/1 Uncertainty of climate change (included); and
- S9 Uncertainty of new source yields (included).

Demand side sources:

- D1 Accuracy of sub-component data (included);

[14] UKWIR, 2002, An Improved methodology for assessing Headroom. Report 02/WR/13/2

- D2 Uncertainty in the demand forecast (included);
- D3 Uncertainty of the impact of climate change on demand (included); and
- D4 Uncertainty of demand management (included).

The headroom calculations for this WRMP have been refined and updated through the use of work undertaken as part of the AMP4 Water Resources Investigations and work specifically undertaken for this WRMP. Further details of the work undertaken and the results are given in Appendix F.

7.4 Results and Discussion

Monte Carlo analysis was undertaken using the appropriate probability distribution parameters set out in Appendix F. The analysis calculated headroom uncertainty from 1,000 iterations of the model; and the results are produced in the form of percentiles. The interpretation of the results is that if, in a given year the available headroom equals, for example, the 90th percentile of the headroom uncertainty, then this ensures that there is a 10% risk that the supply demand balance would be in deficit.

A key feature of the application of the new UKWIR methodology is the selection of the percentile of the headroom uncertainty distribution that is used to set the value of Target Headroom at key intervals over the planning period. In its Water Resources Planning Guideline, the EA notes that "In general we would expect companies to accept a higher level of risk in future than at present". The selection of the appropriate percentile of headroom uncertainty is referred to as the glidepath.

Given the severe consequences in the event of potential or actual failure of the security of supplies, and the need to improve the current actual outturn Levels of Service, Southern Water is averse to exposing itself to unnecessary risk, and is keen to take a prudent approach to setting the value of Target Headroom so that it can achieve and maintain the Target Levels of Service. However, it also acknowledges the importance of not over-planning for risks that may not become reality in the more distant future, towards the end of the planning period, which would increase the apparent need for additional resource development which in the event might not be required.

The selection of headroom uncertainty percentiles and the appropriate glidepath have been reviewed since the DWRMP to take account of the new base year, updated demand forecasts and responses received on the DWRMP.

The level of Target Headroom adopted for the WRMP is the 90th percentile from 2014, the 85th percentile from 2019, and the 80th percentile from 2024; from 2024 onwards, the Target Headroom is kept constant in terms of the absolute value in Ml/d. Values of the proposed Target headroom for the whole company supply area used for this WRMP are given in Table 7.1 and are illustrated in Figure 7.1. The results show that the adopted values of Target Headroom are prudent, in that, in terms of percentages compared to estimated Distribution Input, they are equivalent to 5.3% at the beginning of the planning period, rise to around 6 % at the end of AMP5 and then fall to around 5% by the end of the planning period.

Target Headroom for the Whole Supply Area (Ml/d) and (% of Distribution Input (DI))							
	2007	**2009**	**2014**	**2019**	**2024**	**2029**	**2034**
PDO (Ml/d)	40.38	40.39	41.67	38.55	37.75	37.75	37.75
As % of DI	5.3%	5.4%	6.0%	5.5%	5.3%	5.2%	5.2%
MDO(Ml/d)	31.11	30.85	32.17	29.15	28.63	28.63	28.63
As % of DI	5.3%	5.3%	5.9%	5.3%	5.1%	5.0%	5.0%

Table 7.1 Whole Company Supply Area – Proposed Target Headroom (Ml/d) and % DI

A summary of the percentiles for the first three AMP periods and for comparison estimates of the equivalent percentile (at MDO) for the constant value from 2024 onwards is given in Table 7.2.

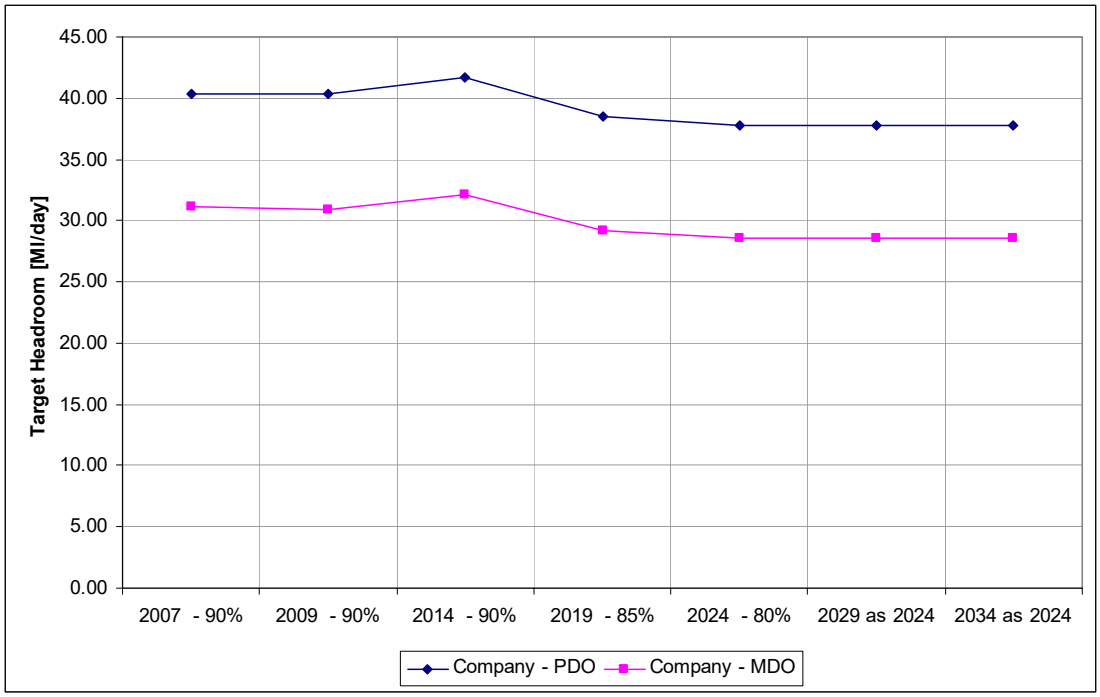


Figure 7.1 Whole Company Supply Area: Proposed Target Headroom

Headroom percentiles for each Area									
	2007	2009	2014	2019	2024	2029		2034	
						MDO	PDO	MDO	PDO
Western	90%	90%	90%	85%	80%	74%	74%	69%	68%
Central	90%	90%	90%	85%	80%	75%	75%	70%	70%
Eastern	90%	90%	90%	85%	80%	76%	74%	69%	68%
Overall	90%	90%	90%	85%	80%	75%	74%	69%	69%

Table 7.2 Whole Company Supply Area – Headroom Uncertainty Percentiles

The output from the Monte Carlo simulation has been reviewed to identify main sources of headroom uncertainty in each of the WRZs and thus the main influencing factors with respect to risk. Tornado plots for the base year and 2034 are included in Appendix F.

The values of demand side headroom have changed as a result of the change in base year and other revisions to the demand forecasts in the light of company policy, reviews of the comments received on the DWRMP, and the more pessimistic economic outlook. However as shown in section 10, the magnitude of Target Headroom is not the dominant driver of the options that make up the company's preferred investment strategy. The value of Target Headroom can however have an influence on the timing of when schemes are required, although the variance is only a few years.

The main consequence of revisions since the DWRMP is that Target Headroom starts at a higher value in the base year, but then stays relatively flat before falling from 2014 onwards. One of the reasons for this is increased uncertainty following the rebasing of 2007-2008 demands (see section 6.2). The sensitivity of Distribution Input to factors outside the company's control is well illustrated by the significant rise in DI in the first part of 2009 associated with a prolonged period of extremely cold weather.

In all WRZs, and under PDO and MDO conditions the main source of headroom uncertainty is in D2 (uncertainty in the demand forecast). From 2024 in many WRZs D4 (uncertainty of demand management) begins to contribute more. S8 (supply side uncertainty associated with climate change) becomes more evident from AMP8 onwards in those WRZs where surface water storage schemes dominate.

The company will continue to work to improve the sources of information that it has available for analysis of uncertainties, and will continue to collaborate on industry-wide studies on climate change uncertainties.

7.5 Uncertainties Not Allowed for Inclusion in this WRMP

In its Water Resources Planning Guideline published in April 2007 and not changed in the November 2008 update, the Environment Agency stated that "Companies should not make allowances for the risk of non-renewal of time-limited licences in headroom" (section 9.3). Ministers have instructed the Environment Agency to ensure that time-limited licences do not present a risk to security of supply. In addition to the risk of non-renewal of licences, there are similar risks to the baseline Deployable Output from a range of environmental drivers such as the Habitats Directive, the RSA programme, the National Environment Programme (NEP) and eventually the Water Framework Directive. The Water Resources Planning Guideline states that "any notice given will provide sufficient time to restore the supply-demand balance…", with the inference that there is no need for a headroom allowance to guard against the risk from time-limited licences reducing Deployable Output.

The Water Resources Planning Guideline also notes that "headroom uncertainty should not be significantly influenced by the headroom components accuracy of supply side data (S6) and "accuracy of sub-component data (D1)/2". However, accuracy of supply side data attributed to uncertainty surrounding source outputs such as uncertainty about Deployable Output has been included in the WRMP headroom analysis because these are valid risks to the security of the source output available to the company. For surface water sources, this component is likely to relate to uncertainties over historic rainfall estimates, rainfall/runoff models and drought severity, whereas for groundwater this is likely to relate to drought severity (Rest Water Levels) and interpretation of the physical constraints such as location of adits, water bearing fissures, borehole screen etc., in relation to the drought bounding curves.

It is worth noting some aspects of the profile of Target Headroom over time. At the start of the planning period, total Target Headroom is 31 Ml/d (5.3% DI) and 40 Ml/d (5.3% DI) at MDO and PDO respectively. The levels of Target Headroom adopted decrease over the planning period, falling to 29Ml/d (5.0% DI) and 38 Ml/d (5.3%DI), respectively, at the end of the period.

At first sight this may appear to be counterintuitive, because uncertainty would be expected to increase over time. This is undoubtedly true, but the value of Target Headroom included in this WRMP reflects the level of risk that the company is prepared to take. This Water Resource Planning Guideline state that companies should be prepared to accept greater levels of risk later in the planning period as reflected in the choice of the percentile of headroom uncertainty used to set Target Headroom. Southern Water has adopted this approach by adopting the following profile: the 90th percentile represents a 10% risk that available supplies will be unable to meet demands plus Target Headroom; the 85th percentile represents a 15% risk; the 80th percentile represents a 20% risk.

The values Target Headroom at the start of the planning period are within the industry range, and the values are justified for the following reasons:

- Over the first AMP period there is considerable uncertainty about short-term demand forecasts arising from: the general economic downturn; the potential for rising consumption as the memory of drought restrictions and associated behavioural changes fades, and the observed and significant increase in Distribution Input following a prolonged period of wet and then very cold weather;

- These short-term uncertainties should reduce over time, as their causes are analysed and more fully understood; and
- Target Headroom then decreases over successive AMP periods as the percentile of headroom uncertainty reduces (with increased acceptance of risk).

A constant value of Target Headroom in the later AMP periods is realistic and pragmatic. If Target Headroom is allowed to increase to the end of the planning period, a supply demand balance deficit would occur earlier than would otherwise be the case, and so additional resource and/or demand side options would be triggered. However, by the time this point is reached, various components of headroom uncertainty would themselves have reduced or been removed, and so the value of Target Headroom would be closer to current values.

We consider that the chosen glidepath makes the overall strategy more realistic, in that it does not include schemes that in all probability will not be required. It also increases the certainty with which we feel the schemes identified in the strategy will actually be required at the dates identified.

7.6 Approach to Reducing Uncertainty

The company has considered the influence of climate change and demand forecast uncertainty in the derivation of Target Headroom, and ways of reducing their influence. It has concluded that the estimates that it has used are representative, and has discussed them with the EA, which accepts its view. The company has also considered the impact of these sources of uncertainty on the Water Resources Investment Strategy. It has been shown that these factors do become increasingly important from AMP8 onwards. However, any potential impact on the investment programme has been mitigated by two factors. Firstly, the selected risk profile caps Target Headroom from the end of AMP7 in absolute terms, and thus the impact of any one parameter becomes subdued. Furthermore, it is correct that any investment identified in 15 years time will again be reviewed in five years time at the time of the formulation of the next WRMP. The baseline Target Headroom in five years time will be probably very close to the current baseline, notwithstanding any revisions to baseline headroom uncertainty. Thus, the investment profile could remain relatively stable and the schemes selected in 15 years time from now, should not be delayed when the review takes place in 5 years time.

8 Options Appraisal

8.1 Introduction

Where there are forecast deficits in the baseline supply demand balance, these can be met through the introduction of supply side options to increase supplies, or demand side options to reduce demand. The effect of these two different types of options on the supply demand balance is shown in Figure 8.1.

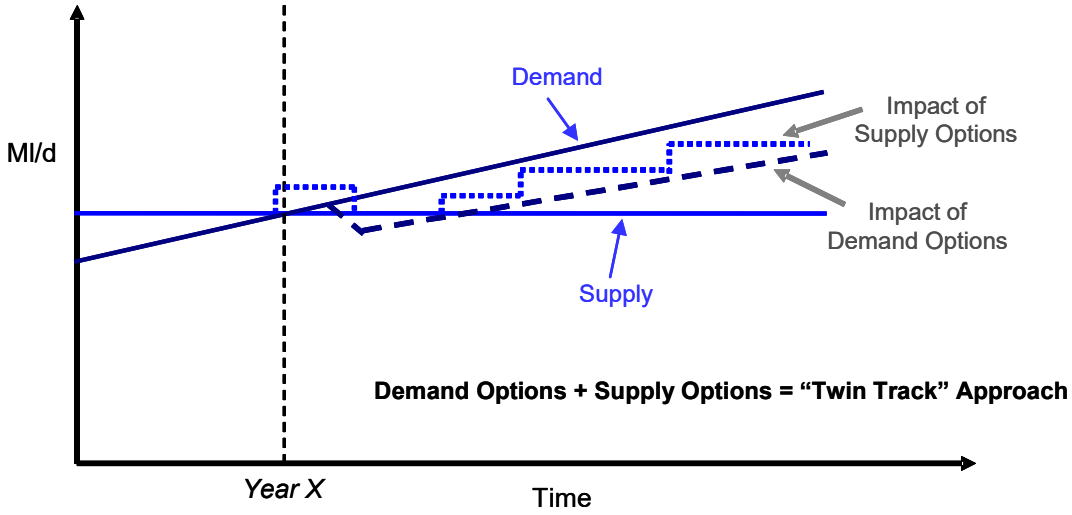


Figure 8.1 Twin Track Approach to Address the Supply Demand Balance

This section sets out an overview of the range of demand and supply side options available, and gives some generic observations on them. The demand side options considered for this WRMP are:

- Increased level of meter installation;
- Introduction of variable metering tariffs;
- Leakage reduction; and
- Water efficiency initiatives.

The supply side options considered are:

- Bulk Transfer;
- Wastewater recycling;
- Aquifer Storage and Recovery;
- Desalination; and
- Area Specific Water Resource Developments.

Details of the specific options within each WRZ and Area have been identified from a number of sources, including the following:

- Options considered as part of previous WRMPs;
- The extensive and detailed AMP4 Water Resources Investigations;

- Options identified by work carried out for the WRSE Group;
- Options from other companies;
- Options identified by respondents during the consultation of the DWRMP; and
- Other options which have been identified from miscellaneous sources during the course of the preparation of this WRMP.

A full listing of the options required for each Area to meet the supply demand balance deficit is provided in section 10, while further detailed description of each option is provided in Appendix G. The selection of options was informed by Strategic Environmental Assessment (SEA); a summary of the SEA assessments of each of the generic options is given in section 8.3. The environmental and social impacts, and possible mitigation measures for options selected in the WRMP strategy are discussed in section 10.

8.2 Demand Management Options

Demand management options can be effective in controlling what might otherwise be unrestricted growth in demand for water, which itself can trigger investment in resource developments earlier in the planning period. The implementation of demand management measures is therefore an important component of the company's approach to water resource planning.

Previous WRMPs have included demand management programmes such as: domestic metering on change of occupier; selective and optant metering programmes; aggressive leakage reduction activity; and the promotion of water efficiency initiatives. As a result, the company's level of domestic meter installation is higher than the England and Wales average, and the company is one of three water companies referred by Ofwat as reporting significant increases in free supply pipe replacements.

The demand management options under consideration in this WRMP were generically assessed for their environmental effects in the SEA Report. They were found to be broadly compatible with the majority of SEA objectives, having a net positive environmental effect due to the minimal amount of physical intervention required in implementing each measure.

Demand management describes various policy and technical initiatives that are available to a water company to manage demands, and includes the following:

- Increasing levels of meter installation;
- Introducing variable metering tariffs;
- Leakage reduction; and
- Water efficiency initiatives.

An unconstrained list of all potential demand management options was identified, based on previous work conducted as part of the AMP4 Water Resources Investigations, and from a full literature review of the current issues, costs and potential benefits associated with all possible demand management options. All options were reviewed, and those that were not applicable were discarded. Feasible options were then assessed in more detail and, where appropriate, an economic assessment was undertaken.

Whilst there may be strong political and environmental reasons for promoting demand management measures, their role of demand management measures in a long-term least-cost investment plan may depend on the characteristics of the supply demand balance, and in particular the magnitude of any deficits, when such deficits occur, and the time when new supply side options might become available. Where there are large deficits, that arise from step changes in the supply side of the supply demand balance as a result of Sustainability Reductions and/or reappraisal of deployable output using more robust and long-term hydrological and operational data, then it is unlikely that demand management measures on their own would be sufficient to reduce a deficit, but would form part of a twin-track approach.

Nevertheless, the company believes that an ambitious demand management programme should underpin the long-term strategy for its water resources. This WRMP is based on a the most cost effective and sustainable strategy , which includes a suite of significant demand management initiatives on enhanced domestic metering installation, further leakage reduction and water efficiency initiatives.

8.2.1 Metering

Metering is generally considered to be one of the most effective means of reducing demand, as it provides a financial incentive to use water more efficiently. The company currently meters all new connections in its supply area, and on change of occupier in its Sussex WRZs.

The rationale behind domestic metering as a demand management measure is that paying by volume of water used should encourage customers to use water sensibly and to restrict the discretionary use of water for activities such as garden watering and car washing. Paying by volume may also encourage efficiencies in non-discretionary use such as toilet flushing, clothes and dish washing, bathing and cooking.

Also identified is the potential for customers to modify their water using behaviour in response to paying by volume. This can be reinforced by the company through household water efficiency campaigns such as those investigated for this WRMP; e.g. subsidies for water-efficient washing machines, dishwashers and low-flush WCs, household water efficiency kits and other devices. The opportunity for introducing water efficiency initiatives on the back of increased meter installation was identified through the consultation process and taken into account in this WRMP strategy.

The SEA identified that metering has the potential for disturbance to local communities in the short term during their installation, but this negative effect is considered non-significant and is far outweighed by the overall environmental benefits of metering. The company proposes installing external meters which should minimise disruption to households, and implementing the installation programme simultaneously over a large area which will help minimise any disturbance to communities.

The impact of all these consequences from metering is reflected in Per Capita Consumption (PCC), expressed in l/head/day. In the past, PCC has remained relatively constant, however, this WRMP has been based on a micro-component forecast of PCC, taking into account potential technological and regulatory changes in future, as well as estimates of potential customer behaviour changes.

The assumptions of the savings that might be delivered through metering used in this WRMP are in line with current industry thinking. There is a risk that savings in PCC may not be sustained in the long term, but it is assumed that this risk can be managed through a combination of water efficiency campaigns, customer awareness and potentially the implementation of a variable tariff structure to limit discretionary use.

A range of different domestic metering options have been considered and the associated impact on the demand forecast taken into account in the supply demand balance and investment modelling. The scenarios investigated are:

- Baseline metering policy (optant and selective only, with current change of occupier metering in the Sussex WRZs finishing at the end of AMP4;
- Change of occupier metering policy extended to all WRZs; and
- Universal metering in all WRZs during AMP5 (2010-15), together with associated benefits of reduced supply pipe leakage losses.

Based on the results of cost benefit investigations, the company preferred policy is to undertake a programme of universal metering throughout its supply area, during AMP5. Universal metering also enables focus on leakage from customers supply pipes, and it is considered that significant further leakage savings will be achieved.

8.2.2 Tariffs

Variable tariffs based on volume usage are widely considered to be a useful mechanism for encouraging more efficient water use, particularly at peak times. However, the prerequisite for any tariff is the installation of a meter. The subsequent success of a varying tariff structures is likely to be dependent on the level of meter installation, so might not be applicable until late in the planning period if the metering policy selected does not reach the high level of meter installation rates rapidly. However, it may be a feasible option to consider if meter installation is accelerated due to universal metering.

Therefore, an additional demand management option considered in association with a universal metering programme is the use of sophisticated tariffs. A literature review was conducted in order to estimate the additional reduction in demand due to implementing variable (rising block) and seasonal tariffs. Social implications, such as the impact on customers' bills and vulnerable customers, will need be given due consideration when proposing future charging policies.

Current research suggests that, on completion of the universal metering programme, the development of appropriate tariffs could lead to further reductions in demand of up to 5% at annual and potentially up to 10% at peak, over and above the effect of metering alone[15]. These options have been included in our potential future options, but can only be considered when meters have been installed.

8.2.3 Leakage Reduction

Southern Water currently operates below their Ofwat target level of leakage, which was set in 2005. Our new leakage level is as a direct response to the drought of 2004-06. The option to allow leakage to rise back to the target level has been considered and subsequently rejected as it does not form part of a longer term economic strategy. The SEA assessed that leakage reduction had the potential for negative effects to local communities due to disruption, dependent upon the scale of the works involved, but that these effects would be short term. However, in the long term, leakage reduction was found by the SEA to be compatible with a number of the SEA objectives as it enables the best use of existing resources.

The company proposes to maintain leakage at the existing low level in the baseline supply demand balance and implement additional leakage reduction over the planning period where it is economic to do so.

As part of the sustainable economic level of leakage (SELL) assessment, costs of reducing leakage in gradual steps over the short and long term have been calculated for each WRZ. These costs and savings are compared directly with all other options in the investment model in order to determine a least cost strategy.

The proposed leakage strategy would be implemented during the next asset management plan cycle, 2010 to 2015, on the back of the proposed strategy of universal metering, which will assist in further reducing supply pipe leakage.

8.2.4 Water Efficiency

Companies are expected to achieve a Sustainable Economic Level of Water Efficiency (SELWE) as part of their economic approach to balancing supply and demand over the planning period. This is in addition to measures introduced to achieve the baseline Ofwat targets, known as the Base Service Water Efficiency (BSWE) target (see discussion of the baseline target in section 6).

Water efficiency measures are regarded as the preferred demand management measure from the SEA perspective as they have no potential conflicts with the SEA objectives.

A range of water efficiency options were individually assessed for their potential to contribute to reducing household and non-household demand, their cost and their practicality. An

[15] Herrington (2007), Waste not, want not? Water tariffs for sustainability. Report to WWF-UK.

unconstrained list of feasible options and the assessment process is detailed in Appendix G. Some options, such as grey water recycling, are considered unviable due to very low cost effectiveness. The following water efficiency options, however, were considered viable for consideration in the company's strategy:

Household options:

WCs

- Cistern displacement devices (CDD);
- Retro-fit dual flush mechanisms; and
- Low dual flush toilets (4/2 litre) (subsidy scheme).

Domestic Taps

- Tap inserts; and
- Low flow taps.

Showers

- Shower timers; and
- Low flow shower heads.

Other

- Low use washing machines (subsidy scheme);
- Low use dishwasher (subsidy scheme);
- Household water audits (HHA); and
- Household water efficiency kit, which comprised two options:
  - Household water efficiency kit with manned household audit; containing CDDs, tap inserts, low flow shower heads, shower timers, tea towel, booklet containing advice on water efficiency, and involving a manned audit to distribute devices as requested by the customer; and
  - Standard kit for distribution upon customer request; containing CDD, tap insert, shower timer, tea towel and booklet, and involving a basic self audit.

External devices

- Trigger hoses;
- Water butts

Non-household options:

- Commercial water audits (CWA);
- Schools and universities (low dual flush WC replacement).

Costs and water savings were calculated for each option and the most cost-effective were selected to meet the baseline water efficiency target. Other viable options not included in the baseline strategy were then considered in the investment model alongside all other supply and demand side options and considered available from 2010-11. Options selected in the baseline were also able to be reselected towards the end of planning period if required under a least-cost strategy. Some options were treated as mutually exclusive as appropriate.

The results of the investment modelling and company SELWE strategy are discussed in section 10.

8.3 Resource Development Options

A number of supply side options have been investigated for this WRMP. The detail of these options is considered in sections 10.2 to 10.4 for each Area. The range of options considered can be sub-divided into the following categories, each of which is described below:

- Bulk Transfer;
- Wastewater recycling;
- Aquifer Storage and Recovery;
- Desalination;
- River augmentation schemes; and
- Area Specific Water Resource Developments.

8.3.1 Option Screening Process

The screening process made use of work conducted by Atkins under the AMP4 Water Resources Investigation projects, which covered all Southern Water Areas. The objectives of the screening process were:

1. To provide a comprehensive list of 'unconstrained' options that could be considered in order to provide additional water supplies to each of Southern Water's Water Resource Zones. This included all schemes that had been previously considered by Southern Water in the AMP4 Water Resources Plan, as well as additional schemes that were identified by either Southern Water or the Environment Agency as part of the AMP4 Water Resources Investigations evaluation process.
2. To provide a summary technical evaluation of each option, to determine whether it represents a viable water resource development that should be considered in greater detail, or whether there are fundamental reasons why the scheme is unsuitable for further investigation. The following could be justifiable reasons for exclusion of schemes at the initial stages:
   - Technical feasibility;
   - Practicality, reliability and deliverability; and
   - Environmental or social impacts that mean the option is fundamentally unacceptable.

Options that address improving deployable output at existing sources through routine asset maintenance / source improvements were not included within the options appraisal work. These types of options (where feasible and practicable) are already incorporated in water resource modelling as completed options

All studies and options were the subject of review and, where appropriate, further desk based research to determine a list of "feasible" options. The constrained options were each examined in terms of:

- The practicability of the option;
- Its potential benefit in water resource terms;
- The extent of environmental impact, on both aquatic and terrestrial ecology;
- Its potential impact on other factors, such as heritage, noise and air pollution;
- Any constraints on the option in planning terms; and
- Its cost, in terms of both the capital and operational expenditure required, including an allowance for the cost of carbon.

The environmental and social costs / benefits of each option were estimated, where possible, using the Environment Agency's Assessment of benefits for water quality and water resources schemes in the PR04 Environment Programme (Environment Agency, 2003);

known as the Benefits Assessment Guidance, or BAG. However, there are inherent uncertainties associated with the calculation of these environmental costs and benefits, and not all transfer costs involved were necessarily adaptable to the wide range of options assessed.

The result of the option screening process was to produce a list of "feasible" options for each of Southern Water's three sub-regional areas, with associated cost, that could then be used in the investment model to derive a least-cost plan over the 25-year planning period.

8.3.2 Strategic Environmental Assessment (SEA)

Those options considered as feasible following the screening process were then subject to a Strategic Environmental Assessment (SEA) as part of the WRMP process and to fulfil the requirements of the SEA Directive (see section 1.4).

This assessment expanded on the identification of environmental and social impacts by the AMP4 Water Resources Investigations for each of the water resource options considered in the DWRMP. Potential mitigation measures were also considered, particularly with reference to those options included in the proposed WRMP strategy.

A high level compatibility assessment was carried out for each of the generic resource development options outlined below, against 17 SEA objectives in order to identify conflicts between the two in the short, medium and long term. A brief summary is given of the findings of this high-level assessment for each of the generic options.

Overall, a number of potential conflicts between WRMP resource development options and SEA objectives were identified. The SEA found that the extent of these conflicts was dependent on the nature of implementation and location of the specific options. Therefore the feasible list of WRMP options was subject to further in-depth SEA investigation, the results of which informed this WRMP strategy. The environmental and social impacts and possible mitigation measures for options selected in this WRMP strategy are discussed in section 10.

8.3.2.1 Bulk Transfers

Bulk transfers are a means of supplying additional water to a WRZ with a supply demand balance deficit from a WRZ with a supply demand balance surplus. The range of possible transfer options open to Southern Water includes:

- Enabling transfers (inter-zonal transfers between Southern Water WRZs);
- Inter-company bulk transfers within the South East region;
- Termination of existing bulk supplies to other water companies; and
- Transfers from outside the South East region.

The transfer of water from areas of surplus to those of deficit has always been a fundamental part of Southern Water's water resources strategy. However, a key consideration is the availability of surplus supplies in potential donor WRZs or other companies. Consideration also needs to be given to other factors such as the magnitude of the surplus available, the timing of availability and the duration for which it is available.

The SEA found that bulk transfers were compatible with a number of SEA objectives but depending on the requirement for construction of additional pipelines and routing, they may have potential conflicts against some SEA objectives, particularly during the construction phase.

8.3.2.2 Wastewater recycling

The recycling of wastewater, to reduce pressure on existing water abstractions and further resource development options, can be sub-divided into the following categories:

- Direct potable re-use;
- Direct non-potable re-use;
- Indirect potable use: recharge of groundwater aquifers; and
- Indirect potable use: supplementing river flows and surface water storage.

However, there are a number of other issues associated with the recycling of wastewater that need to be considered and overcome if it is to be widely adopted in the future. These relate to environmental impact of wastewater discharge, public health, public perception and cost. The only categories that will be considered as part of this WRMP process are direct non-potable re-use and indirect potable use by augmenting river flows and surface water storage. Direct potable re-use is unacceptable due to the high levels of risk and the recharge of groundwater using wastewater is not permitted under European legislation.

The advantages of wastewater recycling schemes are that they should be resilient to climate change, and offer flexibility in implementation and operation. However, there could be serious concerns raised with regards to the energy usage involved to operate such schemes, bearing in mind the possibility of multiple pumping and treatment required. There are examples of indirect wastewater recycling schemes across the company's supply area, although they may not be perceived as such in view of their size.

The SEA found that, while compatible with some SEA objectives, wastewater recycling has the potential for negative environmental impacts. These are associated with the potential infrastructure and additional pipelines required and the nature of the treated wastewater, dependent upon the nature of implementation of the scheme. The SEA concluded that the potential for negative medium/long term impacts could be reduced by appropriate mitigation measures.

8.3.2.3 Aquifer Storage and Recovery

The principle of Aquifer Storage and Recovery (ASR) is that either potable water, or raw water that could be used for potable purposes, is injected into a confined or semi-confined aquifer to create a 'bubble' of fresh water than can be re-abstracted when required.

The SEA report found that the environmental applicability of ASR relates to the impacts that such a scheme would have on parts of aquifers that either affect surface water bodies or sources that are currently used for potable water. Taking into consideration its broad compatibility with SEA objectives, subject to the nature of implementation and potential mitigation measures, the SEA concluded that ASR was the preferred resource development option.

8.3.2.4 Desalination

Desalination considers the opportunity of making use of saline groundwater, and coastal and tidal river waters which cannot be exploited by traditional treatment techniques. It has become less expensive in recent years as the cost of membrane technologies used in reverse osmosis processes has reduced. The potential sources of saline water are:

- Coastal Waters;
- Tidal Rivers;
- Offshore Waters;
- Deep Groundwater; and
- Coastal Aquifers.

The first two sources, coastal waters and tidal rivers, are the two most commonly identified sources, and are probably the easiest to design and manage from an operational viewpoint.

A number of environmental factors were taken into account when considering desalination during the AMP4 Water Resources Investigations, among which are:

- Construction and the subsequent abstraction and brine discharge may have adverse environmental impacts on coastal and marine habitats and wildlife;
- Treatment works may have significant visual impacts, especially in residential, tourist and designated areas along the coastline;
- Significant supporting infrastructure (roads, power, pipelines) is required, which may have social and environmental impacts;
- Tidal rivers in the South and South East of England are considered a valuable habitat and many of those within or near the company's supply area are subject to one or more environmental designation;
- Groundwater aquifers, given that they are likely to be non-renewable (i.e. a fossil aquifer), when subject to abstraction may have impacts on adjacent aquifers;
- Extraction from coastal aquifers may result in saline intrusion into fresh groundwater sources; and
- The potential requirements in terms of energy, although these can be reduced if the plant is only used intermittently, and modern design includes the facility for much enhanced energy recycling and the use of green energy source.

The SEA generic assessment of desalination as an option found that it has the potential for conflicts with a number of SEA objectives in both the short, medium and long term. These were dependent upon a number of factors relating to the nature of implementation of the plant and potential mitigation measures for long term impacts suggested. These are discussed in section 10.

8.3.2.5 Area Specific Water Resource Developments

These options refer to the various Area specific options that are not covered by the categories above. They all include the development of new resources in specific locations within each of the Areas. The options in this category are outlined below, and can vary widely in terms of the volumes of supplies available, from minor local source improvements to the development of major strategic options such as surface water reservoirs:

- New surface storage reservoirs;
- Increases in abstraction from either surface or groundwater;
- Enlarging existing reservoirs;
- Re-commissioning old/existing licences;
- Licence variations; and
- Upgrading Water Supply Works treatment facilities.

The availability of any of these options will vary considerably within each Area, and so each option needs to be considered on its own merits. However, it must be remembered that the development of an option in one WRZ can have an effect on all interconnected WRZs within the Area.

The SEA assessment at generic level identified a range of potential conflicts between different Area specific options and the SEA objectives, and each scheme was subject to more detailed analysis. These findings are contained within section 7 of the Environmental Report and a summary findings and discussion of potential mitigations measures for options included in this WRMP strategy is provided in section 10.

8.4 Other Considerations

There are a number of factors that influence the choice and timing of options to address a forecast supply demand balance deficit. These are as follows:

- **The Nature of the Deficit**

In any given WRZ, a forecast supply demand balance deficit may arise under one or more of the conditions defined by the ADO, PDO or MDO scenario (see section 4.4). The deficit triggers the need for new investment in demand or supply side options and the conditions which are the drivers of the need for such investment may have a direct bearing on the appropriateness of one option over another. For instance, a deficit under a PDO scenario may be able to be solved by increased treatment capacity or higher meter installation, whereas average or minimum resource period imbalances may require the development of more storage, the provision of a more reliable supply of water such as wastewater recycling or desalination, or again, increased meter installation and further leakage reduction;

- **Magnitude of an Option**

A key factor is obviously the potential that a given option has to reduce demand or increase deployable output such that available headroom equals or exceeds Target Headroom;

- **Cost of an Option**

Costs take into account both the initial capital investment required and the subsequent operational costs of a given option;

- **Timing of Availability**

Some options require a long lead time before they can contribute to the supply demand balance. Both the lead-time and the confidence in that lead-time (i.e. the likelihood that it will be available when it required) are important. Confidence in lead-times reduces sharply with an increase in the number and complexity of factors on which an option depends that are outside the control of the company;

- **Reliability of an Option**

This addresses the confidence that a given option will "deliver" the required reduction in the supply demand balance deficit. Where an option depends heavily on assumptions about changes in customer behaviour, or may be significantly impacted by some of the climate change scenarios, they would be considered less reliable than an option which will be unaffected by such factors (e.g. large storage options; wastewater recycling; and desalination). Furthermore, most options on the supply side will require some form of consent, for example planning permission, abstraction licence or any other form of consent. The potential for being granted these consents must be a factor to be considered;

- **Energy and Carbon Costs**

Like environmental impacts, energy and carbon costs need to be well understood. The monetary costs of energy will be automatically taken into account as part of the assessment of capital and operational costs of an option. It should also be understood that high energy costs should not automatically be equated with high carbon costs, since the company may choose to supply the energy needs of an option from renewable sources; and

- **Social and Political Acceptability**

Some options for demand management or new water resources are subject to greater social and/or political acceptability criteria than others. An obvious example would be the direct recycling of wastewater which may not be considered a socially acceptable option despite the availability of technology to treat wastewater to the required drinking water standards.

9 Formulation of the Water Resources Strategy

9.1 The Investment Model

The objective of the water resources investment model is to ensure that sufficient supply and demand side measures are identified to maintain the supply demand balance, for each critical period scenario, throughout the entire 25-year planning period (2010 – 2035) at least cost. Therefore, if there is a supply demand balance deficit for any critical period planning scenario during the planning period, the least-cost strategy should select the option, or combination of options, which maintains the supply demand balance at least, discounted, cost, given the assumptions for the model run.

The method used to determine this least-cost solution follows the Water Resources Planning Guideline, and uses the methodology recommended in the UKWIR report[16] "Economics of Balancing Supply and Demand". This recommended the use of a mathematical optimisation model, based on the technique of integer programming. Southern Water has adopted this approach, and has used the optimisation software What'sBest! (WB!) version 9.0. A description of the model is given in Appendix H.

The modelling approach consists of a number of different elements and processes, as presented in Figure 9.1. This schematic shows how the strategy, as reported in section 10, is developed.

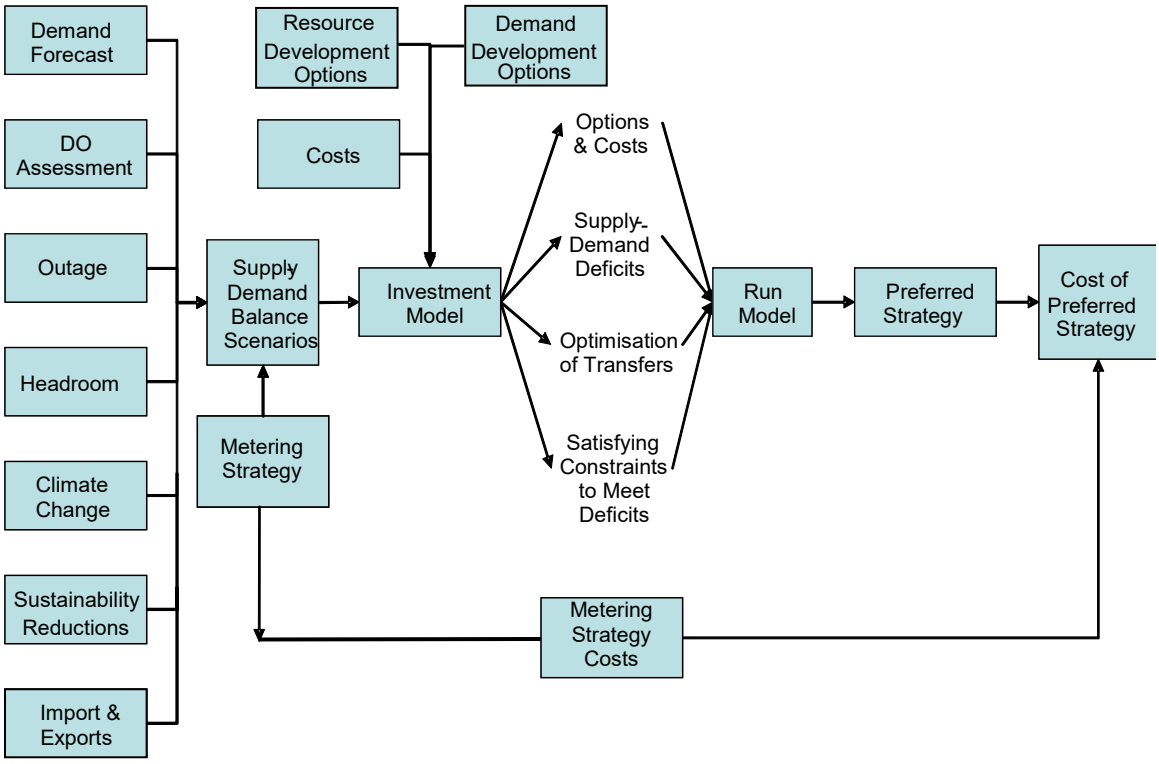


Figure 9.1 Schematic of Investment Modelling Approach

[16] UKWIR, 2002, The Economics of Balancing Supply & Demand (EBSD) Guidelines. Report 02/WR/27/4

Separate investment models were developed for each of the three sub-regional areas. This was because although the building blocks for the strategy are the WRZs, there are inter-connections between WRZs, either current or potential, that make up the sub-regional areas. Thus, actions in one WRZ can have an impact on other inter-connected WRZs. As a result, the model has to take account of the supply demand balances in all the WRZs in the Area at the same time in order to develop a co-ordinated least-cost solution.

The investment modelling process considers both supply and demand side options. However, the optimisation process is computationally difficult and very time consuming, as a result of the complexity of the problem and the immense number of iterations that have to be made. Consideration of the different demand management options can make this process even more complex.

Demand management options were introduced in the investment model in the following way:

- Water efficiency options were included as individual options, available every year, each with its own capex, opex and savings;
- Leakage options were potentially more difficult and complex in that there could be a start date for every year of the planning period, and an infinite amount of leakage reduction to achieve. To assist in the modelling process a number of discrete leakage reduction volumes were calculated. Further details are given in Appendix G.
- Metering options are more difficult to introduce in to the model because there could be individual options which comprised all the combinations of a start date for every year of the planning period, and an end date of any interval between the start date of the programme and the end of the planning period. In order to overcome these difficulties it was decided to create a number of scenarios which would simplify the modelling process. It was considered that very high levels of metering would be achieved by the end of the planning period, even if this was only as a result of optants. This is because of the number of switchers now observed since the introduction of the free optant switching option. Following classification as an area of serious water stress, the company had to consider universal metering as part of the 25-year strategy. Work was undertaken (see Appendices G and H) which showed that it was more cost effective to introduce universal metering over a five year period than, for instance over the whole of the planning period. Accordingly, it was decided that the universal metering programme would be introduced as a scenario which assumed a five year programme starting at the start of AMP5, i.e. 2010. The results of this scenario, in terms of costs and benefits, was compared with three other scenarios: one based solely on optants (scenario 1); and the other based on change of occupier throughout the company's area (scenario 2), as against solely Sussex, where this policy is already in force; and the third based on a continuation of the existing metering policies in each of its' ten water resource zones.

9.2 Scenario Modelling

The model output will be the least-cost solution, given the input data and assumptions that underpin the values of this data. However, it is often useful to check the robustness of a given solution or test alternative solutions, if other underlying assumptions were used. This is known as scenario modelling.

In essence, the approach used for scenario modelling is to change the baseline input data, assuming different assumptions to derive the values of the input data. The model is then re-run, and the resulting solution checked against the baseline solution.

Details of the different scenarios and results from the investment modelling are reported in section 10, where the following scenarios have been tested:

- Baseline: continuation of current metering policies, comprising "change of occupier" (CoOM) in the Sussex WRZs and optant metering in all other WRZs;
- Scenario 1: An "optant" strategy, with metering assumed to be optant and selective (large water users) only;
- Scenario 2: CoOM in all WRZs. This was useful for comparison with the company's preferred demand management-led strategy of universal metering;
- Scenario 3: A "universal metering" strategy for all WRZs to achieve 100% penetration by the end of AMP5, together with associated savings due to supply pipe leakage reductions;
- Scenario 4: A "regional" strategy comprising scenario 3 metering but with WRSE-preferred resource developments and bulk supplies to other water companies;
- Scenario 8: A "leakage rise to Ofwat target" strategy;
- Scenario 11: A "universal metering no climate change" ; and
- A hybrid scenario comprising "universal metering" in those WRZs that would otherwise have a supply demand balance deficit, and continuation of existing metering policies in those WRZs without a supply demand balance deficit (i.e. CoOM in the Sussex WRZs and Optant metering in the other zones).

9.3 Sensitivity Testing

The robustness of the selected strategy can be assessed by undertaking sensitivity analysis. Sensitivity analysis comprises determining the impact on the strategy from changes in the values of the input data, given the same basic assumptions. A number of potential sensitivities were identified and considered for both the Supply Forecast and the Demand Forecast.

For example, changes to the Supply Forecast could include such items as: changes to Deployable Output through the adoption of new methodologies, or in the light of new data; the introduction of further reductions in deployable output as a result of further Sustainability Reductions; and the potential loss of sources.

Sensitivities to the Demand Forecast could include such items as: differences in assumed demand savings as a result of metering; changes in demand due to the introduction of more efficient household design; and reductions in demand due to the development of more sophisticated tariff structures

9.4 The Importance of Strategic Decisions

The processes of option identification, appraisal and investment modelling have been progressively refined and improved over the last 10-15 years and, in combination, form a sophisticated and robust approach to water resources planning. However, there still remains the need for the company to make sensible strategic decisions regarding options that might not otherwise be chosen by the systematic approach described above.

This is particularly the case in the consideration of metering and in deriving this plan the costs and benefits of metering have been fully explored to ensure that it could be compared equally with resource development schemes and leakage reductions. Strategic decisions also need to be taken in the consideration of resource options. For example, if the forecast supply demand balance deficit is relatively small and unlikely to grow significantly over time a single solution, or a series of small-scale solutions will be appropriate. However, if demand is forecast to increase significantly over time, leading to a large supply demand balance deficit, the situation needs to be considered from a strategic viewpoint. While a series of smaller

scale options may be appropriate, there may be some circumstances in which investment in a single, much larger option is the best way forward (see Figure 9.2). Although this may result in a significant surplus or resources in the short-term, it may prove to be the most effective long-term solution and facilitate the provision of bulk supplies to other companies in the interim should they be required.

Furthermore, the importance of environmental considerations must be recognised. There may be environmental considerations, both in support of and against, all schemes, which are often difficult to express purely in monetary terms. In this respect, the Environmental Report, undertaken as part of the Strategic Environmental Assessment, has been used to help assess such environmental considerations. The Environmental Report on the WRMP was made available as part of the consultation for the DWRMP, and an SEA Statement will be published alongside the final WRMP report, summarising how the information and results in the final WRMP and Environmental Report (revised following consultation on the draft Environmental Report and DWRMP) have been influenced and informed by each other (see section 10.1.9).

The need to make strategic decisions does not remove the need for very clear arguments to support them, but it does mean that it is always important for the company to review the outputs from its options appraisal and investment modelling to ensure that the company preferred strategy really is the optimal solution for the company, its customers and the environment.

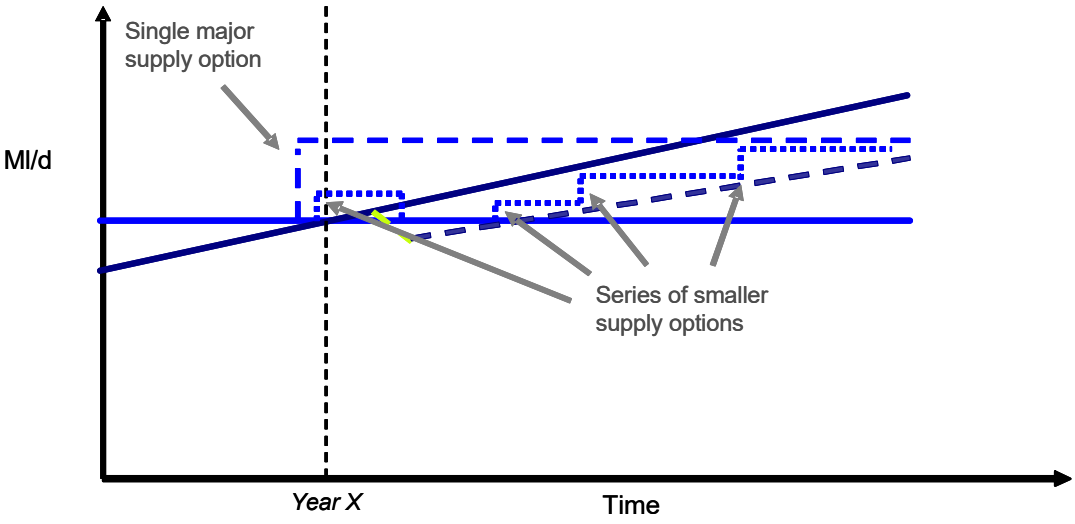


Figure 9.2 Illustration of Options to Address the Supply Demand Balance

9.5 The Importance of a Regional Solution

As mentioned in section 2, the water supply system within the South East of England is very complex, due to the nature of the individual company systems which have been developed independently for over more than a century. There are a number of water companies, each sharing boundaries with a number of other companies. It is also the area with the most pressures on it, being not only classified as an “area of serious water stress”, but also likely to be in the forefront of the effects of climate change.

Given the complexity of the situation, there are a number of benefits arising from the development of a regional strategy which is reflected through the integration of the strategies of the individual companies. The benefits of such an approach include the following:

- It demonstrates joined-up thinking between companies, and identifies synergies with the strategic plans of other companies;
- It avoids the potential for the selection of mutually incompatible or even mutually exclusive schemes to be selected;

- It creates the progression of regional developments that might avoid pursuing individual company strategies that could lead to unnecessary developments which could in turn result in the creation of excessive headroom, greater environmental impact, a solution that is not least-cost and higher customer bills than necessary; and
- It creates the opportunity to make the optimum use of limited resources, and realise any potential for economies of scale with minimum impact/cost.

9.5.1 The Work of Water Resources in South England Group (WRSE)

The WRSE Group was formed in 1999 to progress the joint strategy for the South East region. Southern Water has already adopted a number of the conclusions for the sharing of resources identified by the group, with the following schemes being successfully completed during AMP4:

- Export to South East Water from Darwell, facilitated via the upgrade of the Bewl-Darwell transfer;
- Export to Folkestone and Dover Water via a bulk supply from Deal High reservoir; and
- Import from Portsmouth Water to the Sussex North/Sussex Worthing WRZs, facilitated by a variation to the Eastergate group licence.

Central to the work of the group during AMP4 has been the development of a regional water resources investment model under the direction of the Environment Agency. The model is an optimisation model, and applies the methodology recommended in the Economics of Balancing Supply and Demand. The modelling platform uses the software package WhatsBest!, which is the package used by Southern Water and a number of other companies.

Input data has been provided by the individual companies and has been subjected to cost consistency checks. A number of different scenarios have also been investigated. It is accepted that, as the data is proved by the companies themselves, there should be some consistency with the modelling work of the companies themselves. However, it also means that there may be some difference in the design standards used by the various companies, such as: the metering policy; Target Levels of Service for the frequency of restrictions; design conditions for the estimation of Deployable Output and the adopted target headroom glidepath.

It must be recognised that it has never been the intention that the regional model will give a single, definitive solution that should override the more detailed modelling work of the individual companies. However, by investigating a number of different scenarios, for instance with different PCC estimates or differing population forecasts, in the modelling work, it should be possible to identify those schemes which are “most commonly selected”, and which therefore could be expected to be worthy of further investigation by the individual companies. As such, the results of the regional model should be used to inform the formulation of strategy at individual company level.

It is also important to recognise that the results of the model identify the most commonly selected schemes; it also identifies the most often selected ways of allocating or sharing such resource developments to create the building blocks for a regional solution. It is then the responsibility of the companies to identify, investigate and agree on the potential bulk supply and/or shared resource schemes.

It will be realised that the modelling work requires iteration between the models/data updates of the companies and the EA. The iterative process comprises:

- A bottom-up approach, whereby the companies provide updates of their data, and company preferred solutions for use in the regional model; and
- A top-down approach, whereby the Environment Agency runs the regional model, and feeds back the regional results to the companies for comparison/use within their models.

9.5.2 The Results of the WRSE Regional Model

There have been a number of major modelling phases during AMP4. There was a substantial set of runs undertaken during the latter part of 2008 that used data from DWRMPs where possible. However Southern Water, in common with some other companies, felt that the results were not sufficiently definitive, nor were they produced in time for them to be taken into consideration. Nevertheless Southern Water has included in the baseline condition renewal of all existing bulk supplies until the end of the planning period at the pre-existing volumes, in order to support the notion of a regional solution.

Since submission of the DWRMPs the draft Business Plan another major WRSE modelling exercise was undertaken. This allowed comparison of the DWRMPs company preferred strategies with what might be a more regional solution. The results of this exercise, which compared the sum of the individual company strategies with a regional strategy, allowed for shared developments/bulk supplies, and should reduce the available headroom above target headroom, and also the overall total cost of the regional strategy.

The results of the regional model were provided to the technical WRSE group and to the Managing Directors group.

The results of the regional model suggested that within a regional context for shared resources and/or bulk supplies there could be the development of other options identified by Southern Water; namely the raising of Bewl Water, the Aylesford wastewater recycling scheme and the provision of a bulk supply to South East Water from Sussex Brighton WRZ.

The results of the most recent WRSE modelling were not available at the time of this FWRMP.

9.5.3 Influence of the Regional Results on this WRMP

Southern Water has accepted the results of the WRSE regional model available to date, and has agreed to include them within its own model. These are discussed more fully in the commentary of the individual Area strategies in section 10.

The schemes that have been included within the Southern Water company preferred regional strategy as a result of the results of the WRSE regional modelling work are:

- Introduction of River Medway scheme licence variation;
- Acceleration of Aylesford wastewater recycling scheme;
- Raising Bewl Water;
- Enhancement of bulk supply to FDWS, which, although not within the WRSE results, was identified by the companies and agreed to be a more realistic than a desalination scheme that was identified in the results from the regional modelling work;
- Provision of new bulk supply to SEW from Sussex Brighton WRZ; and
- Development of a Memorandum of Understanding, with Portsmouth Water Company and the Environment Agency regarding the progression of the River Itchen Sustainability Reduction.

It was expected that a further set of regional modelling runs would be undertaken during early summer 2009 making use of data from final Business Plans and any further updates since the Statement of Response. As noted in section 9.5.2 the results have not been available to inform further update of the FWRMP and therefore the plan has used the most up to date modelling work prior to publication, to inform the plan.

9.5.4 General Principles for the Provision of Bulk Supplies

The inclusion of some regional schemes within the baseline condition of this WRMP, either for joint scheme development and/or shared resources/bulk supplies, will result lead to additional

costs over and above the company-only strategy. The resulting final planning scenario will therefore not be the least-cost strategy for Southern Water on its own. It is therefore essential to state the conditions that will ensure that the customers of Southern Water are not disadvantaged by the inclusion of these schemes in the company preferred regional strategy.

The exact terms and conditions of any future agreements between Southern Water and other companies for the provision of supplies, either from bulk transfers or joint development, will be determined on a case-by-case basis. The following points set out without prejudice the general principles which will underlie any inclusion of regional strategy schemes within the company's WRMP:

- Company's own customers, and their security of water supply, are of paramount importance in the provision of bulk supplies;
- Water is a commodity for sale, and as such, can be used for the provision of bulk supplies;
- Any incremental expenditure on the company, be it from the renewal of existing bulk supplies, or the provision of new ones, should be met entirely by the recipient company; and
- The promotion of any new scheme that allows the provision of new bulk supplies would be expected to be subject to the same level of environmental scrutiny as any other scheme.

10 The Water Resources Strategy

10.1 General

10.1.1 Introduction

The previous sections have described the various elements and stages in the development of the water resources strategy that is presented in the Water Resources Management Plan. Of particular importance are:

- The need to develop a robust and resilient supply system that will not fail under the most severe conditions;
- The considerable number of challenges facing the water industry in general, and those specific to the South East region and Southern Water;
- The principles underlying the process of water resources planning;
- The derivation of the key building blocks for the formulation of a water resources strategy, namely the:
  - Supply Forecast;
  - Demand Forecast;
  - The treatment of likely uncertainties;
  - Supply and demand side options available;
  - Use of the investment model to determine a company preferred solution;
- The influence of a regional solution; and
- The outcome of the Strategic Environmental Assessment (SEA).

This section now uses all the above considerations to formulate the water resources strategy.

10.1.2 Objectives of the Water Resources Strategy

The objective of the water resources strategy is to ensure the security of supplies for the next 25 years through the development of a robust and resilient supply system that is able to:

- Reduce the risk of failure under any foreseeable scenario to an absolute minimum;
- Meet Target Levels of Service to our customers and the environment;
- Be firmly based on a demand management-led approach, supported by resource development as appropriate;
- Ensure development of a water supply system that can cope with increased housing development;
- Be fully prepared to meet the challenges of climate change, and to take into account the adverse impact of carbon emissions;
- Develop those options that are the most environmentally sustainable, whilst being economically effective, and socially and politically acceptable, from the options available;
- Select appropriate demand and supply side options that can be implemented in a timely manner as and when they are required;

- Tailor the specific area strategies to the specific individual requirements of the areas;
- Be flexible enough so that it can be adapted to changing circumstances; and
- Contribute to an integrated regional solution.

10.1.3 Development of Individual Area Water Resources Strategies

The details of the water resources strategy for each area and for each WRZ are set out in sections 10.3 to 10.5.

The strategy is presented using the following structure:

- An overview of the key features of the area and WRZs, in terms of location, sources of supply and their management, a summary of demand, recent strategic developments and performance against Target Levels of Service;
- A summary of the baseline supply demand balance for each of the WRZs in the area and a review of some of the key issues to be addressed. The assumptions for the baseline scenario are given in the area sub-sections below, and full build-up tables of the supply demand balance are given in Appendix I;
- The demand and supply side options available to meet any supply demand balances deficits;
- The influence of the WRSE work and the need to contribute to a regional solution;
- The influence of the findings of the SEA, including discussion of mitigation measures for options selected in the area strategy; and
- A presentation of the strategy for the area, with accompanying discussion and justification. The elements of the water resources strategy are set out for the following time periods:
  - AMP5, the first five years from 2010-11 to 2014-15, which will form the basis of the Final Business Plan Submission;
  - AMP6 to the end of the planning period, 2015 to 2035, based on the least-cost strategy for a company only strategy; and then
  - An explanation of how this AMP6 to the end of the planning period company only strategy is modified to take into account the recommendations of the WRSE regional modelling results. It should be noted that this comprises the current company preferred regional solution, as described in this final Water Resources Management Plan.

The baseline assumptions for supply and demand side measures are described. It is assumed that inter-zonal transfers will be managed as appropriate throughout the planning period; the transfers are mentioned here for completeness.

The company preferred regional strategy is then summarised in Section 11 which sets out the company's water resources investment strategy throughout its area of supply until the end of the planning period in a regional context.

As required the WRP Tables have been prepared for the baseline and the final planning solution only. The Tables have been compiled in a separate document.

10.1.4 The Baseline Condition

The baseline condition is used to define the starting point for the WRZ supply demand balances from which the final planning solution is developed. The baseline condition represents continuation of current management policies.

The main constituents of the baseline supply demand balances are:

- The Supply Forecast based on current values for deployable output and improvements to be made during AMP5;
- The Demand Forecast based on externally-derived population and household growth projections and most significantly the level of meter installation and reductions in supply-pipe leakage that would be achieved under continuation of current company policies; and
- The renewal of existing inter-company bulk supplies until the end of the planning period at the rates in place at the time existing agreements expire.

Using these assumptions for the baseline supply demand balances over the whole of the planning period defines all the changes in the supply demand balance that might be expected to occur, irrespective of any additional intervention by the company. The baseline represents a “no-change” condition and shows whether any deficits would occur over the planning period and what the magnitude of any deficit would be.

The different elements included in the baseline supply demand balance are described in the following sections.

10.1.5 Supply Forecast

The supply forecast section sets out the values of deployable output that have been used in this WRMP.

The following values for surface water deployable outputs have been used:

- From the base year 2007-08 to the end of AMP4 (2009-10), the values are the original PR04 values, in line with the PR04 baseline condition, together with any AMP4 improvements; and
- From the start to the end of the planning period, 2010-11 to 2034-35, the values are those derived from the analysis described in section 5.2.

The situation is more complex for groundwater. A progressive series of values has been used to reflect the changing assumptions for the different time periods as follows:

- The base year 2007-08, which will use the original PR04 values, in line with the PR04 baseline condition, or 2006 re-assessments (where available);
- For 2007-08 these values also include any AMP4 improvements in deployable output to date and will remain constant until the start of the planning period (2010-11);
- For the start of the planning period, 2010-11, the values used will take into account the 2006 re-assessments, together with the results from the Unified Methodology;
- During the AMP5 period up to 2014-15, these values will be modified to take into account any AMP5 planned source improvements; and
- Up to the end of the planning period in 2034-35, the values used will be those used at the end of AMP5.

10.1.6 Demand Forecast

Demand forecasts for a number of metering policies have been fully tested to understand the most optimal metering policy. Under a universal metering policy the installation of the meters will be completed in 5 years and the repair of the supply pipes contribute to the continued reduction of leakage.

The following four metering strategies were tested as part of the process to identify the most suitable strategy for the company in the future:

- A continuation of existing policies;
- A policy of optant metering only;
- A policy of change of occupier metering only; and
- A policy of universal metering.

Each policy has been modelled and the resultant resource strategy determined. The combination of these costs is then used to determine the overall cost effectiveness of the strategy.

10.1.7 Inter-Company Bulk Supplies

The baseline assumptions are that all existing inter-company transfers, both imports and exports, will be renewed and will continue to be renewed until the end of the planning period at the volumes at the time existing agreements expire.

10.1.8 Customer Levels of Service

Two measures can be used to demonstrate the effects of droughts on the company's Target Levels of Service:

- The number of years that restrictions have been in force (expressed as a percentage), irrespective of the duration during the year; and
- The amount of time on average that customers have been subject to restrictions, calculated as the percentage of the actual (population times weeks of restriction) compared to the total (population times weeks under review). This measure could be considered to be a more accurate reflection of actual levels of service, as it takes into account both the population affected, and the total time for which it was affected. If Target Levels of Service are being met then this measure would not exceed 10%.

A summary Table showing the frequency of restrictions compared to the Target Levels of Service is given for each area.

10.1.9 Environmental Levels of Service

A discussion of past performance against environmental Levels of Service in each area is included in the relevant section.

10.1.10 Influence of a Supply Demand Balance deficit

Section 3.3.2.3 notes that in the event that a WRZ or area has a supply demand balance deficit, there is a theoretical risk that, in the event of drought conditions, the supplies will be put under more stress than would normally be the case, and it there is an increased risk that the activities associated with the Drought Plan may have to be introduced, which could involve any of the following:

- Demand side measures such as appeals for restraint up to the introduction of restrictions;
- Supply side measures, if available, to create more deployable output; and
- Applications for Drought Permits/Orders to allow abstraction to continue beyond current licence constraints.

The likelihood of such measures being required depends on, amongst other things, the magnitude of the supply demand balance deficit.

10.1.11 Influence of Water Resources in South East (WRSE) Group

The importance of planning in a regional context has been referred to throughout this plan. The company has been an active member of the WRSE Group. WRSE preferred options have been identified from within the Southern Water option set and were discussed in section 9.

We have received a confirmed request from Folkestone and Dover Water Services for the potential inclusion of an additional bulk supply from Deal reservoir. Portsmouth Water has indicated that it will not be seeking a bulk supply, although it will consider providing one as part of the further work regarding the River Itchen Sustainability Reductions. No other confirmed requests or offers have been received.

In the absence of a complete list of potential requirements from all companies in terms of timing and volume, it was not possible to include them in the baseline supply demand balance. This means that it has not been possible to use the optimisation model that was used for the Economics of Balancing Supply and Demand (EBSD) approach to the company only solution for the development of a regional solution.

The company preferred regional strategy has therefore been derived using the following two-stage process:

- Firstly, a least-cost optimised strategy was derived, which includes renewal of existing bulk supplies; and then
- The WRSE preferred options were “forced” into the strategy to develop a regional solution, at what was considered to be the earliest start date.

This strategy will mean that a margin of headroom above the company’s target headroom becomes available over the course of the plan. This margin would then be made available as bulk supplies to other companies. Such a strategy will not be the company least-cost strategy because each of the WRSE options will have been “forced” in at the earliest start date and at the maximum capacity. It will only be possible to derive an optimised, least-cost regional strategy when a baseline regional supply demand balance has been agreed that includes all the potential volumetric and timing requirements of all the other companies. We have discussed this approach with the Environment Agency and we believe that the Agency supports our stance and approach to modelling a regional strategy.

10.1.12 Influence of SEA

10.1.12.1 SEA Process

The SEA Directive (2001/42/EC) makes a Strategic Environmental Assessment (SEA) a mandatory requirement for certain plans and programmes which are likely to have significant effects on the environment. Southern Water considers this WRMP as a “water management plan”, thus falling within the terms of the SEA Directive, so an SEA has been undertaken of the WRMP.

In compliance with the appropriate sets of guidance on the SEA process, an SEA Scoping Report was produced and was published for consultation. The responses received were addressed and included in the preparation of the Draft Environmental Report which in turn was published for consultation alongside the WRMP – “Draft for Consultation”. The Report summarised the findings and results of the SEA process and presented information on the likely significant effects of the WRMP options considered.

The Environmental Report has now been revised to reflect consultee comments and changes to the draft WRMP. An SEA Statement will be published alongside the final WRMP and will

indicate how the information, analysis and modelling results presented in the final WRMP and Revised Environmental Report have been influenced and informed by each other.

10.1.12.2 Assessment of Options

All options considered in this WRMP have been subject to an SEA as part of the WRMP process and in fulfilment of the requirements of the SEA Directive. This assessment expanded on the identification of environmental and social impacts by the AMP4 Water Resources Investigations for each of the water resource options considered in the draft WRMP. Potential mitigation measures were also considered, particularly with reference to those options included in the proposed WRMP strategy.

A high level compatibility assessment was carried out for each of the generic resource development options outlined below, against 17 SEA objectives in order to identify conflicts in the short, medium and long term.

Overall, a number of potential conflicts between WRMP resource development options and SEA objectives were identified. The SEA found that the extent of these conflicts was dependent on the nature of implementation and location of the specific options. Therefore the feasible list of WRMP options was subject to further in-depth SEA investigation, the results of which informed this WRMP strategy. The environmental and social impacts and possible mitigation measures for options selected in the WRMP strategy are outlined in detail in the following sections.

The demand management measures proposed for the WRMP strategy were also assessed in the SEA. It was found that metering has the potential for disturbance to local communities in the short term during their installation, but this negative effect is considered non-significant and outweighed by the overall environmental benefits of metering.

The SEA identified that leakage reduction had the potential for negative effects to local communities due to disruption, dependent upon the scale of the works involved, but that these effects would be short term. However, in the long term, leakage reduction was found by the SEA to be compatible with a number of the SEA objectives as it enables the best use of existing resources.

Water efficiency measures are regarded as the preferred demand management measure from the SEA perspective because they have no potential conflicts with the SEA objectives.

10.1.13 Scenario Analysis

A number of scenarios have been modelled in order to check the stability of the company preferred strategy. The different scenarios were:

- The baseline condition with continuation of current metering policies;
- An “optant” strategy (scenario 1), with metering assumed to be optant and selective (large water users) only. This assumes continuation of the current policy of change of occupier (CoOM) in the Sussex WRZs until the end of AMP4 only. This is useful for comparison with the company’s preferred demand management-led strategy of universal metering;
- A “change of occupier metering” strategy (scenario 2), which is the logical extension to the existing policy of metering on change of occupier throughout the Sussex WRZs. This was useful for comparison with the company’s preferred demand management-led strategy of universal metering;
- A “universal metering” strategy (scenario 3), which assumed 100% meter installation from universal metering for all WRZs by the end of AMP5, together with associated savings due to supply pipe leakage reductions;
- A “regional” strategy (scenario 4), which uses the company preferred universal metering strategy, but with WRSE preferred resource developments

and bulk supplies to other water companies forced into the company only universal metering strategy. Note that the company is a net exporter under this scenario;

- A "leakage rise to Ofwat target" strategy (scenario 8), in which leakage in each WRZ is allowed to rise to the Ofwat target level, provided it is currently below the target level in that WRZ;
- A "universal metering no climate change" strategy (scenario 11) to investigate the impact of climate change, which uses the universal metering strategy but with no climate change impacts on either supplies or on demand; and
- A "hydrid metering scenario" which comprises of universal metering in WRZs that would be in deficit within the planning period, otherwise there would be a continuation of current metering policy.

A summary of the assumptions for each of the scenarios used for the investment model runs is given in Table 10.1.

Scenario name		Basis of scenario	Resource options		Meter policy			Leakage options			Climate change assumed
			Company selected	WRSE selected	Optants & selectives	Change of occupier	Universal	JR08 – 82Ml/d	SPL reductions	Ofwat Target	
1	Optant	Optant & selective meters only	✓	×	✓	×	×	✓	×	×	✓
2	Change of occupier	All WRZs from AMP5 (Sussex WRZs from AMP4)	✓	×	✓	✓	×	✓	×	×	✓
3	Universal metering	Universal metering in all WRZs	✓	×	AMP 4	×	✓	AMP 4	✓	×	✓
4	Regional strategy	As scenario 3, but with WRSE resource developments and bulk supplies forced in	×	✓	AMP 4	×	✓	AMP 4	✓	×	✓
8	Leakage rise to Ofwat target	Based on scenario 3, but with leakage rising to target level in each WRZ	✓	×	AMP 4	×	✓	×	×	✓	✓
11	Universal metering no climate change	Based on scenario 3 but with no climate change impacts on supply or demand	✓	×	AMP 4	×	✓	AMP 4	✓	×	×

Table 10.1 Scenario Analysis Undertaken

A discussion of the hybrid metering strategy is given in section 10.6.

10.1.14 Sensitivity analysis

Sensitivity analysis was undertaken to determine the robustness of the company only least-cost strategy. Sensitivity analysis comprises checking the stability of this strategy to changes in the input data used for the Supply and Demand Forecasts, given the same baseline assumptions.

A number of potential sensitivities in input data were identified on both the Supply Forecast and the Demand Forecast. Sensitivity analysis of different demand side assumptions could for example take account take account of the following:

- The savings associated with universal metering;

- The assumed additional savings from reductions in supply pipe leakage;
- The increased demand for housing projections higher than those envisaged in the Draft South East Plan; and
- The potential reduction in demands due to the introduction of more water efficient house design.

Similarly, sensitivity analysis of different supply side assumptions could take account of the following:

- Potential changes in deployable output due to the impact of new data or the application of new methodologies;
- Possible increases or decreases from the effect of climate change; and
- Possible reductions in deployable output due to the impact of further Sustainability Reductions, the Restoring Sustainable Abstraction programme and the Water Framework Directive.

In view of the potentially complex interaction of all these potential sensitivities which have different magnitudes it was decided to frame the analysis within two basic sensitivity "envelopes". These comprised a "possible worst-case", and "possible best-case" sensitivity. Using these envelope sensitivities meant that all potential combinations in the variation of the individual input data could be assessed.

10.2 Overview of Water Resources Strategy

The water resources strategy for each area is set out in detail in sections 10.3 to 10.5. For each area the strategy comprises the following elements, although the balance of the various elements will be different in each area:

During AMP5

- Introduction of universal metering by 2015;
- Asset improvement schemes at a number of groundwater sources that had been identified by the recent review of groundwater source performance;
- The optimum use of inter-zonal transfers, as identified by the investment model;
- Additional inter-zonal transfers, as identified by the investment model;
- The renewal of existing inter-company bulk supplies until the end of the planning period, at the rates at the time of contract renewal;
- New source development, if required, to either close any existing Supply demand balance deficits, and/or to restore security of supplies as a result of Sustainability Reductions; and
- Any further investigation of new resource developments that were identified as past of the WRSE regional modelling work.

From the end of AMP5 through the rest of the planning period to 2035

- It is currently envisaged that no further strategic resource developments will be required to meet Southern Water's needs under the company only universal metering strategy;
- The strategy will deliver the objective of keeping to the target headroom line, through a delicate balance of a number of factors, including the following; source maximisation through potential licence variations; the refurbishment of a few small, currently disused groundwater sources, which may require fairly advanced treatment solutions; progressive leakage reduction up to 19% below the current outturn level to offset the need for the development of major strategic schemes; and the introduction of further water efficiency savings where it is economic to do so;

- It should be noted that we have included the effects of climate change on both supply and demand side elements. However, these have only been introduced after the end of AMP5, and thus their inclusion will not have any bill impact; however
- Southern Water has reaffirmed its commitment to the WRSE modelling work, in the form of adopting the WRSE preferred regional options in its strategy in addition to those identified in the least-cost company only strategy. Whilst the introduction of these schemes will lead to available headroom in excess of our target headroom requirements. The inclusion of these regional schemes in the company preferred regional strategy will increase the 25-year NPV by £47.4 million above the company only least-cost strategy. Further details are provided in the description of the individual area strategies. We believe that this will not contribute to any bill impact during AMP5 as the regional schemes will not be introduced until AMP6 and beyond. This approach demonstrates our continued commitment to the development of a regional solution.

10.3 The Water Resources Strategy for the Western Area

10.3.1 Location

The Western Area covers part of the county of Hampshire and the whole of the Isle of Wight. It comprises the Water Resource Zones (WRZs) of Hampshire South, Hampshire Kingsclere, Hampshire Andover and the Isle of Wight. The Hampshire South WRZ is located in the southern part of Hampshire, extending from the boundaries of the New Forest in the west towards the River Meon in the east. The Hampshire South WRZ supplies the cities of Southampton and Winchester and towns such as Romsey and Eastleigh, in addition to the surrounding rural areas. The Isle of Wight WRZ covers the whole of the Island. The Hampshire Andover WRZ is centred on the town of Andover, and includes the surrounding area, while the Hampshire Kingsclere WRZ surrounds the town of Kingsclere.

There are the following inter-zonal connections:

- From Hampshire South WRZ to the Isle of Wight WRZ, via the cross-Solent main; and
- A number of very small interconnections between the Hampshire South and Hampshire Andover WRZs.

There is one inter-company transfer:

- A very small bulk export to Wessex Water; and
- There is also a bulk supply to an industrial customer.

A schematic showing the key features of the Western Area is shown as Figure 10.1.

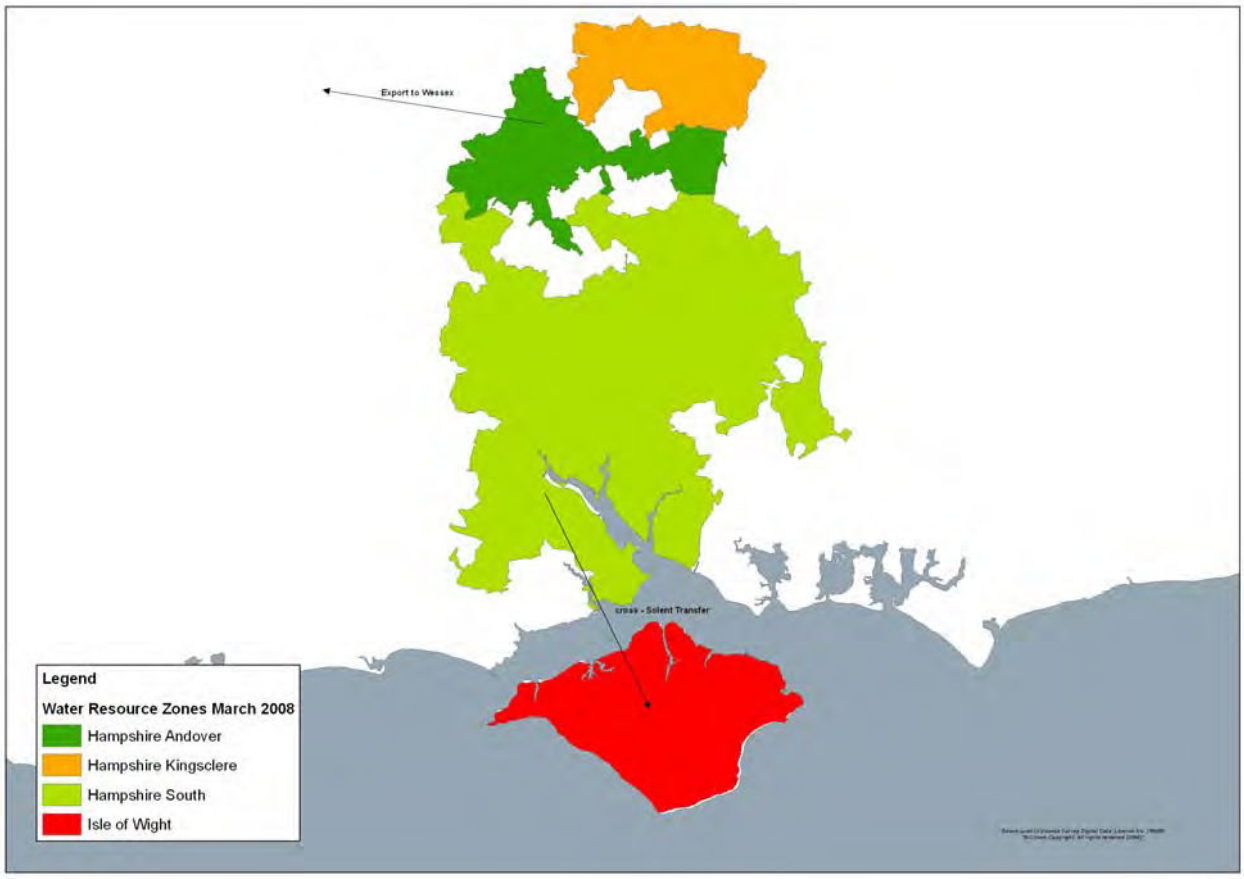


Figure 10.1 Schematic of the Western Area

10.3.2 Sources of Supply

The Western Area is supplied by both surface and groundwater sources. There are three surface water sources and over 30 groundwater sources. The groundwater sources abstract almost exclusively from the Chalk aquifer. The Deployable Output of many of these sources is constrained by the abstraction licence rather than by physical constraints. On the Isle of Wight there are also a number of smaller local groundwater and spring sources from the Greensand aquifers.

The surface water sources comprise the abstractions on the Rivers Test and Itchen in the Hampshire South WRZ, and the Eastern Yar on the Isle of Wight. A significant proportion of the supplies in Hampshire South WRZ is provided by abstractions from the River Test and the River Itchen. Both abstractions are run-of-river sources. Currently there is a Minimum Residual Flow constraint on the Test abstraction, but there are no flow-related constraints in the abstraction licences for the Lower Itchen sources. Flows in the River Itchen can be supported by the Candover and Alre groundwater augmentation schemes which are owned and operated by the Environment Agency.

To date the volume of abstraction from the company's Lower Itchen sources has been limited by the existing licensed quantities and not by hydrology. The groundwater augmentation schemes have not been required to maintain the company's ability to abstract at the licensed volumes. However as discussed in section 10.3.8.1, this situation will change in the future as a direct consequence of proposed changes to these abstraction licences following the Environment Agency Habitats Directive Stage 4 Review of Consents.

The surface water source on the Isle of Wight is located on the River Eastern Yar. It is also a run-of-river scheme. The Minimum Residual Flow condition in the licence means that in most years abstraction is less than the full licensed volume. River flow can be can be supported by

a groundwater augmentation scheme which is owned and operated by the company. Typically the scheme is operated in each year.

The Hampshire Andover and Hampshire Kingsclere WRZs are supplied entirely from Chalk groundwater sources.

10.3.3 Supplies Available

The total deployable output for the area is 307.7 Ml/d at MDO and 339.4 Ml/d at PDO. Each WRZ has a different mixture of types of source, and thus a different ratio of groundwater to surface water. These proportions are shown in Table 10.2, which demonstrates that, whilst the area proportion is roughly 50% groundwater : 50% surface water (MDO), this varies from complete dominance of groundwater in the Hampshire Kingsclere and Andover WRZs, to a balance of around 40% groundwater : 60% surface water in Hampshire South WRZ and 67% groundwater : 33% surface water on the Isle of Wight.

WRZ	Groundwater			Surface Water			Total	
	No. sources	MDO Ml/d	PDO Ml/d	No. sources	MDO Ml/d	PDO Ml/d	MDO Ml/d	PDO Ml/d
HS	8	96.33	114.77	2	149.46	149.46	245.79	264.23
IOW	15	20.72	25.49	1	10.00	12.00	30.72	37.49
HA	6	22.47	28.20	0	0.00	0.00	22.47	28.20
HK	2	8.68	9.48	0	0.00	0.00	8.68	9.48
Total	**31**	**148.20**	**177.94**	**3**	**159.46**	**161.46**	**307.66**	**339.40**

Notes: Values are for indigenous sources only, and do not take transfers, either for inter-zonal or inter-company transfers into account.
Further detail is given for individual sources in Appendix D

Table 10.2 Summary of PR09 Base Year (2010-11) Deployable Outputs for the Western Area

This variation in the groundwater to surface water ratio does not have a major effect in the Hampshire South WRZ because the surface water and groundwater sources are closely inter-linked. However, it does have a significant impact on the Isle of Wight WRZ, as discussed in section 10.3.4.

The deployable output values given in Table 10.2 were used as the starting point for the baseline Supply demand balance from 2010 onwards. There will however be changes to the deployable output of the Lower Itchen sources as a result of the proposed changes to those abstraction licences following the Stage 4 Habitats Directive Review of Consents. These reductions have been included within the baseline Supply demand balance for this WRMP as required for Table WRP1a-BL. Further details and discussion regarding the progressive introduction of the proposed Sustainability Reductions is given in section 10.3.8.1.

10.3.4 Strategic Management of Sources

The Hampshire South WRZ is important for the strategic management of water resources for the Isle of Wight. The nature of the Chalk aquifer means that groundwater sources are reliable and that the aquifer provides the baseflow component of flows in the Rivers Test and Itchen which maintain the run-of river supplies.

The Isle of Wight WRZ is unique in a number of respects. It is not self-sufficient in water resources, and relies on transfers via the cross-Solent main from the Hampshire South WRZ to maintain the supply demand balance. The Island was the site of the largest pilot project of

the National Metering Trials which began in 1989. More than 90% of domestic properties on the Island are metered, and so the options for additional demand savings from metering and the associated reductions in supply pipe losses are limited.

In addition to its demand management activities, the company has developed a strategy to balance supplies from the mainland through the cross-Solent main with indigenous surface water and groundwater resources. The overall aim is to rest indigenous groundwater sources for as long as possible so that there is sufficient groundwater storage to maintain supplies during long dry summer periods. The value of this policy was demonstrated during 2003 when the cross-Solent main was damaged and groundwater sources were needed to maintain supplies on the island. Because the groundwater sources had been rested there was sufficient storage to maintain supplies. The policy also proved valuable during the 2004-06 drought, when the lack of recharge resulted in low levels of groundwater storage so that groundwater source were operating at or close to deployable output.

The Hampshire Andover WRZ has adequate indigenous supplies. Although there are some points where its distribution network is connected to the Hampshire South WRZ, the capacity for transfers between the two WRZs is limited. The Hampshire Kingsclere WRZ is a self-standing WRZ that also has sufficient indigenous supplies.

10.3.5 Demand Summary

Southern Water provides drinking water to a population in the area of about 803,000. Normal year average annual demands are 195.1 Ml/d, which can rise to 214.7 Ml/d during dry years. However, during dry years, the demands at the critical MDO and PDO periods can be 208.5 Ml/d and 279.2 Ml/d respectively, as shown in Table 10.3.

WRZ	Population (000s)	Normal Year Average Annual demand (Ml/d)	Dry Year Annual Average demand (Ml/d)	Dry Year MDO demand (Ml/d)	Dry Year Peak Period demand (Ml/d)
Hampshire South	589.15	144.42	157.83	152.33	206.41
Hampshire Kingsclere	14.81	5.06	5.24	4.95	7.13
Hampshire Andover	63.90	15.28	16.62	17.51	21.30
Isle of Wight	135.20	30.31	34.96	33.70	44.36
Western Area	**803.06**	**195.07**	**214.65**	**208.49**	**279.20**

Table 10.3 Summary of Base Year (2007-08) Demands in the Western Area (Ml/d)

10.3.6 Strategic Development to Date

There have been a number of strategic developments in the area over the last 10-15 years, which are summarised as follows:

- Leakage has been reduced over the last 12 years from 33.7 Ml/d to 26.0 Ml/d;
- There has been an increase in meter installation over the last 12 years in the Hampshire WRZs from 11% to 30%. The Isle of Wight became essentially fully metered as part of the National Metering Trials which began in 1989; and
- In the light of the current robustness of the area's sources and the positive supply demand balance there have been no significant strategic supply side improvements in recent years. However, the cross-Solent main was replaced in 2008, with an increase in actual transfer capacity from 12 Ml/d to 14 Ml/d.

The underwater pipeline was sized to allow an increase up to 20 Ml/d subject to additional infrastructure upgrades at either end.

10.3.7 Levels of Service

This area, as with other parts of the South East, has suffered from the effects of the recent droughts, in 1989-92, 1995 and more recently 2004-06. However, due the robustness of sources and the healthy existing supply demand balance surplus, the area was not as badly affected as the other areas within Southern Water.

A review of the past performance against Target Levels of Service for both the demand (Customer Level of Service) and supply (Environment Level of Service) sides is given below.

10.3.7.1 Customer Level of Service

A summary of the frequency of restrictions since 1989, compared to Target Levels of Service, is given in Table 10.4:

- Hosepipe bans have been imposed on the Isle of Wight for two years giving a percentage of 10%; and
- The Isle of Wight is the only WRZ to have had a hosepipe ban. Although hosepipe bans were in force over parts of two reporting years, the actual duration was less than 24 months, so the appropriate measure for the Island is 4%.

For ease of comparison this analysis has assumed that sprinkler and unattended hosepipe bans have the same Target Level of Service as full hosepipe bans (1-in-10 years) although strictly speaking, the Target Level of Service for sprinkler and unattended hosepipe bans is 1-in-8 years.

WRZ	Target Level of Service		Actual Level of Service	
	1 in x years	% years	% no. of reporting years (taken as the no. of years, irrespective of duration during the year)	Time expressed as % of (population x weeks)
Hosepipe/Sprinkler ban				
Hampshire South	1:10	10%	0%	0%
Hampshire Andover	1:10	10%	0%	0%
Hampshire Kingsclere	1:10	10%	0%	0%
Isle of Wight	1:10	10%	10%	4%
Western Area	**1:10**	**10%**	**10%**	**1%**
Drought Orders implemented "Non-essential use" ban				
Hampshire South	1:20	5%	-	-
Hampshire Andover	1:20	5%	-	-
Hampshire Kingsclere	1:20	5%	-	-
Isle of Wight	1:20	5%	-	-
Western Area	**1:20**	**5%**	-	-

Table 10.4 Summary of Restrictions in the Western Area Since 1989

There have been no occasions on which an application has been made, or prepared, for a Drought Order to limit or restrict the so-called "non-essential uses" of water. This has been due to the relative healthy status of the supply demand balance to date.

Table 10.4 clearly shows the resilience of Western Area to past drought events and that the company has always been able to meet its customer Target Levels of Service.

10.3.7.2 Environmental Levels of Service

There was considerable stress on the Isle of Wight sources during the 2004-06 drought. A Drought Order was granted for the U433 source, where the groundwater abstraction is itself subject to a local Minimum Residual Flow condition. The unusually high rainfall during May 2006 meant that it was not necessary to abstract under the terms of the Drought Order. Nevertheless it was vital that the Drought Order was in place in good time should the lack of winter rainfall have persisted to May and beyond.

Southern Water considers that the past performance against environmental Target Levels of Service has been satisfactory.

10.3.7.3 Influence of a supply demand balance deficit on operations during a drought

During the AMP5 period there are no supply demand balance deficits forecast in any of the WRZs in the Western Area, namely the Isle of Wight, Hampshire South, Hampshire Andover and Hampshire Kingsclere WRZs.

10.3.8 The Baseline Supply Demand Balance for the Western Area

The baseline supply demand balances in the WRP Tables assume the following:

- Continuation of current metering policies. In 2007-08 there were 326,600 domestic properties in this area, 45% of which were metered. By 2015, the number of metered domestic properties is expected to rise to 206,300;
- Deployable outputs according to Unified Methodology, which ensures that the deployable outputs for groundwater and surface water sources are estimated for the same design drought event;
- Deployable outputs include assumed incremental yields from source improvements planned for the AMP5 period, with timings assumed throughout the AMP5 period;
- Sustainability Reductions, as given by the Environment Agency, but with a progressive timetable for implementation, from 2015, as set out in the draft Memorandum of Understanding developed as a result of discussions between Ofwat, EA, Portsmouth Water and the company since the draft WRMP;
- Renewal of existing inter-company bulk transfers until the end of the planning period, at the rates prevailing at the time of contract renewal; and
- In the baseline supply demand balance, inter-zonal transfers are adjusted to ensure the optimal use of surplus resources. For the investment model however, the transfers are set to zero at the start of the planning period. Then transfer options up to the full transfer capacity can be selected by the model as part of the derivation of a least-cost solution.

The baseline supply demand balances for each WRZ in the Western Area, assuming Sustainability Reductions, are given in Table 10.5 for both the MDO and PDO conditions. These supply demand balances over the planning period are shown in annotated graphs in Figure 10.2 to Figure 10.9.

Implementation of universal metering throughout the area by 2015 would lead to the following reductions in demand;

- Hampshire South WRZ: 6.9 Ml/d (MDO) and 13.6 Ml/d (PDO);
- Isle of Wight WRZ: 0.3 Ml/d (MDO) and 0.6 Ml/d (PDO);
- Hampshire Andover WRZ: 0.8 Ml/d (MDO) and 1.3 Ml/d (PDO); and
- Hampshire Kingsclere WRZ: 0.1 Ml/d (MDO) and 0.2 Ml/d (PDO).

Water Resource Zone	Planning scenario	Base year 2007-08	2009/10	Start of planning period 2010-11	2014-15	2019-20	2024-25	2029-30	2034-35
Hampshire South	MDO	49.32	50.14	43.26	52.85	-39.26	-40.45	-42.19	-44.17
Isle of Wight	MDO	4.65	4.19	6.87	8.24	-6.02	-6.56	-7.26	-7.96
Hampshire Andover	MDO	2.45	2.43	2.04	2.35	2.28	2.13	1.96	1.73
Hampshire Kingsclere	MDO	2.63	2.68	2.70	2.74	2.73	2.70	2.66	2.63
Hampshire South	PDO	22.66	23.73	3.76	18.82	-52.26	-52.54	-54.36	-56.80
Isle of Wight	PDO	-0.90	-1.67	1.62	3.34	-11.57	-12.94	-14.50	-16.07
Hampshire Andover	PDO	2.63	2.63	2.48	2.85	2.89	2.74	2.59	2.733
Hampshire Kingsclere	PDO	0.10	0.19	0.52	1.79	1.80	1.73	1.69	1.66

Notes: All figures in Ml/d
Positive figures indicate a surplus of resources, negative indicate a deficit

Table 10.5 Baseline Supply Demand Balances for Western Area for the MDO and PDO Condition, Assuming Sustainability Reductions

These baseline supply demand balances assume that after 2014-15, when the progressive implementation of the Sustainability Reductions begins, the full inter-zonal transfer from Hampshire South to the Isle of Wight through the cross-Solent main ceases, but any water that is available in the Hampshire South WRZ can still be transferred. At the same time, the investment model is able to choose whether it is better to cease, continue, or increase, existing inter-zonal transfers, or to develop new resources, or to enhance demand management activities in the WRZ in deficit.

Under a scenario which makes allowance for Sustainability Reductions, the following summary of the baseline condition applies, for both the MDO and PDO condition:

- The Hampshire South WRZ starts the planning period with a significant surplus for both the MDO and PDO condition. However, this is radically changed to a very significant deficit in 2019-20, as a result of the introduction of the full Sustainability Reductions for the River Itchen by the end of AMP6. It is assumed that in the previous four years of AMP6 the Sustainability Reduction can be progressively introduced as the level that ensures that available headroom equals target headroom in each year (see Figure 10.3 and Figure 10.7);
- The Isle of Wight WRZ starts the planning period in surplus for the MDO condition and with a small deficit for the PDO condition. This situation remains until the introduction of the Sustainability Reductions for the River Itchen, when the WRZ falls sharply into a significant deficit. Any transfer from Hampshire South WRZ would be at the expense of even greater deficits in that WRZ;
- The Hampshire Andover WRZ starts the planning period in surplus and remains so until the end of the planning period; and

- The Hampshire Kingsclere WRZ starts the planning period in surplus and remains so until the end of the planning period.

The severe impact of the proposed Sustainability Reductions for the River Itchen on the supply demand balances for both the Hampshire South and Isle of Wight WRZs can be clearly seen.

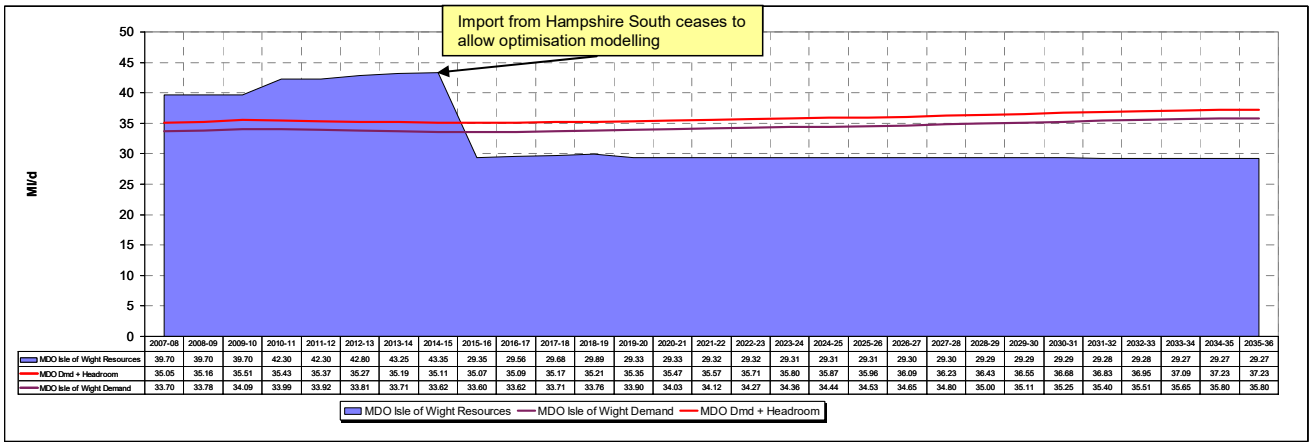


Figure 10.2 Isle of Wight MDO Baseline Supply Demand Balance assuming Sustainability Reductions

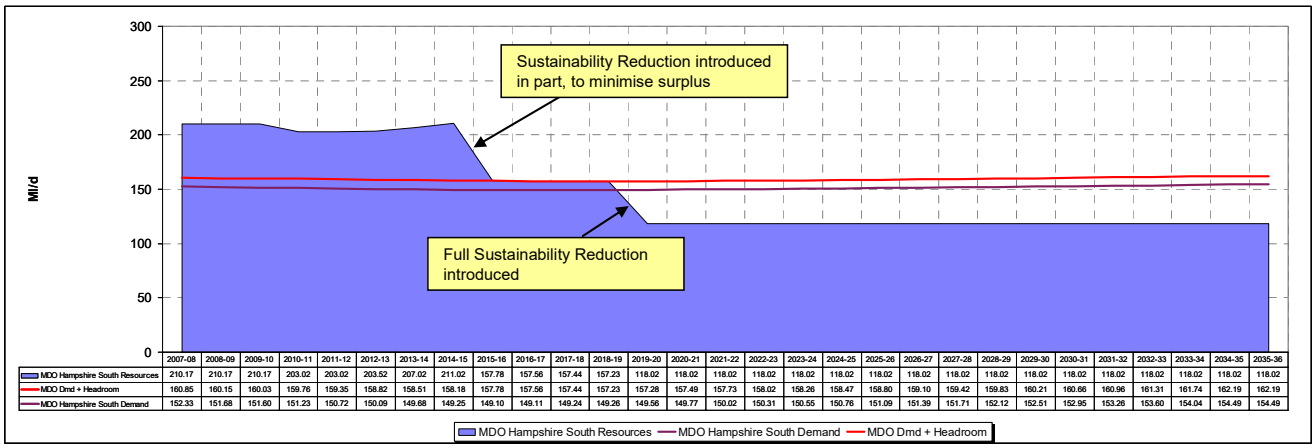


Figure 10.3 Hampshire South MDO Baseline Supply Demand Balance assuming Sustainability Reductions

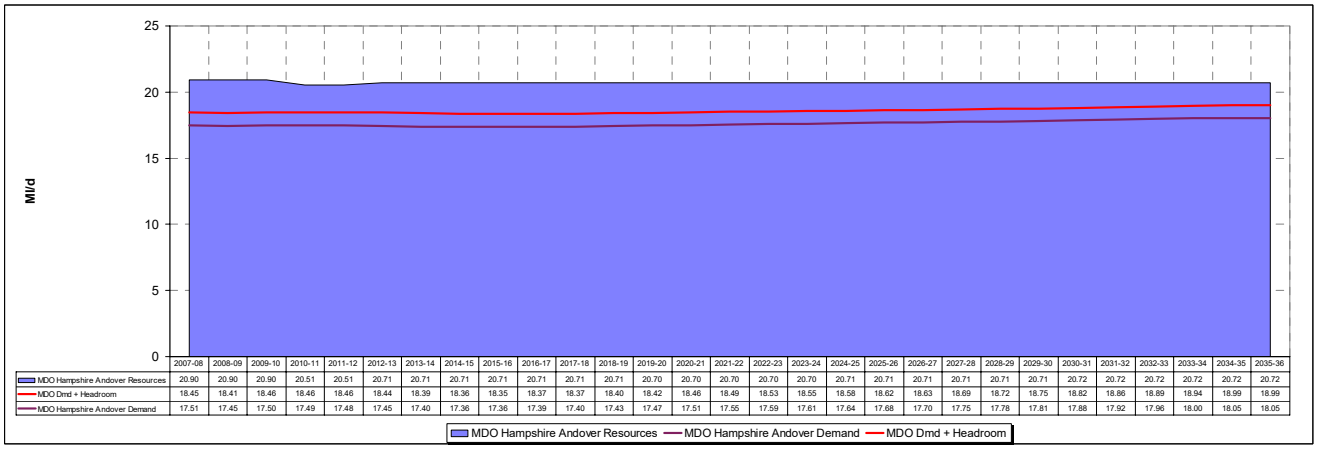


Figure 10.4 Hampshire Andover MDO Baseline Supply Demand Balance

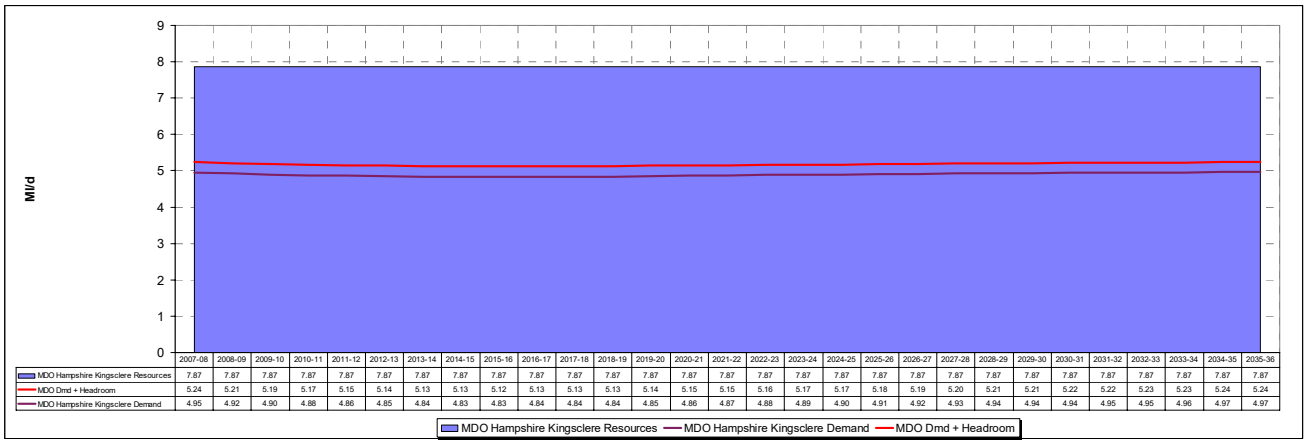


Figure 10.5 Hampshire Kingsclere MDO Baseline Supply Demand Balance

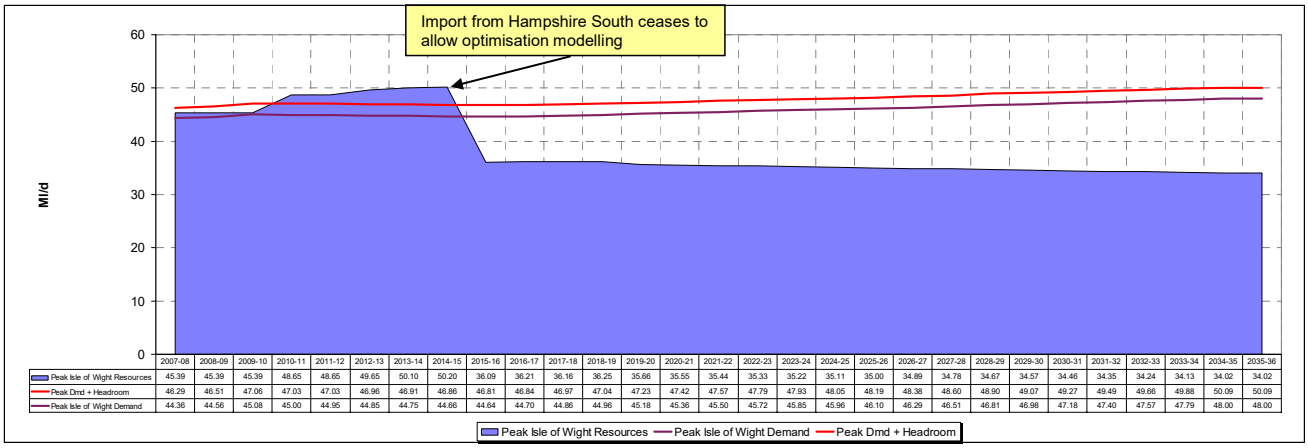


Figure 10.6 Isle of Wight PDO Baseline Supply Demand Balance assuming Sustainability Reductions

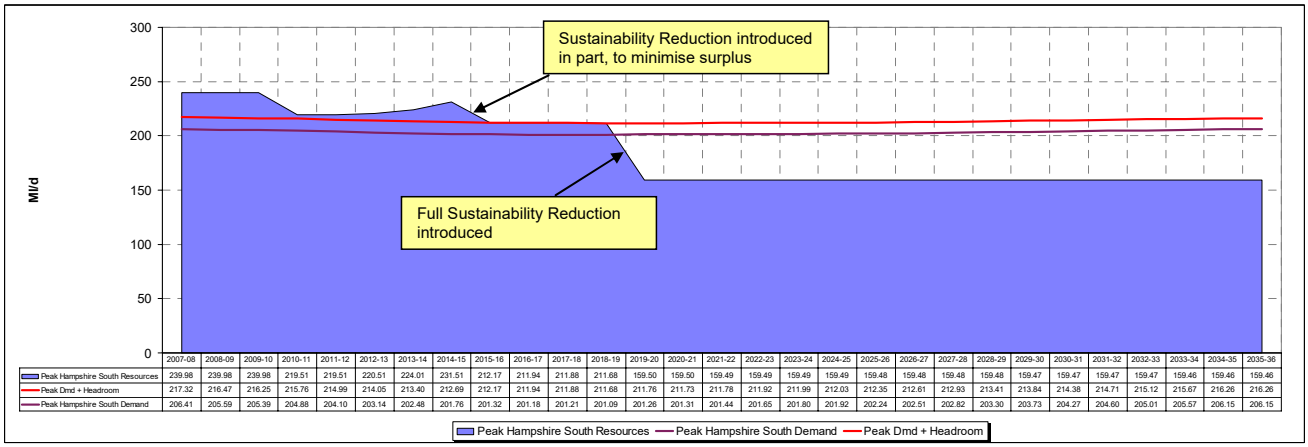
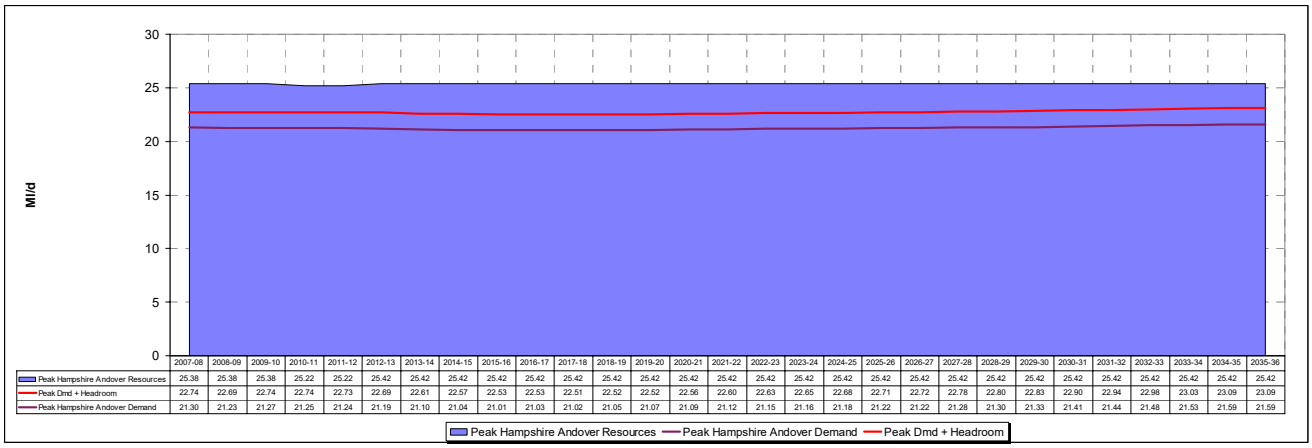
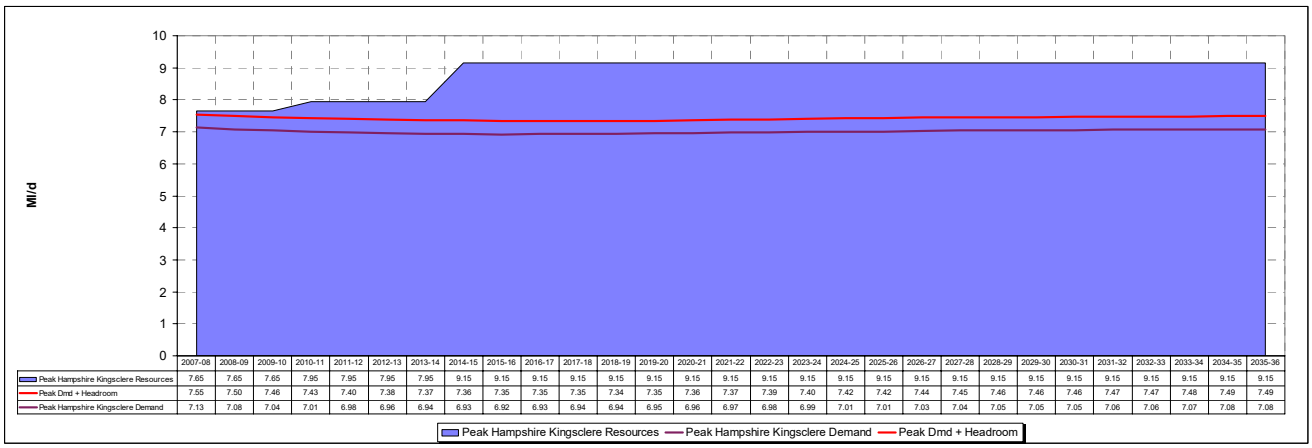


Figure 10.7 Hampshire South PDO Baseline Supply Demand Balance assuming Sustainability Reductions



	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36
Peak Hampshire Andover Resources	25.38	25.38	25.38	25.22	25.22	25.42	25.42	25.42	25.42	25.42	25.42	25.42	25.42	25.42	25.42	25.42	25.42	25.42	25.42	25.42	25.42	25.42	25.42	25.42	25.42	25.42	25.42	25.42	25.42
Peak Dmd + Headroom	22.74	22.69	22.74	22.74	22.73	22.69	22.61	22.57	22.53	22.53	22.51	22.52	22.52	22.56	22.60	22.63	22.65	22.68	22.71	22.72	22.78	22.80	22.83	22.90	22.94	22.98	23.03	23.09	23.09
Peak Hampshire Andover Demand	21.30	21.23	21.27	21.25	21.24	21.19	21.10	21.04	21.01	21.03	21.02	21.05	21.07	21.09	21.12	21.15	21.16	21.18	21.22	21.22	21.28	21.30	21.33	21.41	21.44	21.48	21.53	21.59	21.59

Figure 10.8 Hampshire Andover PDO Baseline Supply Demand Balance



	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36
Peak Hampshire Kingsclere Resources	7.65	7.65	7.65	7.95	7.95	7.95	7.95	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15
Peak Dmd + Headroom	7.55	7.50	7.46	7.43	7.40	7.38	7.37	7.36	7.35	7.35	7.35	7.34	7.35	7.36	7.37	7.39	7.40	7.42	7.42	7.44	7.45	7.46	7.46	7.46	7.47	7.47	7.48	7.49	7.49
Peak Hampshire Kingsclere Demand	7.13	7.08	7.04	7.01	6.98	6.96	6.94	6.93	6.92	6.93	6.94	6.94	6.95	6.96	6.97	6.98	6.99	7.01	7.01	7.03	7.04	7.05	7.05	7.05	7.06	7.06	7.07	7.08	7.08

Figure 10.9 Hampshire Kingsclere PDO Baseline Supply Demand Balance

10.3.8.1 The Impact of the Proposed Sustainability Reductions

The Habitats Directive Stage 4 Review of Consents undertaken by the Environment Agency concluded that Sustainability Reductions were required to mitigate the effect of current abstractions (including Habitat Directive sites) which have been "investigated and identified" as having a detrimental effect on the environment. The Environment Agency *Water Resources Planning Guideline* (April 2007) requires water companies to include "Sustainability Reductions" in their WRMPs.

The River Itchen is designated as a Special Area of Conservation (SAC). The Environment Agency completed its Stage 4 Review of Consents (November 2007) as part of its assessment of abstractions at the River Itchen SAC. The 48 water resource permissions reviewed by the Environment Agency include public water supply licences (including Southern Water's abstractions), spray irrigation, industrial and industrial cooling, fish farms, watercress farms and two augmentation schemes (River Alre augmentation scheme and Candover boreholes scheme).

The outcome of the Stage 4 Review of Consents was that the Environment Agency has advised Southern Water that significant changes to the Southern Water Lower Itchen abstraction licences are required.

The changes that the Environment Agency proposes to make are as follows:

(a) An aggregate monthly abstraction maximum in the following months:

- June – 4,110 Ml;
- July – 3,940 Ml;
- August – 3,445 Ml; and
- September – 2,280 Ml;

(b) An annual aggregate of 51,138 Ml; and

(c) A "hands off flow" (HoF) condition to be imposed, at 198 Ml/d.

The impact of these proposed changes to abstraction licences results in a very significant reduction in deployable output from the sources affected. The latest NEP letter from the Environment Agency dated 28th November 2008 states that there will be a reduction in deployable output of 104 Ml/d and 86 Ml/d for the MDO and PDO conditions respectively. These reductions represent approximately 50% of the public water supply demand under the respective critical planning periods. The baseline supply demand balance therefore shows a significant deficit when the Sustainability Reductions take effect in 2019-20. This major impact is evident not only in Hampshire South WRZ but also in the Isle of Wight WRZ because once the supply demand balance in the Hampshire South WRZ moves into deficit transfers through the cross-Solent main would not necessarily be available. The Isle of Wight WRZ then also suffers a significant supply demand balance deficit.

Hampshire South WRZ currently has a healthy supply demand balance with available headroom above target headroom. Following implementation of the Sustainability Reductions, funding to restore available headroom to its current level would not be available which means that the current security of the supply demand balance in the WRZ would be reduced.

10.3.9 Options to Meet the Supply Demand Balance in the Western Area

A number of supply side and demand side options have been considered to meet any supply demand balance deficit.

The supply side options have been assessed using the options appraisal methodology described in section 8. In summary an initial list of over 100 options within the Western Area was considered; further details are given in Appendix G. However the availability of new resources within Hampshire South WRZ is severely constrained as a result of the Environment Agency's CAMS process which concluded that all the surface water and groundwater management units are "over licensed", with some management units considered to be "over abstracted".

Following the various successive screening processes, the number of "feasible" options, by generic type, that was chosen to be available for selection by the investment model can be summarised, by generic type, as follows:

- Two sites for surface storage reservoirs, for which the sole lead promoter would be Southern Water;
- Six sites for possible increases in abstraction from either surface water or groundwater;
- No sites for enlarging existing reservoirs;
- Three sites for potential re-commissioning of old/existing sources;
- No possible abstraction licence variations;
- One site for the further upgrade of WSW treatment facilities, for the purposes of the supply demand balance;
- Three potential inter-zonal bulk transfers, either existing or proposed;
- No potential inter-company bulk transfers, either existing or proposed;

- Four potential schemes for wastewater recycling;
- No sites for potential Aquifer Storage and Recovery schemes; and
- Nine potential schemes for desalination.

This shows that a wide range of generic types of option were available for selection, thus ensuring that the selection of preferred schemes was robust. The total number includes a number of generic schemes, for instance desalination at the same site but at different capacities. This is to ensure that a generic option is not ruled out from selection on the basis of capacity and cost alone.

There are three generic types of demand side options: metering; leakage reduction; and water efficiency. Different modelling scenarios have been devised to reflect a different selection of options (see section 10.1.13).

As noted in section 10.3.8, scenario 3 (Universal Metering) has been used as the starting point for the supply demand balance from which the Final Planning Solution has been developed.

In order to consider leakage options, a number of incremental "step" reductions in leakage were considered, based on outputs from the Sustainable Economic Level of Leakage analysis as explained in Chapter 6 and Appendix E.

Water efficiency options for both household and non-households were included in the model. More details of the options are given in section 8 and Appendix G.

10.3.10 The Water Resources Strategy for the Western Area

The water resources strategy is described in three different sections over the planning period:

- AMP5, the first five years from 2010-11 to 2014-15, which formed the basis of the Final Business Plan Submission;
- AMP6 to the end of the planning period, based on the company only least-cost strategy; and then
- An explanation of how this company only strategy is modified to take into account the recommendations of the current WRSE regional modelling results.

The company preferred water resources strategy for each of these intervals, with Sustainability Reductions, is described below and is summarised in Table 10.6.

During AMP5 (2010-15)

The supply demand balance will be satisfied for the Western Area for the AMP5 period through the following:

- A policy of universal metering throughout the area by 2015, which will give benefits in terms of demand savings and associated reductions in supply pipe leakage;
- The optimisation of inter-zonal transfers, from the Hampshire South WRZ to the Isle of Wight WRZ via the cross-Solent main;
- A series of groundwater source improvements, which could deliver over 9 Ml/d for the average condition;
- The development of Testwood WSW up to the current licence limit; and
- The development of the enabling Testwood to Otterbourne transfer.

The Testwood schemes need to be implemented during AMP5 so that implementation of the Sustainability Reductions on the River Itchen can begin from the start of AMP6.

From AMP6 to the end of the planning period (2015-35) (company only)

For the company only least-cost solution, there are a number of other interventions that will be required for on both the supply and demand side, as follows:

- The transfer of the Candover/Alre augmentation scheme to Southern Water from the Environment Agency, to enable the full yield benefits of the scheme to be realised, and satisfy any residual supply demand balance deficit arising from the Sustainability Reductions;
- The refurbishment of two small groundwater sources, at K628 and L536, on the Isle of Wight;
- The refurbishment of three groundwater sources, at R176, O541 and O641, in the Hampshire South WRZ;
- Water efficiency kits being issued on the Isle of Wight as part of a SELWE approach; and
- A total further reduction in leakage of 8.9 Ml/d, which is equivalent to a reduction of 34% below the 2007-08 outturn figure.

From AMP6 to the end of the planning period (2015-35) (company preferred regional solution)

The results of the WRSE modelling results did not suggest any further options that were not included in the company only least-cost solution, and so the company preferred regional solution is the same as the company only least-cost strategy. Therefore, there are no incremental costs to the strategy.

Water Resource Zone	Schemes During AMP5	Schemes beyond AMP 5 – company only solution	Schemes beyond AMP 5 – Water Resources in the South East of England
Isle of Wight	• Enhanced Metering • Asset improvement schemes for groundwater sources (1.55 Ml/d peak, 1.05 Ml/d average) • Optimisation of inter-zonal transfers (cross-Solent main)	• Water Efficiency kits • 1.1 Ml/d further leakage reduction • Refurbishment of L536 borehole • Refurbishment of K628 borehole	As previous column
Hants South	• Universal Metering • Asset improvement schemes for groundwater sources (12.00 Ml/d peak, 8.00 Ml/d average) • Increase Testwood WSW to licence limit • Development of the enabling Testwood to Otterbourne transfer • Optimisation of inter-zonal transfers (cross-Solent main)	• Candover & Alre augmentation schemes • 7.8 Ml/d of leakage reduction • R176 borehole rehabilitation And, subject to satisfactory completion of AMP5 schemes: • River Itchen Sustainability Reductions residual at end of AMP5	As previous column
Hants Kingsclere	• Universal Metering • Asset improvement schemes for groundwater sources (1.2 Ml/d peak only)		
Hants Andover	• Universal metering • Asset improvement schemes for groundwater sources (0.2 Ml/d peak & average)		

Table 10.6 Summary of Water Resources Strategy for the Western Area, with Sustainability Reductions

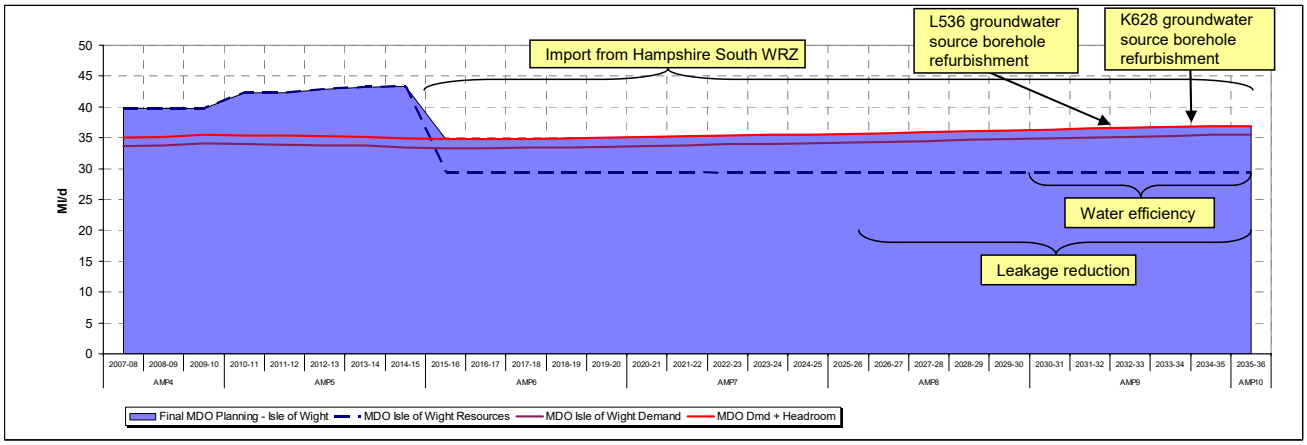


Figure 10.10 Isle of Wight Company Preferred Regional Strategy (Scenario 4), assuming Sustainability Reductions, MDO Solution

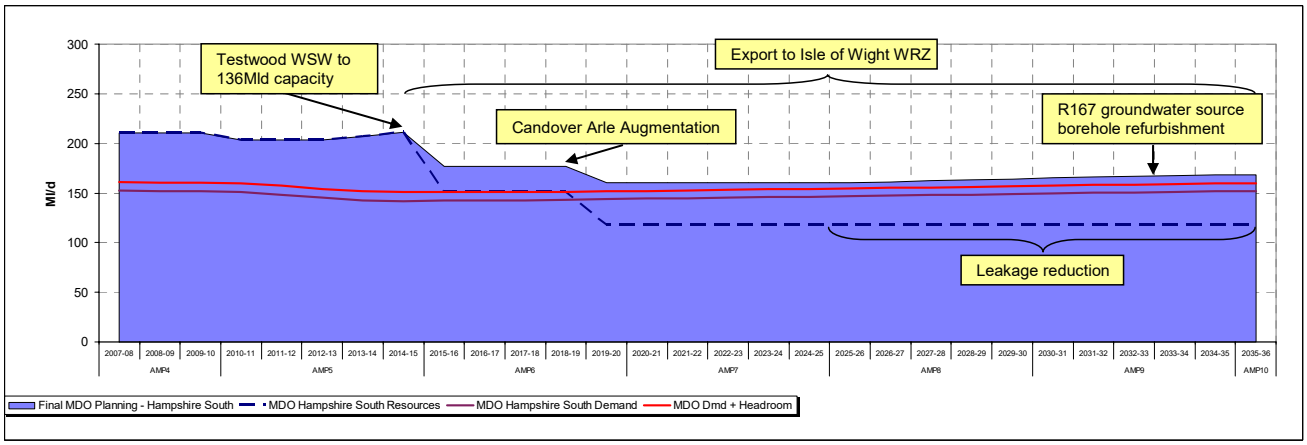


Figure 10.11 Hampshire South Company Preferred Regional Strategy (Scenario 4), assuming Sustainability Reductions, MDO Solution

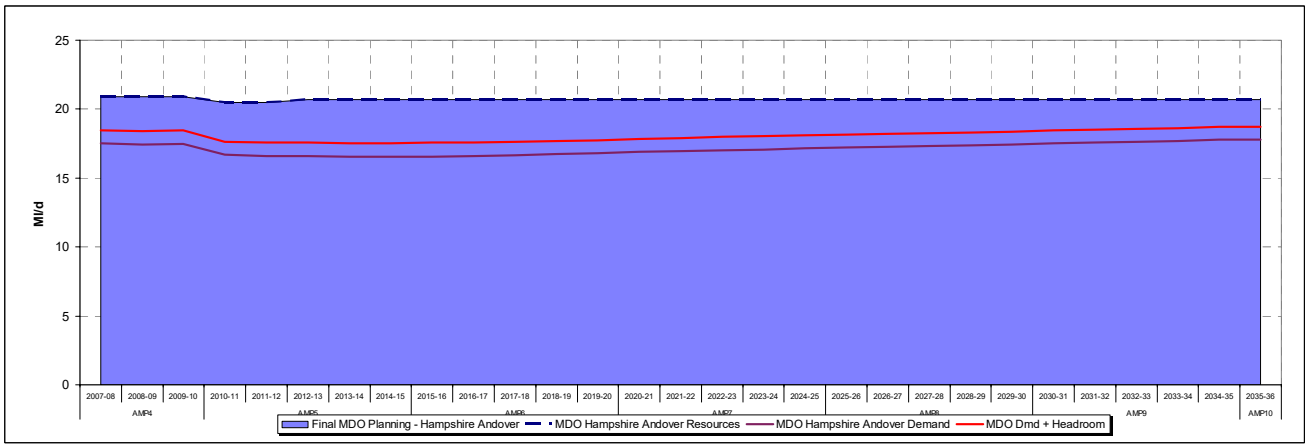


Figure 10.12 Hampshire Andover Company Preferred Regional Strategy (Scenario 4), MDO Solution

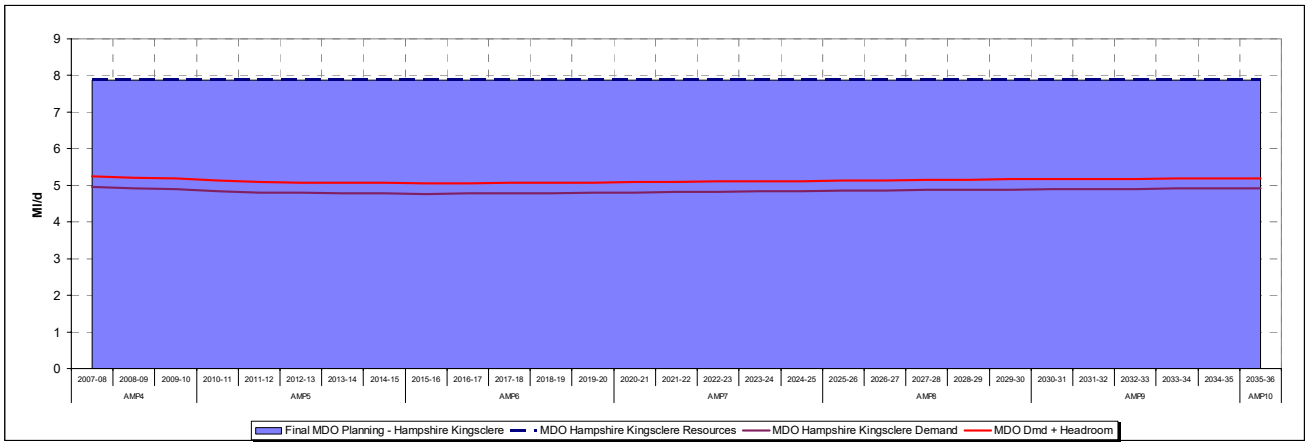


Figure 10.13 Hampshire Kingsclere Company Preferred Regional Strategy (scenario 4), MDO Solution

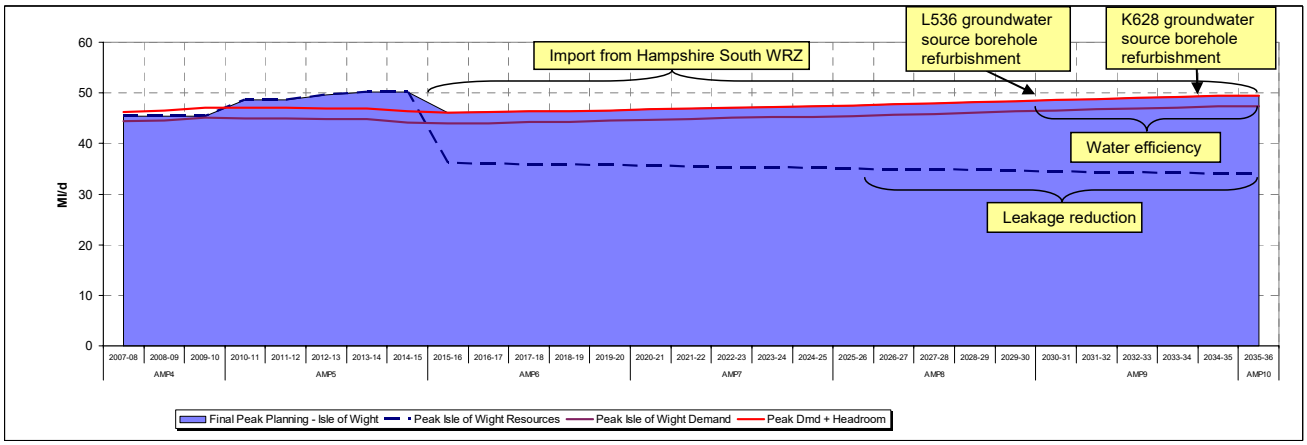


Figure 10.14 Isle of Wight Company Preferred Regional Strategy (Scenario 4), assuming Sustainability Reductions, PDO Solution

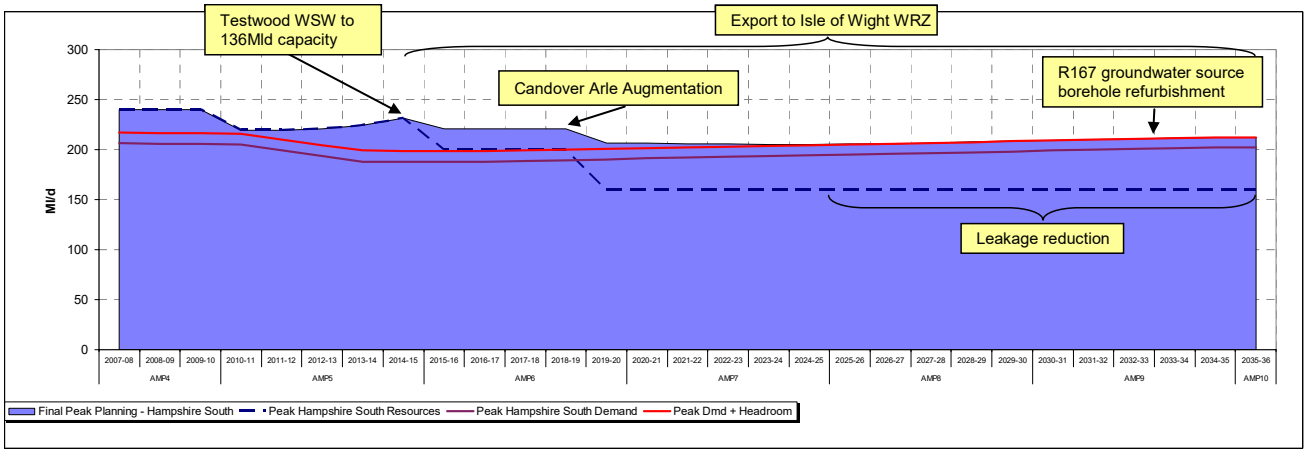


Figure 10.15 Hampshire South Company Preferred Regional Strategy (Scenario 4), assuming Sustainability Reductions, PDO Solution

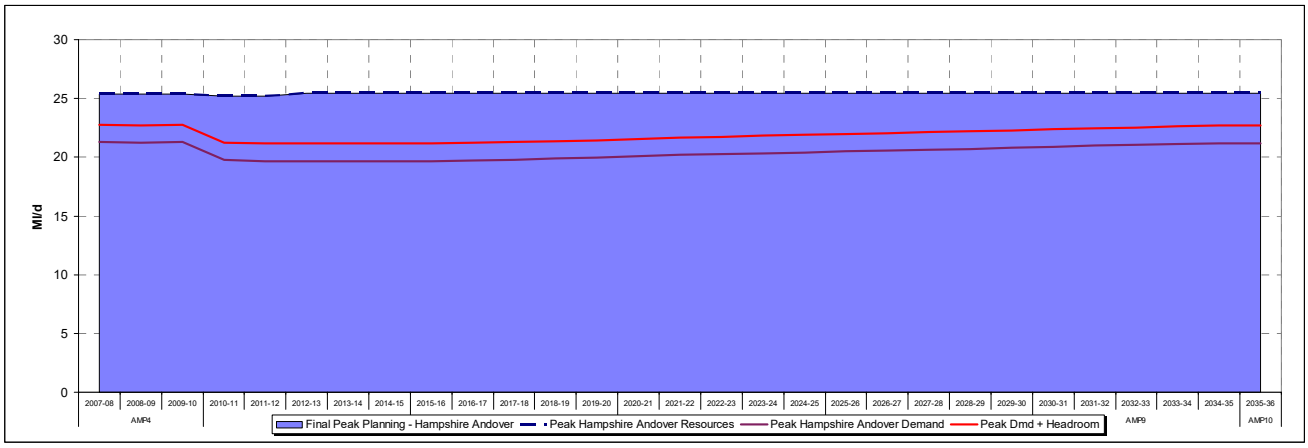


Figure 10.16 Hampshire Andover Company Preferred Regional Strategy (Scenario 4), PDO Solution

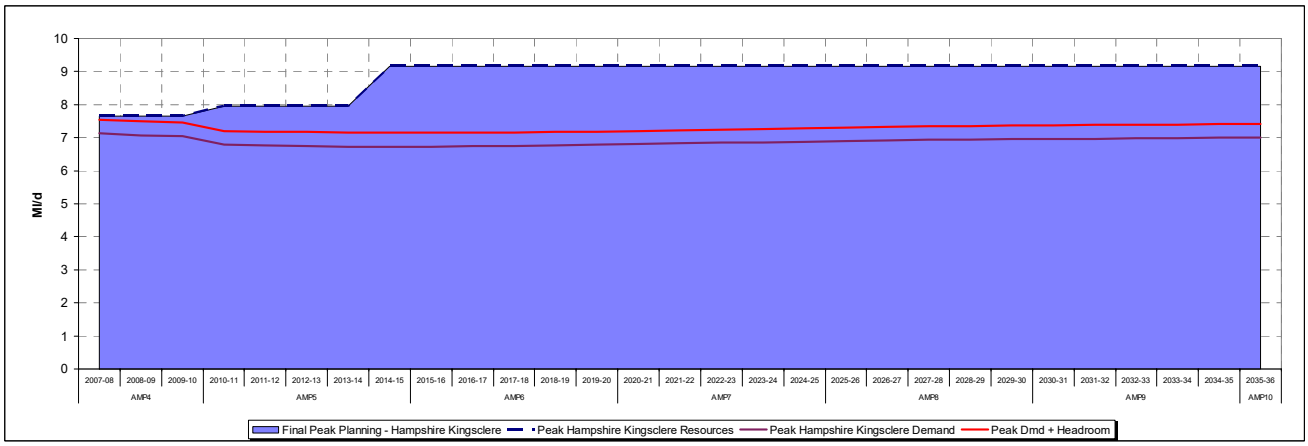


Figure 10.17 Hampshire Kingsclere Company Preferred Regional Strategy (Scenario 4), PDO Solution

10.3.10.1 SEA Influence on Strategy

All options were assessed against 17 SEA objectives, and assigned an overall environmental risk (high, medium or low), based on the significance of potential long term effects.

Table 10.7 sets out the environmental risk of each resource development option. More detail is given in Appendix I.

Option	Environmental Risk Score
Development of Testwood WSW up to the current licence limit	Medium
Augmentation with the Alre and Candover Schemes	Medium
R176 borehole rehabilitation	Medium
Refurbishment of L536 Borehole	Medium
Refurbishment of K628 borehole	Medium
Woodmill abstraction (56 Ml/d) and treatment at Otterbourne	Medium
Colden Common Reservoir	High
Cross Solent Increase	Medium
Sandown wastewater recycling (5Ml/d)	Medium

Table 10.7 Environmental Risks of Resource Development Options Selected in the Western Area Strategy

The demand management options (metering; leakage reduction; and water efficiency) were also assessed against the SEA objectives. More detail is given in Appendix I. All three generic demand management measures are broadly compatible with the majority of SEA objectives due to the minimal amount of physical intervention required in implementing each measure. However, water efficiency measures have no potential conflicts with SEA objectives and are therefore the preferred demand management measure from an SEA perspective.

10.3.10.2 SEA preferred strategy

Options assessed as being likely to result in the lowest environmental risk are preferable from a SEA perspective. None of the options in the Western Area were assessed as being likely to have a low environmental risk.

The overriding objective of this WRMP is to identify a package of options that removes the risk of supply demand balance deficits over the whole of the planning period. It is therefore necessary to include within the SEA preferred strategy some options that had been assessed as having medium environmental risk. Employing the mitigation measures proposed for each option will enable the likely environmental damage from adopting these options to be reduced. The medium risk options from the SEA are:

- R176 borehole rehabilitation;
- K628 borehole refurbishment;
- L536 borehole refurbishment;
- J358 WSW route 1;
- Development of Testwood WSW up to the current licence limit (capacity increase to 136 Ml/d);
- Augmentation with the Alre and Candover Schemes;
- Cross-Solent Increase;
- Sandown wastewater recycling;
- Testwood to Otterbourne;

- Woodmill Abstraction (56 Ml/d) and treatment at Otterbourne or Gaters Mill; and
- Woodmill Abstraction (85 Ml/d) and treatment at Otterbourne or Gaters Mill.

The company preferred strategy is therefore compatible with the SEA preferred strategy, with the exception of L536 Borehole which has strong negative effects because pipeline routes are located within an AONB. This scheme is not required under the company preferred strategy until the end of the planning period. However, detailed consideration of all potential mitigation measures would be needed prior to introducing this scheme.

A preliminary 'high-level' strategic assessment was undertaken of the possible impact of the proposed plan on the integrity of European and Ramsar sites under the Habitats Regulations. This concluded that sufficient safeguards are available to ensure that implementation of the plan will not adversely affect the integrity of any of the protected sites.

10.3.11 Scenario Analysis

A number of scenarios have been modelled, in order to check the stability of the company preferred strategy to changes in some of the basic assumptions.

	Scenario	**Company preferred Regional strategy**	**Company only Universal metering**	**Company only Change of occupier**	**Company only Optant**	**Company only Universal metering with no climate change**	**Company only Leakage rise to Ofwat target**	**Hybrid Baseline where no deficit, otherwise universal metering**
	Number	**4**	**3**	**2**	**1**	**11**	**8**	
	Metering policy	Universal	Universal	Change of occupier	Optant and selective	Universal	Universal	Universal or optant
	Leakage policy	JR08, then SPL saving	JR08, then SPL saving	JR08	JR08	JR08, then SPL saving	Ofwat, then SPL saving	JR08, then SPL saving
	WRSE preferred options & bulk supplies	Yes	No	No	No	No	No	Yes
WRZ	**Scheme**	**Earliest year required**						
Hampshire South	Testwood new DAF plant to utilise full licence & enabling transfer pipeline to Otterbourne	2015	2015	2015	2015	2015	2015	2015
	Candover Alre Augmentation	2019	2019	2019	2019	2019	2019	2019
	West Tytherley borehole rehabilitation	2033	2033	2031	2027	-	-	2033
	Woodmill abstraction (56 Ml/d) and treatment at Otterbourne	-	-	-	-	-	2028	-
	New surface water storage at Colden Common Reservoir	-	-	2033	-	-	-	-
	Leakage reduction	2025 reduction by 7.8 Ml/d	2025 reduction by 7.8 Ml/d	2019 reduction by 8.4 Ml/d	2017 reduction by 8.4 Ml/d	2028 reduction by 4.8 Ml/d	2010 reduction by 6.6 Ml/d	2025 reduction by 7.8 Ml/d
	Water efficiency kit (box)	-	-	2030	2030	-	2025	-
	Water efficiency low flow shower heads	-	-	-	2030	-	-	-
Isle of Wight	L536 borehole rehabilitation	2032	2032	2027	2019	-	2026	2032
	K628 borehole rehabilitation	2034	2034	2034	2028	-	2027	2034
	Sandown wastewater recycling (5Ml/d)	-	-	-	2031	-	-	-

	Scenario	Company preferred Regional strategy	Company only Universal metering	Company only Change of occupier	Company only Optant	Company only Universal metering with no climate change	Company only Leakage rise to Ofwat target	Hybrid Baseline where no deficit, otherwise universal metering
	Number	**4**	**3**	**2**	**1**	**11**	**8**	
	Cross-Solent main increase (to 20 Ml/d)	-	-	-	-	-	2033	-
	Leakage reduction	2026 reduction by 1.1 Ml/d	2026 reduction by 1.1 Ml/d	2019 reduction by 1.2 Ml/d	2017 reduction by 1.3 Ml/d	2032 reduction by 0.7 Ml/d	2020 reduction by 1.2 Ml/d	2026 reduction by 1.1 Ml/d
	Water efficiency kit (box)	2030	2030	2030	2030	-	2025	2030
	Water efficiency low flow shower heads	-	-	2030	-	-	-	-
	Water efficiency trigger hoses	-	-	-	-	-	2025	-
Hants. Andover	*No supply side, water efficiency, or leakage reduction schemes*	-	-	-	-	-	-	-
Hants. Kings.	*No supply side, water efficiency, or leakage reduction schemes*	-	-	-	-	-	-	-
Costs (£m)								
Total metering cost (£m)		52.70	52.70	56.81	48.17	52.70	52.70	52.20
Total resource, leakage reduction and water efficiency activity cost (£m)		42.65	42.65	48.28	55.48	40.30	56.26	42.65
Total cost of Strategy (£m)		**95.35**	**95.35**	**105.09**	**103.65**	**93.00**	**108.96**	**94.85**

Table 10.8 gives a summary of the different baseline assumptions for these scenarios, and the results in terms of scheme inclusion, scheme timing, and costs for the different investment strategies. The following points can be seen from the results:

- The company only least-cost scenario (3) assumes the baseline condition of universal metering by 2015;
- All scenarios assume the renewal of existing bulk supplies to other companies until the end of the planning period, at the rates which are appropriate at the time of renewal;
- The company only least-cost scenario (3) selects further leakage reductions of 8.9 Ml/d;
- Under the company only change of occupier metering scenario (2), the scheme options remain the same, but they are needed up to 5 years earlier, although an additional scheme (new surface water reservoir at Colden Common) is required in Hampshire South WRZ at the end of the planning period. The scenario includes further leakage reductions of 9.6 Ml/d;
- Under the company only optant metering scenario (1), the same resource development schemes are selected, but at times up to 13 years before the company only universal metering scenario (3); and Sandown desalination is also introduced towards the end of the planning period. The scenario includes further reductions in leakage of 9.7 Ml/d;
- Under the company only scenario, without any allowance for climate change impacts (11), only two schemes are required: Increase Testwood WSW to licence limit; and use of the Candover Alre groundwater augmentation

schemes to support public water supply abstractions. Both these are required at the same time as the company only universal metering scenario (3) to allow the Sustainability Reductions to be implemented. No other resource development options are necessary, but further leakage reduction of 5.5 Ml/d is required;

- Under the scenario which allows leakage to rise up to the Ofwat target level (8) in any WRZ currently operating below its target level, the same options are required as for the company only universal metering scenario (3), but these may be needed 6-7 years earlier. In addition, the scenario requires Woodmill abstraction (56 Ml/d) rather than the far smaller R176 borehole rehabilitation, and additional water is transferred to the Isle of Wight by increasing the cross-Solent main to 20 Ml/d. Further leakage reduction of 8.8 Ml/d is required from 2010. The cost of this strategy was £13.6 m greater than for the company preferred least-cost scenario (3); and
- The total cost of the resources strategy (including new resources, leakage reduction, and water efficiency) plus metering strategy, for the various company only scenarios is as follows:
    - Universal metering - £95.4 m.
    - Change of occupier - £105.1 m.
    - Optant and selective - £103.7 m.
    - Hybrid scenario -£94.9m
- There is no difference in cost between the company preferred regional strategy and the company only least-cost strategy.

	Scenario	Company preferred Regional strategy	Company only Universal metering	Company only Change of occupier	Company only Optant	Company only Universal metering with no climate change	Company only Leakage rise to Ofwat target	Hybrid Baseline where no deficit, otherwise universal metering
	Number	**4**	**3**	**2**	**1**	**11**	**8**	
	Metering policy	Universal	Universal	Change of occupier	Optant and selective	Universal	Universal	Universal or optant
	Leakage policy	JR08, then SPL saving	JR08, then SPL saving	JR08	JR08	JR08, then SPL saving	Ofwat, then SPL saving	JR08, then SPL saving
	WRSE preferred options & bulk supplies	Yes	No	No	No	No	No	Yes
WRZ	**Scheme**	**Earliest year required**						
Hampshire South	Testwood new DAF plant to utilise full licence & enabling transfer pipeline to Otterbourne	2015	2015	2015	2015	2015	2015	2015
	Candover Alre Augmentation	2019	2019	2019	2019	2019	2019	2019
	West Tytherley borehole rehabilitation	2033	2033	2031	2027	-	-	2033
	Woodmill abstraction (56 Ml/d) and treatment at Otterbourne	-	-	-	-	-	2028	-
	New surface water storage at Colden Common Reservoir	-	-	2033	-	-	-	-

	Scenario	Company preferred Regional strategy	Company only Universal metering	Company only Change of occupier	Company only Optant	Company only Universal metering with no climate change	Company only Leakage rise to Ofwat target	Hybrid Baseline where no deficit, otherwise universal metering
	Number	**4**	**3**	**2**	**1**	**11**	**8**	
	Leakage reduction	2025 reduction by 7.8 Ml/d	2025 reduction by 7.8 Ml/d	2019 reduction by 8.4 Ml/d	2017 reduction by 8.4 Ml/d	2028 reduction by 4.8 Ml/d	2010 reduction by 6.6 Ml/d	2025 reduction by 7.8 Ml/d
	Water efficiency kit (box)	-	-	2030	2030	-	2025	-
	Water efficiency low flow shower heads	-	-	-	2030	-	-	-
Isle of Wight	L536 borehole rehabilitation	2032	2032	2027	2019	-	2026	2032
Isle of Wight	K628 borehole rehabilitation	2034	2034	2034	2028	-	2027	2034
Isle of Wight	Sandown wastewater recycling (5Ml/d)	-	-	-	2031	-	-	-
Isle of Wight	Cross-Solent main increase (to 20 Ml/d)	-	-	-	-	-	2033	-
Isle of Wight	Leakage reduction	2026 reduction by 1.1 Ml/d	2026 reduction by 1.1 Ml/d	2019 reduction by 1.2 Ml/d	2017 reduction by 1.3 Ml/d	2032 reduction by 0.7 Ml/d	2020 reduction by 1.2 Ml/d	2026 reduction by 1.1 Ml/d
Isle of Wight	Water efficiency kit (box)	2030	2030	2030	2030	-	2025	2030
Isle of Wight	Water efficiency low flow shower heads	-	-	2030	-	-	-	-
Isle of Wight	Water efficiency trigger hoses	-	-	-	-	-	2025	-
Hants. Andover	*No supply side, water efficiency, or leakage reduction schemes*	-	-	-	-	-	-	-
Hants. Kings.	*No supply side, water efficiency, or leakage reduction schemes*	-	-	-	-	-	-	-
Costs (£m)								
Total metering cost (£m)		52.70	52.70	56.81	48.17	52.70	52.70	52.20
Total resource, leakage reduction and water efficiency activity cost (£m)		42.65	42.65	48.28	55.48	40.30	56.26	42.65
Total cost of Strategy (£m)		**95.35**	**95.35**	**105.09**	**103.65**	**93.00**	**108.96**	**94.85**

Table 10.8 Results of Scenario Analysis for the Western Area, with Sustainability Reductions

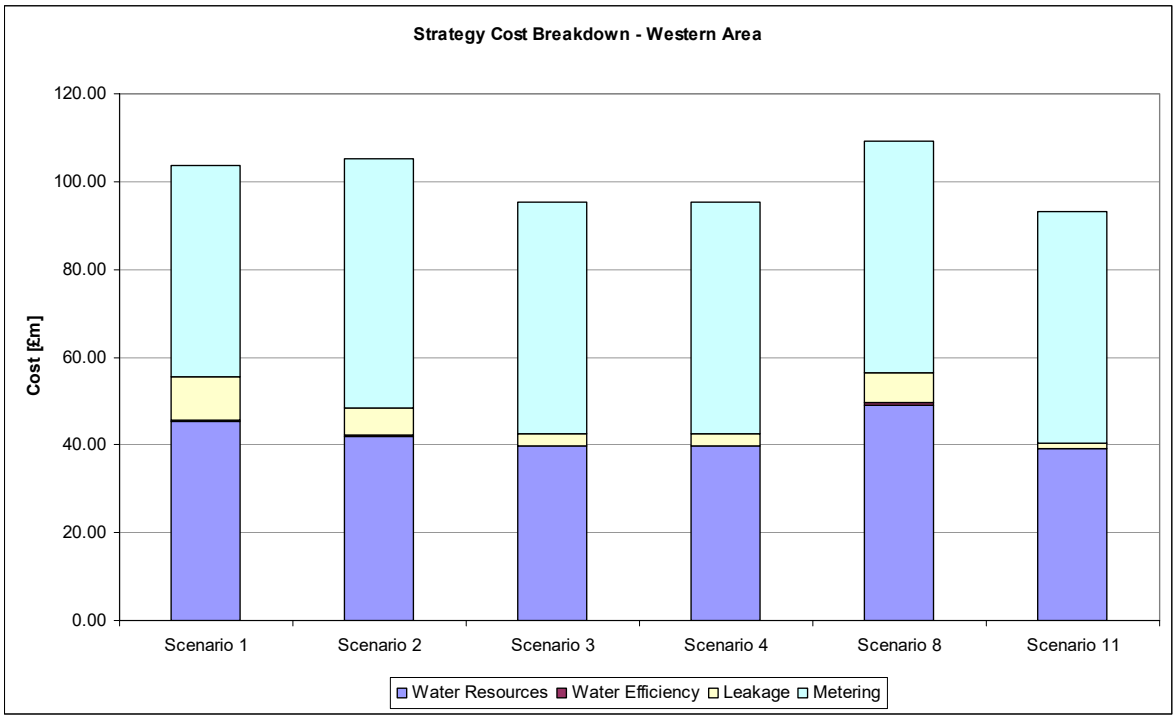


Figure 10.18 Western Area Scenario Cost Comparisons

10.3.12 Sensitivity Analysis

10.3.12.1 Range of Sensitivity Analysis

The "possible worst-case" focused on any changes in supply side or demand side factors which would worsen the supply demand balance. Any decrease in deployable output and/or increase in demand would mean that deficits would occur earlier in the planning period and would be larger than those identified in the baseline conditions. This could pose a threat to the security of supplies if the selected schemes, and/or any others that might then be required, could not be commissioned quickly enough.

Following consideration of a number of such demand and supply side factors and the potential magnitude of each, it was decided that a "global" change in the demand forecast of +/- 5% should be assumed for the area. This sensitivity assumption would change the supply demand balance components for the Western Area as follows:

- A change in demand of +/- 5% is equivalent to +/- 10.5 Ml/d and +/- 13.9 Ml/d at the MDO and PDO condition respectively by the end of the planning period; and
- A change in demand of +/- 5% is equivalent to a change in the area deployable output +/- 3.4% and +/- 4.1% at the MDO and PDO condition respectively.

10.3.12.2 Results of Sensitivity Analysis

The results of the sensitivity analysis for the possible "best-case" and "worst-case" are presented in Table 10.9 and can be summarised as follows:

Under the "worst-case" sensitivity:

- There is no change to the timing of the Testwood WSW increase to utilise full licence capacity, nor the Candover Alre Augmentation, as these are both driven by the Sustainability Reduction;

- The Woodmill abstraction is required in 2026, replacing the much smaller West Tytherley borehole rehabilitation scheme;
- The cross-Solent main increase (to 20 Ml/d) is required, but K628 is no longer needed on the Isle of Wight;
- The refurbishment of L536 borehole is still needed, but earlier than in the base case;
- Further leakage reduction is required from 2020; and
- Additional water efficiency schemes are selected in both Hampshire South and the Isle of Wight WRZs.

In summary, if the assumptions of worst-case sensitivity analysis were to occur, the Woodmill Scheme would be needed together with an increase in the capacity of the cross-Solent main.

Under the “best-case” sensitivity:

- There is no change to the timing of the Testwood WSW increase to utilise full licence capacity, nor the Candover Alre Augmentation;
- None of the borehole schemes are required in either Hampshire South WRZ or on the Isle of Wight; and
- There is no need for further leakage reduction or water efficiency schemes.

In summary, the results of the best-case sensitivity analysis do not change the need for the Testwood scheme at full licence and use of the Candover Alre Augmentation schemes because these are both driven by the introduction of the Lower Itchen Sustainability Reductions.

	Scenario	Company preferred Regional strategy	Company only Universal metering	Increase in demand of 5% by end of planning period	Decrease in demand of 5% by end of planning period
	Number	**4**	**3**	**"Worst case"**	**"Best case"**
	Metering policy	Universal	Universal	Universal	Universal
	Leakage policy	JR08, then SPL saving	JR08, then SPL saving	JR08, then SPL saving	JR08, then SPL saving
	WRSE preferred options & bulk supplies	Yes	No	No	No
WRZ	**Scheme**	**Earliest year required**			
Hampshire South	Testwood new DAF plant to utilise full licence & enabling transfer pipeline to Otterbourne	2015	2015	2015	2015
	Candover Alre Augmentation	2019	2019	2019	2019
	R176 borehole rehabilitation	2033	2033	-	-
	Woodmill abstraction (56 Ml/d) and treatment at Otterbourne	-	-	2026	-
	Leakage reduction	2025 reduction by 7.8 Ml/d	2025 reduction by 7.8 Ml/d	2020 reduction by 5.4 Ml/d	-
	Water efficiency kit (box)	-	-	2025	-
	Water efficiency low flow shower heads	-	-	2025	-
Isle of Wight	L536 borehole rehabilitation	2032	2032	2025	-
	K628 borehole rehabilitation	2034	2034	-	-
	Cross-Solent main increase (to 20 Ml/d)	-	-	2030	-
	Leakage reduction	2026 reduction by 1.1 Ml/d	2026 reduction by 1.1 Ml/d	2021 reduction by 1.2 Ml/d	-
	Water efficiency kit (box)	2030	2030	2025	-
Hants. Andover	*No supply side, water efficiency, or leakage reduction schemes*	-	-	-	-
Hants. Kings.	*No supply side, water efficiency, or leakage reduction schemes*	-	-	-	-
	Costs (£m)				
	Total metering cost (£m)	52.70	52.70	52.70	52.70
	Total resource, leakage reduction and water efficiency activity cost (£m)	42.65	42.65	56.47	38.49
	Total cost of Strategy (£m)	**95.35**	**95.35**	**109.17**	**91.19**

Table 10.9 Results of Sensitivity Analysis for the Western Area

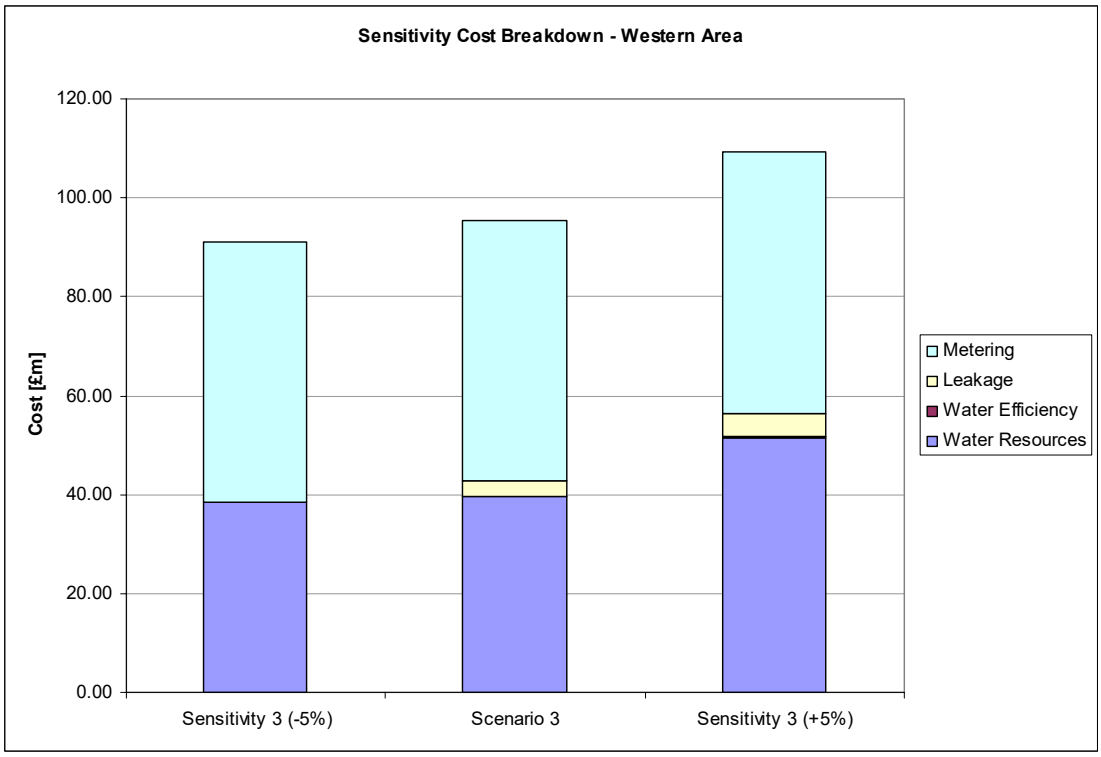


Figure 10.19 Western Area Sensitivity Analysis Cost Comparisons

10.3.13 Conclusions

The proposed Sustainability Reductions have a significant impact on the baseline supply demand balance, and therefore the Water Resources Strategy for the area. Following submission of the draft WRMP the company has met with Ofwat, EA, Natural England and Portsmouth Water to explore alternative options for allowing the Sustainability Reductions to be implemented without compromising security of supply. The company prepared a draft Memorandum of Understanding that set out the roles and responsibilities of each party and the schemes that would need to be implemented before the Lower Itchen abstraction licences would be voluntarily changed. Investigations would also need to be undertaken during AMP5 to confirm or otherwise the assumptions for the proposed operation of the Candover and Alre groundwater augmentation schemes which have been used for the supply demand balance of Hampshire South WRZ.

The Memorandum of Understanding has been agreed and signed off by the relevant parties and is included in Appendix A.

The company would not be able to confirm its commitment to implementation of the full Sustainability Reductions at the end of AMP6 unless the following options are implemented in the Hampshire South and Isle of Wight WRZs, so that the security of supplies is maintained throughout the planning period (see Table 10.6):

- Universal metering;
- Leakage reduction;
- Asset improvement schemes for groundwater sources;
- Increase of Testwood WSW to licence limit;
- Development of the enabling Testwood to Otterbourne transfer and associated distribution infrastructure; and
- Optimisation of inter-zonal transfers (cross-Solent main).

10.4 The Water Resources Strategy for the Central Area

10.4.1 Location

The Central Area is situated in central and north west Sussex, and comprises the WRZs of Sussex North, Sussex Worthing and Sussex Brighton. The Sussex North WRZ lies north of the South Downs, and includes the towns of Crawley and Horsham and the rural parts of mid-Sussex. The Sussex Worthing WRZ extends across the coast from just beyond the river Arun in the west to the river Adur in the east and includes the towns of Worthing, Littlehampton and Arundel. The Sussex Brighton WRZ extends across the coast from the river Adur in the west to Peacehaven in the east, and includes the city of Brighton and Hove and the surrounding area.

There are the following inter-zonal connections:

- The Sussex North and Sussex Worthing WRZs are connected via a bi-directional main; and
- The Sussex Worthing WRZ is connected to the Sussex Brighton WRZ via a main, but the direction of the transfer is currently only from the Sussex Worthing WRZ to the Sussex Brighton WRZ.

There are the following inter-company connections:

- A bulk import to R648 in the Sussex North WRZ from Portsmouth Water, recently enhanced by the facility to take part of this bulk import into the Sussex Worthing WRZ;
- A bulk export to South East Water from Weir Wood reservoir; and
- Some small exports to South East Water from the Sussex North WRZ.

A schematic of the Central Area is given as Figure 10.20.

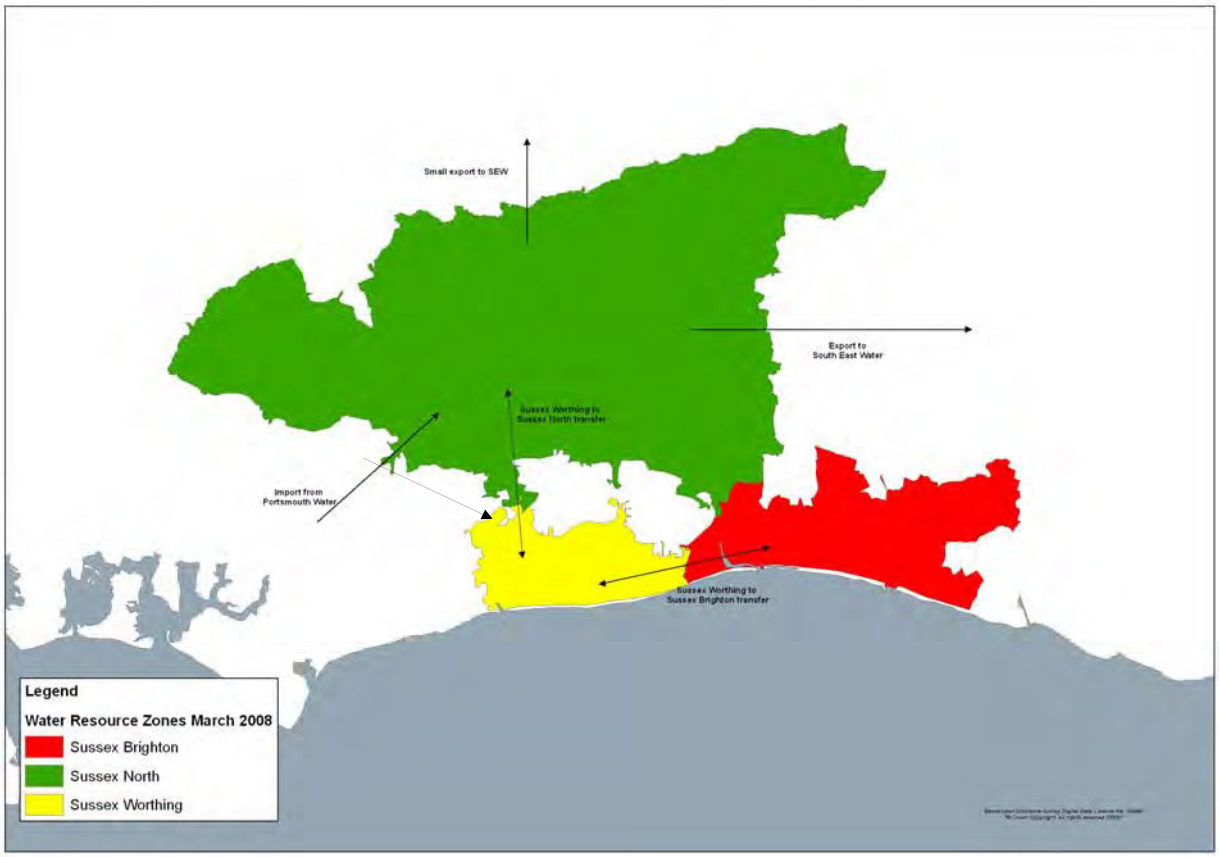


Figure 10.20 Schematic of the Central Area

10.4.2 Sources of Supply

The area is supplied by both surface water and groundwater sources. There are two surface water sources and over 30 groundwater sources in the Central Area. The Sussex North WRZ contains the only surface water sources in the area; at R648, which is supported by the S466 groundwater wellfield; and Weir Wood reservoir, together with a number of minor local groundwater sources.

R648 is the largest source in the area. It comprises a run-of-river abstraction which is subject to a Minimum Residual Flow condition which normally curtails abstraction during the late summer and autumn periods every year. There is no storage facility associated with this abstraction. The surface water abstraction is supported by adjacent groundwater sources. Weir Wood is a small direct impounding reservoir, which has no facility for pumped inflow.

The Sussex Worthing and Brighton WRZs are supplied entirely from Chalk groundwater sources. The nature of the sources in Sussex Worthing WRZ means that the WRZ is more drought resilient than the Sussex North and Sussex Brighton WRZs. The hydrogeological nature of the Brighton Chalk block, and the presence of a number of old, well and adit systems means that the sources can be very vulnerable to drought events.

10.4.3 Supplies Available

The total deployable output for the area is 187.2 Ml/d for MDO and 241.3 Ml/d for PDO. Sussex Worthing and Sussex Brighton WRZs have a combined, groundwater sourced, MDO and PDO of 147.2 Ml/d and 177.5 Ml/d respectively.

The total proportion of groundwater to surface water for the area is approximately 90% : 10%. However, a more detailed breakdown shows that the Sussex Worthing and Sussex Brighton WRZs are solely dependent on groundwater sources, whereas the Sussex North WRZ has a groundwater : surface water ratio of 60% : 40%. Furthermore, the Sussex North WRZ depends on a surface water balance of 46% run-of-river and 54% direct inflow reservoir storage.

This mixture of source types means that the area is especially sensitive to design drought events as explained in section 10.4.4.

WRZ	Groundwater			Surface Water			Total	
	No. sources	MDO Ml/d	PDO Ml/d	No. sources	MDO Ml/d	PDO Ml/d	MDO Ml/d	PDO Ml/d
Sussex North	7	23.85	39.29	2	16.20	24.50	40.05	63.79
Sussex Worthing	11	57.85	68.98	0	0.00	0.00	57.85	68.98
Sussex Brighton	13	89.30	108.52	0	0.00	0.00	89.30	108.52
Total	**31**	**171.00**	**216.79**	**2**	**16.20**	**24.50**	**187.20**	**241.29**

Note: Values are for indigenous sources only, and do not take transfers, either for inter-zonal or inter-company transfers into account.

Note: further detail is given for individual sources in Appendix D

Table 10.10 Summary of Base Year (2010-11) Deployable Outputs for the Central Area

10.4.4 Strategic Management of Sources

The mix of types of source within the area and their distribution within the different WRZs, combined with the lack of storage makes the whole area very susceptible to short-term, severe, drought events. Therefore, one of the primary objectives for the future development of water resources in this area is to make the supply system more resilient to drought events, especially against a background of the increasing impacts of climate change.

R648 is the largest source. However, it is a run-of-river source, with an associated Minimum Residual Flow condition. It is therefore very prone to even single season events. It also has no storage facility to provide over-year protection. The only reservoir is at Weir Wood. However this direct inflow reservoir is small with no pumped inflow facility. It is also prone to even single season events.

The coastal WRZs of Sussex Worthing and Sussex Brighton are supplied solely from groundwater sources and are susceptible to one, two and three season droughts, with the associated progressive reduction in groundwater storage, and resulting loss in deployable output. The WRZs are therefore single source type dominant, and thus there are no other source types to support them. Many of the old well and adit systems, especially in the Brighton area, are prone to severe problems if the adits are dewatered. The sources can also suffer from saline intrusion. A seasonal groundwater operational management strategy has been developed and is used to optimise the seasonal management of these sources, but the whole area is prone to recharge deficit conditions.

There is a bi-directional transfer between the Sussex North and Sussex Worthing WRZs. However, if the transfer is from Sussex Worthing WRZ, the groundwater sources in that WRZ will become depleted and thus even more prone to longer design drought events.

The Sussex North WRZ, and more recently, the Sussex Worthing WRZ, can be supported through the bulk supply import from Portsmouth Water. However, balancing the utilisation of the different types of sources of supply, all of which are sensitive to even short duration droughts, becomes very difficult and reveals how sensitive the area is to actual droughts as well as design drought events.

10.4.5 Demand Summary

Southern Water provides drinking water to a population in the area of about 732,000. Normal year average annual demands are 187.5 Ml/d, which can rise to 197.0 Ml/d during dry years. However, during dry years, the demands at the critical MDO and PDO periods can be 192.3 Ml/d and 240.6 Ml/d respectively, as shown in Table 10.11.

WRZ	Population (000s)	Normal Year Average Annual demand (Ml/d)	Dry Year Annual Average demand (Ml/d)	Dry Year MDO demand (Ml/d)	Dry Year Peak Period demand (Ml/d)
Sussex North	242.61	62.37	67.57	65.92	85.20
Sussex Worthing	168.38	41.53	42.95	41.94	51.57
Sussex Brighton	320.82	83.60	86.47	84.39	103.80
Central Area	**731.81**	**187.50**	**196.99**	**192.25**	**240.57**

Table 10.11 Summary of Base Year (2007-08) Demand in the Central Area (Ml/d)

10.4.6 Strategic Development to Date

There have been a number of strategic developments over the last 10-15 years within the area that have improved, to some extent, its flexibility and drought resilience. These include:

- Leakage has been reduced over the last 12 years from 32.6 Ml/d to 29.5 Ml/d;
- There has been an increase in meter installation over the last 12 years from 8% to 36%;
- The development of the Portsmouth Water bulk import to the Sussex North WRZ up to 15 Ml/d, and, recently, the subsequent connection to the Sussex Worthing WRZ;
- The upgrade of the Sussex Worthing WRZ to Sussex North WRZ transfer to 15 Ml/d; and
- The construction of a strategic main to connect and provide support for the local groundwater sources.

10.4.7 Levels of Service

The area, as with other parts of the south-east, has suffered from the effects of the recent droughts, in 1989-92, 1995 and more recently 2004-06. There was serious stress on the area's water resources and a risk to security of supply. In order to respond to the increasingly severe drought conditions Southern Water followed its Drought Plan and introduced its programme of both demand side and supply side measures which had an impact on Customer and Environmental Levels of Service.

10.4.7.1 Customer Level of Service

A summary of the frequency of restrictions since 1989, compared to Target Levels of Service, is given in Table 10.12. Despite its best endeavours to alleviate the effects of the droughts, Southern Water was unable to meet its Target Levels of Service:

- In some WRZs in this area the company has introduced sprinkler/full hosepipe bans in eight out of the last 20 years (40%), although this varied from seven years (35%) in the Sussex North WRZ to eight years (40%) in both the Sussex Worthing and Sussex Brighton WRZs.
- The amount of time on average that customers have been subject to restrictions, calculated as the percentage of the actual (population times weeks of restriction) compared to the total (population times weeks under review) is 23% (varying from 19% in the Sussex North WRZ to 25% in the Sussex Worthing and Brighton WRZS). If Target Levels of Service are being met then this measure would not exceed 10%.

There has also been one occasion on which a Drought Order was granted authorising Southern Water to limit or restrict the so-called "non-essential uses" of water. This Drought Order was granted in 2006, and covered the whole area. It turned out that powers granted under this Drought Order did not need to be used due to the successful introduction of a number of other supply and demand side measures combined with wetter hydrological conditions.

WRZ	Target Levels of Service		Actual Levels of Service	
	1 in x years	% years	% no. of reporting years (taken as the no. of years, irrespective of duration during the year)	Time expressed as % of (population x weeks)
Hosepipe/Sprinkler ban				
Sussex North	1:10	10%	35%	19%
Sussex Worthing	1:10	10%	40%	25%
Sussex Brighton	1:10	10%	40%	25%
Central Area	**1:10**	**10%**	**40%**	**23%**
Drought Orders implemented "Non-essential use" ban				
Sussex North	1:20	5%	0%	0%
Sussex Worthing	1:20	5%	0%	0%
Sussex Brighton	1:20	5%	0%	0%
Central Area	**1:20**	**5%**	**0%**	**0%**

Table 10.12 Summary of Restrictions in the Central Area Since 1989

10.4.7.2 Environment Level of Service

Four Drought Permits/Orders were applied for and granted during this period. Three of these were for a reduction in the Minimum Residual Flow (MRF) for the surface water abstraction at R648. Applications were also prepared on a number of other occasions, but changes in demand and supply circumstances meant that the applications were not submitted. A Drought Order was authorised in 2006 to reduce the amount of compensation water to be released from Weir Wood reservoir.

Whilst there were a number of occasions that the sources did not, in the event, need to be operated under the terms of the Drought Permits/Orders, it was necessary to have the Drought Permits/Orders in place, should drought conditions have continued and increased the risk to security of supplies.

Southern Water considers that the past performance against Target Levels of Service must be improved. This can only be achieved through the development of a more robust supply system with a supply demand balance that is resilient in the face of drought conditions. This requires the introduction of a number of supply and demand side measures.

10.4.7.3 Influence of a supply demand balance deficit on operations during a drought

Even after taking into account inter-zonal transfers to reduce baseline supply demand balance deficits, the Sussex North and Sussex Brighton WRZs would experience deficits for the full five years and first two years of the AMP5 period respectively. There would be no deficits in the Sussex Worthing WRZ.

The Sussex North WRZ has a supply demand balance deficit for the full five years of AMP5 of about 11 decreasing to 6 Ml/d over the period for the MDO condition and about 7 decreasing

to 3 Ml/d for the PDO condition. This represents about 12 and 6% of Distribution Input respectively, and compares to the sum of the planning allowances for target headroom and outage of about 5 and 6 Ml/d respectively.

As mentioned previously the MDO situation is sensitive because there is limited storage in the Sussex North WRZ. The MDO condition is caused by low river flows at Hardham which affect the Hardham run-of-river abstraction. The possibility of such a condition occurring can be predicted some months in advance from analysis of the river flow recession curve. In addition the MISER model developed for the AMP4 Water Resources Investigations means that there is now a much better understanding of the water supply system which will assist in operational management under all, not just drought conditions. Furthermore, any opportunities to accelerate the groundwater asset improvement schemes in the other WRZs should be taken to enable enhanced transfers to be made to the Sussex North WRZ.

The Sussex Brighton WRZ has a supply demand balance deficit for the first two years of the planning period of about 1 and 2 Ml/d for the MDO and PDO condition respectively. This represents about 1 and 2 % of Distribution Input respectively, and compares to the sum of the planning allowances for target headroom and outage of about 8 and 11 Ml/d respectively.

Whilst these deficits are not large, the situation will require monitoring closely, and any opportunity to accelerate the groundwater asset improvement schemes for the WRZ needs to be taken.

10.4.8 The Baseline Supply Demand Balance for the Central Area

The baseline supply demand balances in the WRP Tables assume the following:

- Continuation of current metering policies. In 2007-08 there were 316,200 domestic properties in this area, 36% of which were metered. By 2015, the number of metered domestic properties is expected to rise to 227,100;
- Deployable outputs according to the Unified Methodology, which ensures that the deployable outputs for groundwater and surface water sources are estimated for the same design drought event;
- Deployable outputs include assumed incremental yields from source improvements for both AMP4 and planned for the AMP5 period, with timings assumed throughout the AMP5 period;
- No Sustainability Reductions (as advised by the Environment Agency);
- Renewal of existing inter-company bulk transfers until the end of the planning period, at the rates prevailing at the time of contract renewal; and
- Inter-zonal transfers are adjusted in the supply demand balance to represent the optimal use of surplus resources; while for the purposes of the investment model they are set to zero at the start of the planning period.

The baseline supply demand balances for each WRZ in the Central Area are given in Table 10.13 for both the MDO and PDO conditions. These baseline supply demand balances over the planning period are shown in annotated graphs Figure 10.21 to Figure 10.26. Full detailed build-up tables given In Appendix I.

Water Resource Zone	Planning scenario	Base year 2007-08	2009-10	Start of planning period 2010-11	2014-15	2019-20	2024-25	2029-30	2034-35
Sussex North	MDO	0.00	0.00	-11.07	-5.91	-6.26	-7.02	-7.84	-8.77
Sussex	MDO	12.87	14.01	0.00	0.63	1.05	1.03	0.50	0.00

Worthing									
Sussex Brighton	MDO	2.69	4.84	-0.96	8.49	9.75	9.85	9.32	8.72
Sussex North	PDO	1.55	2.07	-7.07	-2.72	-1.78	-2.43	-4.02	-5.84
Sussex Worthing	PDO	18.67	20.09	0.00	0.00	0.00	0.00	0.00	0.00
Sussex Brighton	PDO	1.37	4.22	-2.65	8.11	10.39	11.03	10.61	10.01

Notes: Positive figures indicate a surplus of resources, negative indicate a deficit

Table 10.13 Baseline Supply Demand Balance for Central Area for the MDO and PDO Condition (Ml/d)

In these baseline supply demand balances, inter-zonal transfers from 2010-11 are balanced to make the best use of inter-connected resources where water can be transferred from a WRZ with a surplus to one with a deficit, namely from Sussex Worthing to Sussex North in the Central Area. At the same time, the investment model is able to chose whether it is better to cease continue, or increase, existing inter-zonal transfers, or to develop new resources, or enhance demand management in the WRZ in deficit.

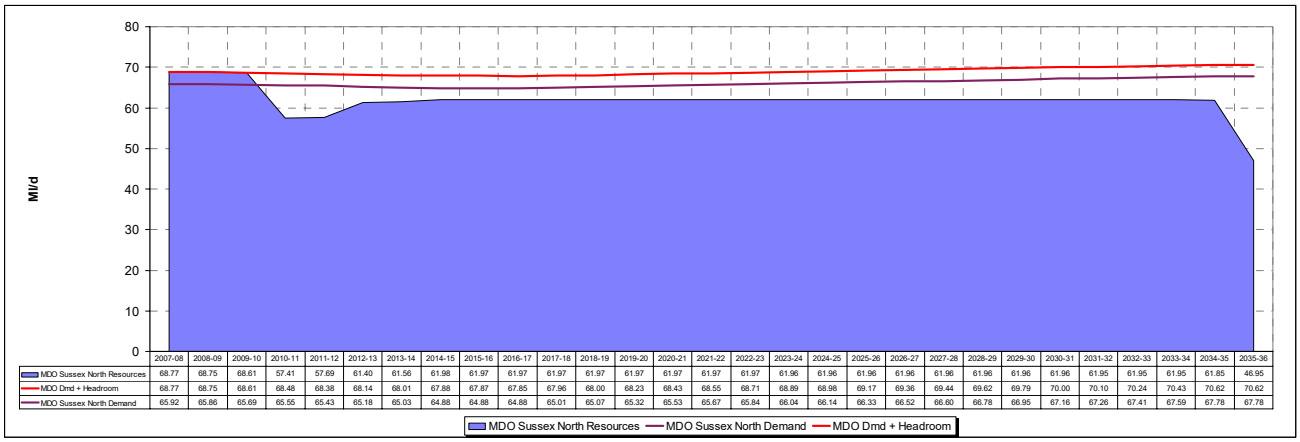
Despite the relatively healthy baseline supply demand balances, this area has very little resilience to drought events over one, two or three seasons. In the event that the drought of 2004-06 had continued into a third dry winter, there would have been very serious concerns over supplies to the area in general, and to the groundwater sources in the coastal WRZs in particular.

For both the MDO and PDO conditions:

- The Sussex North WRZ starts the planning period in severe deficit, and remains so throughout the planning period. This change from previous analysis is mainly as a result of the more rigorous methodology used to estimate the design drought surface water deployable outputs being available as a result of the AMP4 Water Resources Investigations, given the conjunctive use of the various source types available. It also arises from the application of the Unified Methodology, which ensures that the same drought event is used to estimate both surface and groundwater deployable outputs. Application of this methodology has reduced groundwater deployable outputs in the Sussex Brighton and Sussex Worthing WRZs, which in turn means that there is less water to transfer from the Sussex Worthing WRZ to the Sussex North WRZ during the design event;
- The Sussex Worthing WRZ starts the planning period in surplus and remains so throughout the planning period, enhanced by some AMP5 source improvements. The baseline supply demand balance shows surplus water being transferred to Sussex North; and
- The Sussex Brighton WRZ starts the planning period in deficit, but, due to decreasing demands and AMP5 improvements to groundwater sources, returns to surplus for the remainder of the planning period.

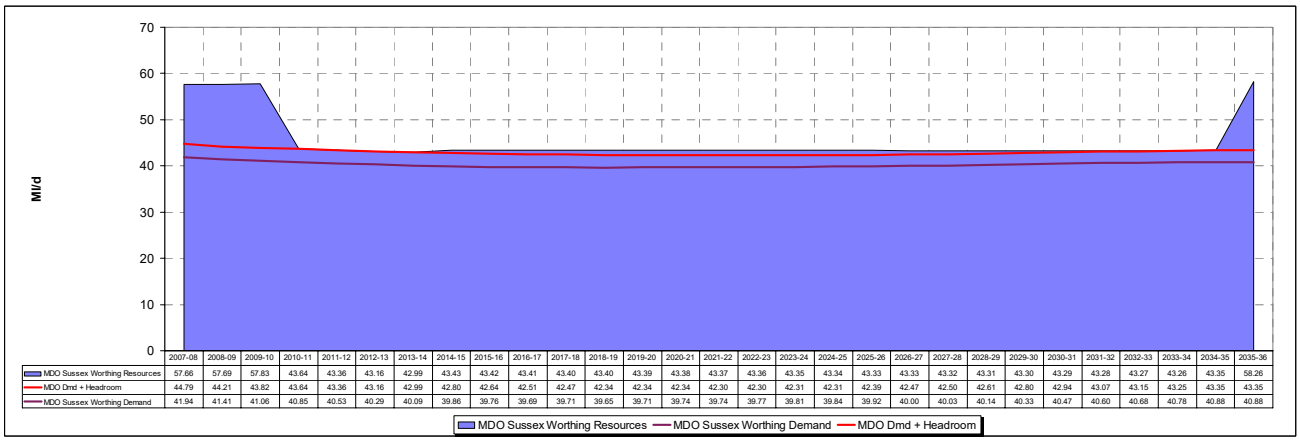
Implementation of universal metering throughout the area by 2015 would lead to the following reductions in demand;

- Sussex Nouth WRZ: 1.0 Ml/d (MDO) and 2.1 Ml/d (PDO);
- Sussex Worthing WRZ: 1.5 Ml/d (MDO) and 2.4 Ml/d (PDO); and
- Sussex Brighton WRZ: 3.6 Ml/d (MDO) and 5.7 Ml/d (PDO).



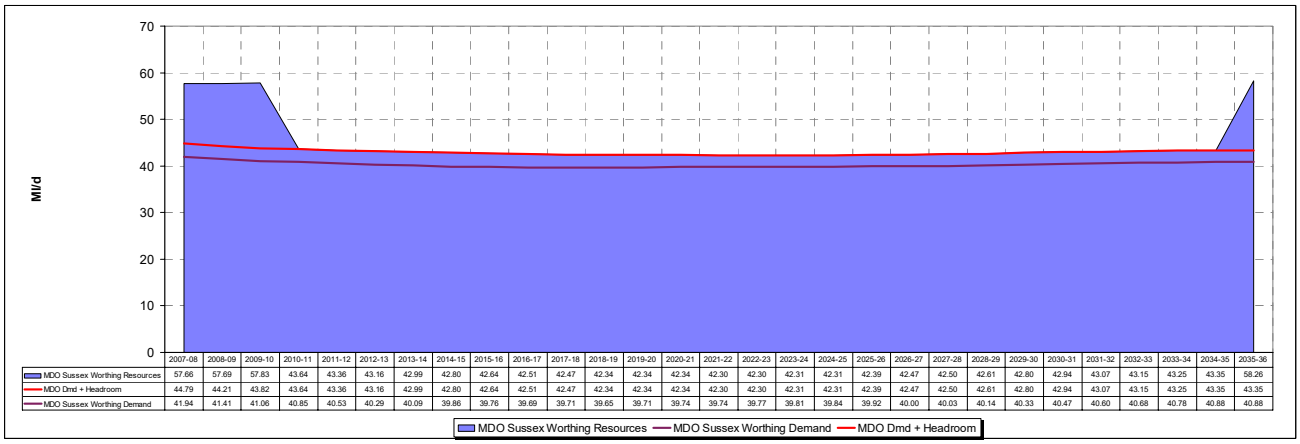
	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36
MDO Sussex North Resources	68.77	68.75	68.61	57.41	57.69	61.40	61.56	61.98	61.97	61.97	61.97	61.97	61.97	61.97	61.97	61.97	61.96	61.96	61.96	61.96	61.96	61.96	61.96	61.96	61.95	61.95	61.95	61.85	46.95
MDO Dmd + Headroom	68.77	68.75	68.61	68.48	68.38	68.14	68.01	67.88	67.87	67.85	67.96	68.00	68.23	68.43	68.55	68.71	68.89	68.98	69.17	69.36	69.44	69.62	69.79	70.00	70.10	70.24	70.43	70.62	70.62
MDO Sussex North Demand	65.92	65.86	65.69	65.55	65.43	65.18	65.03	64.88	64.88	64.88	65.01	65.07	65.32	65.53	65.67	65.84	66.04	66.14	66.33	66.52	66.60	66.78	66.95	67.16	67.26	67.41	67.59	67.78	67.78

Figure 10.21 Sussex North MDO Baseline Supply Demand Balance



	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36
MDO Sussex Worthing Resources	57.66	57.69	57.83	43.64	43.36	43.16	42.99	43.43	43.42	43.41	43.40	43.40	43.39	43.38	43.37	43.36	43.35	43.34	43.33	43.33	43.32	43.31	43.30	43.29	43.28	43.27	43.26	43.35	58.26
MDO Dmd + Headroom	44.79	44.21	43.82	43.64	43.36	43.16	42.99	42.80	42.64	42.51	42.47	42.34	42.34	42.34	42.30	42.30	42.31	42.31	42.39	42.47	42.50	42.61	42.80	42.94	43.07	43.15	43.25	43.35	43.35
MDO Sussex Worthing Demand	41.94	41.41	41.06	40.85	40.53	40.29	40.09	39.86	39.76	39.69	39.71	39.65	39.71	39.74	39.74	39.77	39.81	39.84	39.92	40.00	40.03	40.14	40.33	40.47	40.60	40.68	40.78	40.88	40.88

Figure 10.22 Sussex Worthing MDO Baseline Supply Demand Balance



	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36
MDO Sussex Worthing Resources	57.66	57.69	57.83	43.64	43.36	43.16	42.99	42.80	42.64	42.51	42.47	42.34	42.34	42.34	42.30	42.30	42.31	42.31	42.39	42.47	42.50	42.61	42.80	42.94	43.07	43.15	43.25	43.35	58.26
MDO Dmd + Headroom	44.79	44.21	43.82	43.64	43.36	43.16	42.99	42.80	42.64	42.51	42.47	42.34	42.34	42.34	42.30	42.30	42.31	42.31	42.39	42.47	42.50	42.61	42.80	42.94	43.07	43.15	43.25	43.35	43.35
MDO Sussex Worthing Demand	41.94	41.41	41.06	40.85	40.53	40.29	40.09	39.86	39.76	39.69	39.71	39.65	39.71	39.74	39.74	39.77	39.81	39.84	39.92	40.00	40.03	40.14	40.33	40.47	40.60	40.68	40.78	40.88	40.88

Figure 10.23 Sussex Brighton MDO Baseline Supply Demand Balance

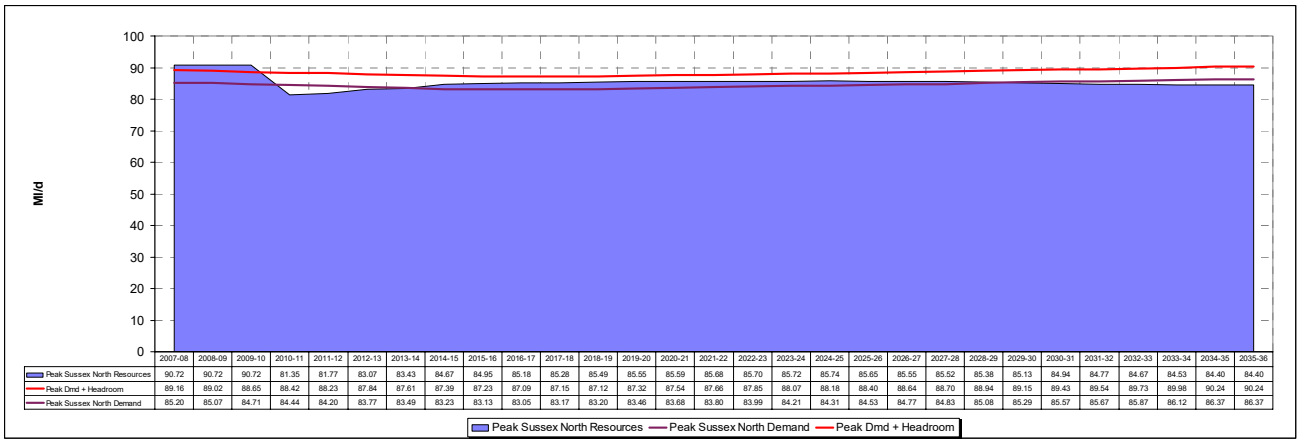


Figure 10.24 Sussex North PDO Baseline Supply Demand Balance

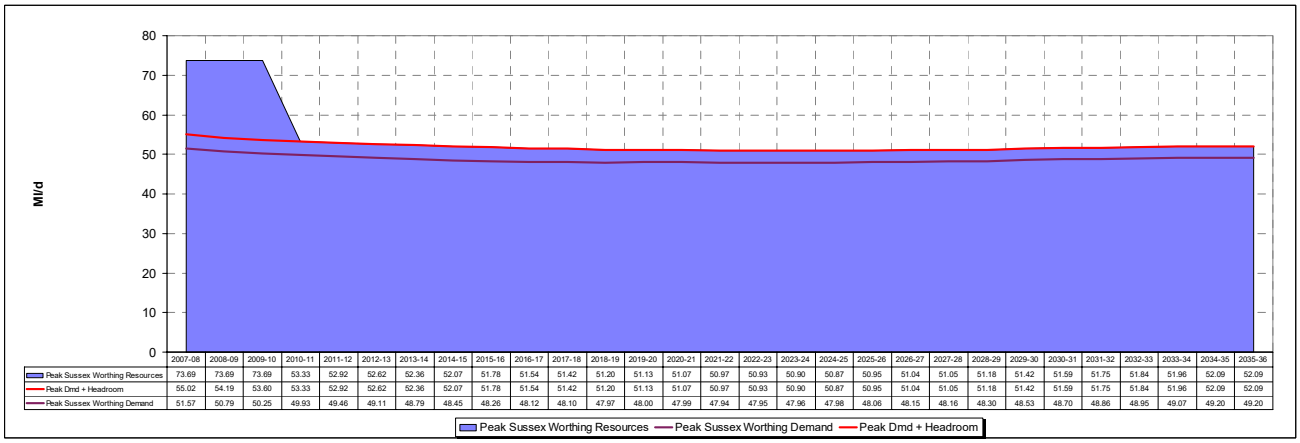


Figure 10.25 Sussex Worthing PDO Baseline Supply Demand Balance

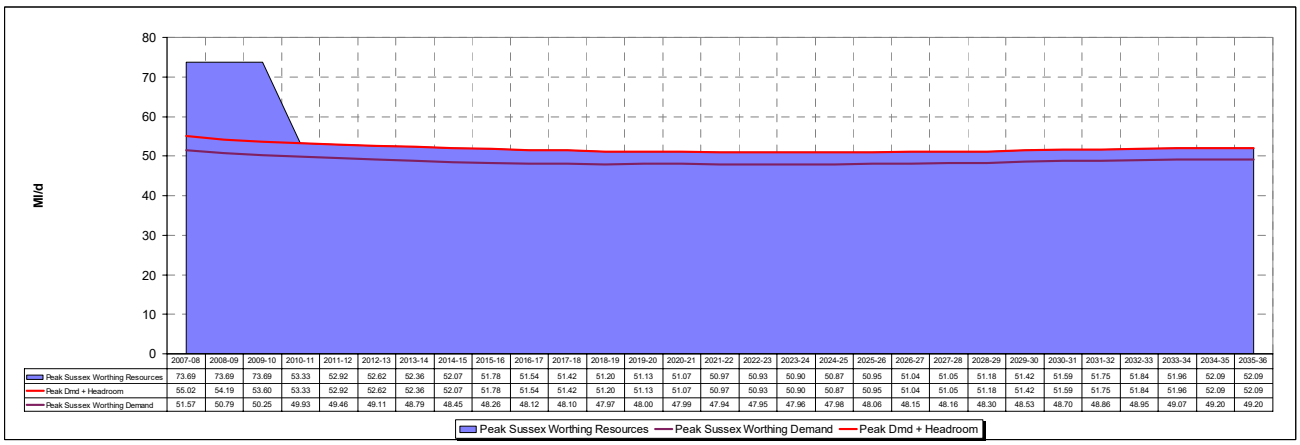


Figure 10.26 Sussex Brighton PDO Baseline Supply Demand Balance

10.4.9 Options to Meet the Supply Demand Balance in the Central Area

A number of demand and supply side options have been considered to meet any supply demand balance deficit.

The supply side options have been assessed using the options appraisal methodology described in section 8. In summary, an initial list of nearly 120 options has been considered within the Central Area, for which further details are given in Appendix G.

Following the various screening processes, the number of "feasible" options, by generic type, that was chosen to be available for selection by the investment model can be summarised, by generic type, as follows:

- Two sites for a new surface storage reservoir, for which the sole lead promoter would be Southern Water;
- Five sites for possible increases in abstraction from either surface or groundwater, although only one or two would be chosen;
- No sites for enlarging existing reservoirs;
- One site for potential re-commissioning of old/existing sources;
- Three possible abstraction licence variations;
- No sites for the further upgrade of WSW treatment facilities, for the purposes of the supply demand balance;
- Three potential inter-zonal bulk transfers, either existing or proposed;
- No potential inter-company bulk transfers, either existing or proposed;
- Two potential schemes for wastewater recycling;
- One site for potential Aquifer Storage and Recovery scheme; and
- Four potential schemes for desalination.

This shows that a wide range of generic types of option were available for selection, thus ensuring that the selection of preferred schemes was robust. The total number includes a number of generic schemes, for instance desalination, at the same site but for different capacities. This is to ensure that a generic option is not ruled out from selection on the basis of the size and associated cost alone.

There are three generic types of demand side options: metering; leakage reduction; and water efficiency. Different modelling scenarios have been devised to reflect a different selection of options (see section 10.1.13).

As noted in section 10.3.8, scenario 3 (Universal Metering) has been used as the starting point for the supply demand balance from which the Final Planning solution has been developed.

In order to consider leakage options, a number of incremental "step" reductions in leakage were considered, based on outputs from the Sustainable Economic Level of Leakage analysis, as explained in Chapter 6 and Appendix G.

Water efficiency options for both households and non-households were included in the model. More details of the options are given in section 8 and Appendix G.

10.4.10 The Water Resources Strategy for the Central Area

The water resources strategy is described in three different sections over the planning period:

- AMP5, the first five years from 2010-11 to 2014-15, which formed the basis of the Final Business Plan Submission;

- AMP6 to the end of the planning period, based on the company only least-cost strategy; and then
- An explanation of how this company only strategy is modified to take into account the recommendations of the WRSE regional modelling results.

The company preferred water resource strategy for each of these intervals is described below and is summarised in Table 10.14.

During AMP5 (2010-15)

The supply demand balance will be satisfied for the Central Area for the AMP5 period through the following:

- A policy of universal metering throughout the area by 2015, which will give benefits in terms of demand savings and associated reductions in supply pipe leakage;
- The optimisation of inter-zonal transfers, from the Sussex Worthing WRZ to the Sussex North and Sussex Brighton WRZs;
- The renewal of the existing bulk supply from Portsmouth Water to Sussex North WRZ;
- A series of groundwater source improvements, which could deliver up to 11.6 Ml/d for the average condition; and
- The construction of a new intake on the River Arun, which has been the subject of extensive investigations during AMP4. A planning application and abstraction licence application have been made, and it is planned that the source will be commissioned by 2012.

From AMP6 to the end of the planning period (2015-35) (company only)

For the company only least-cost solution, there are no further interventions identified as being required until the end of the planning period, with the supply demand balance being satisfied through the optimisation of inter-zonal bulk transfers, the continuation of the inter-company bulk import from Portsmouth Water and the benefits of the supply and demand side interventions made during AMP5.

From AMP6 to the end of the planning period (2015-35) (company preferred regional solution)

Following the results of the WRSE modelling work, Southern Water reaffirmed its commitment to the development of a regional solution. As such, as a result of the preferred options identified from the WRSE modelling work, we have included the following option in our company preferred regional strategy, over and above the company only least-cost solution:

- The provision of a 4 Ml/d bulk supply of 2028 from the Sussex Brighton WRZ to South East Water.

It should be noted that the WRSE work identified the possibility of an enhanced bulk import from Portsmouth, associated with the development of Havant Thicket reservoir. However, this has not been included in our preferred strategy as there was no requirement for it in the supply demand balance.

There is a supply demand balance surplus in Sussex Brighton WRZ and so there is minimal incremental cost associated with the adoption of the company preferred regional strategy.

The Water Resources Strategy for the Central Area is summarised in Table 10.14.

Water Resource Zone	Schemes During AMP 5	Schemes beyond AMP 5 – company only solution	Schemes beyond AMP 5 – Water Resources in the South East of England
Sussex North	• Universal metering • Renewal of the existing bulk supply contract from Portsmouth Water • Asset improvement schemes for groundwater sources (0.30 Ml/d peak, 0.10 Ml/d average) • Optimisation of inter-zonal transfers (from Sussex Worthing) • River Arun Abstraction	• Renewal of the bulk supply of contract to South East Water	As previous column
Sussex Worthing	• Universal metering • Asset improvement schemes for groundwater sources (1.75 Ml/d peak, 4.25 Ml/d average) • Optimisation of inter-zonal transfers (to Sussex North and Sussex Brighton)		
Sussex Brighton	• Universal metering • Asset improvement schemes for groundwater sources (7.25 Ml/d peak & average) • Optimisation of inter-zonal transfers (from Sussex Worthing)		• Provision of a 4 Ml/d bulk supply to South East Water

Table 10.14 Summary of Water Resources Strategy for the Central Area

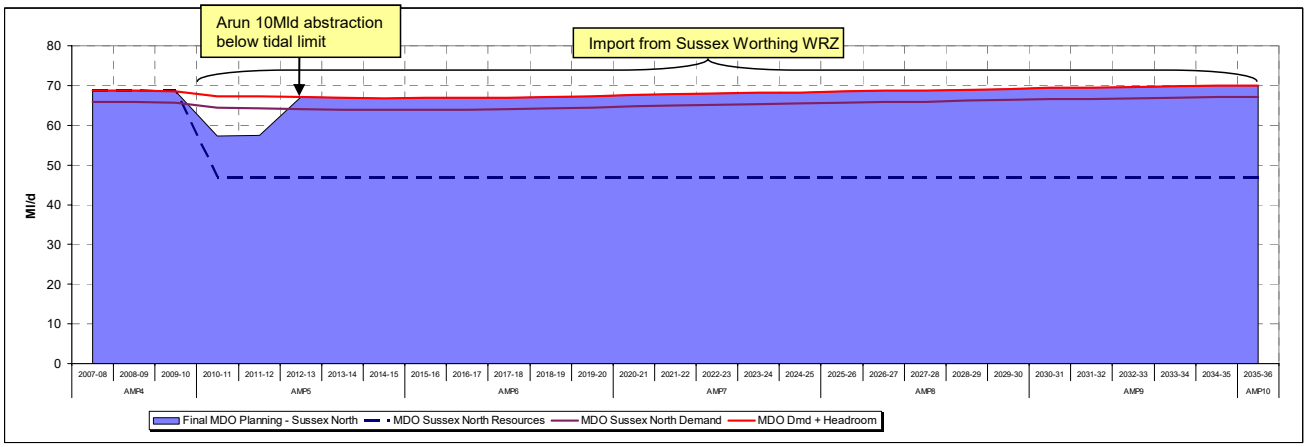


Figure 10.27 Sussex North Company Preferred Regional Strategy (Scenario 4), MDO Solution

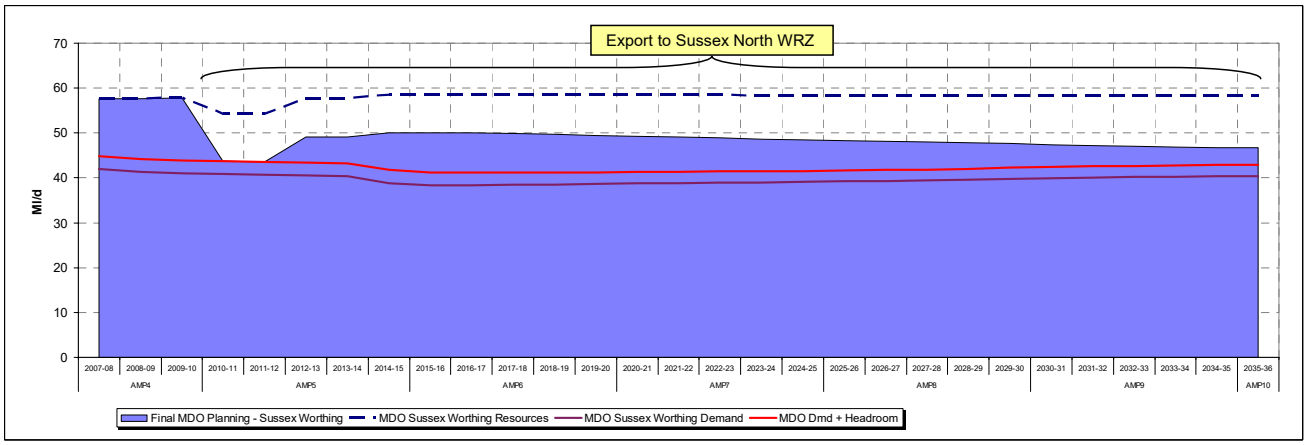


Figure 10.28 Sussex Worthing Company Preferred Regional Strategy (Scenario 4), MDO Solution

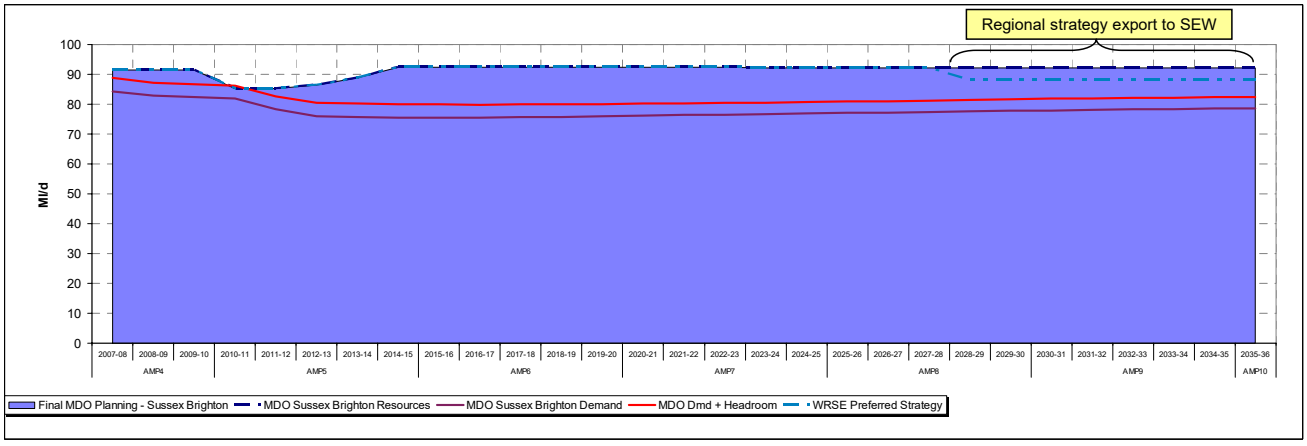


Figure 10.29 Sussex Brighton Company Preferred Regional Strategy (Scenario 4), MDO Solution

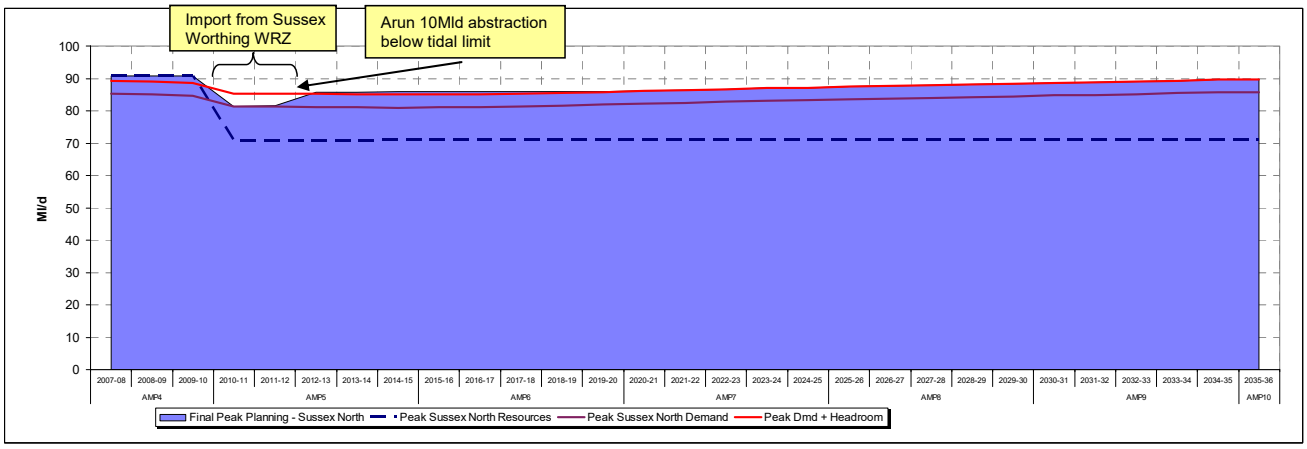


Figure 10.30 Sussex North Company Preferred Regional Strategy (Scenario 4), PDO Solution

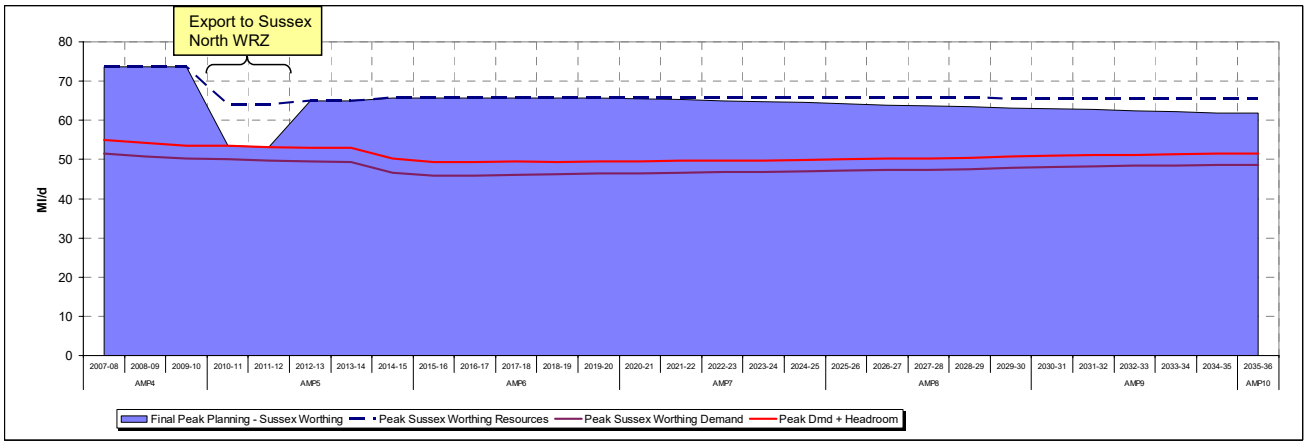


Figure 10.31 Sussex Worthing Company Preferred Regional Strategy (Scenario 4), PDO Solution

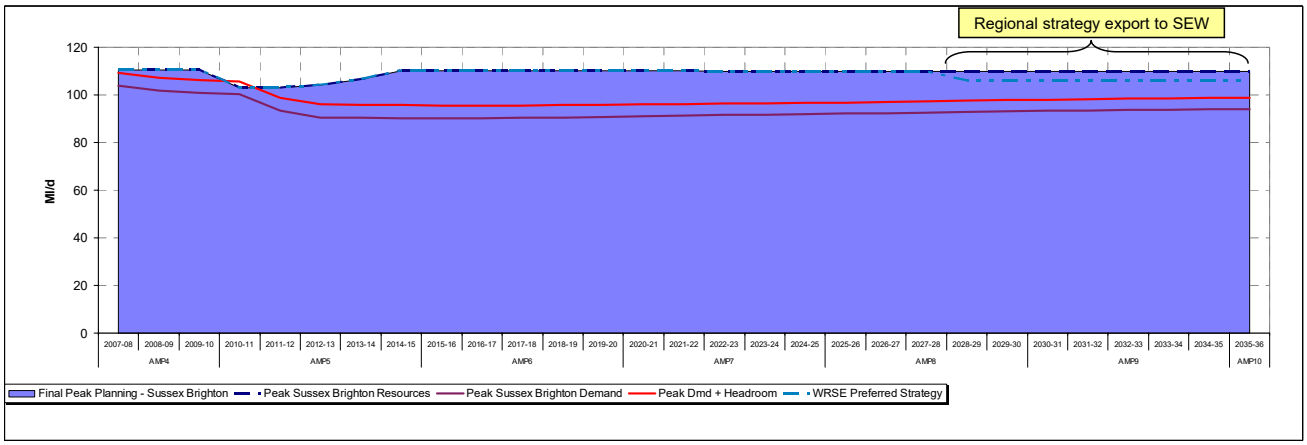


Figure 10.32 Sussex Brighton Company Preferred Regional Strategy (Scenario 4), PDO Solution

10.4.10.1 SEA Influence on Strategy

All options were assessed against 17 SEA objectives, and assigned an overall environmental risk (high, medium or low), based on the significance of potential long term effects.

Table 10.15 sets out the environmental risk of each resource development option. More detail is given in Appendix I.

Option	Environmental Risk Score
N9-10 - Arun Abstraction Below Tidal Limit	Low

Table 10.15 Environmental Risks of Resource Development Options Selected in the Central Area Strategy

The demand management options (metering; leakage reduction; and water efficiency) were also assessed against the SEA objectives. More detail is given in Appendix I. All three generic demand management measures are broadly compatible with the majority of SEA objectives due to the minimal amount of physical intervention required in implementing each measure. However, water efficiency measures have no potential conflicts with SEA objectives and are therefore the preferred demand management measure from an SEA perspective.

10.4.10.2 SEA preferred strategy

The options assessed as being likely to result in the lowest environmental risk are preferable from a SEA perspective and have been used to create the SEA preferred strategy. The low risk, and therefore preferred water resource management options are set out below:

- Arun Abstraction below Tidal Limit.

The company preferred strategy is therefore compatible with the SEA preferred strategy.

10.4.11 Scenario Analysis

A number of scenarios have been modelled, in order to assess the stability of the company only least-cost strategy to changes in some of the basic assumptions.

	Scenario	Company preferred Regional strategy	Company only Universal metering	Company only Change of occupier	Company only Optant	Company only Universal metering with no climate change	Company only Leakage rise to Ofwat target	Hybrid Baseline where no deficit, otherwise universal metering
	Number	**4**	**3**	**2**	**1**	**11**	**8**	
	Metering policy	Universal	Universal	Change of occupier	Optant and selective	Universal	Universal	Universal or change of occupier
	Leakage policy	JR08, then SPL saving	JR08, then SPL saving	JR08	JR08	JR08, then SPL saving	Ofwat, then SPL saving	JR08, then SPL saving
	WRSE preferred options & bulk supplies	Yes	No	No	No	No	No	Yes
WRZ	**Scheme**	**Earliest year required**						
sse × Nor	River Arun abstraction below tidal limit (10 Ml/d)	2012	2012	2012	2012	2012	2012	2012

	Scenario	Company preferred Regional strategy	Company only Universal metering	Company only Change of occupier	Company only Optant	Company only Universal metering with no climate change	Company only Leakage rise to Ofwat target	Hybrid Baseline where no deficit, otherwise universal metering
	Number	**4**	**3**	**2**	**1**	**11**	**8**	
	Leakage reduction	-	-	-	-	-	2010 reduction by 0.6 Ml/d	-
	Water efficiency trigger hoses	-	-	-	-	-	2010	-
	Water efficiency low flow shower heads	-	-	-	-	-	2010	-
Sussex Brighton	*No supply side, water efficiency, or leakage reduction schemes*	-	-	-	-	-	-	-
Sussex Worthing	Leakage reduction	-	-	-	-	-	2010 reduction by 0.4 Ml/d	-
	Costs (£m)							
	Total metering cost (£m)	56.82	56.82	61.25	51.94	56.82	56.82	59.91
	Total resource, leakage reduction and water efficiency activity cost (£m)	18.42	18.42	18.62	18.81	18.35	20.22	18.42
	Total cost of Strategy (£m)	**75.24**	**75.24**	**79.87**	**70.75**	**75.17**	**77.04**	**78.33**

Table 10.16 gives a summary of the different baseline assumptions for these scenarios, and the results in terms of scheme inclusion, scheme timing, and costs for the different investment strategies. The following points can be seen from the results:

- The company only least-cost scenario (3) assumes the baseline condition of universal metering by 2015;
- All scenarios assume the renewal of existing bulk supplies to other companies until the end of the planning period, at the rates which are appropriate at the time of renewal;
- All scenarios include the Arun abstraction as the only resource development, and do not include for any further reductions in leakage;
- The exception to this is the scenario in which leakage is initially allowed to rise to the Ofwat target level, where further leakage reduction of 1.0 Ml/d is required from 2010 to try to reduce any AMP5 deficits to the same levels as seen in the company only least-cost scenario (3);
- The total cost of the resources strategy (including new resources, leakage reduction, and water efficiency) plus metering strategy, for the various company only scenarios is as follows:
    - Universal metering - £75.2 m.
    - Change of occupier - £79.9 m.
    - Optant and selective - £70.8 m.
    - Hybrid metering policy - £m78.3 m
- There is no difference in cost between the company preferred regional strategy and the company only least-cost strategy, because there is a supply demand balance surplus in Sussex Brighton WRZ and the regional solution

only entails a minor increase in bulk supplies towards the end of the planning period.

Scenario		Company preferred Regional strategy	Company only Universal metering	Company only Change of occupier	Company only Optant	Company only Universal metering with no climate change	Company only Leakage rise to Ofwat target	Hybrid Baseline where no deficit, otherwise universal metering
Number		4	3	2	1	11	8	
Metering policy		Universal	Universal	Change of occupier	Optant and selective	Universal	Universal	Universal or change of occupier
Leakage policy		JR08, then SPL saving	JR08, then SPL saving	JR08	JR08	JR08, then SPL saving	Ofwat, then SPL saving	JR08, then SPL saving
WRSE preferred options & bulk supplies		Yes	No	No	No	No	No	Yes
WRZ	**Scheme**	**Earliest year required**						
Sussex North	River Arun abstraction below tidal limit (10 Ml/d)	2012	2012	2012	2012	2012	2012	2012
	Leakage reduction	-	-	-	-	-	2010 reduction by 0.6 Ml/d	-
	Water efficiency trigger hoses	-	-	-	-	-	2010	-
	Water efficiency low flow shower heads	-	-	-	-	-	2010	-
Sussex Brighton	*No supply side, water efficiency, or leakage reduction schemes*	-	-	-	-	-	-	-
Sussex Worthing	Leakage reduction	-	-	-	-	-	2010 reduction by 0.4 Ml/d	-
Costs (£m)								
Total metering cost (£m)		56.82	56.82	61.25	51.94	56.82	56.82	59.91
Total resource, leakage reduction and water efficiency activity cost (£m)		18.42	18.42	18.62	18.81	18.35	20.22	18.42
Total cost of Strategy (£m)		**75.24**	**75.24**	**79.87**	**70.75**	**75.17**	**77.04**	**78.33**

Table 10.16 Results of Scenario Analysis for Central Area

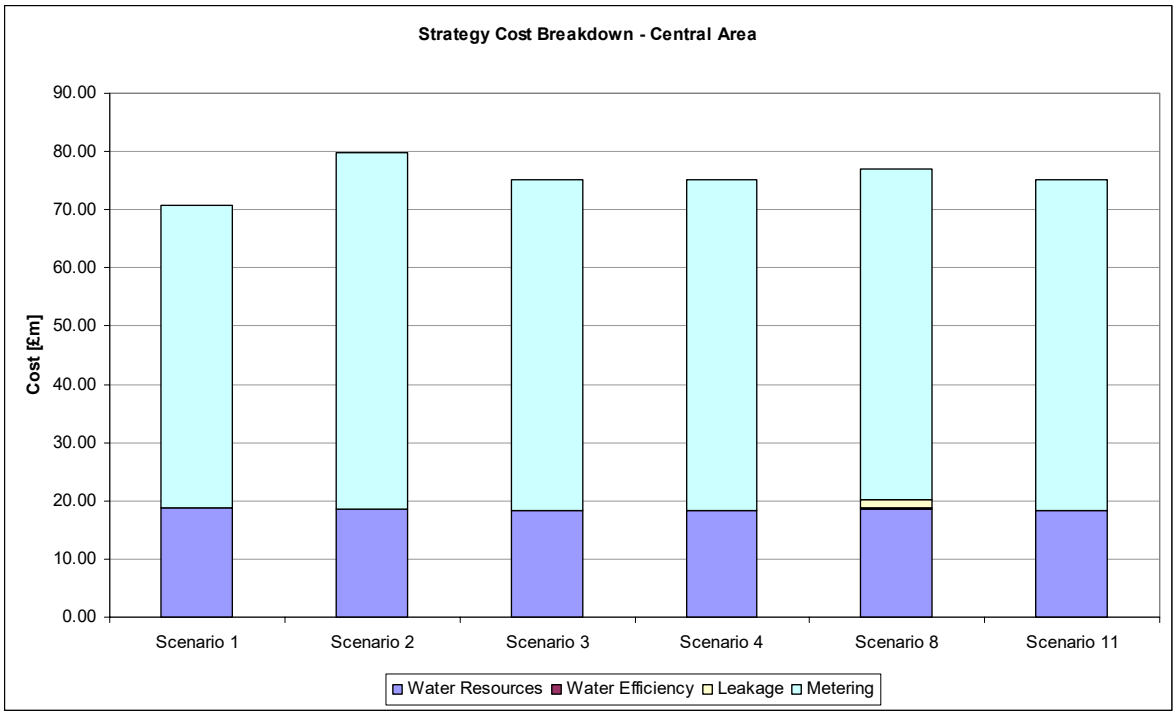


Figure 10.33 Central Area Scenario Cost Comparisons

10.4.12 Sensitivity Analysis

10.4.12.1 Range of Sensitivity Analysis

The "possible worst-case" focused on any changes in supply side or demand side factors which would worsen the supply demand balance. Any decrease in deployable output and/or increase in demands would mean that deficits occur earlier in the planning period and would be larger than those identified in the baseline conditions. This could pose a threat to the security of supplies if the selected schemes, and/or any others that might then be required, could not be commissioned quickly enough.

Following consideration of a number of such demand and supply side factors and the potential magnitude of each it was decided that a "global" change in the demand forecast of +/- 5%, would be assumed for the area. To put this sensitivity into context, at the end of the planning period, for the Central Area:

- A change in demand of +/- 5% would result in an increase in a change in demand of +/- 9.3 Ml/d and +/- 11.4 Ml/d at the MDO and PDO condition respectively by the end of the planning period;
- A change in demand of +/- 5% would be equivalent to a change in the area deployable output of +/- 5.0% and +/- 4.7% at the MDO and PDO condition respectively.

10.4.12.2 Results of Sensitivity Analysis

The results of the sensitivity analysis for the possible "best-case" and "worst-case" are presented in Table 10.17 and can be summarised as follows:

Under the "worst-case" sensitivity:

- The timing of the Arun abstraction scheme remains unchanged; however

- In view of the increase in demand, a small amount of further leakage reduction is required in Sussex North and Sussex Worthing WRZs.

Under the "best-case" sensitivity:

- The timing of the Arun abstraction scheme remains unchanged.

In summary, the company only least-cost strategy is largely unaffected by sensitivity runs, as the selection of the Arun abstraction in Sussex North is governed by the large deficits in that WRZ.

	Scenario	Company preferred WRSE Regional	Company only Universal metering	Increase in demand of 5% by end of planning period	Decrease in demand of 5% by end of planning period
	Number	**4**	**3**	**"Worst case"**	**"Best case"**
	Metering policy	Universal	Universal	Universal	Universal
	Leakage policy	JR08, then SPL saving	JR08, then SPL saving	JR08, then SPL saving	JR08, then SPL saving
	WRSE preferred options & bulk supplies	Yes	No	No	No
WRZ	**Scheme**	**Earliest year required**			
Sussex North	River Arun abstraction below tidal limit (10 Ml/d)	2012	2012	2012	2012
Sussex North	Leakage reduction	-	-	2032 reduction by 1.2 Ml/d	-
Sussex Brighton	*No supply side, water efficiency, or leakage reduction schemes*	-	-	-	-
Sussex Worthing	Leakage reduction	-	-	2033 reduction by 0.4 Ml/d	-
	Costs (£m)				
	Total metering cost (£m)	56.82	56.82	56.82	56.82
	Total resource, leakage reduction and water efficiency activity cost (£m)	18.42	18.42	18.96	18.05
	Total cost of Strategy (£m)	**75.24**	**75.24**	**75.78**	**74.87**

Table 10.17 Results of Sensitivity Analysis for the Central Area

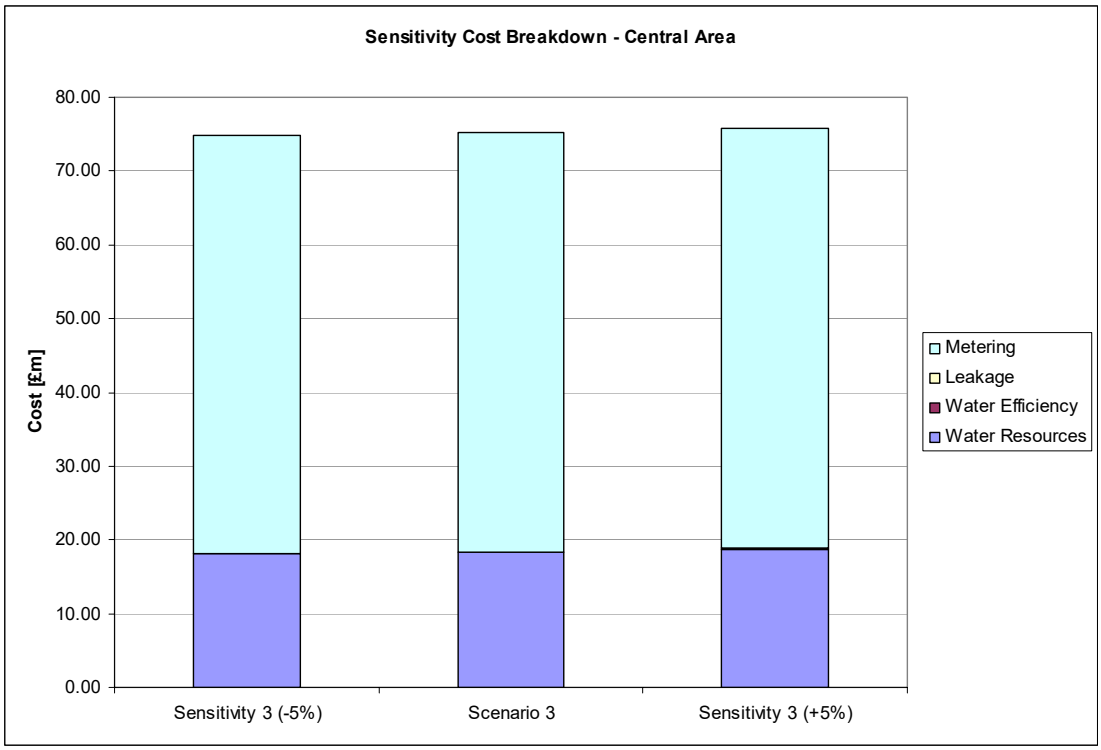


Figure 10.34 Central Area Sensitivity Analysis Cost Comparisons

10.5 The Water Resources Strategy for the Eastern Area

10.5.1 Location

The Eastern Area is situated in north and east Kent, and east Sussex, and comprises the Water Resource Zones (WRZs) of Kent Medway, Kent Thanet and Sussex Hastings. The Kent Medway WRZ is situated in the northern part of Kent, and extends from Gravesend in the west, Sittingbourne in the east and the North Downs in the south. It supplies the towns of Chatham, Rochester, Strood, Gillingham, the Isle of Grain and surrounding area. The Kent Thanet WRZ is located in the north-east corner of Kent, and includes the towns of Margate, Broadstairs, Ramsgate, Sandwich and Deal, together with the rural area east of Canterbury. The Sussex Hastings WRZ is in the eastern part of Sussex, and supplies the towns of Hastings and Rye and the surrounding area.

There are a number of inter-zonal transfers between the WRZs, as follows:

- From the Kent Medway WRZ to the Kent Thanet WRZ via a transfer main; and
- From the Kent Medway WRZ to the Sussex Hastings WRZ via a transfer main.

There are also a number of inter-company transfers:

- An export to South East Water in the Kent Medway WRZ;
- An export to South East Water from its entitlement to 25% of the yield of G457 in the Kent Medway WRZ;
- A number of small metered supplies to South East Water in the Kent Medway WRZ;
- A seasonal export to Folkestone and Dover Water Services from the Kent Thanet WRZ; and
- An export to South East Water from the Sussex Hastings WRZ from Darwell reservoir.

A schematic showing the key features of the Eastern Area is given as Figure 10.35.

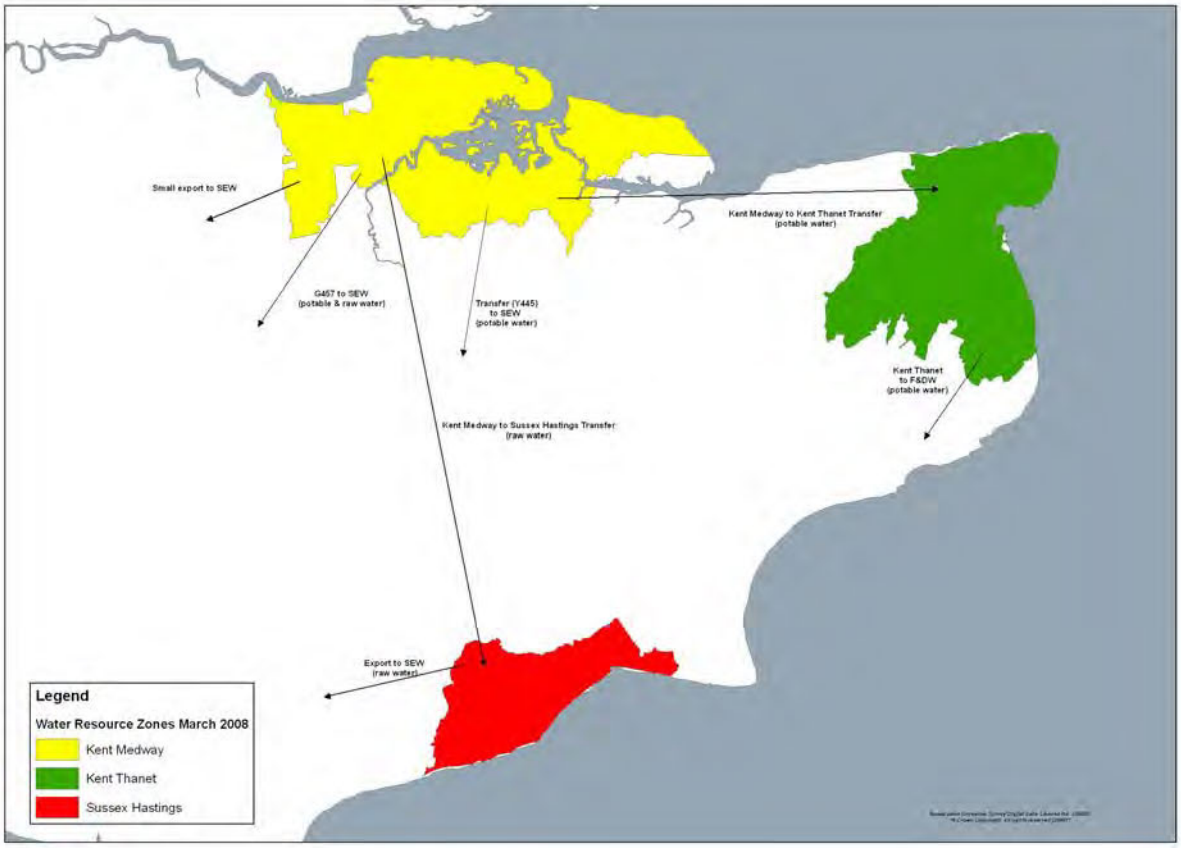


Figure 10.35 Schematic of the Eastern Area

10.5.2 Sources of Supply

The area is supplied by both surface water and groundwater sources. There are four surface water sources and over 50 groundwater sources. Groundwater abstraction is almost exclusively from the Chalk aquifer with a few small sources that abstract from the Lower Greensand. Most of the sources comprise boreholes only, but a number also have a well and adit design.

The surface water sources comprise the three reservoirs; Bewl Water, Darwell and Powdermill and a small direct river abstraction at T656.

G457 is the largest surface water source in the area. It comprises Bewl Water, a reservoir at the headwaters of the River Medway, which is filled from two river intakes, on the River Teise and the River Medway. The reservoir supports the company's downstream abstraction, from where water is pumped for treatment at P647. South East Water is entitled to 25% of the yield of the scheme, and takes some of its entitlement as treated water at P647 and the rest as raw water directly to its treatment works at Bewl Water. There is also a raw water transfer between Bewl Water and Darwell reservoir. This transfer assists in enhancing the yield of Darwell to support the Sussex Hastings WRZ. There is also a bulk supply made from Darwell reservoir to South East Water.

The only surface water source in the Kent Thanet WRZ is on the River Stour. It is a run-of-river abstraction, and subject to a Minimum Residual Flow condition. This abstraction is supported by discharge from a wastewater treatment works, which allows abstraction to continue when the river flow reduces to below the Minimum Residual Flow which controls the abstraction

There are two small reservoirs in the Sussex Hastings WRZ, Darwell and Powdermill. Both are pumped storage impounding reservoirs, with pumped inflows from the Eastern Rother to

Darwell and from the River Brede to Powdermill respectively. There is also the facility to transfer from Bewl Water to Darwell reservoir via a raw water transfer pipeline.

10.5.3 Supplies Available

The total deployable output for the area is 242.2 Ml/d at ADO and 289.7 Ml/d at PDO. Each WRZ has a different mixture of types of source, and thus a different ratio of groundwater to surface water. These proportions are shown in Table 10.18, which demonstrates that, whilst the area proportion is 68% groundwater : 32% surface water (ADO), this varies from almost complete dominance of groundwater in the Kent Thanet WRZ to almost complete dominance of surface water in the Sussex Hastings WRZ, with the Kent Medway WRZ having an intermediate balance of 76% groundwater : 24% surface water.

WRZ	Groundwater			Surface Water			Total	
	No. sources	ADO Ml/d	PDO Ml/d	No. sources	ADO Ml/d	PDO Ml/d	ADO Ml/d	PDO Ml/d
Sussex Hastings	5	1.89	3.50	2	38.08	42.85	39.97	46.35
Kent Medway	33	110.44	135.67	1	30.90	46.90	141.34	182.57
Kent Thanet	12	56.36	57.29	1	4.51	3.50	60.87	60.79
Total	**53**	**168.69**	**196.46**	**4**	**73.49**	**93.25**	**242.18**	**289.71**

Note: Values are for indigenous sources only, and do not take either inter-zonal or inter-company transfers into account.
Note: further detail is given for individual sources in Appendix D.1

Table 10.18 Summary of PR09 Base Year (2010-11) Deployable Outputs for the Eastern Area

This variation in the groundwater to surface water ratio has a major influence on how the area's sources are managed strategically especially when planning for the extreme conditions of a design event. This is an important influence when assessing the most appropriate options for future development.

10.5.4 Strategic Management of Sources

The inter-connections between the various WRZs in the Eastern Area enable the whole area to be strategically managed in a conjunctive way, especially in the design drought event. The nature of the different types of sources within the area, especially the presence of surface water storage, means that the area is generally resilient to one season droughts, but becomes more vulnerable to two season, and particularly to three season drought events, which see the progressive depletion of both surface water and groundwater storage. The Kent Medway WRZ, and the River Medway Scheme in particular, is central to the strategic management of supplies throughout the Eastern Area. The balance of groundwater and surface water supplies is vital in ensuring that the WRZ is provided with some resilience in the event of differing drought conditions. The Kent Medway WRZ supports the Kent Thanet WRZ via a potable water main, and the Sussex Hastings WRZ via the Bewl-Darwell transfer.

The Kent Thanet WRZ is supplied almost exclusively from groundwater sources. It is therefore prone to water resources stress in the event of prolonged periods of low rainfall and drought, which leads to the progressive depletion of groundwater. A number of the sources have extensive adit systems, which can make them even more susceptible to drought conditions. A risk assessment has concluded that adits should not be de-watered due to the

risk of structural failure and increased turbidity. Support can be provided form the Kent Medway WRZ via a potable water main, although this is also groundwater dependant. However these groundwater sources can be supported by the strategic use of the River Medway Scheme. The nature of the conjunctive use of these surface water sources means that the ratio of loss of water at Bewl and gain at Darwell is not 1:1. The supply demand balance takes this into account by an adjustment in the transfer which reverses a small proportion of water to maximise supplies in the Eastern Area as a whole.

The Sussex Hastings WRZ is dependent on surface water supplies from the two reservoirs at Darwell and Powdermill. These two reservoirs are smaller than Bewl and are prone to the effects of shorter duration droughts, even single winter events. However, this can be offset through enhanced refill support via the Bewl-Darwell transfer, which in turn is dependent on the River Medway Scheme.

G457 is thus important to the supply demand balance of the Eastern Area. It should also be noted that, in the event of design drought conditions, this is the only source that can benefit significantly from the introduction of Drought Orders/Permits. Unfortunately, this has been the case too frequently in the past 20 years, with 18 successful applications for Drought Orders/Permits (see section 10.5.7.2). In order to reduce the frequency of applications, more resilience is required for the Eastern Area.

10.5.5 Demand Summary

Southern Water provides drinking water to a population in the area of about 722,500. Normal year average annual demands are 181.0 Ml/d, which can rise to 195.7 Ml/d during dry years. However, during dry years, the demands at the critical MDO and PDO periods can be 186.8 Ml/d and 241.5 Ml/d respectively, as shown in Table 10.19.

WRZ	Population (000s)	Normal Year Average Annual demand (Ml/d)	Dry Year Annual Average demand (Ml/d)	Dry Year MDO demand (Ml/d)	Dry Year Peak Period demand (Ml/d)
Kent Medway	441.31	111.97	122.33	116.47	148.95
Kent Thanet	180.19	43.43	46.39	43.67	59.81
Sussex Hastings	101.03	25.63	26.95	26.69	32.69
Eastern Area	**722.53**	**181.03**	**195.67**	**186.83**	**241.45**

Table 10.19 Summary of Base Year (2007-08) Demand for the Eastern Area

10.5.6 Strategic Development to Date

There have been a number of strategic developments in the area over the last 10-15 years, which are summarised as follows:

- Leakage has decreased over the last 12 years from 28.2 Ml/d to 26.0 Ml/d;
- There has been an increase in meter installation over the last 12 years from 7% to 28%;
- A new river abstraction to enhance the refill of Bewl Water and thus the deployable output of G457;
- The Bewl-Darwell transfer, subsequently upgraded in 2003, to enhance the deployable output of Darwell reservoir and improve security of supplies to the Sussex Hastings WRZ and provide a bulk supply to South East Water; and

- A number of groundwater sources were improved and/or re-introduced as part of the 2004-06 drought initiative in the Kent Medway WRZ.

10.5.7 Levels of Service

The area, as with other parts of the south-east, has suffered from the effects of the recent droughts, in 1989-92, 1995 and more recently 2004-06. There was serious stress on the area's water resources and a risk to security of supply. In order to respond to the increasingly severe drought conditions Southern Water followed its Drought Plan and introduced its programme of both demand side and supply side which had an impact on Customer and Environmental Levels of Service.

10.5.7.1 Customer Levels of Service

A summary of the frequency of restrictions since 1989., compared to Target Levels of Service, is given in Table 10.20. Despite its best endeavours to alleviate the effects of the droughts, Southern Water was unable to meet its Target Levels of Service:

- In some WRZs in this area the company has introduced sprinkler/full hosepipe bans in eight out of the last 20 years (40%), although this varied from six years (30%) in the Kent Medway and Kent Thanet WRZs to eight years (40%) in the Sussex Hastings WRZ.
- The amount of time on average that customers have been subject to restrictions, calculated as the percentage of the actual (population times weeks of restriction) compared to the total (population times weeks under review is 22% (varying from 21% in the Kent Thanet WRZ to 27% in the Sussex Hastings WRZ). It would be expected that, for Target Levels of Service to be met, this measure would be a maximum of 10%.

There have also been a number of Drought Orders to restrict the so-called "non-essential uses" of water. These were restricted to the Kent Medway and Kent Thanet WRZs, and occurred during the early 1990s. A Drought Order was granted in 2006, and covered the whole area. It turned out that powers granted under this Drought Order did not need to be used due to the successful introduction of a number of other supply and demand side measures combined with wetter hydrological conditions.

WRZ	Target Levels of Service		Actual Level of Service	
	1 in x years	% years	% no. of reporting years (taken as the no. of years, irrespective of duration during the year)	Time expressed as % of (population x weeks)
Hosepipe / Sprinkler ban				
Kent Medway	1:10	10%	30%	21%
Kent Thanet	1:10	10%	30%	21%
Sussex Hastings	1:10	10%	40%	27%
Eastern Area	**1:10**	**10%**	**40%**	**22%**
Drought Orders implemented "Non essential use" ban				
Kent Medway	1:20	5%	20%	11%
Kent Thanet	1:20	5%	20%	11%
Sussex Hastings	1:20	5%	-	-
Eastern Area	**1:20**	**5%**	**20%**	**9%**

Table 10.20 Summary of Restrictions in the Eastern Area Since 1989

10.5.7.2 Environment Levels of Service

There have also been 36 Drought Permits/Orders granted since 1989. The following summary gives the sources affected and the terms of the Drought Permit/Order;

- G457 – eighteen Drought Permit/Orders, which authorised the reduction in Minimum Residual Flow conditions controlling abstractions and releases. Whilst most of these were for the purpose of winter refill, some were granted for the more environmentally sensitive summer period, although all authorisations included measures for appropriate environmental mitigation;
- T656 – seven Drought Orders, which authorised the reduction in Minimum Residual Flow conditions controlling abstractions;
- Bewl Darwell transfer – two Drought Orders, which enabled the transfer of water between Bewl Water and Darwell reservoir, pending abstraction licences being subsequently issued;
- Kent Groundwater – two Drought Orders, which authorised the relaxation of abstraction licence conditions for specific sources that were licence constrained in terms of either/and/or peak day, seasonal and annual limits;
- Medway Groundwater – three Drought Orders which authorised the relaxation of abstraction licence conditions for specific sources that were licence constrained in terms of either/and/or peak day, seasonal and annual limits; and
- Thanet Groundwater – five Drought Orders which authorised the relaxation of abstraction licence conditions for specific sources that were licence constrained in terms of either/and/or peak day, seasonal and annual limits;

There were a number of occasions when the sources did not, in the event, need to be operated under the terms of the Drought Permit/Order. Nevertheless it was essential that the Drought Permits/Orders were place, should the drought conditions have continued with increasing and unacceptable risks to security of supplies. It should also be noted that all authorisations were subject to environmental assessment which identified appropriate environmental mitigation measures.

Southern Water considers that the past performance against its Target Levels of Service on both the customer and the environmental side must be improved. This can only be achieved though the introduction of a number of supply and demand side measures to create a more robust supply system with a supply demand balance that is resilient to drought conditions which may become more severe and more frequent under climate change.

10.5.7.3 Influence of a supply demand balance deficit on operations during a drought

Even after taking into account inter-zonal transfers to reduce baseline supply demand balance deficits, Kent Medway and Kent Thanet WRZs would experience deficits in the first four and two years of the AMP5 period respectively. There would be no deficits in the Sussex Hastings WRZ.

The Kent Medway WRZ has a supply demand balance deficit for the first four years of the planning period for the ADO condition only, of about 7 Ml/d for the first two years, followed by 3 Ml/d and 0.3 Ml/d by the fourth year. This represents between about 6 and 1 % of Distribution Input respectively, and compares to the sum of the planning allowances for target headroom and outage of about 10 Ml/d.

The ADO situation, although sensitive, can be managed in the event of drought conditions through the conjunctive use of the different types of sources in the WRZ. Whilst these deficits are noteworthy for the first two years, the situation will require monitoring closely, and any opportunity to accelerate the groundwater asset improvement schemes for the WRZ should be taken.

The Kent Thanet WRZ has a supply demand balance deficit for the first two years of the planning period for the PDO condition only, of about 4 Ml/d and 3 Ml/d respectively. This represents about 7 %and 5 % of Distribution Input respectively, and compares to the sum of the planning allowances for target headroom and outage of about 8 Ml/d.

The PDO situation, although sensitive, can be managed in the event of drought conditions through the conjunctive use of the different types of sources in the adjacent Kent Medway WRZ, which can enable possibly greater inter-zonal transfers, depending on the operational supply demand balance in the adjacent WRZs. Whilst these deficits are noteworthy for the first two years, the situation will require monitoring closely, and any opportunity to accelerate the groundwater asset improvement schemes for the WRZ should be taken.

10.5.8 The Baseline Supply Demand Balance for the Eastern Area

The baseline supply demand balances in the WRP tables assume the following for each WRZ in the Eastern Area:

- Continuation of current metering policies. In 2007-08 there were 302,300 domestic properties in this area, 30% of which were metered. By 2015, the number of metered domestic properties is expected to rise to 162,300;
- Deployable outputs according to the Unified Methodology, which ensures that the deployable outputs for groundwater and surface water sources are estimated for the same design drought event;
- Deployable outputs include assumed incremental yields from source improvements for both AMP4 and planned for the AMP5 period, with timings assumed throughout the AMP5 period;
- No Sustainability Reductions (as advised by the Environment Agency);
- Renewal of existing inter-company bulk transfers until the end of the planning period, at the rates prevailing at the time of contract renewal; and
- Inter-zonal transfers are adjusted in the supply demand balance to represent the optimal use of surplus resources; while for the purposes of the investment model they are set to zero at the start of the planning period.

The baseline supply demand balance over the planning period are given in Table 10.21 for both the ADO and PDO conditions, and are shown in annotated graphs as Figure 10.36 to Figure 10.41. Full detailed build-up tables are given in Appendix I.

Note that in the Eastern Area, Kent Medway WRZ is driven by annual average (AA) deficits rather than MDO, while the other two WRZs are driven by peak deficits. Thus the Eastern Area solution is based on PDO and ADO design scenarios, not the PDO and MDO scenario used in other areas.

Water Resource Zone	Planning scenario	Base year 2007-08	2009-10	Start of planning period 2010-11	2014-15	2019-20	2024-25	2029-30	2034-35
Kent Medway	ADO	19.15	20.80	-7.37	3.68	0.63	-3.74	-8.47	-12.30
Kent Thanet	ADO	10.56	11.25	7.40	8.23	7.95	7.06	6.04	5.04
Sussex Hastings	ADO	0.00	0.00	0.00	0.00	0.00	0.00	0.02	-1.54
Kent Medway	PDO	7.21	10.36	0.00	11.02	6.96	0.33	0.00	-5.26
Kent Thanet	PDO	0.00	0.00	-4.00	0.00	0.00	0.00	-6.64	-8.17
Sussex Hastings	PDO	-0.82	0.00	0.00	0.00	0.00	0.00	-1.06	-2.79

Notes: Positive figures indicate a surplus of resources, negative indicate a deficit

Table 10.21 Baseline Supply Demand Balance for Eastern Area for the ADO and PDO Condition (Ml/d)

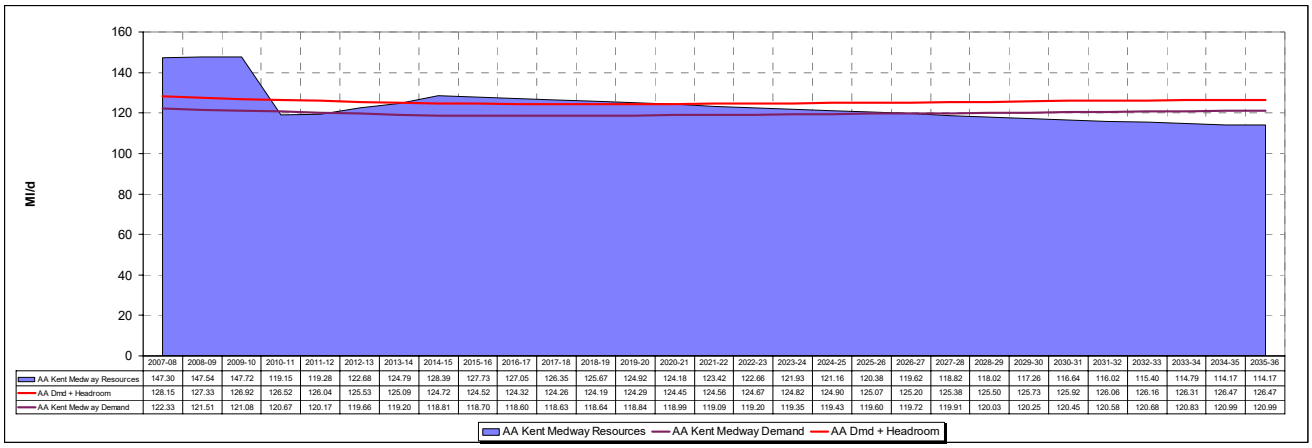
In these baseline supply demand balances, inter-zonal transfers from 2010-11 are balanced to make the best use of inter-connected resources where water can be transferred from a WRZ with a surplus to one with a deficit. At the same time, the investment model is able to chose whether it is better to cease continue, or increase, existing inter-zonal transfers, or to develop new resources, or enhance demand management in the WRZ in deficit.

For the ADO condition:

- The Kent Medway WRZ starts the planning period with a deficit, but achieves a surplus by the end of AMP5 due to various source improvements, and only goes into deficit near the end of the planning period;
- The Kent Thanet WRZ starts the planning period with a surplus, which remains throughout the planning period; and
- The Sussex Hastings WRZ starts the planning period with sufficient supplies and only goes into deficit near the end of the planning period.

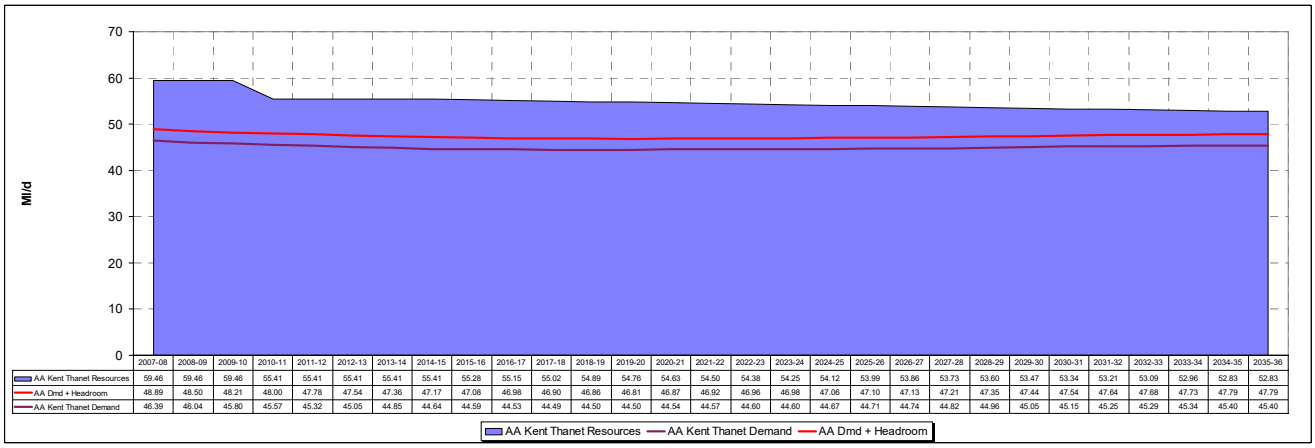
For the PDO condition:

- The Kent Medway WRZ starts the planning period in surplus, and remains so until after 2029-30 with some surplus water transferred to Kent Thanet as required;
- The Kent Thanet WRZ starts the planning period in deficit, before surplus water from Kent Medway is transferred and able to meet demand until the end of AMP7 when it returns to deficit; and
- The Sussex Hastings WRZ starts the planning period with sufficient supplies, but goes into deficit after 2024-25.



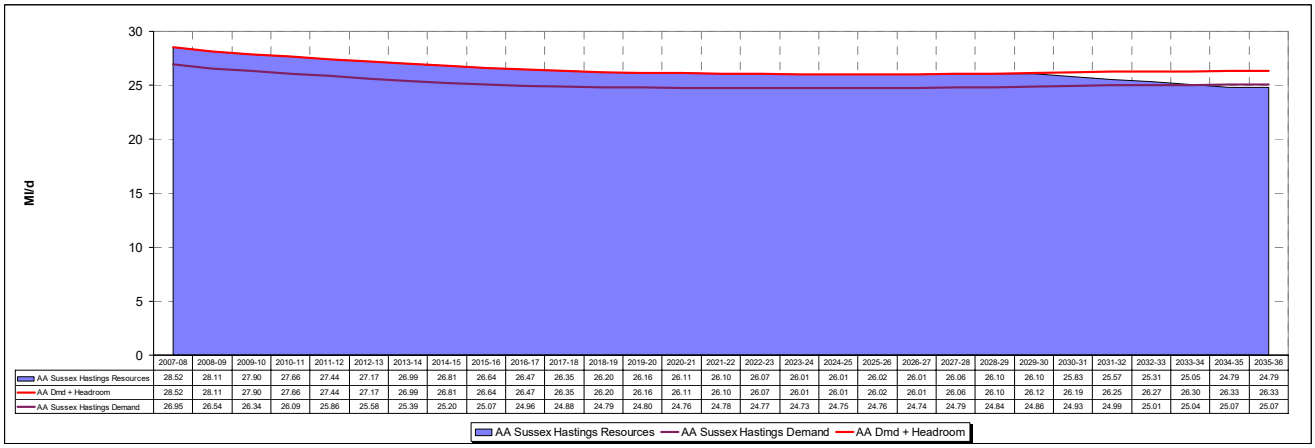
	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36
AA Kent Medway Resources	147.30	147.54	147.72	119.15	119.28	122.68	124.79	128.39	127.73	127.05	126.35	125.67	124.92	124.18	123.42	122.66	121.93	121.16	120.38	119.62	118.82	118.02	117.26	116.64	116.02	115.40	114.79	114.17	114.17
AA Dmd + Headroom	128.15	127.33	126.92	126.52	126.04	125.53	125.09	124.72	124.52	124.32	124.26	124.19	124.29	124.45	124.56	124.67	124.82	124.90	125.07	125.20	125.38	125.50	125.73	125.92	126.06	126.16	126.31	126.47	126.47
AA Kent Medway Demand	122.33	121.51	121.08	120.67	120.17	119.66	119.20	118.81	118.70	118.60	118.63	118.64	118.84	118.99	119.09	119.20	119.35	119.43	119.60	119.72	119.91	120.03	120.25	120.45	120.58	120.68	120.83	120.99	120.99

Figure 10.36 Kent Medway ADO Baseline Supply Demand Balance



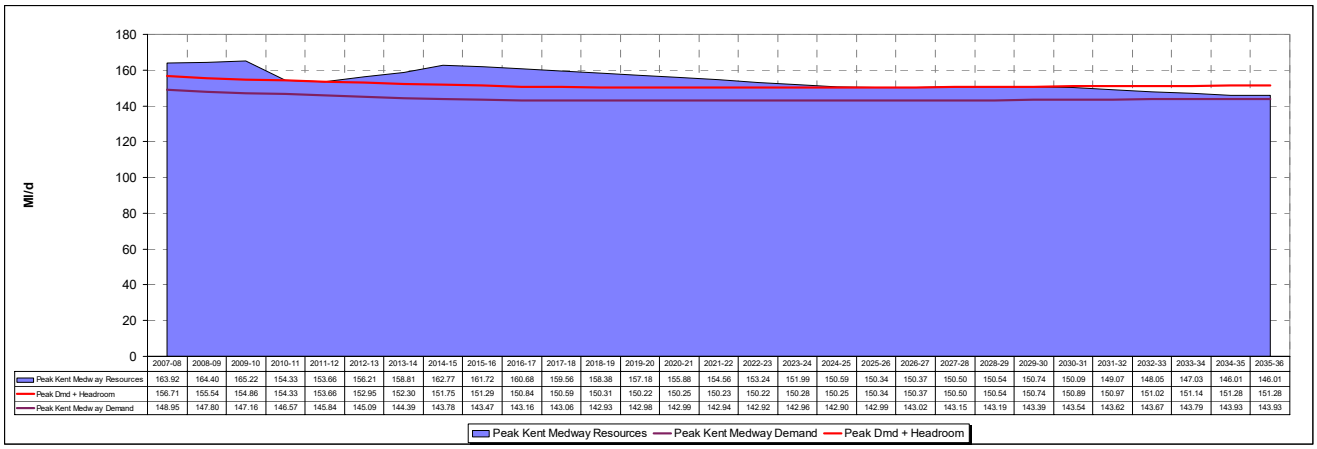
	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36
AA Kent Thanet Resources	59.46	59.46	59.46	55.41	55.41	55.41	55.41	55.41	55.28	55.15	55.02	54.89	54.76	54.63	54.50	54.38	54.25	54.12	53.99	53.86	53.73	53.60	53.47	53.34	53.21	53.09	52.96	52.83	52.83
AA Dmd + Headroom	48.89	48.50	48.21	48.00	47.78	47.54	47.36	47.17	47.08	46.98	46.90	46.86	46.81	46.87	46.92	46.96	46.98	47.06	47.10	47.13	47.21	47.35	47.44	47.54	47.64	47.68	47.73	47.79	47.79
AA Kent Thanet Demand	46.39	46.04	45.80	45.57	45.32	45.05	44.85	44.64	44.59	44.53	44.49	44.50	44.50	44.54	44.57	44.60	44.60	44.67	44.71	44.74	44.82	44.96	45.05	45.15	45.25	45.29	45.34	45.40	45.40

Figure 10.37 Kent Thanet ADO Baseline Supply Demand Balance



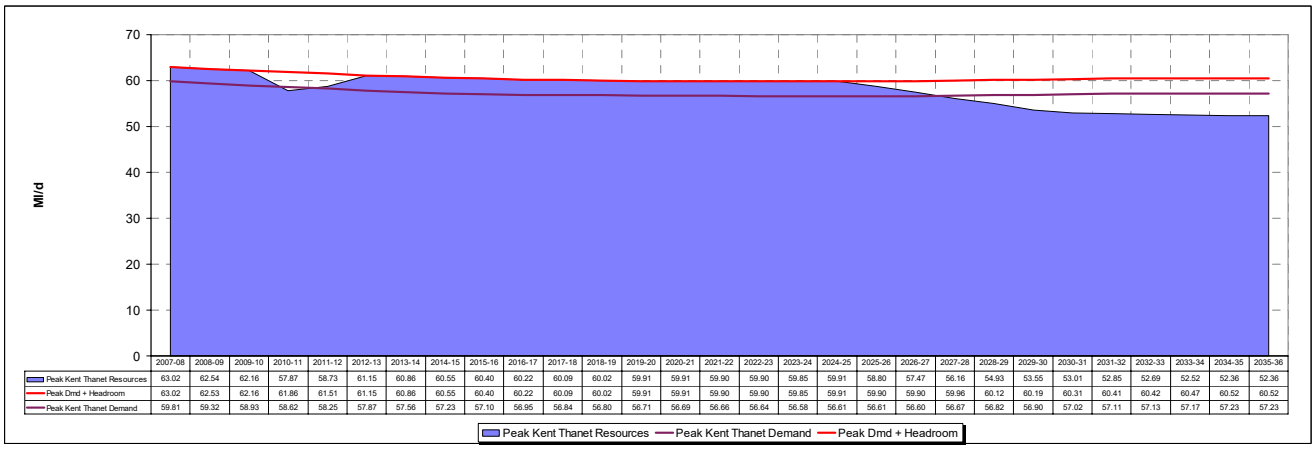
	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36
AA Sussex Hastings Resources	28.52	28.11	27.90	27.66	27.44	27.17	26.99	26.81	26.64	26.47	26.35	26.20	26.16	26.11	26.10	26.07	26.01	26.01	26.02	26.01	26.06	26.10	26.10	25.83	25.57	25.31	25.05	24.79	24.79
AA Dmd + Headroom	28.52	28.11	27.90	27.66	27.44	27.17	26.99	26.81	26.64	26.47	26.35	26.20	26.16	26.11	26.10	26.07	26.01	26.01	26.02	26.01	26.06	26.10	26.12	26.19	26.25	26.27	26.30	26.33	26.33
AA Sussex Hastings Demand	26.95	26.54	26.34	26.09	25.86	25.58	25.39	25.20	25.07	24.96	24.88	24.79	24.80	24.76	24.78	24.77	24.73	24.75	24.76	24.74	24.79	24.84	24.86	24.93	24.99	25.01	25.04	25.07	25.07

Figure 10.38 Sussex Hastings ADO Baseline Supply Demand Balance



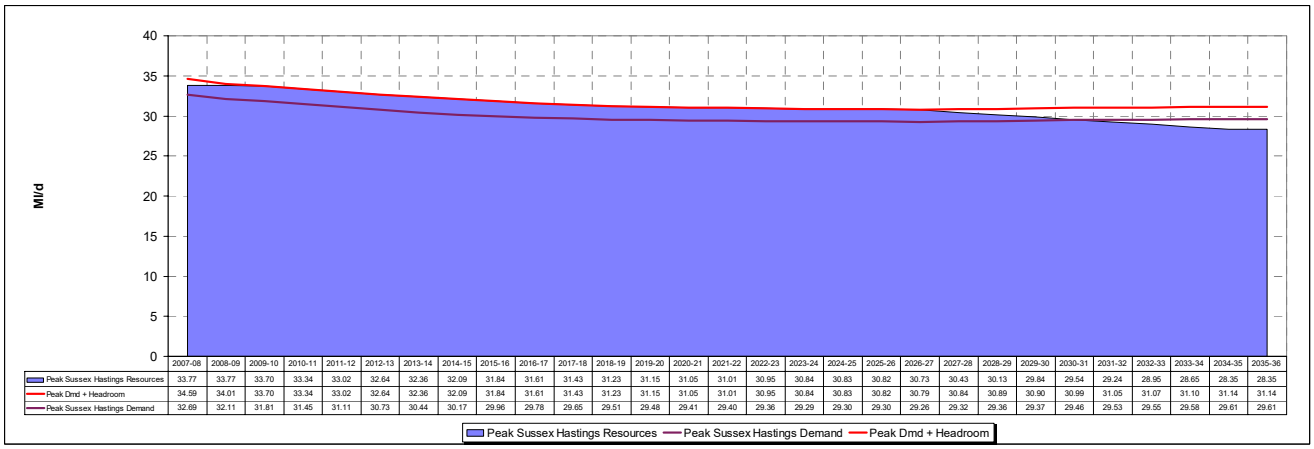
	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36
Peak Kent Medway Resources	163.92	164.40	165.22	154.33	153.66	156.21	158.81	162.77	161.72	160.68	159.56	158.38	157.18	155.88	154.56	153.24	151.99	150.59	150.34	150.37	150.50	150.54	150.74	150.09	149.07	148.05	147.03	146.01	146.01
Peak Dmd + Headroom	156.71	155.54	154.86	154.33	153.66	152.95	152.30	151.75	151.29	150.84	150.59	150.31	150.22	150.25	150.23	150.22	150.28	150.25	150.34	150.37	150.50	150.54	150.74	150.89	150.97	151.02	151.14	151.28	151.28
Peak Kent Medway Demand	148.95	147.80	147.16	146.57	145.84	145.09	144.39	143.78	143.47	143.16	143.06	142.93	142.98	142.99	142.94	142.92	142.96	142.90	142.99	143.02	143.15	143.19	143.39	143.54	143.62	143.67	143.79	143.93	143.93

Figure 10.39 Kent Medway PDO Baseline Supply Demand Balance



	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36
Peak Kent Thanet Resources	63.02	62.54	62.16	57.87	58.73	61.15	60.86	60.55	60.40	60.22	60.09	60.02	59.91	59.91	59.90	59.90	59.85	59.91	58.80	57.47	56.16	54.93	53.55	53.01	52.85	52.69	52.52	52.36	52.36
Peak Dmd + Headroom	63.02	62.53	62.16	61.86	61.51	61.15	60.86	60.55	60.40	60.22	60.09	60.02	59.91	59.91	59.90	59.90	59.85	59.91	59.90	59.90	59.96	60.12	60.19	60.31	60.41	60.42	60.47	60.52	60.52
Peak Kent Thanet Demand	59.81	59.32	58.93	58.62	58.25	57.87	57.56	57.23	57.10	56.95	56.84	56.80	56.71	56.69	56.66	56.64	56.58	56.61	56.61	56.60	56.67	56.82	56.90	57.02	57.11	57.13	57.17	57.23	57.23

Figure 10.40 Kent Thanet PDO Baseline Supply Demand Balance



	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36
Peak Sussex Hastings Resources	33.77	33.77	33.70	33.34	33.02	32.64	32.36	32.09	31.84	31.61	31.43	31.23	31.15	31.05	31.01	30.95	30.84	30.83	30.82	30.73	30.43	30.13	29.84	29.54	29.24	28.95	28.65	28.35	28.35
Peak Dmd + Headroom	34.59	34.01	33.70	33.34	33.02	32.64	32.36	32.09	31.84	31.61	31.43	31.23	31.15	31.05	31.01	30.95	30.84	30.83	30.82	30.79	30.84	30.89	30.90	30.99	31.05	31.07	31.10	31.14	31.14
Peak Sussex Hastings Demand	32.69	32.11	31.81	31.45	31.11	30.73	30.44	30.17	29.96	29.78	29.65	29.51	29.48	29.41	29.40	29.36	29.29	29.30	29.30	29.26	29.32	29.36	29.37	29.46	29.53	29.55	29.58	29.61	29.61

Figure 10.41 Sussex Hastings PDO Baseline Supply Demand Balance

10.5.9 Options to Meet the Supply Demand Balance in the Eastern Area

A number of demand and supply side options have been considered to meet any supply demand balance deficit.

The supply side options have been assessed using the options appraisal methodology described in section 8. In summary, an initial list of some 90 options has been considered within the Eastern Area, for which further details are given in Appendix G.

Following the various screening processes, the number of "feasible" options, by generic type, chosen to be available for selection by the investment model can be summarised, by generic type, as follows:

- One site for new surface storage reservoir, for which Southern Water would take the lead, although another was considered for possible joint promotion;
- One site for possible increases in abstraction from either surface or groundwater;
- Two sites for enlarging existing reservoirs;
- One site for potential re-commissioning of old/existing sources;
- Three possible abstraction licence variations;
- No sites for the further upgrade of WSW treatment facilities, for the purposes of the supply demand balance;
- Two potential inter-zonal bulk transfers, either existing or proposed, although this was modified as part of the introduction of the results from the WRSE modelling work;
- No potential inter-company bulk transfers, either existing or proposed;
- Four potential schemes for wastewater recycling;
- No sites for potential Aquifer Storage and Recovery schemes; and
- Four potential schemes for desalination.

The summary shows that a wide range of generic types of option were available for selection, thus ensuring that the selection of preferred schemes was robust. The total number includes a number of generic schemes, for instance desalination, at the same site but for different capacities. This was to ensure that a generic option was not ruled out from selection on the basis of the size and associated cost alone.

There are three generic types of demand management measures: metering; leakage reduction; and water efficiency. Different modelling scenarios have been devised to reflect a different selection of options (see section 10.1.10).

As noted in section 10.3.8, scenario 3 (Universal Metering) has been used as the starting point for the supply demand balance from which the Final Planning solution has been developed.

In order to consider leakage options, a number of incremental "step" reductions in leakage were considered, based on outputs from the Sustainable Economic Level of Leakage analysis, as explained in Chapter 6 and Appendix E.

Water efficiency options for both households and non-households were included in the model. More details are given in section 8 and Appendix G.

10.5.10 The Water Resources Strategy for the Eastern Area

The water resources strategy is described in three different sections over the planning period:

- AMP5, the first five years from 2010-11 to 2014-15, which formed the basis of the Final Business Plan Submission;
- AMP6 to the end of the planning period, based on the company only least-cost strategy; and then
- An explanation of how this company only strategy is modified to take into account the recommendations of the WRSE regional modelling results.

The company preferred water resources strategy is described below under each of these headings and is summarised in Table 10.22.

During AMP5 (2010-2015)

The supply demand balance will be satisfied in the Eastern Area for the AMP5 period through the following:

- A policy of universal metering throughout the area by 2015, which will give benefits in terms of demand savings and associated reductions in supply pipe leakage;
- The optimisation of inter-zonal transfers, namely from the Kent Medway to Kent Thanet and the Kent Medway to Sussex Hastings WRZs; and
- A series of groundwater source improvements, which could deliver up to 8.75 Ml/d for the annual average condition.

From AMP6 to the end of the planning period (2015-35) (company only)

For the company only least-cost solution, no strategic scheme has been selected for construction. Instead, there will be a series of small interventions over time, on both the demand and supply side, which will require a delicate balance to ensure that available headroom is kept to a minimum above target headroom. These interventions are as follows:

- A licence variation for the River Medway Scheme;
- A licence variation for Darwell Reservoir;
- A licence variation for the S271 groundwater source;
- The refurbishment of a currently disused groundwater source at S556; and
- A total further reduction in leakage of 7.1 Ml/d, which is equivalent to a reduction of 27% below the 2007-08 outturn figure.

It is assumed that the current inter-company bulk transfers to South East Water at C522 and Darwell reservoir, and to Folkestone and Dover Water at Deal reservoir will be renewed until the end of the planning period.

From AMP6 to the end of the planning period (2015-35) (company preferred regional solution)

Following the WRSE modelling results, Southern Water reaffirmed its commitment to the development of a regional solution. As a result of the preferred options identified from the WRSE modelling work, we have included the following options in our company preferred regional strategy, over and above the company only least-cost solution:

- Enhancement of the bulk supply to Folkestone and Dover Water from Deal reservoir, to provide an additional supply from January to August, of 2 Ml/d;
- Construction of Aylesford wastewater recycling scheme at the earliest start date of 2018; and
- Raising Bewl Water at the earliest start date of 2022.

The last two schemes are regional schemes that would provide bulk supplies to neighbouring companies. It is currently considered that the most likely recipients will be South East Water, although the timing, location and volumetric requirements are yet to be received and confirmed. Current assumptions within this plan are based on the latest published modelling work up to September 2009. Future modelling results will be considered at the time of the annual reviews of the WRMP

The inclusion of these regional schemes in the company preferred regional strategy will increase the 25-year NPV by £47.4 million above the company only least-cost strategy. However, in practice, this is likely to be an over-estimate, because both the Aylesford recycling and Bewl raising schemes are forced into the strategy at their earliest start dates. In practice, the schemes are likely to be required later in the planning period. The actual start date required for the regional solution will be refined following the results of the further regional modelling work. However, this approach demonstrates our continued commitment to the development of a regional solution.

The introduction of these schemes will lead to available headroom in excess of the Southern Water target headroom requirements, and thus will not represent a Southern Water least-cost strategy over the 25-year planning period. However, we believe that this will not contribute to any bill impact during AMP5 as the regional schemes will not be introduced until AMP6 and beyond.

The Water Resources Strategy for the Eastern Area is summarised in Table 10.22.

Water Resource Zone	Schemes During AMP 5	Schemes beyond AMP 5 – company only solution	Schemes beyond AMP 5 – Water Resources in the South East of England
Sussex Hastings	• Universal metering • Asset improvement schemes for groundwater sources (0.25 Ml/d peak only) • Optimisation of inter-zonal transfers (Bewl-Darwell transfer)	• Renewal of bulk supply to South East Water • Licence variation at Darwell reservoir • Re-introduction of the S556 source • 0.5 Ml/d leakage reductions	As previous column
Kent Medway	• Universal metering • Asset improvement schemes for groundwater sources (10.25 Ml/d peak, 8.75 Ml/d average) • Optimisation of inter-zonal transfers (to Kent Thanet)	• Renewal of the C522 scheme bulk supply to South East Water • Licence variation to the River Medway Scheme • Licence variation of S271 groundwater source • 6.5 Ml/d of further leakage reduction	As previous column, but additional schemes • Aylesford wastewater recycling scheme • Raising Bewl Water An the assumption that these will enable the following • Bulk Supply from Bewl Water to South East Water • Bulk Supply from Burham to South East Water
Kent Thanet	• Universal metering • Optimisation of inter-zonal transfers (from Kent Medway) • Renewal of the bulk Supply to Folkestone and Dover	• 0.1 Ml/d of further leakage reduction	As previous column, but additional schemes • Enhancement of the bulk Supply to Folkestone and Dover

Table 10.22 Summary of the Water Resources Strategy for the Eastern Area

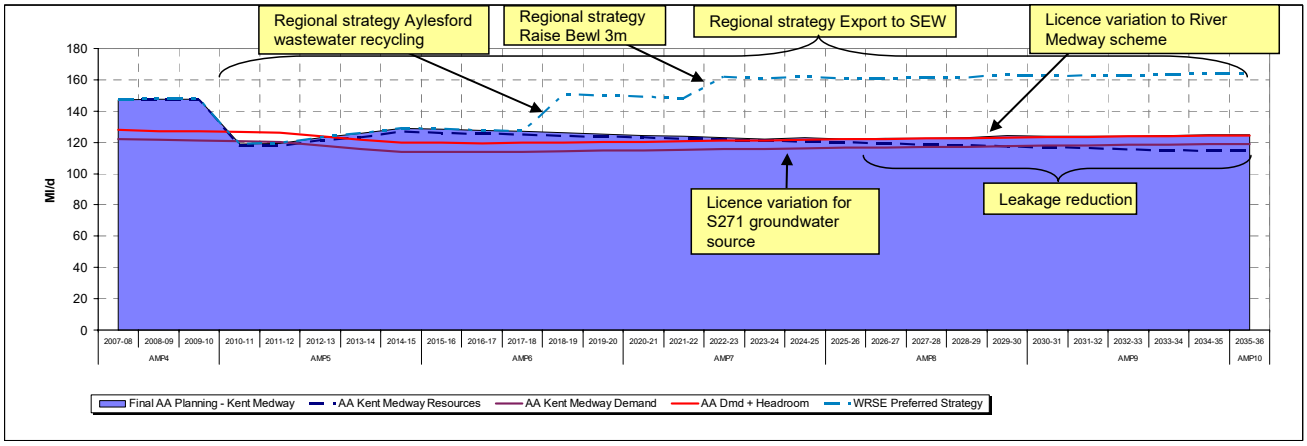


Figure 10.42 Kent Medway Company Preferred Regional Strategy (Scenario 4), ADO Solution

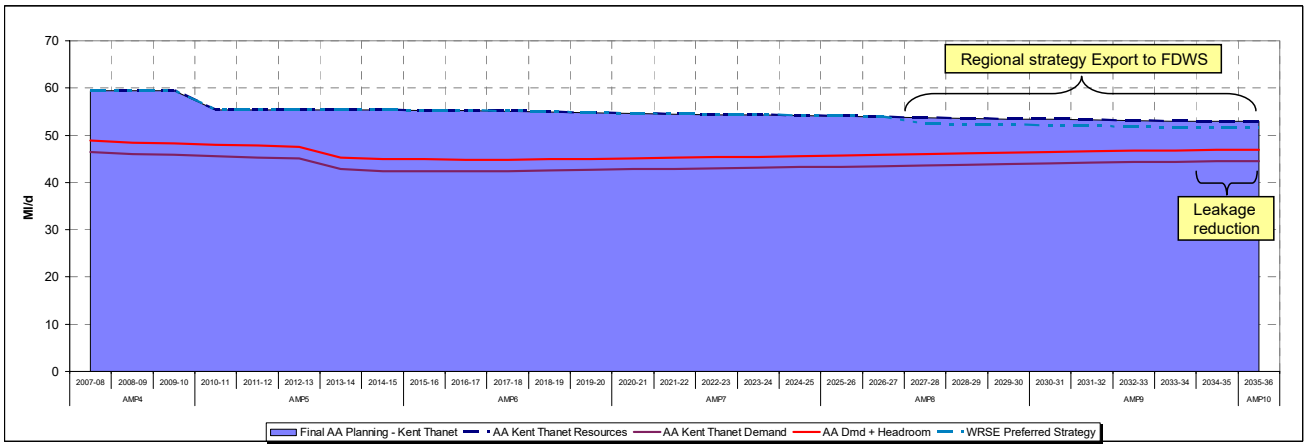


Figure 10.43 Kent Thanet Company Preferred Regional Strategy (Scenario 4), ADO Solution

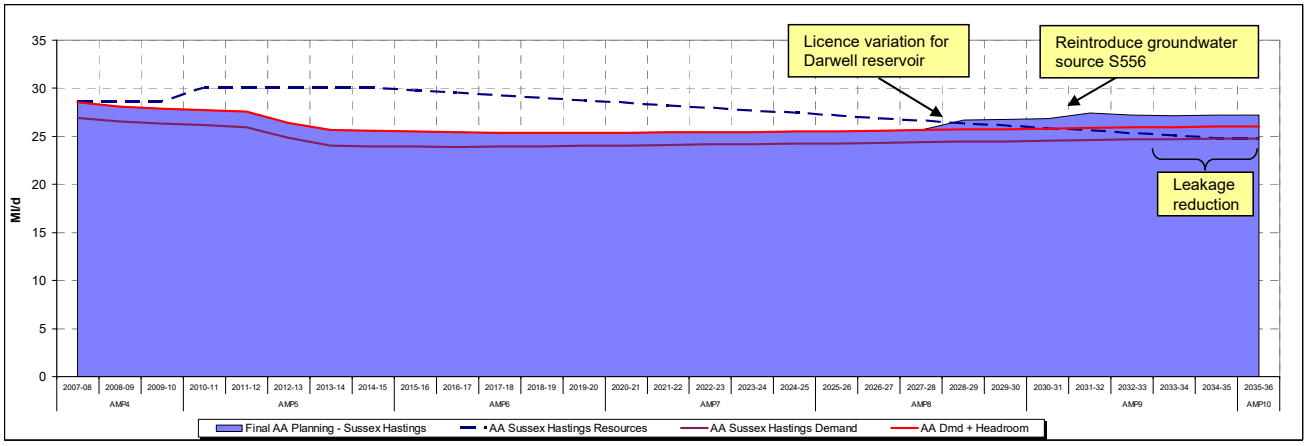


Figure 10.44 Sussex Hastings Company Preferred Regional Strategy (Scenario 4), ADO Solution

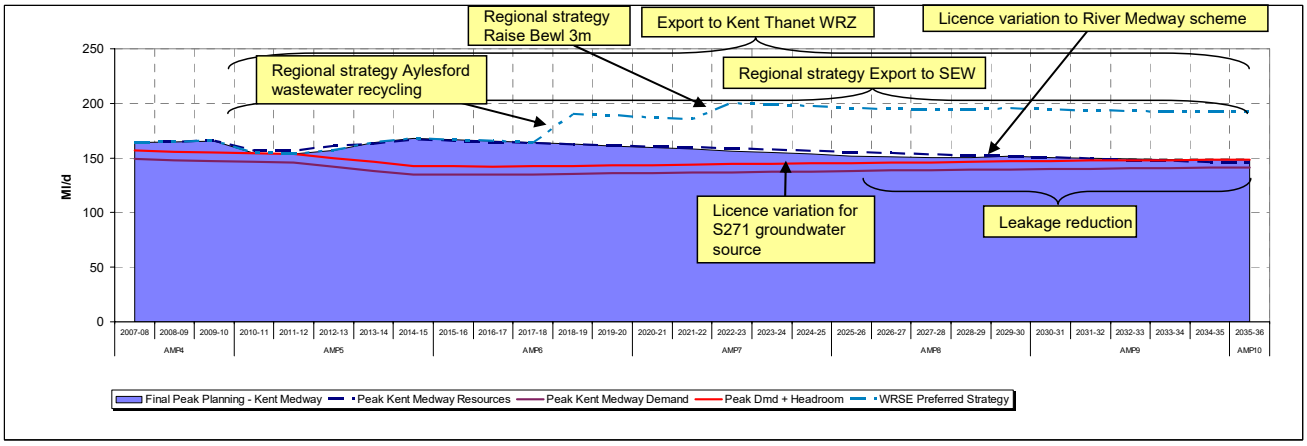


Figure 10.45 Kent Medway Company Preferred Regional Strategy (Scenario 4), PDO Solution

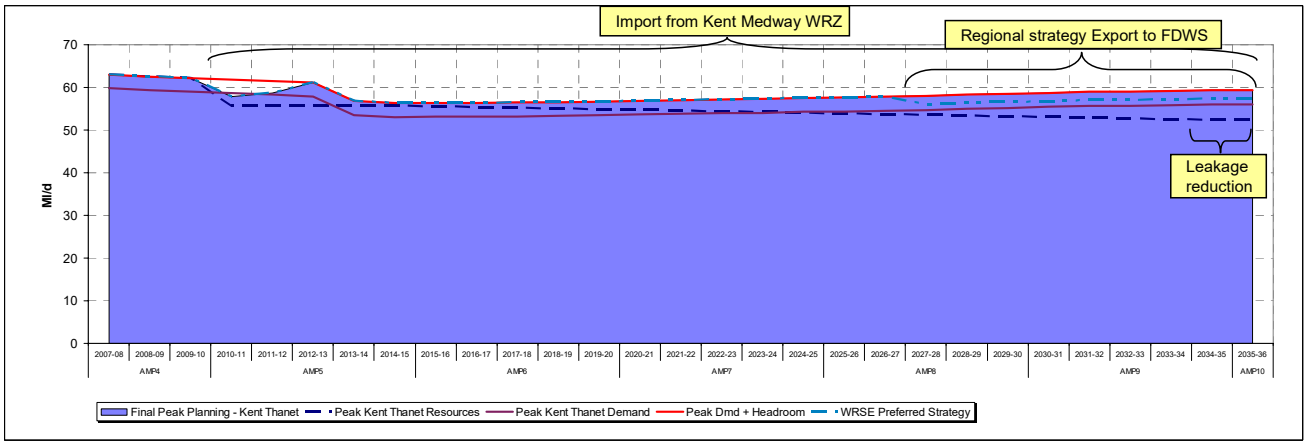


Figure 10.46 Kent Thanet Company Preferred Regional Strategy (Scenario 4), PDO Solution

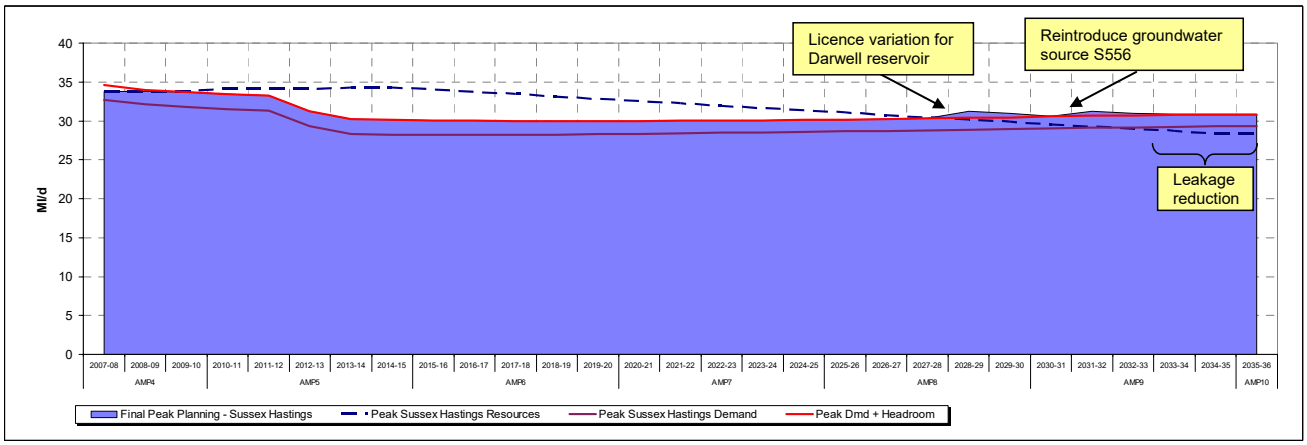


Figure 10.47 Sussex Hastings Company Preferred Regional Strategy (Scenario 4), PDO Solution

10.5.10.1 SEA Influence on Strategy

All options were assessed against 17 SEA objectives, and assigned an overall environmental risk (high, medium or low), based on the significance of potential long term effects.

Table 10.23 sets out the environmental risk of each resource development option. More details are given in Appendix I.

Option	Environmental Risk Score
Licence variation at S271	Medium
Licence variation for River Medway Scheme	Medium
Raise Bewl	High
Wastewater recycling at Aylesford WWTW	High
Darwell Licence Variation	Low
Re-introduce S556 borehole source	Medium
Medway Desalination (10 Ml/d)	High
Increase Capacity of Bewl-Darwell Transfer	Medium

Table 10.23 Environmental Risks of Resource Development Options Selected in the Eastern Area Strategy

The demand management options (metering; leakage reduction; and water efficiency) were also assessed against the SEA objectives. More detail is given in Appendix I. All three generic demand management measures are broadly compatible with the majority of SEA objectives due to the minimal amount of physical intervention required in implementing each measure. However, water efficiency measures have no potential conflicts with SEA objectives and are therefore the preferred demand management measure from an SEA perspective.

10.5.10.2 SEA preferred strategy

The options assessed as being likely to result in the lowest environmental risk are preferable from a SEA perspective and have been used to create the SEA preferred strategy. The low risk and therefore preferred water resource management options are set out below:

- Darwell Licence Variation; and
- Brede Abstraction to Powdermill.

However, the overriding objective of this WRMP is to identify a package of options that removes the risk of supply demand balance deficits over the whole of the planning period. It was therefore necessary to include within the SEA preferred strategy some options that had been assessed as having medium environmental risk. Employing the mitigation measures proposed for each option will enable the likely environmental damage from adopting these options to be reduced. The medium risk options from the SEA are:

- Licence variation at S271;
- Licence variation for River Medway Scheme;
- Duplicate Selling-Fleete Main;
- Re-introduce S556 borehole source; and
- Increase Capacity of Bewl-Darwell Transfer.

The company preferred regional strategy is therefore compatible with the SEA preferred strategy, with the exception of Bewl raising and Aylesford wastewater recycling. Both these schemes are required as part of the WRSE preferred strategy for a regional solution with bulk supplies to other companies. Bewl has strong negative effects on the landscape character

within the AONB, but has limited opportunities for mitigation planting due to lack of space. Aylesford wastewater recycling has a high environmental risk due to high energy consumption. Renewable energy sources could be investigated to reduce the potential effect. A preliminary 'high-level' strategic assessment was undertaken of the possible impact of the proposed plan on the integrity of European and Ramsar sites under the Habitats Regulations. This concluded that sufficient safeguards are available to ensure that implementation of the plan will not adversely affect the integrity of any of the protected sites.

The company only least-cost strategy (scenario 3) does not require either Bewl raising or Aylesford wastewater recycling, and so is entirely compatible with the SEA preferred strategy.

10.5.11 Scenario Analysis

A number of scenarios have been modelled, in order to check the stability of the company only least-cost strategy to changes in some of the basic assumptions. Table 10.24 gives a summary of the different baseline assumptions for these scenarios, and the results in terms of scheme inclusion, scheme timing, and costs for the different investment strategies. The following points can be seen from the results:

- The company only least-cost strategy (3) assumes the baseline condition of universal metering by 2015;
- All scenarios assume the renewal of existing bulk supplies to other companies until the end of the planning period, at the rates which are appropriate at the time of renewal;
- The company only least-cost strategy (3) selects further leakage reductions of 7.1 Ml/d;
- Under the company only change of occupier metering scenario (2), the scheme options remain the same, but they are needed 1-2 years earlier, and includes further leakage reductions of 9.6 Ml/d;
- Under the company only optant and selective metering scenario strategy (1), the same schemes are selected, but at times ranging from 2 to 4 years before the company only universal metering scenario (3), but the scenario also requires the Medway desalination scheme at the end of the planning period. The scenario includes further reductions in leakage of 8.7 Ml/d;
- Under the company preferred scenario, but without any allowance for climate change impacts (11), no resource development options are necessary, and no further leakage reduction is required; and
- Under the scenario which allows leakage to rise up to the Ofwat target level in any WRZ currently operating below its target level, the same options are required as for the company only universal metering scenario (3). However, there are a large number of water efficiency schemes needed in AMP5 (over and above those already included to meet the Ofwat baseline water efficiency target), and further leakage reduction of 10.0 Ml/d is required from 2010. The cost of this strategy was £14.8 m. greater than for the company preferred least-cost scenario (3).
- The total cost of the resources strategy (including new resources, leakage reduction, and water efficiency) plus metering strategy, for the various company only scenarios can be summarised as follows:
    - Universal metering - £65.4 m.
    - Change of occupier - £72.7 m.
    - Optant and selective - £68.6 m.

- Hybrid metering policy – £65.4 m. This is the same cost as for the universal metering because of the supply demand balance deficits occur in AMP 5.

- The incremental cost of the company preferred regional strategy above the company only least-cost strategy is £47.4 m.

Scenario		Company preferred Regional strategy	Company only Universal metering	Company only Change of occupier	Company only Optant	Company only Universal metering with no climate change	Company only Leakage rise to Ofwat target
Number		4	3	2	1	11	8
Metering policy		Universal	Universal	Change of occupier	Optant and selective	Universal	Universal
Leakage policy		JR08, then SPL saving	JR08, then SPL saving	JR08	JR08	JR08, then SPL saving	Ofwat, then SPL saving
WRSE preferred options & bulk supplies		Yes	No	No	No	No	No
WRZ	**Scheme**	**Earliest year required**					
Kent Medway	Licence variation at S271	2024	2024	2022	2020	-	2027
	Licence variation for River Medway Scheme	2029	2029	2028	2027	-	2030
	Medway desalination (10Ml/d)	-	-	-	2033		-
	Wastewater recycling at Aylesford	2018	-	-	-	-	-
	Raise Bewl reservoir	2022	-	-	-	-	-
	Leakage reduction	2026 reduction by 6.5 Ml/d	2026 reduction by 6.5 Ml/d	2023 reduction by 7.5 Ml/d	2013 reduction by 7.0 Ml/d	-	2010 reduction by 7.5 Ml/d
	Water efficiency kit (box)	-	-	2030	2030	-	2030
	Water efficiency low flow shower heads	-	-	2030	-	-	2010
	Water efficiency low use dishwasher subsidy	-	-	-	-	-	2010
	Water efficiency water butts	-	-	-	-	-	2010
	Water efficiency low use washing machine subsidy	-	-	-	-	-	2010
	Water efficiency trigger hoses	-	-	-	-	-	2010
Kent Thanet	Broadoak reservoir	-	-	-	-	-	2034
	Leakage reduction	2034 reduction by 0.1 Ml/d	2034 reduction by 0.1 Ml/d	2031 reduction by 1.3 Ml/d	2031 reduction by 0.6 Ml/d	-	2010 reduction by 1.5 Ml/d
	Water efficiency kit (box)	-	-	-	2030	-	2030
	Commercial water audit	-	-	2030	-	-	2030
	Water efficiency low use dishwasher subsidy	-	-	-	-	-	2010
	Water efficiency water butts	-	-	-	-	-	2010
	Water efficiency low use washing machine subsidy	-	-	-	-	-	2010
	Water efficiency trigger hoses	-	-	-	-	-	2010
	Water efficiency low flow shower heads	-	-	-	-	-	2010 (and 2030)
Ha	Darwell licence variation	2028	2028	2026	2024	-	2026

Scenario		Company preferred Regional strategy	Company only Universal metering	Company only Change of occupier	Company only Optant	Company only Universal metering with no climate change	Company only Leakage rise to Ofwat target
Number		4	3	2	1	11	8
	Re-introduce S556 borehole source	2031	2031	2030	2029	-	2030
	Leakage reduction	2033 reduction by 0.5 Ml/d	2033 reduction by 0.5 Ml/d	2032 reduction by 0.8 Ml/d	2028 reduction by 1.1 Ml/d	-	2029 reduction by 1.0 Ml/d
	Water efficiency commercial water audit	-	-	-	-	-	2030
Costs (£m)							
Total metering cost (£m)		60.83	60.83	65.57	55.60	60.83	60.83
Total resource, leakage reduction and water efficiency activity cost (£m)		51.95	4.52	7.12	13.01	0.21	19.35
Total cost of Strategy (£m)		**112.78**	**65.35**	**72.69**	**68.61**	**61.04**	**80.18**

Table 10.24 Results of Scenario Modelling for the Eastern Area

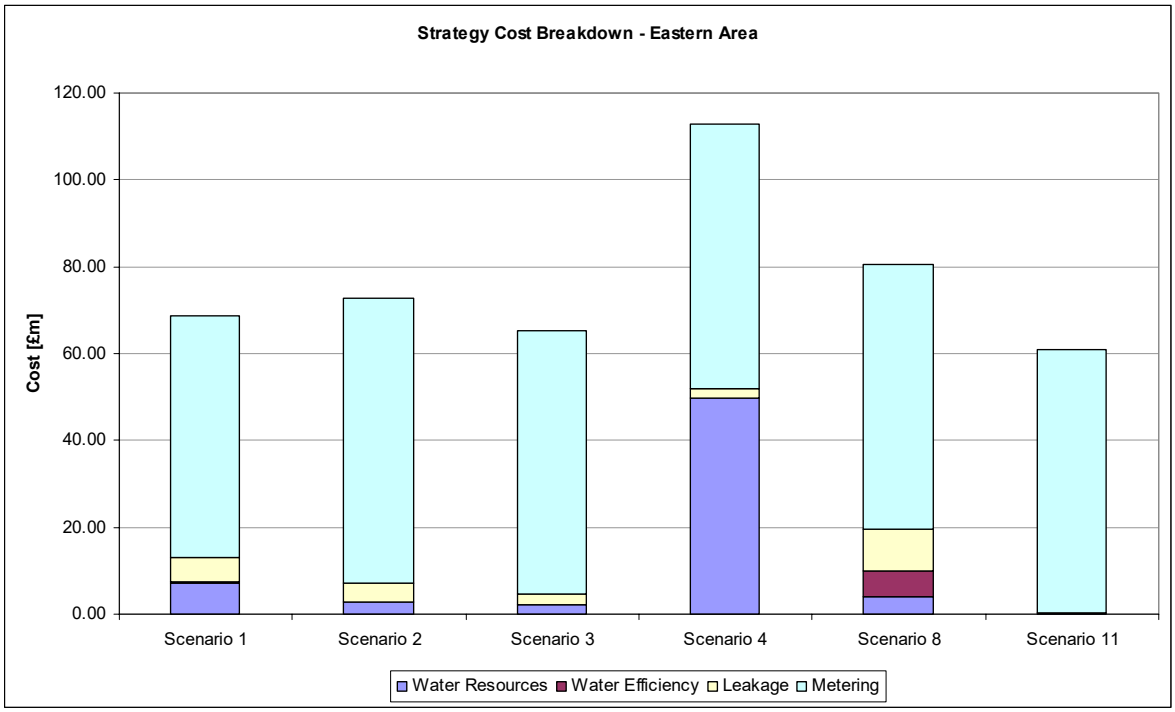


Figure 10.48 Eastern Area Scenario Cost Comparisons

10.5.12 Sensitivity Analysis

10.5.12.1 Range of Sensitivity Analysis

The "possible worst-case" focused on any changes in supply side or demand side factors which would worsen the supply demand balance. Any decrease in deployable output and/or increase in demands would mean that deficits occur earlier in the planning period and would

be larger than those identified in the baseline conditions. This could pose a threat to the security of supplies if the selected schemes, and/or any others that might then be required, could not be commissioned quickly enough.

Following consideration of a number of such demand and supply side factors and the potential magnitude of each it was decided that a "global" change in the demand forecast of +/- 5%, would be assumed for the area. To put this sensitivity into context, at the end of the planning period, for the Eastern Area:

- A +/- 5% change in demand would result in a change in demand of +/- 9.0 Ml/d and +/- 11.3 Ml/d at the MDO and PDO condition respectively by the end of the planning period; and
- A +/- 5% change in demand would be equivalent to a change in the area deployable output +/- 3.7% and +/- 3.9% at the MDO and PDO condition respectively.

10.5.12.2 Results of sensitivity analysis

The results of the sensitivity analysis for the possible "best-case" and "worst-case" are presented in Table 10.25 and can be summarised as follows:

Under the "worst-case" sensitivity:

- The licence variation schemes in Kent Medway WRZ and Sussex Hastings WRZ are brought forward by 2-3 years;
- The re-introduction of S556 borehole in Sussex Hastings WRZ is also brought forward by three years;
- Two schemes are brought into the strategy at the end of the planning period; a desalination plant on the River Medway of 10 Ml/d capacity (in 2030), and an increase in the capacity of the Bewl-Darwell transfer;
- Further leakage reduction is required earlier, although the level of reduction is similar to the base case; and
- Water efficiency schemes are also required in Sussex Hastings WRZ.

In summary, the selection of schemes remains the same but the timings of the introduction of the schemes changes. Two additional schemes are required.

The different timings suggest that there would be sufficient time to bring forward schemes should they be required. The introduction of a new scheme at the very end of the planning period should be viewed with caution since, by the time the scheme is identified as being required, the target headroom will be less, and thus the scheme may not, in the event, be triggered. However, the revised glidepath for target headroom should reduce this effect.

Under the "best-case" sensitivity:

- Two schemes remain unchanged; the S271 licence variation in Kent Medway WRZ, and the Darwell licence variation in Sussex Hastings WRZ; however, the timing of the schemes is delayed by 6-7 years; and
- Further leakage reduction is only required late in the planning period in Kent Medway WRZ, but not in the other two WRZs.

In summary, the results suggest that the need for the Darwell and S271 licence variations remain unchanged.

Scenario		Company preferred WRSE Regional	Company only Universal metering	Increase in demand of 5% by end of planning period	Decrease in demand of 5% by end of planning period
Number		4	3	"Worst case"	"Best case"
Metering policy		Universal	Universal	Universal	Universal
Leakage policy		JR08, then SPL saving	JR08, then SPL saving	JR08, then SPL saving	JR08, then SPL saving
WRSE preferred options & bulk supplies		Yes	No	No	No
WRZ	**Scheme**	**Earliest year required**			
Kent Medway	Licence variation at S271	2024	2024	2022	2029
	Licence variation for River Medway Scheme	2029	2029	2026	-
	Medway desalination (10Ml/d)	-	-	2030	-
	Wastewater recycling at Aylesford	2018	-	-	-
	Raise Bewl reservoir	2022	-	-	-
	Leakage reduction	2026 reduction by 6.5 Ml/d	2026 reduction by 6.5 Ml/d	2023 reduction by 6.5 Ml/d	2031 reduction by 3.0 Ml/d
Kent Thanet	Leakage reduction	2034 reduction by 0.1 Ml/d	2034 reduction by 0.1 Ml/d	-	-
Sussex Hastings	Darwell licence variation	2028	2028	2025	2031
	Re-introduce S556 borehole source	2031	2031	2028	-
	Increase capacity of Bewl-Darwell transfer	-	-	2032	-
	Leakage reduction	2033 reduction by 0.5 Ml/d	2033 reduction by 0.5 Ml/d	2030 reduction by 0.6 Ml/d	-
	Water efficiency kit (Box)	-	-	2030	-
	Water efficiency low flow shower heads	-	-	2030	-
Costs (£m)					
Total metering cost (£m)		60.83	60.83	60.83	60.83
Total resource, leakage reduction and water efficiency activity cost (£m)		51.95	4.52	17.54	0.93
Total cost of Strategy (£m)		**112.78**	**65.35**	**78.37**	**61.76**

Table 10.25 Results of Sensitivity Analysis for the Eastern Area

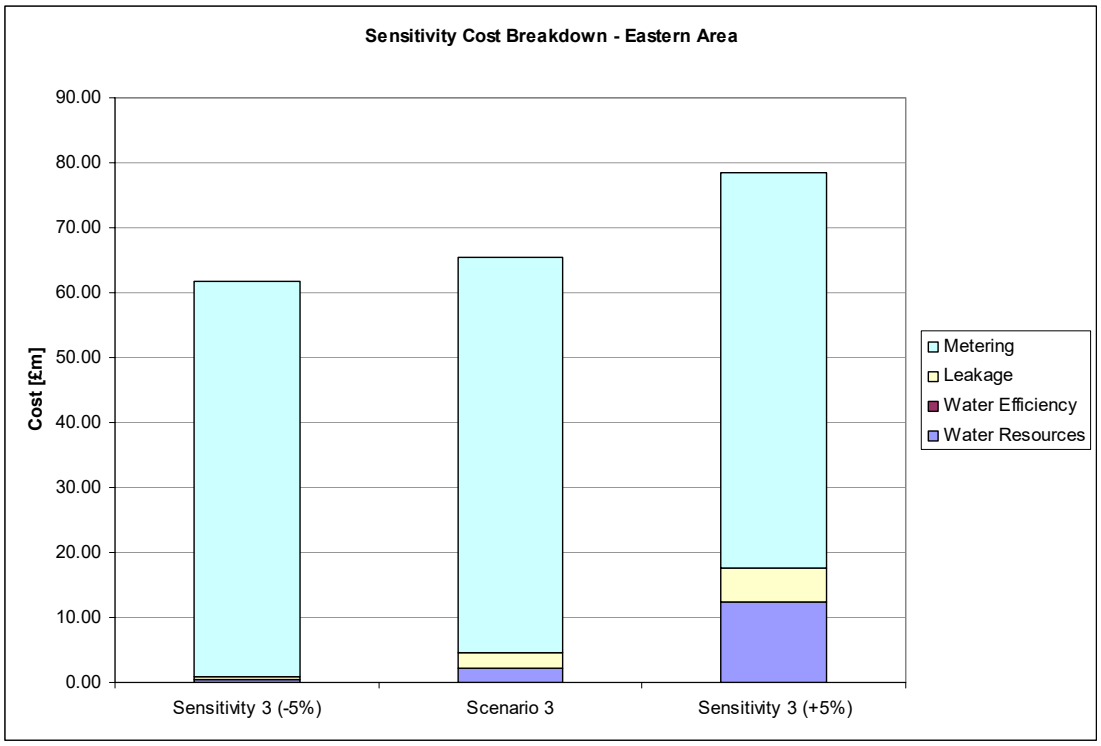


Figure 10.49 Eastern Area Sensitivity Analysis Cost Comparisons

10.6 Discussion of hybrid metering scenario

The hybrid metering scenario addressed the issue of whether it is more cost effective for Southern Water to only meter in those Water Resource Zones which have a supply demand deficit. This scenario tested whether it is more effective to install meters in an efficient and timely manner or continue with a less cost efficient optant metering policy. The comparison this scenario affords is key in that it allows a clear appreciation that it is more efficient to deliver a large scale metering plan than to install meters on a piecemeal basis across the region.

11 Summary of the Water Resources Strategy

This Water Resources Management Plan is the strategy document sets out our vision for the next 25 years. It looks in detail at our three main objectives of: achieving value for customers; resilience in a changing environment and facilitating growth in the South East of England. The WRMP takes into account consultation responses to the draft WRMP and joint discussions with regulators and others on how Sustainability Reductions might be implemented. We have also been an active member of WRSE whose outputs have informed the final WRMP.

The challenges to water resources in this region that we face are significant, but we believe that the options identified in this WRMP are robust and appropriate to meet these challenges. A summary of the components of the overall water resources strategy for the company is shown in Table 11.1. The balance of the various elements of the strategy given in the following summary will vary in the three different areas:

During AMP5

- Introduction of universal metering by 2015;
- Asset improvement schemes at a number of groundwater sources, as identified by the recent review of groundwater source performance;
- The optimum use of inter-zonal transfers, as identified by the investment model;
- Additional inter-zonal transfers, as identified by the investment model;
- The renewal of existing inter-company bulk supplies until the end of the planning period, at the rates at the time of contract renewal;
- New source development, if required, either to close any existing supply demand balance deficits, and/or to restore security of supplies as a result of Sustainability Reductions; and
- Any further investigation of new resource developments that were identified as part of the WRSE regional modelling work.

During the rest of the planning period to 2035

- It is currently envisaged that no further strategic resource developments will be required to meet Southern Water's needs under the company only universal metering strategy;
- The strategy will deliver the objective of keeping to the target headroom line, through a delicate balance of a number of factors, including the following; source maximisation through potential licence variations; the refurbishment of a few small, currently disused groundwater sources, which may require fairly advanced treatment solutions; progressive leakage reduction, up to 19% below the current outturn level to offset the need for the development of major strategic schemes; and the introduction of further water efficiency savings where it is economic to do so;
- It should be noted that we have included the effects of climate change on both supply and demand side elements. However, these have only been introduced after the end of AMP5, and thus their inclusion will not have any bill impact during AMP5; however
- Southern Water has reaffirmed its commitment to the WRSE modelling work, in the form of adopting the WRSE preferred regional options in its strategy in addition to those identified in the least-cost company only strategy. Whilst the

introduction of these schemes will lead to available headroom in excess of our target headroom requirements, we believe that this will not contribute to any bill impact during AMP5, and demonstrates our continued commitment to the development of a regional solution.

Water Resource Zone	Schemes During AMP5	Schemes beyond AMP 5 – company only solution	Schemes beyond AMP 5 – Water Resources in the South East of England
Isle of Wight	• Enhanced Metering • Asset improvement schemes for groundwater sources (1.55 Ml/d peak, 1.05 Ml/d average) • Optimisation of inter-zonal transfers (cross-Solent main)	• Water Efficiency kits • 1.1 Ml/d further leakage reduction • Refurbishment of L536 borehole • Refurbishment of K628 borehole	As previous column
Hants South	• Universal Metering • Asset improvement schemes for groundwater sources (12.00 Ml/d peak, 8.00 Ml/d average) • Increase Testwood WSW to licence limit • Development of the enabling Testwood to Otterbourne transfer • Optimisation of inter-zonal transfers (cross-Solent main)	• Candover & Alre augmentation schemes • 7.8 Ml/d of leakage reduction • R176 borehole rehabilitation And, subject to satisfactory completion of AMP5 schemes: • River Itchen Sustainability Reductions residual at end of AMP5	As previous column
Hants Kingsclere	• Universal Metering • Asset improvement schemes for groundwater sources (1.2 Ml/d peak only)		
Hants Andover	• Universal metering • Asset improvement schemes for groundwater sources (0.2 Ml/d peak & average)		
Sussex North	• Universal metering • Renewal of the existing bulk supply contract from Portsmouth Water • Asset improvement schemes for groundwater sources (0.30 Ml/d peak, 0.10 Ml/d average) • Optimisation of inter-zonal transfers (from Sussex Worthing) • River Arun Abstraction	• Renewal of the bulk supply of contract to South East Water	As previous column

Sussex Worthing	• Universal metering • Asset improvement schemes for groundwater sources (1.75 Ml/d peak, 4.25 Ml/d average) • Optimisation of inter-zonal transfers (to Sussex North and Sussex Brighton)		
Sussex Brighton	• Universal metering • Asset improvement schemes for groundwater sources (7.25 Ml/d peak & average) • Optimisation of inter-zonal transfers (from Sussex Worthing)		• Provision of a 4 Ml/d bulk supply to South East Water
Sussex Hastings	• Universal metering • Asset improvement schemes for groundwater sources (0.25 Ml/d peak only) • Optimisation of inter-zonal transfers (Bewl-Darwell transfer)	• Renewal of bulk supply to South East Water • Licence variation at Darwell reservoir • Re-introduction of the S556 source • 0.5 Ml/d leakage reductions	As previous column
Kent Medway	• Universal metering • Asset improvement schemes for groundwater sources (10.25 Ml/d peak, 8.75 Ml/d average) • Optimisation of inter-zonal transfers (to Kent Thanet)	• Renewal of the C522 scheme bulk supply to South East Water • Licence variation to the River Medway Scheme • Licence variation of S271 groundwater source • 6.5 Ml/d of further leakage reduction	As previous column, but additional schemes • Aylesford wastewater recycling scheme • Raising Bewl Water An the assumption that these will enable the following • Bulk Supply from Bewl Water to South East Water • Bulk Supply from Burham to South East Water
Kent Thanet	• Universal metering • Optimisation of inter-zonal transfers (from Kent Medway) • Renewal of the bulk Supply to Folkestone and Dover	• 0.1 Ml/d of further leakage reduction	As previous column, but additional schemes • Enhancement of the bulk Supply to Folkestone and Dover

Table 11.1 Summary of the Overall Water Resources Strategy

We have adopted a twin-track strategy that combines measures to reduce demand as well as increase supplies. We believe that both types of scheme are required to ensure that we meet future demands in the most resilient way.

We have only sought allowances in price limits for those schemes that need to be delivered in the AMP5 period from 2010 to 2015 and for the NEP schemes advised by the Environment Agency. Investigation of those options that will need to be delivered during 2015 to 2020, will be covered at the next price review. The cost of the company preferred regional strategy in AMP5 is shown in the table below in the form of:

- Indicative cost of constructing the schemes (Capex); and
- Indicative cost of running these schemes (Opex).

	Total Capex and Opex (undiscounted) 2010-15 £m
Universal metering programme	123.2
River Arun Tidal Abstraction	18.2
Testwood WSW improvements	58.3
Total	**199.70**

Table 11.2 Company Level Summary of Proposed Company Capital and Operating Cost Investment Programme for Company Preferred Regional Strategy in AMP5

Table 11.3 presents the company level total cost (NPV) over the planning period for both the company only least-cost strategy and for the company preferred regional strategy. Under the company preferred regional strategy, there would be an additional £47.4 million over the planning period. However, we believe that this will not contribute to any bill impact during AMP5 as the regional schemes will not be introduced until AMP6 and beyond.

Component	Company Only Least-Cost Strategy (Scenario 3) Total NPV cost over planning period £m	Company Preferred Regional Strategy (Scenario 4) Total NPV cost over planning period £m
Leakage reduction	5.24	5.24
Water efficiency	0.06	0.06
Water savings	-0.08	-0.09
Metering	170.35	170.35
Resource development	60.38	107.81
Total	**235.95**	**283.37**

Table 11.3 Company Level Summary of Proposed NPV Cost for Company Only Least-Cost Strategy

Carbon footprint

The development of these solutions will have an impact on our energy use. Figure 11.1 shows the change in carbon use as a result of demand management and resource development activity in each year over the planning horizon. It is important to note that this is based solely on operational carbon usage. This suggests that there is unlikely to be a net increase in carbon emissions until AMP7.

The carbon use shown assumes that each year is a dry year, although in reality this is unlikely. Thus, in practice these are overestimates, and it is expected that less energy would be required to balance supply and demand.

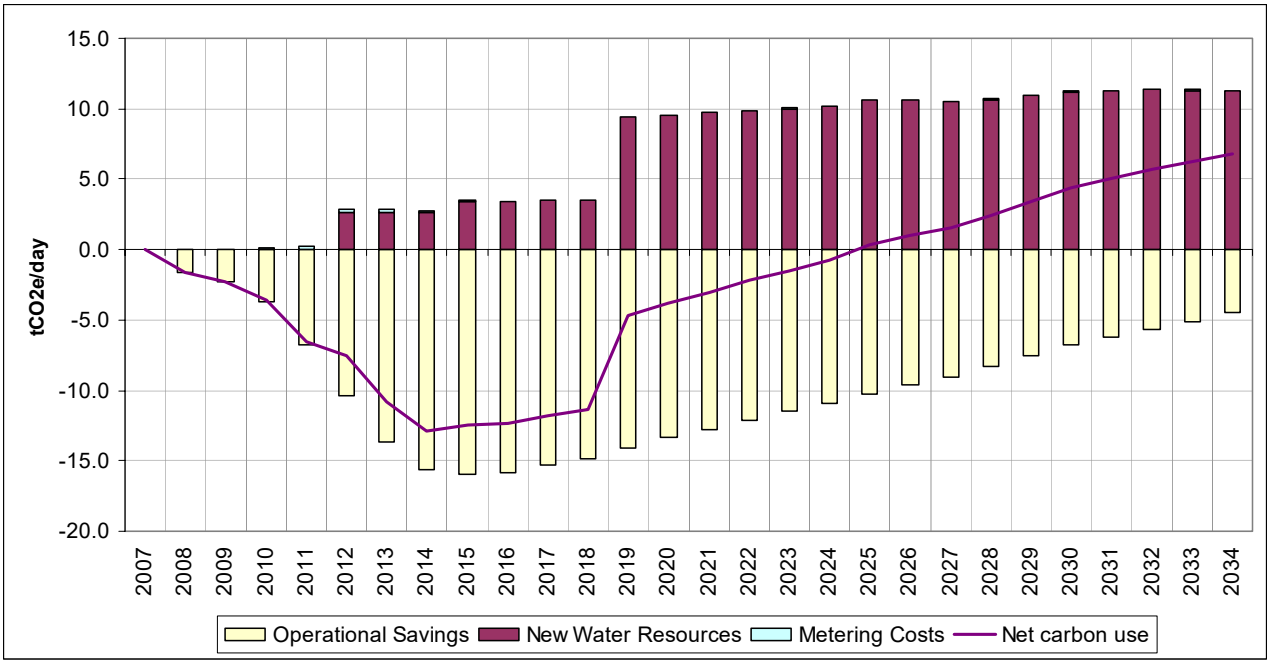


Figure 11.1 Average Change in Carbon Use Due to Company Only Least-Cost Strategy (scenario 3)

Figure 11.2 presents the total operational daily carbon footprint on average, under dry year conditions, for two scenarios: the optant metering scenario (1), and the universal metering scenario (3), which is also the company only least-cost strategy. The total operational carbon footprint in the base year (2007-08) is 211 tCO_2e/day which decreases mainly due to operational savings, before new resources are required. This is most noticeable in 2019, the year in which the Sustainability Reductions are enacted in full.

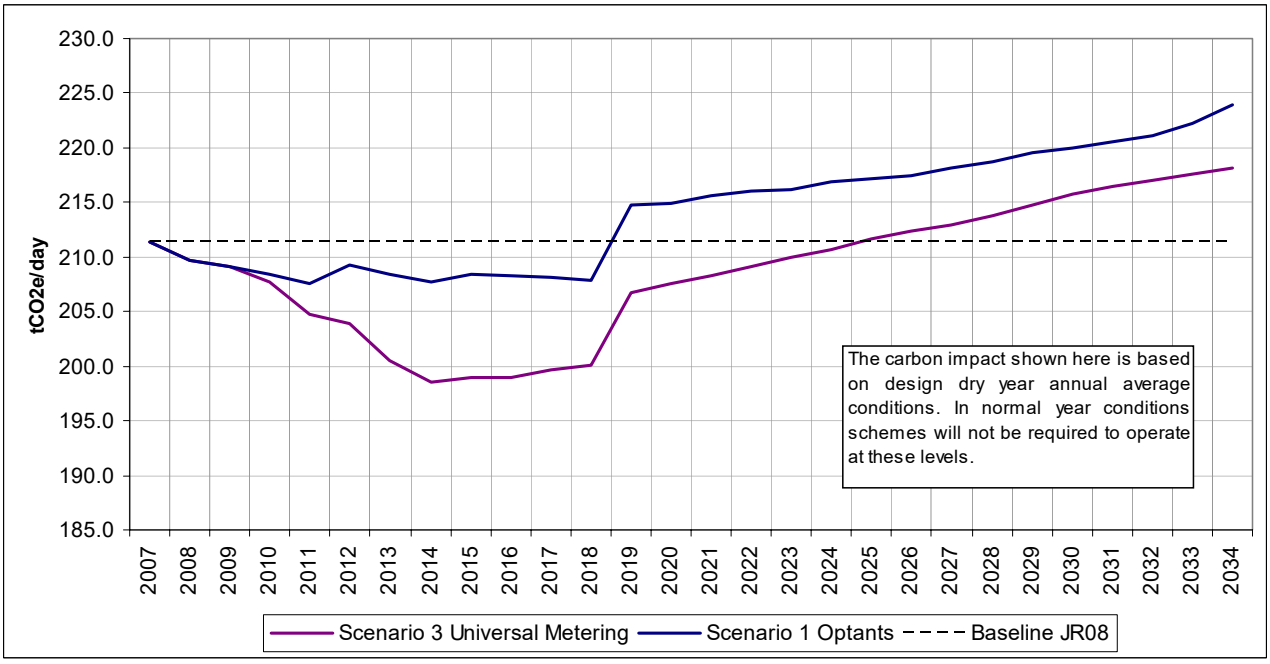


Figure 11.2 Operational Carbon Use Under DYAA Conditions

Summary

Developing a water resources strategy for the future always involves choices, but it is essential that we maintain the investment in our supply system today to ensure that it continues to deliver today, tomorrow and in the future. The subtle balance between reducing demand and ensuring resilience has been a central issue when developing this strategy, primarily because of the vulnerability of a significant number of our sources to prolonged droughts, which was highlighted during the recent drought of 2004 to 2006.

In summary, we believe that, through a combination of a demand management-led approach, with new resource developments as appropriate, we have achieved the best balance to produce a least-cost, environmentally sustainable strategy.

Title: Kingsnorth

SPN Regional Development Plan

Author: URS / C Winch

Version: 2.0

Date: March 2014

All of the cost numbers displayed in this document are before the application of on-going efficiencies and real price effects.

Document History

Version	Date	Revision Class	Originator	Section Update	Details
1.7	26/02/2014	ED1 Resubmission	Matt White	Cover page	Version and date update
1.7	26/02/2014	ED1 Resubmission	Matt White	Contents	Updated
1.7	26/02/2014	ED1 Resubmission	Matt White	1.1	Updated Wording
1.7	26/02/2014	ED1 Resubmission	Matt White	1.2	Updated Costs
1.7	26/02/2014	ED1 Resubmission	Matt White	1.3	Updated table 1 and text
1.7	26/02/2014	ED1 Resubmission	Matt White	2.2	Updated Embedded generation table 2
1.7	26/02/2014	ED1 Resubmission	Matt White	2.3	NAMP table update and additional text
1.7	26/02/2014	ED1 Resubmission	Matt White	4.4	NAMP table update
1.7	26/02/2014	ED1 Resubmission	Matt White	5.3	Updated document history
2.0	27/03/2014	Minor	Regulation	All	Final publication

Contents

All of the cost numbers displayed in this document are before the application of on-going efficiencies and real price effects.

1 Introduction

1.1 Executive Summary

This Regional Development Plan (RDP) reviews UK Power Networks (UKPN) (SPN) HV and EHV network supplied from Kingsnorth Grid Supply Point. The plan forms the basis for investment to support replacement of assets and to reinforce the network to cater for increased demand criteria.

The areas covered by these distribution assets are geographically condensed and comprise the Hoo peninsular and the Eastern Medway towns of Chatham and Strood. A mesh substation at Medway supplies the balance of the Medway towns demand via the 33kV distribution system. The system comprises predominantly underground cable assets at 132kV with mixed underground cables and overhead lines at 33kV.

Within the GSP area of supply there are two grid substations at Chatham and Medway. These supply a further fifteen primary substations. Of these seventeen substations, it is predicted that fourteen will have equipment that reaches Health Index 4 or 5 within the review period. These will require interventions to replace network equipment, or refurbishment to increase the lifespan.

It is further noted that two substations are predicted to exceed firm capacity within the study period, thus requiring reinforcement interventions.

From the regional development plans circulated by local and country councils, it has been noted that 5600 new dwellings will be built in the next ten years. Although these will be subject to the usual connection arrangements, it is anticipated that further network reinforcement will be required to sustain this development and the expected increased demand of 14MW, especially to the EHV system.

There are two large embedded generation assets in the area, both of which are associated with paper mills. These are at Townsend Hook and Medway and have a total output of 96MW. These are run at base load providing process steam/heat and electrical power. In total 105.5MW of generation is embedded within the UKPN network fed by Kingsnorth GSP

With the substation being located close to the coast it is envisaged that additional renewable generation will be connected; whilst the majority will be connected to the super-grid system operated by National Grid, some onshore generation may be connected to the SPN system.

The Thames Estuary has seen a huge increase in the connection of offshore wind farms, and it is likely that further renewable energy generation will be connected in the near future, to support the governments and industry's low carbon targets. Further wind farms and tidal generation facilities are expected to be connected. The region also has a high solar energy density and it is envisaged that new solar farms will be connected into the distribution network.

The system generally has high fault level in-feeds with the many of the substations having split running arrangements to ensure that equipment remains within their fault level rating. This will only be exacerbated by the expected connection of new renewable energy generation to the distribution network.

There is limited interconnection between the two GSP's of Kingsnorth and Northfleet East. However these two are normally operated split to avoid pre and post fault through flows affecting the UKPN network.

All of the cost numbers displayed in this document are before the application of on-going efficiencies and real price effects.

Figure 1: General GSP area of supply

1.2 Proposed projects>£1M

Asset Replacement:

- Chatham Hill Primary - Replace 11KV Switchgear £1.5m
- Kingsnorth Grid-Strood 132kV FFC Replacement (Circuit 2-3) £2.6m

1.3 Costs profile

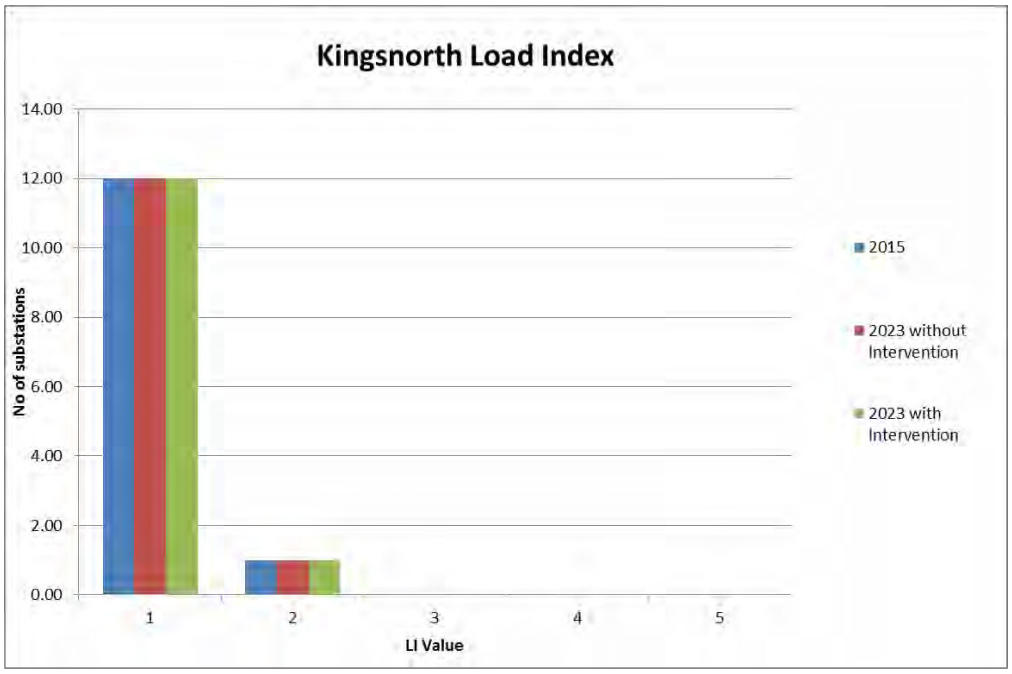
Table 1 below provides the forecast aggregate NAMP cost for network expenditure under this RDP during the last two years of DPCR5 and the ED1 period subject to project feasibility studies and final approval.

SR_Table J - S&R - Baseline_Final ED1 Re-submission_19th February 2014_15:15 (£)													
Description		2013/2014	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	DPCR5 Total	ED1 Total
A & H	Total Asset Replacement	99,325	0	0	577,102	1,756,286	1,026,119	253,711	89,349	644,317	1,932,952	99,325	6,279,836
Q & R	Total Reinforcement	148,723	0	0	0	0	0	0	0	0	0	148,723	0
	Grand Total	248,048	0	0	577,102	1,756,286	1,026,119	253,711	89,349	644,317	1,932,952	248,048	6,279,836

All of the cost numbers displayed in this document are before the application of on-going efficiencies and real price effects.

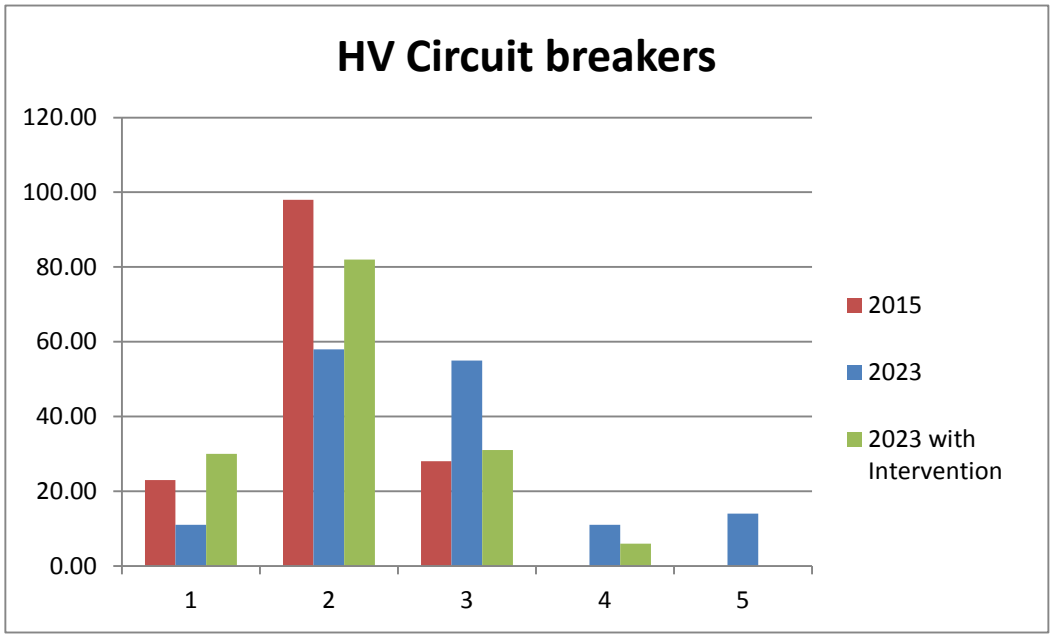
1.4 Output Measures Load Index

The chart below provides the expected Load Indices in 2015 and then again in 2023 both with and without interventions for all substations covered in this RDP.

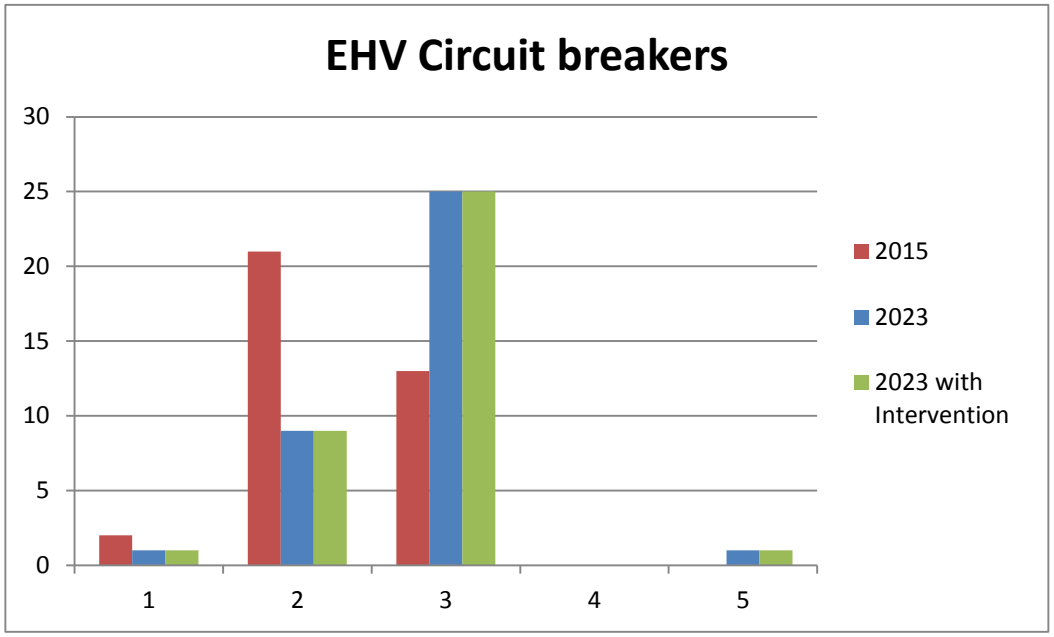


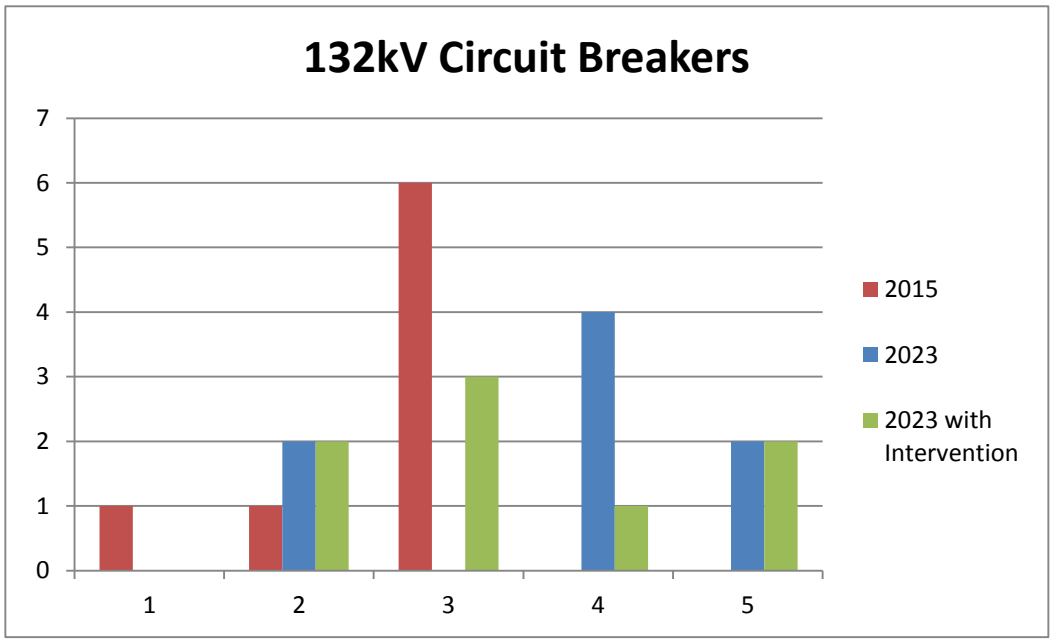
1.5 Output Measures Health Index

The charts below provide the projected health index status of various assets covered in this RDP by 2023. Without interventions it is predicted that there will be 10 substations with HI5 apparatus by the year 2024.

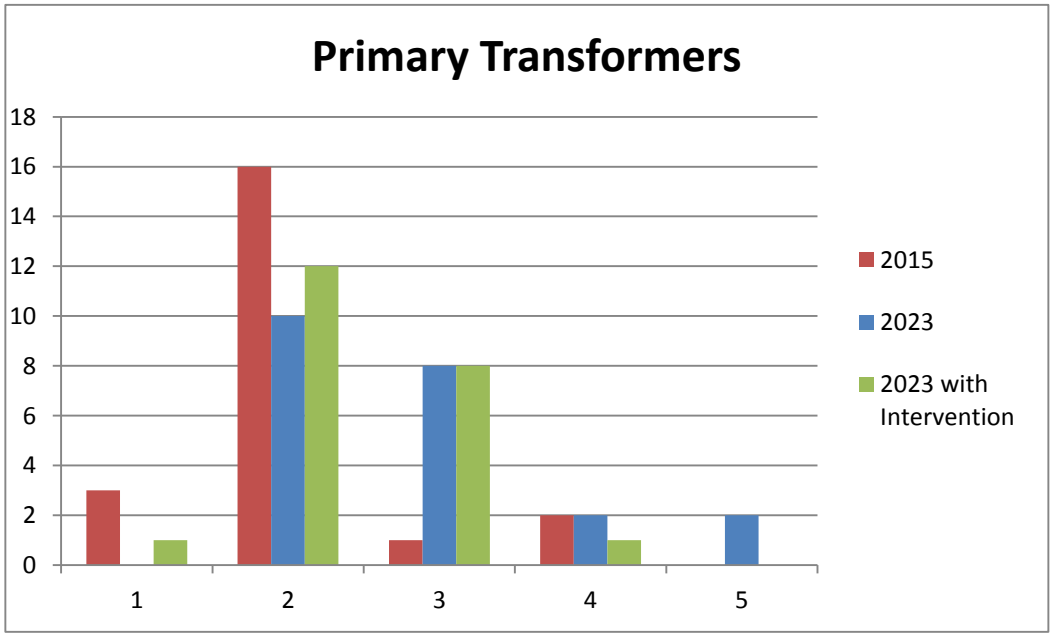


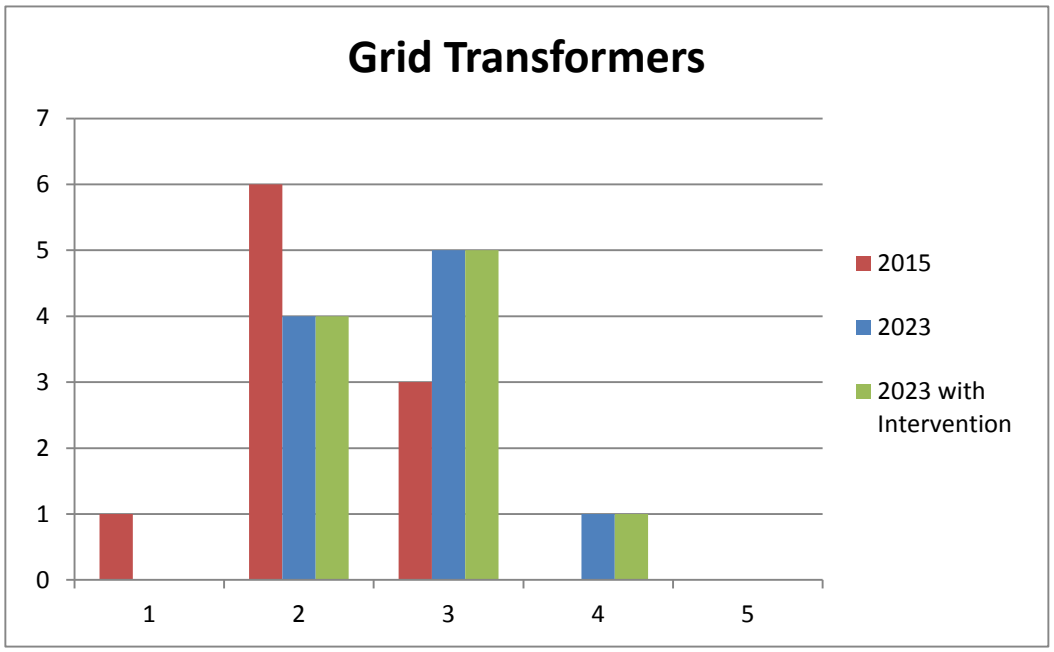
All of the cost numbers displayed in this document are before the application of on-going efficiencies and real price effects.





All of the cost numbers displayed in this document are before the application of on-going efficiencies and real price effects.





1.6 Principal Risks and Dependencies

The schemes covered in this RDP have been planned based on the planning load estimates 2013 with the 2011/12 maximum demand. The load forecasts are based on the element energy model. If the economic situation improves there is a risk that there will be shortfall of reinforcement schemes in the plan.

The load forecasts also include an assumed level of embedded generation being connected to the network. Should this generation not materialise, then a larger than forecast load growth could be realised.

Where Demand Site Response has been included at a substation, this is based on an assumption that customers will be willing to accept the scheme. In most cases these customers have not as yet been identified.

All of the cost numbers displayed in this document are before the application of on-going efficiencies and real price effects.

2 Network configuration

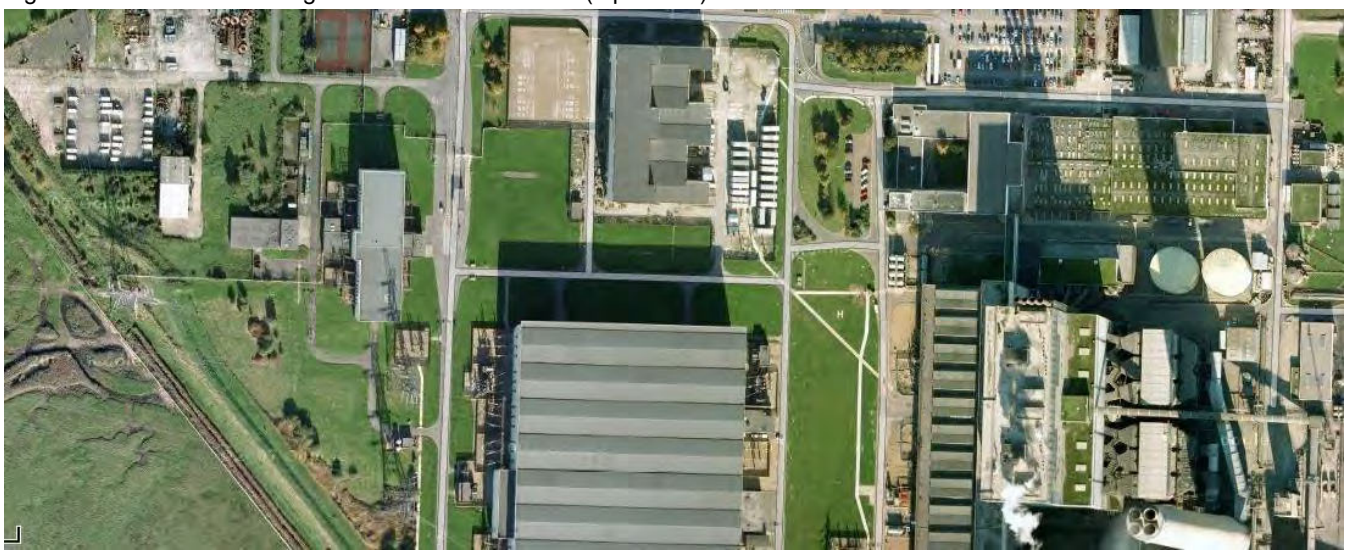
2.1 Existing Network

The Kingsnorth supply area is centred along the River Medway estuary including the towns of Strood, Chatham and Dickensian Rochester. It is supplied by 2x240MVA super grid transformers located at Kingsnorth 400/132kV grid supply point (GSP).

From Kingsnorth 132kV circuits connect to Strood, Chatham and Medway with interconnection available via Burham to the adjacent Northfleet, Kemsley and Canterbury GSP's (a geographical diagram is shown in Appendix A).

The aggregated group demand is 210MW which is forecast to increase to 248MW by 2023 (August 2012 PLE refers).

Figure 2: Aerial view of Kingsnorth 132kV Substation (top centre)



The group substation hierarchy is detailed in Table 2, below:

Table 2. Group Substations

Substation & Voltage	
Kingsnorth 132kV	**Medway 132kV**
Kingsnorth 132/11kV	**Medway 132/33kV**
Strood 132/11kV	Cobham (Kent) 33/11kV
Chatham 132kV	Chatham West 33/11kV
Chatham Grid 132/33kV	Townsend Hook 33/6.6kV
Chatham Hill 33/11kV	Wrotham Heath 33/11kV
Rainham Mark 33/11kV	Medway Local 33/11kV
Lordswood 33/11kV	Halling 33/11kV

All of the cost numbers displayed in this document are before the application of on-going efficiencies and real price effects.

Kingsnorth 132kV

Kingsnorth 132kV GSP is an indoor AIS (air insulted substation) located within the ex-Kingsnorth Power Station boundary. It is a wrap-around double busbar configuration equipped with Reyrolle OBYR14 circuit breakers. National Grid owns a number of spare bays that were previously utilised for power station service supplies.

Strood 132kV & Chatham 132/33kV

From Kingsnorth, double circuit cable connections are routed to Strood Primary equipped with 2x 60MVA double wound 132/11kV transformers and Chatham Grid equipped with 2x 90MVA 132/33kV transformers.

Chatham Grid supplies three 33/11kV primary substations at Chatham Hill, Rainham Mark and Lordswood.

Medway 132/33kV

The two 132kV feeders from Kingsnorth connect to a three switch mesh with each corner supplying two banked 45MVA 132/33kV transformers with a third transformer, rated at 60MVA, supplying generation at a local Paper Mill.

Medway 33kV switchboard consists of a Reyrolle L42 double-busbar configuration equipped with one bus section and two bus coupler circuit breakers. The site is normally operated with the bus coupler open to maintain fault levels within the equipment ratings. An auto-close facility is installed to maintain supplies for an (n-1) condition.

Medway Grid supplies six primary 33/11kV substations including the Halling, the new replacement for Rugby.

2.2 Embedded Generation (G59/2)

There is a total of 105MVA of G59/2 embedded generation within group with the principal contribution from Medway Power Station and Townsend Hook Paper Mill, detailed in Table 5, below.

Table 3. List of G59/2 Embedded Generators Connected to the Network covered by this RDP

Site Name	Type	Mode of Operation	Installed DG (MW)	No. of Generators	Operating Voltage (kV)	Substation Name	Grid Group	GSP/BSP
WHITE LADIES	Landfill gas	LONG TERM PARALLEL	1.200	1	11.000	Medway 11kV	Medway Grid	Kingsnorth SGT
OFFHAM QUARRY LANDFILL SITE	Landfill gas	LONG TERM PARALLEL	2.000	1	11.000	Medway 11kV	Medway Grid	Kingsnorth SGT
AYLESFORD PAPER MILLS PHS 3 (SCA AYLESFORD)	CHP	LONG TERM PARALLEL	43.000	1	33.000	Medway Grid	Medway Grid	Kingsnorth SGT
AYLESFORD PAPER MILLS PHS 2 (SCA AYLESFORD)	CHP	LONG TERM PARALLEL	20.000	1	33.000	Medway Grid	Medway Grid	Kingsnorth SGT
AYLESFORD PAPER MILLS PHS 1 (SCA AYLESFORD)	CHP	LONG TERM PARALLEL	38.340	1	33.000	Medway Grid	Medway Grid	Kingsnorth SGT
PAPER MILL	CHP	LONG TERM PARALLEL	56.000	1	33.000	Medway 11kV	Medway Grid	Kingsnorth SGT
BURNHAM TREATMENT WORKS	Biogas	LONG TERM PARALLEL	1.700	1	11.000	Medway 11kV	Medway Grid	Kingsnorth SGT
HAM HILL WTW	Diesel	LONG TERM PARALLEL	0.342	1	11.000	Townsend Hook 6.6kV	Medway Grid	Kingsnorth SGT
SHAKESPEARE FARM	Diesel	LONG TERM PARALLEL	0.330	1	11.000	Kingsnorth 11kV	Kingsnorth Grid	Kingsnorth SGT
MEDWAY MARITINE HOSPITAL	CHP	LONG TERM PARALLEL	1.400	1	11.000	Chatham Hill 11kV	Chatham Grid	Kingsnorth SGT
KINGSFERRY COACH STATION	PV	LONG TERM PARALLEL	0.050	1	0.400	Rainham Mark 11kV	Chatham Grid	Kingsnorth SGT
RSPB	PV	LONG TERM PARALLEL	0.006	2	0.230	Strood 11kV	Strood Grid	Kingsnorth SGT
EXTRA CARE BLOCK, FLATS 1-41, BELLEROPHON HSE	PV	LONG TERM PARALLEL	0.020	2	0.400	Chatham West 11kV	Medway Grid	Kingsnorth SGT

All of the cost numbers displayed in this document are before the application of on-going efficiencies and real price effects.

2.3 Projects in Progress

DPCR5 Projects in Progress There are two Reinforcement Projects; 3047 and 3099 outlined below:

Table 4. NAMP Extract for DPCR5 Kingsnorth Projects

Project ID	Description	2013/2014	2014/2015	2015/2016
8469	Kingsnorth Grid 132kV: ABCB Refurbishment	99,325	0	0
3047	Halling Primary (Replacement for Rugby Substation) - Relocation & Increased Capacity	5,403	0	0
3099	Medway - Burham - 132kV Interconnector	143,320	0	0

Scheme 8469: Kingsnorth Grid 132kV: ABCB Refurbishment

Kingsnorth Grid 132kV is a shared site with National Grid supplied by 2 x 240MVA transformers via the National Grid owned busbars. There are four UK Power Networks 132kV circuit breakers installed at the site with a fifth currently being installed to feed a new 132/11kV transformer at the new Kingsnorth Grid 11kV site. Of the four circuit breakers one was recently replaced in 2010.

The three remaining breakers are all Reyrolle OBYR air blast circuit breakers. There have been numerous failures of Reyrolle OB/OBYR type CB nationally as well as within UK Power Networks. Four main potential failure modes have been identified in examination of post failure investigations and all result through long term degradation of some element of the overall CB structure or components.

The aim of this project is to refurbish the three Reyrolle OBYR air blast circuit breakers at Kingsnorth substation.

Scheme 3047: Establish Halling Primary

This project involves relocation of Rugby primary substation to a new location at Halling together with associated asset replacement and reinforcement. The timing of the work was initiated by termination of the existing site to facilitate the landowner to redevelop his site

The existing Rugby Local 33/11kV transformers are equipped with obsolete tap changers which do not have remote control facilities and are required to be replaced due to deteriorating condition. Furthermore the demand is forecast to exceed firm capacity and it is therefore necessary to increase the rating of the replacement transformers and replace the switchboard to remove a continuous rating constraint.

Halling Primary is now commissioned with only minor remedial works outstanding.

Scheme 3099: Route PE - Establish permanent 132kV double circuit OHL connection between Medway and Burham

Medway is supplied at 132kV from Strood and Burham via single circuit cable and overhead line (Route PE) connections respectively. Route PE is 132kV double circuit construction with 1 circuit operated at 132kV and the other at 33kV.

Under abnormal operating conditions it is possible to re-jumper the tower line connections to operate both circuits at 132kV thereby providing additional support to Medway. Due to the switching and physical re-connections this contingency takes approximately 12 hours to implement. It has been utilised three times in the last five years following third party damage to the cables from Kingsnorth GSP. This project is designed to upgrade the contingency arrangement to become a fully switchable connection.

To achieve this it is proposed to transfer the 33kV circuit from Route PE to the redundant ex-Reeds No3 33kV cable connection and permanently reconfigure the tower line 'jumpers' to establish a 132kV double circuit connection between Burham and Medway.

All of the cost numbers displayed in this document are before the application of on-going efficiencies and real price effects.

3 Network Development Considerations

3.1 District / Local Development Plans

The majority of the Kingnsorth network is contained within Medway Council boundary.

The Medway Local Development Framework identifies Lodge Hill and Chattenden on the Hoo peninsular as locations for new housing development with a combined forecast of up to 5,000 domestic units. Another area identified for redevelopment is the disused Halling Cemex cement factory at Halling where provision for 624 residential units is proposed.

It is recognised that timescales for these developments will be influenced by economic factors however the Local Development Framework forecasts a peak of housing delivery between 2015 and 2021.

The Medway Local Development Framework quotes the 2010 population as 255,000 for the year 2010, with a predicted increase of 25,000 to 280,000 by the year 2028.

Table 5. Forecast housing increase

Area	*Dwellings*	*Average increase in MW*	*Substation*
Chattenden	5000	12.5	Strood
Halling	624	1.6	Halling
Total	**5624**	**14**	

All of the cost numbers displayed in this document are before the application of on-going efficiencies and real price effects.

3.2 Asset Health

It should be noted that HIs presented in the RDP will not align with the RIGS. The HIs presented in the RDP are the outcome of our ARP model on an asset by asset basis. Different rules are applied for the RIGs reporting, as agreed with Ofgem, where assets may be grouped and all assets in the group take the same HI.

The existing and forecast health indices 2015-2023 without intervention are detailed below:

Table 6. HV Circuit breakers

	2015					2023				
Substation	**No. HI1**	**No. HI2**	**No. HI3**	**No. HI4**	**No. HI5**	**No. HI1**	**No. HI2**	**No. HI3**	**No. HI4**	**No. HI5**
CHATHAM HILL 33/11KV		5	14				5			14
CHATHAM WEST	1	23	4			1		24	3	
COBHAM (KENT) 33/11KV		7	1					7	1	
HALLING 33/11KV	9					9				
KINGSNORTH GRID 11KV			5						5	
KINGSNORTH GRID 132/11KV			1						1	
LORDSWOOD 33/11KV	9						9			
MEDWAY LOCAL 33/11KV		7	3					9	1	
RAINHAM MARK 33/11KV	3	10				1	12			
STROOD 132 KV		4					4			
STROOD 132/11KV		25					25			
TOWNSEND HOOK 33/6.6KV		8					2	6		
WROTHAM HEATH 33/11KV	1	9					1	9		

Table 7. 33kV Circuit breakers

	2015					2023				
Substation	**No. HI1**	**No. HI2**	**No. HI3**	**No. HI4**	**No. HI5**	**No. HI1**	**No. HI2**	**No. HI3**	**No. HI4**	**No. HI5**
CHATHAM GRID 132 KV		2					2			
CHATHAM GRID 33 KV	2	8				1	2	7		
MEDWAY GRID 132 KV		5					1	4		
MEDWAY GRID 33KV		6	13				4	14		1

Table 8. 132kV Circuit Breakers

	2015					2023				
Substation	**No. HI1**	**No. HI2**	**No. HI3**	**No. HI4**	**No. HI5**	**No. HI1**	**No. HI2**	**No. HI3**	**No. HI4**	**No. HI5**
KINGSNORTH 132 KV	1		3				1		3	
MEDWAY GRID 132 KV		1	3				1		1	2

Table 9. Primary Transformers

	2015					2023				
Substation	**No. HI1**	**No. HI2**	**No. HI3**	**No. HI4**	**No. HI5**	**No. HI1**	**No. HI2**	**No. HI3**	**No. HI4**	**No. HI5**
CHATHAM HILL 33/11KV	1	2					2	1		
CHATHAM WEST		4						4		
COBHAM (KENT) 33/11KV		2					2			
HALLING 33/11KV	2						2			
LORDSWOOD 33/11KV		2					1		1	
MEDWAY LOCAL 33/11KV		2						2		
RAINHAM MARK 33/11KV		1	1	1			1		1	1
TOWNSEND HOOK 33/6.6KV		1		1				1		1
WROTHAM HEATH 33/11KV		2					2			

Table 10. Grid Transformers

	2015					2023				
Substation	**No. HI1**	**No. HI2**	**No. HI3**	**No. HI4**	**No. HI5**	**No. HI1**	**No. HI2**	**No. HI3**	**No. HI4**	**No. HI5**
CHATHAM GRID 132 KV		2					2			
KINGSNORTH GRID 132/11KV	1						1			
MEDWAY GRID 132 KV		2	3				1	3	1	
STROOD 132 KV		2						2		

All of the cost numbers displayed in this document are before the application of on-going efficiencies and real price effects.

All of the cost numbers displayed in this document are before the application of on-going efficiencies and real price effects.

3.3 Security of supply and load index analysis

Table 11. P2/6 Assessment Table

Sub-station	P2/6	Secondary Voltage	Firm Capacity (MW)	Transfer (MW)	Winter 12/13 Summer 2012 (MW)	Winter 13/14 Summer 2013 (MW)	Winter 14/15 Summer 2014 (MW)	Winter 15/16 Summer 2015 (MW)	Winter 16/17 Summer 2016 (MW)	Winter 17/18 Summer 2017 (MW)	Winter 18/19 Summer 2018 (MW)	Winter 19/20 Summer 2019 (MW)	Winter 20/21 Summer 2020 (MW)	Winter 21/22 Summer 2021 (MW)	Winter 22/23 Summer 2022 (MW)
Chatham Grid	YES	33kV	113.20	0.00	65.90	65.89	66.18	66.55	66.92	66.99	67.09	67.19	67.31	67.78	68.24
Chatham Grid	YES	33kV	89.10	0.00	51.13	51.10	51.34	51.65	51.96	52.01	52.09	52.17	52.26	52.62	52.97
Chatham Hill	YES	11kV	45.10	0.00	32.54	32.43	32.39	32.40	32.45	32.48	32.52	32.57	32.62	32.88	33.13
Chatham Hill	YES	11kV	32.40	0.00	23.05	22.95	22.90	22.91	22.94	22.96	22.99	23.02	23.06	23.23	23.40
Chatham West	YES	11kV	55.86	0.00	41.81	41.65	41.58	41.58	41.65	41.68	41.73	41.79	41.86	42.22	42.55
Chatham West	YES	11kV	55.86	0.00	34.80	34.64	34.57	34.57	34.62	34.65	34.69	34.74	34.79	35.08	35.35
Cobham (Kent)	YES	11kV	13.00	0.00	7.80	7.84	7.99	8.16	8.30	8.33	8.36	8.39	8.43	8.54	8.65
Cobham (Kent)	YES	11kV	9.70	0.00	3.93	3.95	4.02	4.10	4.17	4.18	4.20	4.22	4.23	4.29	4.34
Halling	YES	11kV	23.00	0.00	5.75	5.75	5.75	5.75	5.75	5.75	5.75	5.75	5.75	5.75	5.75
Halling	YES	11kV	17.30	0.00	5.23	5.23	5.23	5.23	5.23	5.23	5.23	5.23	5.23	5.23	5.23
Kingsnorth	NO	11kV	6.30	0.00	7.98	7.99	8.03	8.08	8.13	8.14	8.16	8.18	8.20	8.25	8.29
Kingsnorth	NO	11kV	3.80	0.00	5.49	5.50	5.52	5.55	5.58	5.59	5.60	5.61	5.62	5.65	5.68
Kingsnorth SGT	YES	400kV	276.50	0.00	200.21	200.26	201.39	202.78	204.14	204.38	204.72	205.09	205.51	207.08	208.61
Kingsnorth SGT	YES	400kV	244.20	0.00	144.30	144.23	145.02	146.03	147.01	147.19	147.43	147.69	147.99	149.11	150.21
Lordswood	YES	11kV	22.90	0.00	9.62	9.62	9.62	9.62	9.62	9.62	9.62	9.62	9.62	9.62	9.62
Lordswood	YES	11kV	22.90	0.00	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94	6.94
Medway 132kV	NO	132kV	0.00	0.00	86.98	87.13	87.97	88.92	89.78	89.90	90.05	90.23	90.43	91.17	91.91
Medway 132kV	NO	132kV	0.00	0.00	62.83	62.89	63.45	64.12	64.73	64.80	64.91	65.03	65.18	65.71	66.23
Medway Grid	YES	33kV	168.50	0.00	86.25	86.40	87.23	88.18	89.05	89.16	89.32	89.49	89.70	90.44	91.17
Medway Grid	YES	33kV	129.60	0.00	62.83	62.89	63.45	64.12	64.73	64.80	64.91	65.03	65.18	65.71	66.23
Medway Local	YES	11kV	21.90	0.00	11.90	12.11	12.69	13.29	13.79	13.84	13.91	13.98	14.06	14.28	14.51
Medway Local	YES	11kV	16.56	0.00	8.78	8.93	9.35	9.78	10.15	10.19	10.23	10.28	10.34	10.50	10.67
Medway Scottish Hydro	NO	132kV	19.20	0.00	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43	30.43
Medway Scottish Hydro	NO	132kV	19.20	0.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
Medway Townsend Hook Wrotham Group	YES	kV	34.70	0.00	18.76	18.82	19.01	19.20	19.35	19.36	19.37	19.38	19.40	19.46	19.52
Medway Townsend Hook Wrotham Group	YES	kV	34.70	0.00	13.22	13.28	13.45	13.63	13.78	13.79	13.80	13.81	13.83	13.89	13.95
Rainham Mark	YES	11kV	46.56	0.00	23.42	23.51	23.85	24.22	24.54	24.58	24.63	24.69	24.76	24.98	25.19
Rainham Mark	YES	11kV	34.92	0.00	19.73	19.81	20.08	20.38	20.64	20.68	20.72	20.77	20.83	21.00	21.18
Strood 132/11	YES	11kV	74.10	0.00	37.58	37.48	37.45	37.48	37.57	37.61	37.68	37.76	37.84	38.15	38.45
Strood 132/11	YES	11kV	57.00	0.00	27.14	27.03	27.01	27.03	27.09	27.12	27.17	27.22	27.28	27.50	27.71
Townsend Hook	YES	6.6kV	14.40	0.00	5.51	5.57	5.76	5.95	6.11	6.12	6.13	6.14	6.16	6.22	6.28
Townsend Hook	YES	6.6kV	10.60	0.00	5.41	5.47	5.64	5.83	5.98	5.99	6.00	6.01	6.02	6.08	6.15
Wrotham	YES	11kV	16.60	0.00	13.84	13.84	13.84	13.84	13.84	13.84	13.84	13.84	13.84	13.84	13.84
Wrotham	YES	11kV	13.00	0.00	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90

Key

Compliant with P2/6

Approaching limit of P2/6 compliance

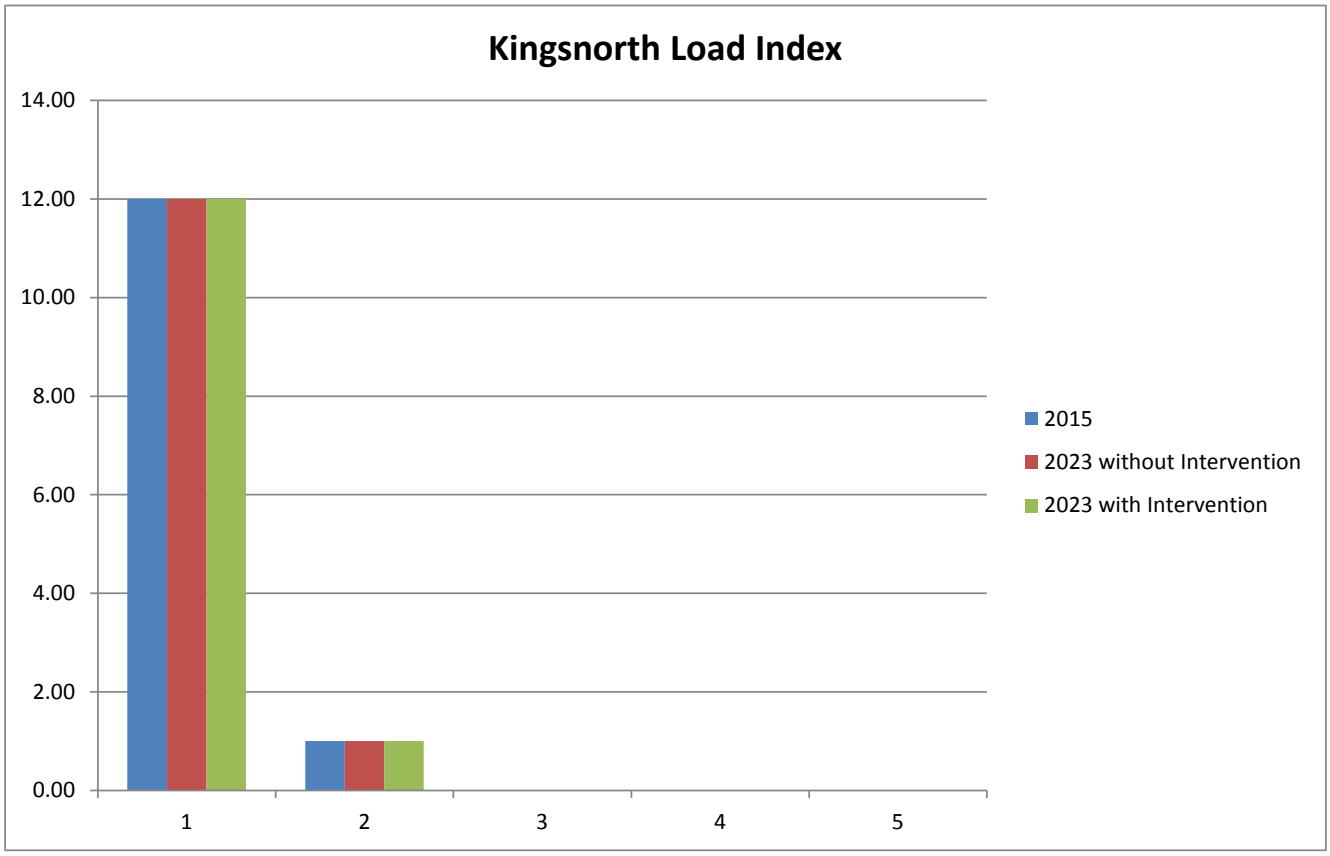
Table 12. LI Profile

All of the cost numbers displayed in this document are before the application of on-going efficiencies and real price effects.

LI Profile (Without Intervention)

Substation	Voltage kV	Load Index	
		2015	2023
Kingsnorth 132kV			
Kingsnorth 132/11kV	11	1	1
Strood 132/11kV	11	1	1
Chatham Grid 132/33kV	33	1	1
Chatham Hill 33/11kV	11	1	1
Rainham Mark 33/11kV	11	1	1
Lordswood 33/11kV	11	1	1
Medway Grid 132/33kV	33	1	1
Cobham (Kent) 33/11kV	11	1	1
Chatham West 33/11kV	11	1	1
Townsend Hook 33/6.6kV	6.6	1	1
Wrotham Heath 33/11kV	11	2	2
Medway Local 33/11kV	11	1	1
Halling 33/11kV	11	1	1

Table 13. Forecast LI Profile without intervention



3.4 Operational and technical restrictions

No operational or technical restrictions have been identified.

All of the cost numbers displayed in this document are before the application of on-going efficiencies and real price effects.

3.5 National Grid

There is no scheduled works at Kingsnorth 400kV substation with the National Grid Seven Year Statement identifying one major infrastructure project in the Kent area which is the re-conductoring of the Canterbury - Sellindge overhead line during 2013.

The RWE Kingsnorth Power Station may be decommissioned during ED1, Should this occur, UK Power Networks would become the ‘sole user’ of the 132kV substation and it is expected that ownership of the building and electrical equipment would be transferred from National Grid to UK Power Networks.

3.6 Network Constraints

There is a 132kV cable constraint cited for this group associated with circuits crossing north and south drains on the Kingsnorth site.

All of the cost numbers displayed in this document are before the application of on-going efficiencies and real price effects.

4 Recommended strategy

The recommended network strategy for the network is designed to ensure:

- Continued adherence to security of supply criteria defined in Engineering recommendation P2/6
- Maintaining reliable network operation by replacement or refurbishment of poorly performing equipment or assets approaching the end of their operational life identified by the use of condition monitoring (HI) techniques

Wherever possible, reinforcement and asset replacement works are to be harmonised to achieve an efficient economic and resourced solution.

4.1 Asset Replacement

4.1.1 Transformers

7900: Rainham Mark 33/11kV - Refurbish Primary Transformer (T1, T2)

Rainham Mark is supplied by three 33/11 kV 12/24MVA transformers. The condition assessment of the 1982 Hawker Siddeley Primary Transformers with ATL AT tap changers installed has identified a risk of failure due to degradation. It is therefore proposed to refurbish both units in situ.

The site has a firm capacity of 46.6MVA during the winter, which is not forecast to be exceeded within the study period.

7913: Townsend Hook 33/6.6kV - Replace Primary Transformer (T2)

Townsend Hook is fed by two 7.5/15MVA 33/6.6kV transformers. The condition assessment of the 1972 Ferranti Primary Transformer with Ferranti DS2 tap changer installed at has identified a risk of failure due to degradation. This project therefore recommends replacement. Completion of the project will see 1 Primary Transformer replaced with a 15MVA unit.

The firm capacity of the site is not due to be exceeded within the study period.

4.1.2 Switchgear

7924: Chatham Hill - Replace 11kV Switchgear

The condition assessment of the 1984 GEC VMX vacuum switchgear installed at Chatham Hill has identified a risk of failure due to degradation. Of the 19 circuit breakers 14 will become HI5 by 2023. It is therefore proposed to asset replace the switchboard. Completion of the project will see 19 circuit breakers replaced with new circuit breakers.

Note: Chatham Hill 11kV substation is supplied by three 33/11kV transformers. T2 is rated at 12/24MVA, T3 is rated at 11.5/23MVA and T4 is rated at 12/18/24MVA to give a site firm capacity of 45MVA. The firm capacity is not forecast to be exceeded within the study period.

4158: Chatham West Primary - Retrofit 11KV Switchgear (part)

The 11kV switchboard consists of a double busbar arrangement with two bus coupler and three bus section circuit breakers. The site is split via the bus couplers for fault level constraint purposes. The existing Reyrolle C 11kV switchboard (1964) at Chatham West Primary 33/11kV is to become HI4 by 2024 (four circuit breakers). The switchboard is therefore being partially retrofitted as part of the plan.

The site is fed by four 33/11kV transformers, each rated at 16/20MVA. The firm capacity of the site is 55.9MVA winter. The site is predicted to remain within the firm capacity during the study review period.

All of the cost numbers displayed in this document are before the application of on-going efficiencies and real price effects.

7927: Cobham (Kent) 33/11kV - Retrofit 11kV Switchgear

The 11kV switchboard consists of a single busbar with one bus section. The condition assessment of the 1967 Reyrolle LMT oil switchgear installed at Cobham (Kent) 33/11kV has identified a risk of failure due to degradation. One of the circuit breakers is due to reach HI4 by 2023. It is therefore recommended to retrofit the 8 circuit breakers.

The site is supplied by two transformers each rated at 10MVA and is due to exceed firm capacity by 2020 with an associated reinforcement project proposed during ED1. To obtain the most economical delivery solution it is proposed that delivery of these two projects is coordinated.

7830: Medway Local 33/11kV - Retrofit 11kV Switchgear

Medway Local consists of a single busbar switchboard with a single bus section switch. The condition assessment (HI4 by 2024) of the 1972 Reyrolle LMT Oil Switchgear installed at Medway Local 33/11kV has identified a risk of failure due to degradation. It is therefore proposed to refurbish the 5 circuit breakers.

The switchboard is supplied by two 12/24MVA transformers, and the site has a firm winter capacity of 21.9MVA. This firm capacity is not forecast to be exceeded within the review period.

4.1.3 Circuits

7962: PE Route Burham Grid to Medway Grid 132kV Tower Line – 132kV tower line refurbishment

The condition assessment of the Burham Grid to Medway Grid 132kV Tower Line (PE) has identified the need to undertake selective refurbishment of fixtures, fittings and painting of the 10km route.

8173: Medway Grid 33kV – Wrotham Heath No 33kV Pole – 33kV Pole replacement

Condition assessment of the Medway Grid 33KV - Wrotham Heath No 2 33KV Pole has identified the need for selective replacement and refurbishment of the 11 km of 33KV pole route.

8652: Kingsnorth – Strood 132KV FFC

Condition assessment of the fluid filled cable has identified the requirement to undertake selective section replacement due to deteriorating condition.

4.2 Reinforcement

P2/6 analysis confirms that the existing network capacity is well matched to the forecast maximum demands and no reinforcement projects are proposed for ED1.

Strood substation capacity headroom will be regularly monitored due to the Local Development Framework predicted increase of new residential development.

All of the cost numbers displayed in this document are before the application of on-going efficiencies and real price effects.

4.3 Summary of Proposed Interventions

Substation	Driver	Commissioning Year	Scope of works	New Firm capacity
Chatham Hill	Asset Replacement	2017	Replacement 11kV switchgear	Remains at 45MVA
Burham to Medway (Route PE) 132kV Tower Line	Asset Replacement	2017	132kV tower line refurbishment	N/A
Rainham Mark 33/11kV	Asset Replacement	2018	Refurbish primary transformers T1 & T2	N/A
Medway – Wrotham Heath No2 Wood Pole 33kV Line	Asset Replacement	2018	33kV Pole replacement	N/A
Medway Local 33/11kV	Asset Replacement	2019	Retrofit 11kV switchgear	N/A
Chatham West Primary	Asset Replacement	2019	Retrofit 11kV switchgear	N/A
Townsend Hook 33/6.6kV	Asset Replacement	2019	Replace transformer (T2)	N/A
Cobham (Kent) 33/11kV	Asset Replacement	2020	Retrofit 11kV switchgear	N/A
Kingsnorth-Strood 132kV FF cable	Asset Replacement	2023	Cable section asset replacement	No change

4.4 Costs and Phasing

Table 14. NAMP Table (2014-2023)

SR_Table J - S&R - Baseline_Final ED1 Re-submission_19th February 2014_15:15													
Cat	Namp Line	Project ID	Description	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023
A	1.55.02	8469	Kingsnorth Grid 132kV: ABCB Refurbishment	99,325	0	0	0	0	0	0	0	0	0
A	1.51.11	7900	Rainham Mark 33/11kV - Refurbish Primary Transformer (T1, T2)	0	0	0	0	113,672	187,958	0	0	0	0
A	1.51.03	7913	Townsend Hook 33/6.6kV - Replace Primary Transformer (T2)	0	0	0	0	82,574	492,054	0	0	0	0
A	1.50.01	7924	Chatham Hill - Replace 11kV Switchgear	0	0	0	411,608	1,086,210	0	0	0	0	0
A	1.50.01	4158	Chatham West Primary - Retrofit 11kV Switchgear	0	0	0	0	0	101,848	152,484	0	0	0
A	1.50.01	7927	Cobham (Kent) 33/11kV - Retrofit 11kV Switchgear	0	0	0	0	0	0	29,783	89,349	0	0
A	1.50.01	7830	Medway Local 33/11kV - Retrofit 11kV Switchgear	0	0	0	0	0	0	71,444	0	0	0
A	1.02.03	7962	PE - Burham Grid - Medway Grid - Conductor Replacement	0	0	0	165,494	343,423	0	0	0	0	0
A	1.09.01	8173	100913314 - 33kV Medway Grid/Wrotham Heath No2 - OHLReplacement	0	0	0	0	130,407	244,259	0	0	0	0
H	1.29.02	8652	Kingsnorth Grid-Strood 132kV FFC Replacement (Circuit 2-3)	0	0	0	0	0	0	0	0	644,317	1,932,952
R	1.33.07	3047	Halling Primary (Replacement for Rugby Substation) - Relocation & Increased Capacity	5,403	0	0	0	0	0	0	0	0	0
R	1.37.06	3099	Medway - Burham - 132kV Interconnector	143,320	0	0	0	0	0	0	0	0	0

All of the cost numbers displayed in this document are before the application of on-going efficiencies and real price effects.

4.5 HI / LI Profile Post Intervention

HI profile (all substations) pre and post intervention at the end of the review period - 2023

Table 15. 11kV Circuit Breakers

	2015					2023 with Intervention				
Substation	**No. HI1**	**No. HI2**	**No. HI3**	**No. HI4**	**No. HI5**	**No. HI1**	**No. HI2**	**No. HI3**	**No. HI4**	**No. HI5**
CHATHAM HILL 33/11KV		5	14			19				
CHATHAM WEST	1	23	4			1	16	11		
COBHAM (KENT) 33/11KV		7	1				8			
HALLING 33/11KV	9					9				
KINGSNORTH GRID 11KV			5						5	
KINGSNORTH GRID 132/11KV			1						1	
LORDSWOOD 33/11KV	9						9			
MEDWAY LOCAL 33/11KV		7	3				5	5		
RAINHAM MARK 33/11KV	3	10				1	12			
STROOD 132 KV		4					4			
STROOD 132/11KV		25					25			
TOWNSEND HOOK 33/6.6KV		8					2	6		
WROTHAM HEATH 33/11KV	1	9					1	9		

Table 16. 33kV Circuit Breakers

	2015					2023 with Intervention				
Substation	**No. HI1**	**No. HI2**	**No. HI3**	**No. HI4**	**No. HI5**	**No. HI1**	**No. HI2**	**No. HI3**	**No. HI4**	**No. HI5**
CHATHAM GRID 132 KV		2					2			
CHATHAM GRID 33 KV	2	8				1	2	7		
MEDWAY GRID 132 KV		5					1	4		
MEDWAY GRID 33KV		6	13				4	14		1

Table 17. 132kV Circuit Breakers

	2015					2023 with Intervention				
Substation	**No. HI1**	**No. HI2**	**No. HI3**	**No. HI4**	**No. HI5**	**No. HI1**	**No. HI2**	**No. HI3**	**No. HI4**	**No. HI5**
KINGSNORTH 132 KV	1		3				1	3		
MEDWAY GRID 132 KV		1	3				1		1	2

Table 18. Primary Transformers

	2015					2023 with Intervention				
Substation	**No. HI1**	**No. HI2**	**No. HI3**	**No. HI4**	**No. HI5**	**No. HI1**	**No. HI2**	**No. HI3**	**No. HI4**	**No. HI5**
CHATHAM HILL 33/11KV	1	2					2	1		
CHATHAM WEST		4						4		
COBHAM (KENT) 33/11KV		2					2			
HALLING 33/11KV	2						2			
LORDSWOOD 33/11KV		2					1		1	
MEDWAY LOCAL 33/11KV		2						2		
RAINHAM MARK 33/11KV		1	1	1			3			
TOWNSEND HOOK 33/6.6KV		1		1		1		1		
WROTHAM HEATH 33/11KV		2					2			

All of the cost numbers displayed in this document are before the application of on-going efficiencies and real price effects.

Table 19. Grid Transformers

Substation	2015					2023 with Intervention				
	No. HI1	No. HI2	No. HI3	No. HI4	No. HI5	No. HI1	No. HI2	No. HI3	No. HI4	No. HI5
CHATHAM GRID 132 KV		2					2			
KINGSNORTH GRID 132/11KV	1						1			
MEDWAY GRID 132 KV		2	3				1	3	1	
STROOD 132 KV		2						2		

Table 20. Load Indices Post-intervention

Substation	Voltage kV	Load Index 2015	Load Index 2023
Kingsnorth 132kV			
Kingsnorth 132/11kV	11	1	1
Strood 132/11kV	11	1	1
Chatham Grid 132/33kV	33	1	1
Chatham Hill 33/11kV	11	1	1
Rainham Mark 33/11kV	11	1	1
Lordswood 33/11kV	11	1	1
Medway Grid 132/33kV	33	1	1
Cobham (Kent) 33/11kV	11	1	1
Chatham West 33/11kV	11	1	1
Townsend Hook 33/6.6kV	6.6	1	1
Wrotham Heath 33/11kV	11	2	2
Medway Local 33/11kV	11	1	1
Halling 33/11kV	11	1	1

5 Alternatives considered

3285: Medway Grid - Replace 33kV Switchgear

Medway Grid is equipped with 23 panels of Reyrolle L42 double busbar switchgear. The highest health index at this site is 5 by 2024. This solution attempts to rectify the fault by replacing the contact fixed portion leak oil onto the circuit breakers through the spout seals. A programme of inspection and topping up is in hand - however replacement is deemed necessary.

Newhaven Grid had a similar leak and was routinely monitored and topped up. Despite regular monitoring, in 2000 there was a flashover and explosion which badly damaged the switch-house wall and roof which collapsed on the switchgear.

The increased risk to the system and the health and safety of personnel has rendered this solution as rejected.

All of the cost numbers displayed in this document are before the application of on-going efficiencies and real price effects.

5.1 References

References	Description
Reference 1	Planning Load Estimates SPN Area 2011 – 2023 (20 August 2012)
Reference 2	SPN 132kV System Diagram East
Reference 3	SPN 132kV System Diagram West
Reference 4	SPN LTDS Network Schematics
Reference 5	NAMP SPN Table J Less Ind 1 Sept 2012
Reference 6	ED1 Update September 2012 v10.3.1

5.2 Appendices

Appendix	Description
Appendix A	Geographical diagram
Appendix B	Single Line Diagram – Existing Network
Appendix C	Single Line Diagram – Recommended Strategy

5.3 Document History

Version	Date of Issue	Author	Details
1.0	December 12	URS	
1.1-1.4	27/02/13	C Winch	Amendments incorporating feedback
1.5	17/06/12	C Winch	Final revisions
1.6	25/06/13	Z Musanhi & T Matiringe	Updated with PA's firms review comments
1.7	26/02/14	M White	ED1 Resubmission
2.0	27/03/14	Regulation	Final publication

All of the cost numbers displayed in this document are before the application of on-going efficiencies and real price effects.

6 Document Approval

Recommended by:

Name	Role	Signature	Date
Chris Winch	Infrastructure Planner		
Tendai Matiringe	IDP Coordinator SPN		
Chris Winch	Infrastructure Planning Manager - South		

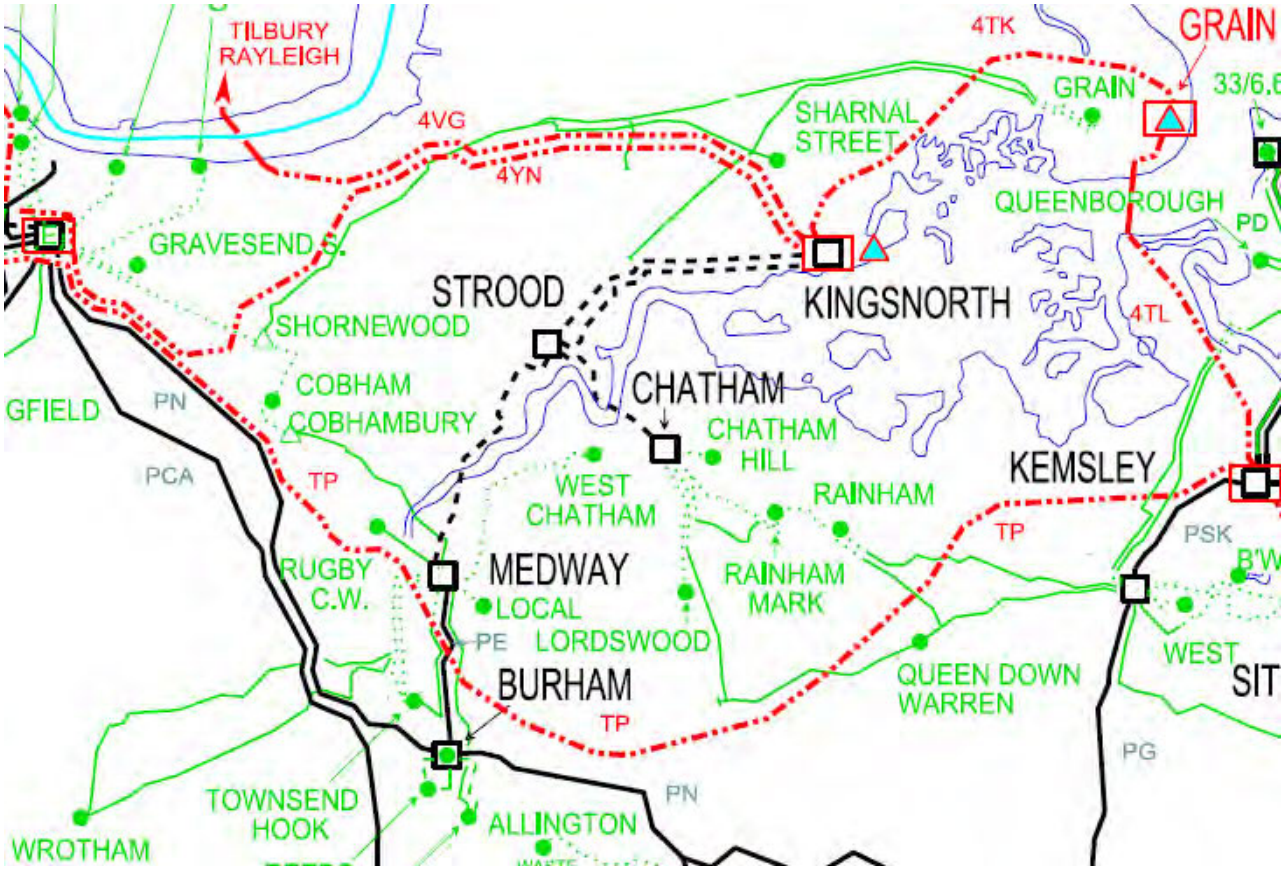
Approval by:

Name	Role	Signature	Date
Robert Kemp	Head of System Development	Robert Kemp	
Barry Hatton	Director of Asset Management	Barry Hatton	

Regional Development Plan

Kingsnorth

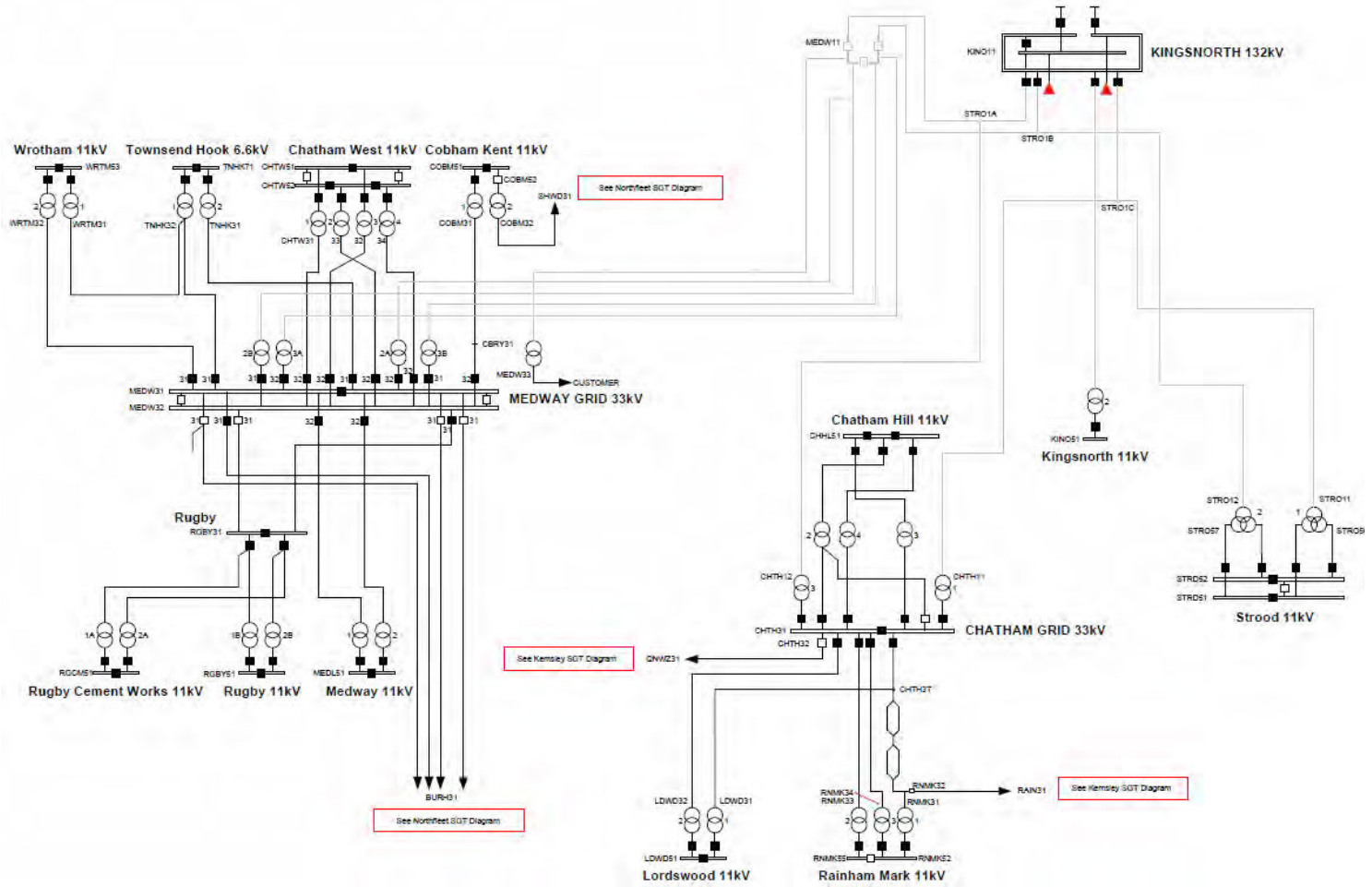
APPENDIX A: GEOGRAPHICAL DIAGRAM



Regional Development Plan

Kingsnorth

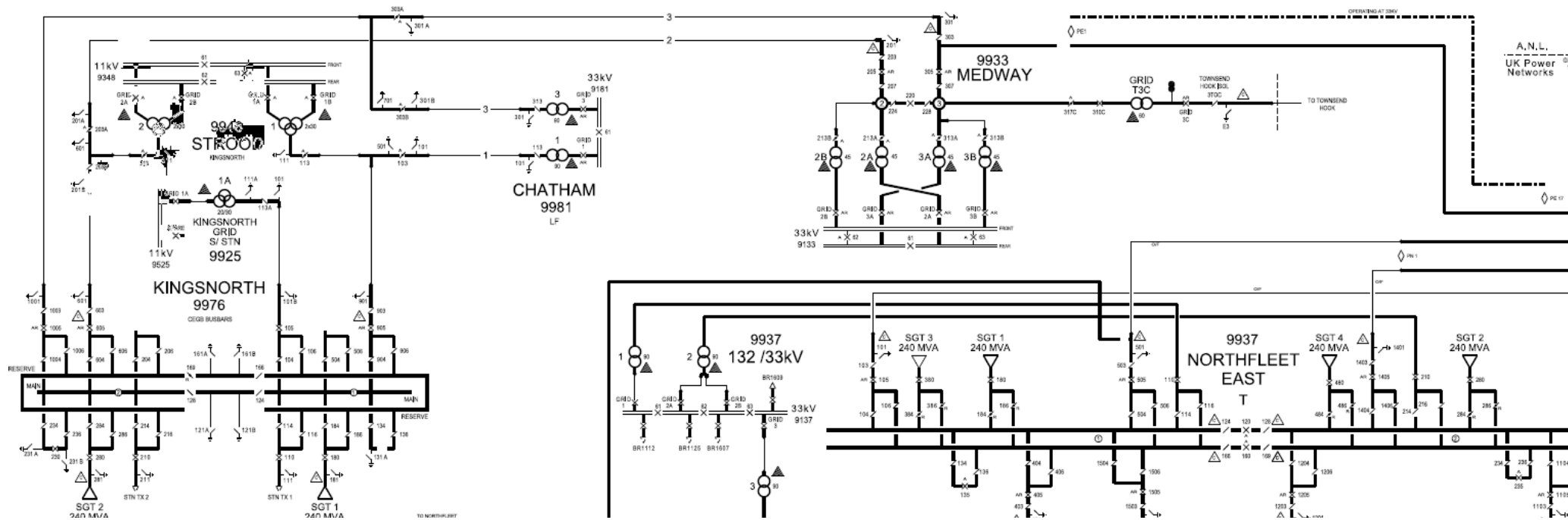
APPENDIX B: SINGLE LINE DIAGRAM – EXISTING NETWORK



Regional Development Plan

Kingsnorth

APPENDIX C: SINGLE LINE DIAGRAM EXISTING 132KV NETWORK



TA 12.WW05 Wastewater Growth
Business Case

September 2018
Version 1.0

Contents

1. Executive Summary

Name of business case	WW05 Wastewater Growth		
Context	The rate of growth has increased in AMP6 and we are forecasting over 100,000 new connections in AMP7, in line with Local Area Plans. We need to ensure we have appropriate capacity in our drainage and treatment network to support the delivery of new homes and businesses, minimising any impact on existing customers.		
Customer and stakeholder views	Customers are concerned with the level of development and the impact on infrastructure in the region. They expect us to ensure that future generations have access to the same level of wastewater and water services as we do today and are willing to invest now to provide no deterioration in services in the future.		
Our aim	Our aim is to transform the way we deliver additional capacity, working more collaboratively with developers, local authorities and the Environment Agency. We will plan more proactively, deliver quickly and efficiently, while protecting our existing customers from increased flooding and pollution risk and maintaining our treatment works compliance.		
Scope of this business case	Enhancement expenditure providing on-time investment to support growth while protecting our existing customers and the environment.		
	Enhancement	Contributions	Total
Totex (£'m)	£271.9m	£89.1m	£182.8m
Opex (£'m)	£4.5m	£0m	£4.5m
Capex (£'m)	£267.4m	£89.1m	£178.3m
Residual, post-AMP7 capex (£'m)	Growth investment will be ongoing		
20-year Whole life totex	£176.0m		
Materiality (% of the wholesale wastewater plan)	11.5% (Wastewater Network+)		
Relevant business plan table lines	WWS18: 1,25,26	N/A	N/A
Enhancement			
Need for enhancement / investment	The rate of growth has increased in AMP6 and we are forecasting over 100,000 new connections in AMP7, in line with Local Area Plans. Our plans are based on our network models, Drainage Area Plans and a robust assessment of treatment works capacity.		
Overview of AMP7 proposals	Our investment proposals contained within this investment area are summarised in the below table.		

	AMP7 Totex (£k)				
	Wastewater Network Reinforcement and Growth	Section 101A projects	Wastewater Flooding new additions	Wastewater Treatment Capacity Increase	Total
Gross Totex	127,990	4,577	11,294	128,086	271,947
Contributions	-89,093	0	0	0	-89,093
Net Totex	38,897	4,577	11,294	128,086	182,854

Why the proposals are the best programme-level option for customers	Within our two major programme areas of Wastewater Network and Wastewater Treatment growth we have considered various options. For networks, our plan is based on specific catchment solutions with a programme level efficiency applied. The programme level efficiency of £70 million is based on re-engineering our planning and delivery process to take much greater account of innovative and collaborative approaches. This efficiency is in addition to our initial cost efficiency and calibration applied to all programmes Options within the Wastewater Treatment programme are site and catchment based. The option selection process has been based on lowest whole life cost Further information can be seen in Section 5.2.
Customer and stakeholder support	Maintaining the health of our water and wastewater assets is a high priority for customers. They expect us to ensure we can deliver the same level of services in an environmentally friendly manner for future generations. Developers and Planning Authorities want us to work more collaboratively to develop shared approaches and facilitate housing and growth targets.
Need for a CAC (if relevant)	There is a Cost Adjustment Claim associated with growth. This is related to the extraordinary costs associated with provision of a new treatment works for the Whitfield development in Dover.
Extent of management control (if relevant)	Growth is largely driven by external factors, but we are adapting our processes to work more collaboratively with various stakeholders. This enables integrated forward plans to be developed, reducing risks to stakeholders and providing greater resilience in the round.
Robustness and efficiency	Our proposals are based on specific catchment needs and include significant efficiencies at scheme and at programme level.
Customer protection (if relevant)	To protect customers, our Cost Adjustment Claim for Whitfield includes an ODI to return outperformance to customers, reflecting our ongoing work to explore more innovative options and the wider risk of growth occurring more slowly than anticipated in local plans.
Affordability considerations	We have applied a further £70m efficiency to our network proposals, recognising the expected benefits from re-engineering our growth planning processes and opportunities from Sustainable Drainage 2030 approaches.
Board assurance (if relevant)	This enhancement business case has been externally reviewed by Jacobs, with no material exceptions identified.

Performance Commitments supported by this business case			
PC	How relevant is this business case?	Comment	
Growth (Cost adjustment claim)	High	This PC protects customers against delivering the solution at a lower cost than the claim value	
Surface water Management (no Properties)	High	The PC is a key measure of a mechanism we propose to use to free up capacity in our existing wastewater network to accommodate growth	
D-Mex	High	The PC will measure our successful implementation of many of our new approaches for supporting growth from a customer and stakeholder perspective	
Schemes and options			
Schemes over £20m	Options		
	Description	Cost	Selected option and rationale
Aylesford Network	Option B – catchment solution	£33.6m	Option B – Lowest whole life cost
Budds Farm Network	Option A – catchment solution	£41.6m	Option A – Lowest whole life cost
Ebbsfleet Network	Option B – catchment solution	£20.8m	Option B – Lowest whole life cost
Whitfield Combined solution	Option D – New WTW coastal discharge	£35.7m	Option D – Lowest whole life cost

2. Scope of business case

Our wholesale plan for PR19 totals £3.9b. This business case relates to £271.9m (gross) planned investment in Wastewater Growth or £182.8m including contributions from developers and other customers. How this investment relates to our wider wholesale plan is detailed within Figure 1 below.

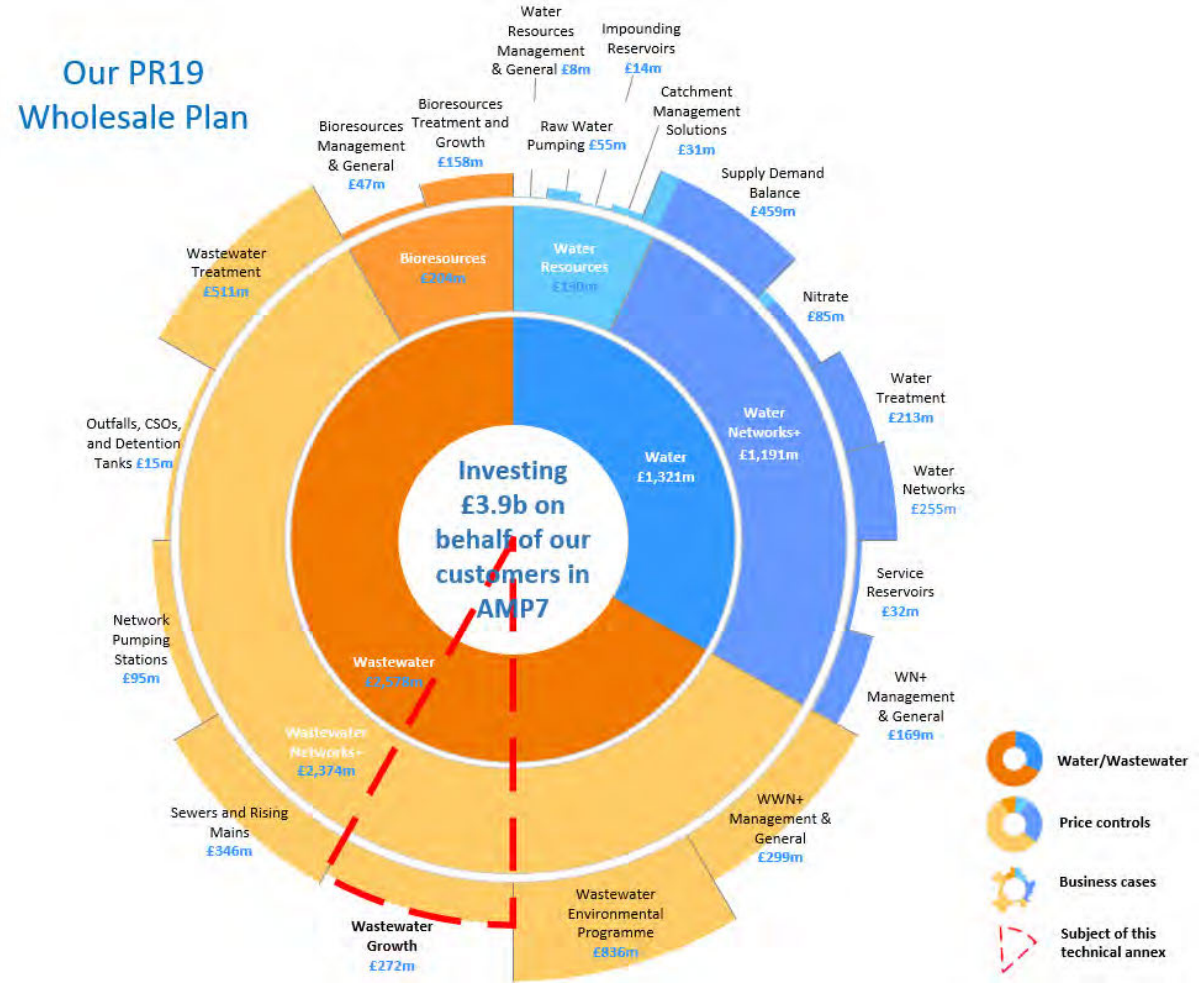


Figure 1: Southern Water PR19 Wholesale Plan

This business case focusses on the key areas of:

- Wastewater network reinforcement (sewers, rising mains, pumping stations)
- Wastewater treatment
- New sewerage and treatment via s101a
- Strategic growth for significant new towns and large-scale developments

As population grows, so does demand for our wastewater services. To ensure resilient services for our customers, protect the environment and meet demand from growth we need to secure additional capacity. Schemes are categorised as growth if the investment need is driven through an increase in population in AMP7. Sites with existing effluent compliance risks due to historic growth are excluded and are considered within the base capital maintenance case for wastewater treatment.

Failure to provide additional capacity can have adverse impacts for customers and the environment by increasing flooding and pollution with potential detriment to water quality.

We propose three growth-specific performance commitments in AMP7. The primary one relates to the new D-Mex measure, one relates to removing surface water from our sewers to create additional capacity, and the other is specific to our proposed Cost Adjustment Claim at Whitfield.

Our transformational programme **Sustainable Drainage 2030** is driving new ways of working to adopt more collaborative, environmentally sustainable approaches to address capacity limitations.

3. AMP6 Strategy

3.1. Investment Strategy

The growth rate has increased during AMP6 over AMP5. For wastewater, the rate of growth is broadly in line with our PR14 predictions.

Our investment strategy for wastewater treatment has focused on:

- Maximising existing process and Dry Weather Flow (DWF) permit headroom to accommodate growth, reducing need for growth expenditure. Action plans were created for sites with risks of exceeding their DWF permit to identify the most cost-effective solution
- Optimising the import of cess waste to make sure of existing capacity in our wider network
- Including growth investment within existing quality schemes to deliver long-term efficiencies
- Putting forward specific growth schemes where growth at a treatment works was causing a high risk of permit non-compliance

Our investment strategy for wastewater networks has focused on:

- Delivery of the majority of network growth through developer requisitions once the need is confirmed, with the use of Grampian Conditions on developments to allow time for appropriate network reinforcement
- Planned investment of £17m for a new strategic main in Chichester
- Surface water separation projects to reduce pressure on the existing network and unlock capacity for growth
- Reduction of properties at risk of internal flooding due to hydraulic overload, where the schemes are cost beneficial based on our customers' willingness to pay for improvements

Our approach has been heavily influenced by two factors, resulting in network growth investment not starting until a late stage in the planning process

- We were criticised at PR09 about our inability to attain the levels of developer contributions seen by other companies. This contributed to a greater focus on the use of developer requisitions to deliver network growth schemes
- Significant investment in new trunk sewers for Ashford in AMP4 resulted in premature expenditure when development was stopped at a late stage

Recognising a growing dissatisfaction from developers we undertook a thorough review of our approach in autumn 2017, working with developers and planning authorities to better understand their needs and concerns. We identified the following improvements required in AMP6:

- The need for a more forward-looking approach to meeting growth needs in our wastewater networks:
  - Planners and developers stressed the need for us to become more proactive in planning for growth to avoid delays to development. This includes reducing our reliance on Grampian Conditions, where developments are delayed until sewer capacity is available – a significant source of developer dissatisfaction (see T.A.4.4 Customer Engagement Deliverables for Developer and Stakeholder

feedback). Planning authorities are under increasing pressure to deliver their housing targets so are reluctant to delay construction – meaning we must be more proactive

- The new charging mechanism, introduced in April 2018, is helping reduce barriers to investing proactively to support new developments. Firstly, the clear rules and guidance outline expectations for improved accountability, customer service and delivery timeframes. Secondly, removing the requirement for network capacity improvements to be development specific (costs now being aggregated across all connections) supports greater use of catchment management

- A comprehensive, forward-looking review of wastewater treatment growth, reducing risks to compliance and minimising operational action plans

In AMP6, responding to the challenges, commitments and pressures outlined above, we took a more medium-term strategic view of growth needs. We completed 103 Drainage Area Plans, each providing outputs to support growth and reduce flooding, with several areas brought forward for outline design, allowing for construction in AMP7. These adaptive plans and solutions ensure a risk-appropriate, resilient approach to meeting the challenges of growth, climate change and environmental protection.

Additionally, we improved the visibility and accessibility of our capacity modelling to developers. We reduced our modelled flows from new developments, due to our success in reducing per capita consumption, and reviewed modelling on factors such as urban creep to reduce the parameters used to assess capacity.

Our standards are now resulting in lower capacity improvements being required for many developments. This will reduce the costs and complexity of network reinforcement by reducing both the frequency of when additional capacity is needed, and the scale when it is.

During AMP6 we also implemented an extensive internal and external flooding mitigation strategy. This, along with our wider programme, has successfully reduced flooding frequency – we are on track to deliver our customer promise of reducing internal flooding by 25%. For further information on our flooding strategy please see TA.12.WW07 Flooding and Pollution Strategies.

In AMP6 we developed a more comprehensive understanding of capacity, headroom and bottlenecks at our Wastewater Treatment Works (WTWs). For each WTW we developed an AM410 tool, which forms part of our Asset Management Manual. The AM410 provides a comprehensive capacity assessment, enabling us to make informed judgements as to when the capacity of each process stage will be exceeded.

Combining this with greater business as usual forward planning activities allows a longer-term assessment of likely growth investment triggers. This includes DWF permit exceedances, hydraulic bottlenecks or treatment capacity limitations. It is now possible to model and predict when growth triggers will occur, enabling a more strategic, efficient approach to growth investment, including alignment with other projects and drivers.

All WTWs in the AMP7 growth plan have been assessed using the AM410s. The assessment identified where key permit conditions, hydraulic or treatment capacity is predicted to exceed beyond an acceptable level of risk during AMP7. The sites identified move into our Asset+ process for detailed assessment and engineering development. For more information TA.14.4 Bottom-Up Cost Estimation technical annex.

In addition to working to improve our internal processes, we are increasing our collaboration with developers, planning authorities and the Environment Agency. We have successfully trialled “Charettes” in two locations – Paddock Wood, Kent and Lidsey, West Sussex. Charrettes are joint workshops to review and shape our proposals for growth. By sharing our plans, we can take better account of local issues and priorities, achieving a more integrated

set of proposals. Stakeholders welcomed the early engagement and the insight has allowed us to address key concerns at the earliest stages of our design and development work.

We are working with Kent County Council on innovative methods to separate surface water and highway drainage from sewers. We are also working closely with the master planning team for the Otterpool development in Kent to identify innovative, and more sustainable, approaches to manage flow from large scale developments and garden cities in advance of planning approval.

Many of these new approaches have informed of the key focus areas within **Sustainable Drainage 2030**. This will promote a completely new way of thinking and drive a new approach of how we support growth. Further details can be found in Section 5.

Table 1: AMP6 Actuals (Yr. 1&2) & Forecast (Yrs 3-5) Gross Figures (17/18 Prices) – Wastewater Growth

AMP6 Actual						
(£'k)	2015/16	2016/17	2017/18	2018/19	2019/20	AMP6 Total
TOTEX	**11,619**	**23,516**	**46,271**	**44,791**	**46,308**	**172,504**
CAPEX	**11,619**	**23,516**	**46,271**	**44,791**	**46,308**	**172,504**
101A Schemes Capex	891	3,209	5,913	2,163	4,362	16,537
Infrastructure capacity increase (infra) Capex	6,194	16,110	24,361	27,543	32,182	106,391
Internal Flooding new additions Capex	2,669	1,180	3,261	3,255	615	10,979
Infrastructure capacity increase and New treatment capacity (non-infra) Capex	1,864	3,017	12,737	11,830	9,150	38,598
OPEX	**Opex is within Sewers & Wastewater Treatment Opex**					

Expenditure to meet network growth requirements is not fully covered by external contributions, largely due to the incorporation of a degree of income-offsetting in the redefined Infrastructure Charge. This means some costs must be provided through the revenue price control. Further AMP7 reforms mean residual income offset from site-specific work will be transferred into the Infrastructure Charge. This is included within our income projections associated with network reinforcement, detailed within the App 28 Data Table.

3.2. Customer Benefits and Resilience

Investment is usually triggered by modelled impact on serviceability or resilience. Furthermore, network investment is only designed to maintain existing levels of serviceability due to the regulations on network reinforcement. Any further enhancements must be, fully or partially, funded from alternative sources. Where possible, we use existing network and WTW headroom to accommodate growth, with minimal impact on serviceability targets. We will invest to reduce risk against the following key measures:

- Not increasing the number of internal flooding incidents in customers properties due to hydraulic limitations
- Protecting the environment for our customers by not increasing the number of pollution incidents due to hydraulic limitations
- Protecting the environment for our customers by maintaining DWF Compliance at wastewater treatment works

Our strategy to optimise use of existing headroom has secured capacity for growth to date, but it means we have more limited options to defer investment in network and WTW capacity.

3.2.1 Internal Flooding due to Hydraulic Capacity

An important metric for the wastewater network regarding growth is the number of internal flooding events due to hydraulic limitations.

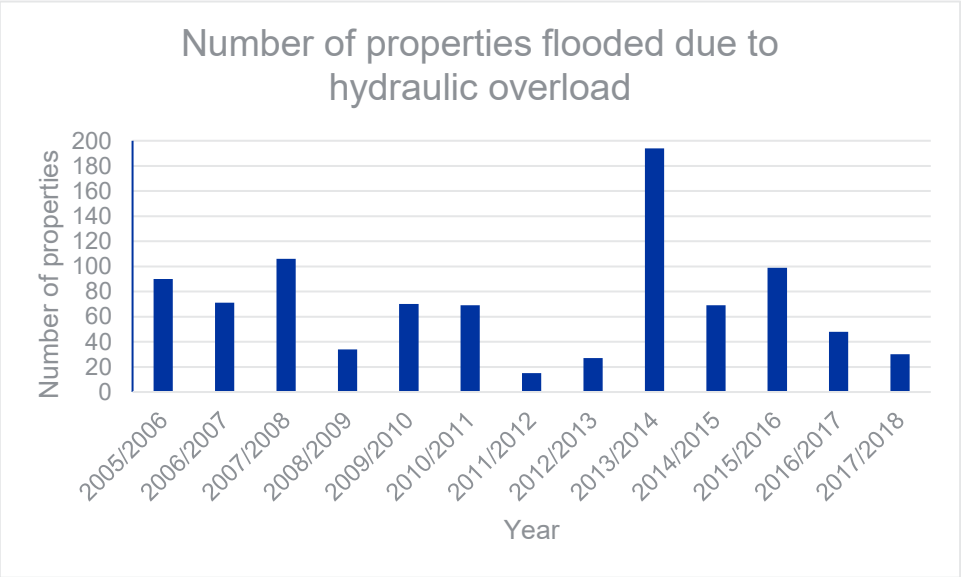


Figure 2: Number of Internal Flooding incidents due to Hydraulic Overload

Flow from new developments can contribute to increased risk of flooding by adding further volume into existing sewers.

Aside from the peaks in 2013/14 and 2015/16 performance has remained stable. The high levels of hydraulic flooding in 2013/14 and 2015/16 align to extremely wet years with high groundwater levels. As a result, our investment case TA.12.WW04 Sewers and Rising Mains includes additional expenditure to reduce infiltration.

3.2.2 Pollution due to Hydraulic Capacity

The likelihood and severity of pollution incidents may increase due to additional foul and surface water entering our network or increased groundwater infiltration due to an enlarged sewerage network.

The number of pollution incidents has reduced since AMP5 as shown below in Figure 3.

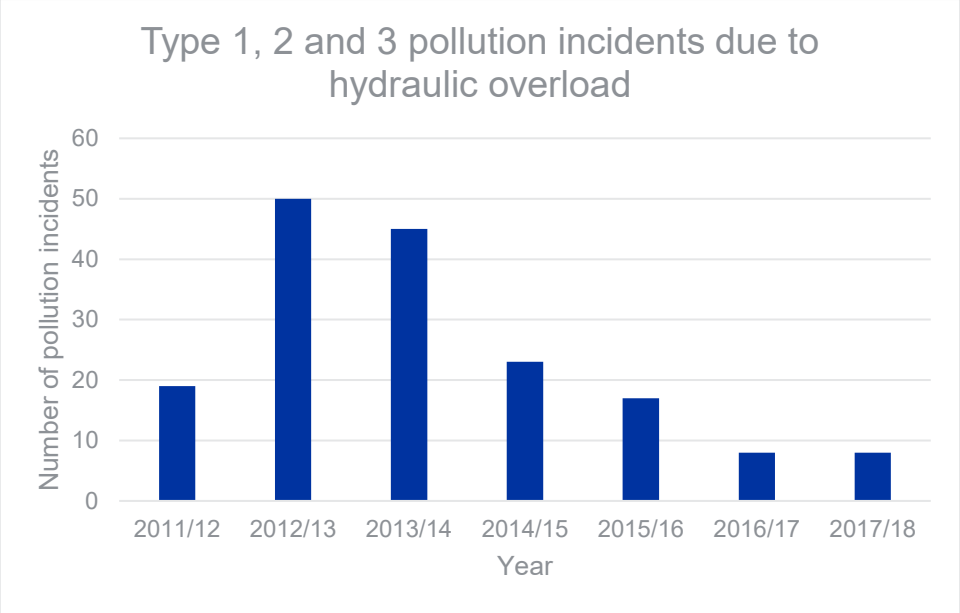


Figure 3: Number of Pollution Incidents due to Hydraulic Overload

Avoiding increased risk of spills due to reduced capacity is a key element of our growth expenditure. Common techniques for increasing capacity include upsizing sewers, pumping stations and rising mains and transferring wastewater flows to other wastewater treatment works or points within the same catchment with spare capacity.

3.2.3 DWF Compliance

Wastewater treatment works have a limit on the dry weather flow for the influent sewage received. Increased flow due to growth and increased trade discharge can lead to more frequent operation of overflows therefore increasing the potential for an adverse impact on the water environment.

The performance of wastewater treatment works with regards to growth is indicated below in Figure 4 through the number of sites that are exceeding dry weather flow consents.

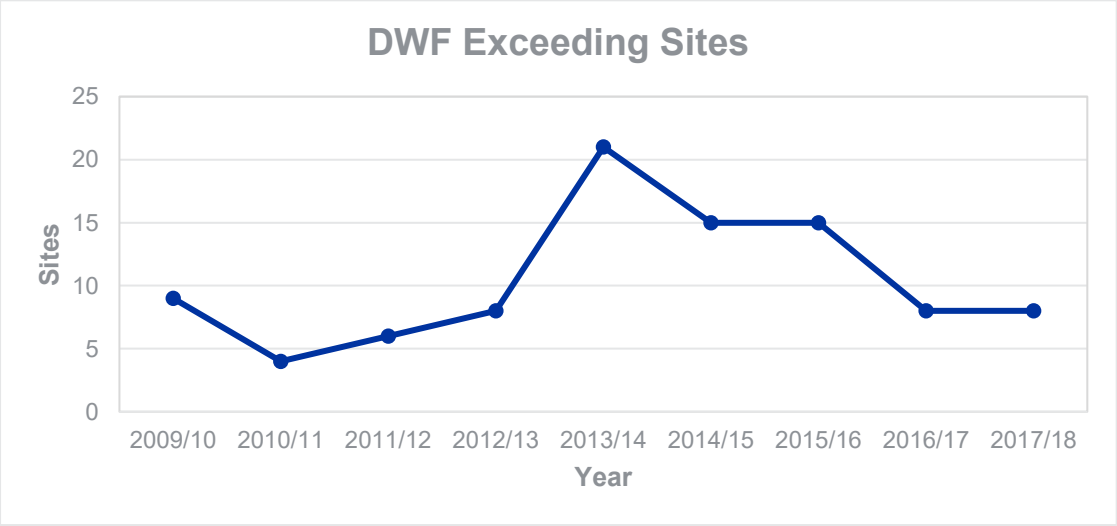


Figure 4: Number of wastewater treatment sites exceeding DWF consents

Figure 4 indicates a slight rise in dry weather flow exceedances over this period, resulting in a number of proposed capital maintenance schemes within the TA.12.WW01 Wastewater Treatment business case.

Compliance is usually maintained by providing additional capacity as required or developing storage tanks and balancing tanks to reduce high flows. If cost effective, growth can also be managed by transferring wastewater to other treatment works with spare capacity.

We intend to upgrade a number of sites with current descriptive consents to comply with future numeric permits. This is due to the size of the population served by the sites increasing above the 250 population equivalent threshold.

3.2.4 Developer Services Customers

Customers of our Developer Services have specific demands and expectations of what they should receive. We have often not met developers' needs and expectations and, as a result, feedback has been negative.

To better understand the frustrations of developers, NAVs and Self Lay Practitioners (SLPs) we held a workshop in October 2017 with representatives from developers and the planning community. From this, we developed a number of plans to significantly improve four key areas identified as priorities:

- Greater forward planning
- Clear and consistent charges
- Transparency, communication and accountability
- Fast and efficient delivery

We are working to improve our capabilities in the above areas and have a much deeper understanding of the challenges AMP7 holds. A wider, organisational transformation and improvement plan has been initiated to build an aligned organisation with well-defined and developed capabilities.

As a direct result of feedback from key stakeholders about confused accountabilities and difficulties securing information, we are implementing a new account management approach.

The largest 30 developers now have dedicated Account Managers, along with specific leads for the NAV, SLP and planning communities. This will deliver stronger customer support, improved customer outcomes and a platform for improved engagement and collaborative approaches into AMP7.

The introduction of D-Mex, and associated financial penalties and rewards, will continue to incentivise and drive improvements.

4. Drivers for change

Levels of growth increased between AMP5 and AMP6 and we forecast that these will continue to accelerate into AMP7. Housebuilding is subject to national levels of scrutiny and policy and in 2017 the government released its white paper 'Fixing our Broken Housing Market'[1]. The primary goal is accelerating rates of housebuilding, particularly in areas where demand is currently outstripping supply.

This is particularly relevant within the South East region. Many local authorities are responding with updated plans that include for large scale development that, while securing the opportunity for desirable levels of housebuilding, provide a major demand on our capacity and infrastructure.

4.1 Customer and stakeholder views

As outlined in **Chapter 4 – Customer & Stakeholder Engagement**, we used insight from our extensive programme of customer & stakeholder engagement to develop a deep understanding of their views and priorities. From an environmental perspective, we have also drawn on the views of a diverse range of non bill-paying customers who utilise water across our region through stakeholder panels, workshops and audits, including the Environment Agency, Natural England and local authorities. All insight gathered from our customer and stakeholder engagement programme can be found in **Chapter 4 – Customer and Stakeholder Engagement** and its technical annexes.

Our customers believe we have a duty to protect and enhance the environment. 'Doing no harm to the environment' has been outlined as a minimum requirement for customers, whilst protecting and enhancing the natural environment is the level of service that customers expect. Customers want water and wastewater services to be delivered in an environmentally friendly way now and in the future.

Maintaining the health of our water and wastewater assets is a high priority for customers. They expect us to ensure we can deliver the same level of services in an environmentally friendly manner for future generations. The focus of our customers of the future is on protecting and enhancing the environment in the short and long term. They relate treatment works compliance to protecting the environment, and as such, generally rank this measure higher other customer groups.

Customers generally put more priority on current issues that have a direct impact on their daily lives. However, customers are concerned that in the future an increase in rainfall, due to climate change, and an increasing population / number of homes will mean the current sewer network will not be able to cope. Furthermore, they recognise that the sewer system is old and requires investment to avoid pollution and flooding.

Customers expect us to ensure that future generations have access to the same level of wastewater and water services as we do today, and are, themselves, willing to invest now to ensure that there is no deterioration in services in the future.

Moreover, developers have outlined that they want us to work more closely with them and the planning authorities to better predict the impact of future growth on the network. They believe this will help to ensure the necessary infrastructure is in place ahead of time and will

[1] Department for communities and Local Government – Fixing our Broken Housing Market, 2017. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/590464/Fixing_our_broken_housing_market_-_print_ready_version.pdf

allow them to provide the public with confidence that development will not cause issues such as flooding.

Government expects utility companies to play their part in supporting economic growth by "ensuring timely connections of new developments[2]" and want to see strategic plans for wastewater which deliver long-term resilience. The House Builders Federation has criticised the support we provide their members in meeting government housing targets. Many stakeholders, particularly local authorities, feel we should be more proactive and visible in the planning process.

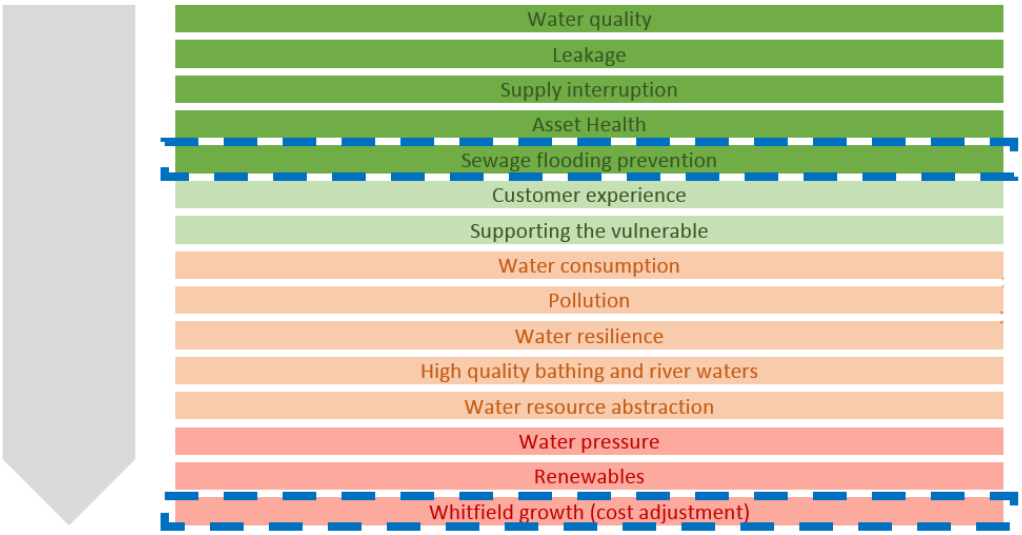


Figure 5: Relative priority of services according to our customers

We have used this understanding of our customers' priorities to define a set of performance commitments and investment proposals, validated then refined these over the course of our programme of customer engagement. Our success at delivering on these priorities for our customers will be measured by the performance commitments outlined in this business case.

When tested across our wider customer base, the Whitfield growth Cost Adjustment Claim Performance Commitment scored as a relatively low priority, primarily due to the highly localised nature of the investment requirement. Feedback from customers within the Dover area who understood the nature of the development was more supportive.

4.2 Future trends & pressures

Growth in the South East region is predicted to be higher than the UK average. In addition to the increase in population, climate change is expected to magnify peak flows.

In order to forecast growth in population and properties, we engaged an external consultant (Experian Ltd) as part of a group project with other water companies in the South East. The other companies in the group were Affinity Water, Portsmouth Water, South East Water and Sutton & East Surrey Water (now SES Water). The benefit of this project is to have an aligned view of growth in the South East. These forecasts were produced in line with the recommended UKWIR methodology[3] and Environment Agency guidelines[4]. The

[2] Department for communities and Local Government – Fixing our Broken Housing Market, 2017. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/590464/Fixing_our_broken_housing_market_-_print_ready_version.pdf
[3] UKWIR, 2016. Population, household property and occupancy forecasting. Report no. 15/WR/02/8.
[4] Environment Agency and Natural Resources Wales, 2016. Final Water Resources Planning Guideline, Bristol.

Environment Agency's guidelines state that water companies should base their forecasts on Local Authority local plans.

Figures 6 and 7 show the historic growth of the Southern Water region as well as our forecast projection of growth.

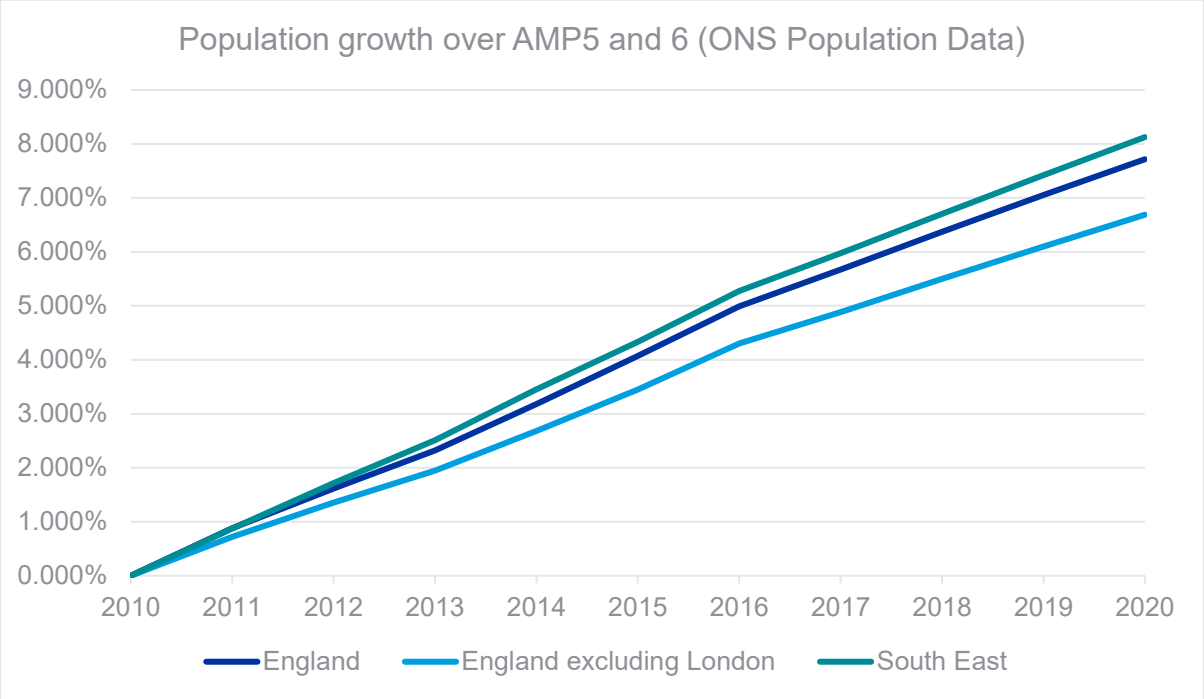


Figure 6: Population growth over AMP5 and 6[5]

[5] ONS Analysis of Population Estimates tool.
https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/analysisofpopulationestimatestool

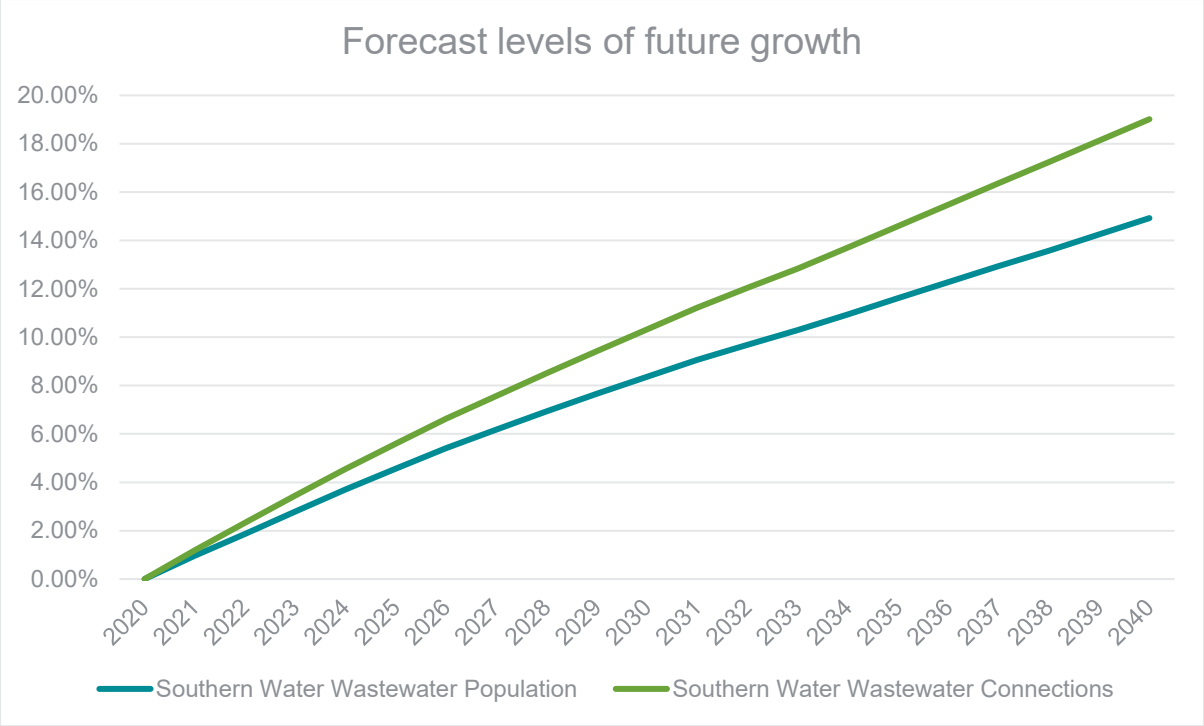


Figure 7: Future forecast population and connections growth[6]

Providing additional capacity in our region is often costly due to the constrained nature of the urban areas. Most of the population live on the South Coast, situated between the sea and the South Downs National Park, leading to congested, densely populated urban areas, often necessitating more expensive solutions with a smaller footprint, covered or underground treatment works and expensive pipeline routes.

Due to historic levels of growth, development within the South East is increasingly on large scale Greenfield sites on the outskirts of existing towns and catchments. Serving these developments is particularly difficult as local infrastructure is usually small with low available capacity and not suited to receiving additional flow from large developments.

In addition to the pressures discussed above, customers, stakeholders and regulators expect improved operational and customer service performance. Government has ambitious targets of building an annual average of 300,000 new homes by the mid-2020s and has specific expectations of utility providers[7]. We fully support government's ambitions and will ensure we become more proactive and forward-looking to plan and deliver additional capacity for growth.

Our **Sustainable Drainage 2030** transformation programme combines collaboration, new technology and sustainable practices to optimise the capacity of our existing infrastructure. Growth considerations inform the cross-cutting themes of compliance and resilience ensuring we at least maintain performance. Details of **Sustainable Drainage 2030** are below and in **Chapter 3 – Our Ambition**.

[6] ONS Population Projections for Regions.
https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/datasets/regionsinenglandtable1

[7] Department for communities and Local Government – Fixing our Broken Housing Market, 2017.
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/590464/Fixing_our_broken_housing_market_-_print_ready_version.pdf

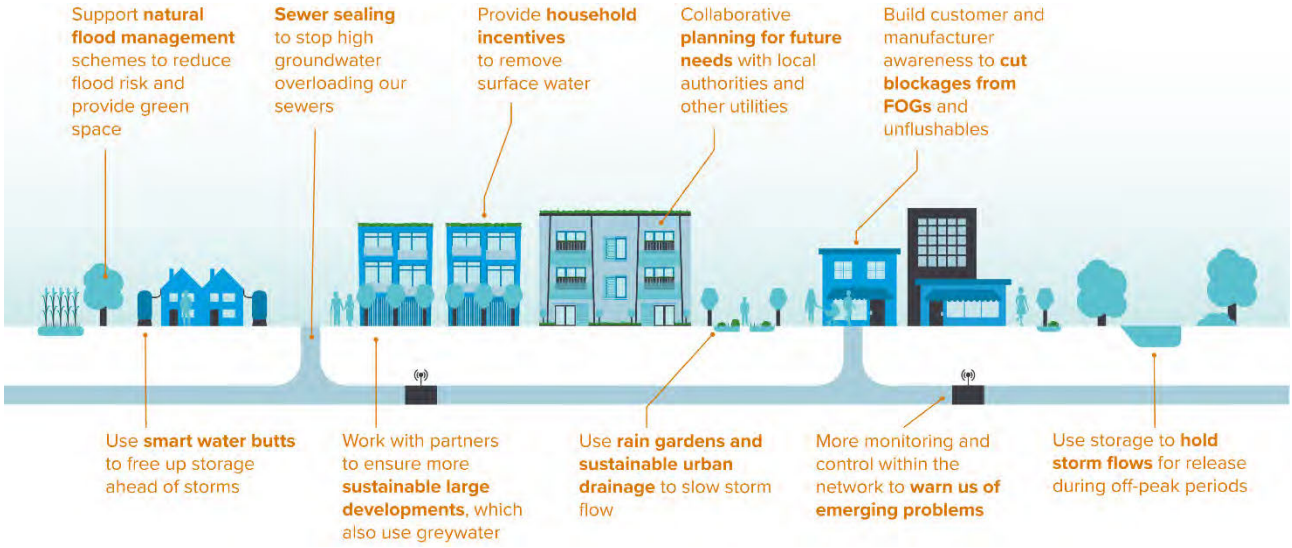


Figure 8: Sustainable Drainage 2030

Sustainable Drainage 2030

Creating capacity across the sewer network by implementing surface water solutions, building smart networks and increasing customer awareness.

We are trialling some of the approaches within Sustainable Drainage 2030, including a pilot of Smart Water Butts in Lewes, East Sussex. The Smart Water Butts effectively disconnect the properties roof surface water drainage from the sewer network and drain them into water butts. The butts automatically maintain capacity for storm events by trickle releasing water during 'off peak periods' (for example dry nights) if full or near capacity. This could have a significant effect by unlocking capacity for growth previously used by surface water run-off.

We are developing partnership approaches with various stakeholders to remove excess surface water from the sewer system. In Folkestone, we are working with Kent County Council to remove highway drainage from the sewer network by building rain gardens which allow surface water to discharge to ground naturally. These approaches could be used to both reduce flooding and increase capacity for growth, dependent upon catchment need.

We are also collaborating closely with the master planning team for The Otterpool Garden City in Kent, one of the largest developments expected in to start in AMP7, continuing over multiple AMPs. It is in the early stages of development and we are exploring various approaches to minimise water consumption, such as recycling of grey water. Innovative approaches at the development level must be designed in as early as possible, and our close relationships are allowing a multi-organisational approach to delivering the best possible outcomes for customers and the environment.

We will assess the cost and benefits of these projects and learn from our successes and challenges to continually develop our strategy and embed it into business as usual ways of working. In addition to financial measures, we will review customer and environmental outcomes to ensure we take a balanced approach.

To meet stakeholders', customers' and regulators' expectations about how we support growth we are developing further innovative approaches, detailed in Section 5.

5. AMP7 Strategy

5.1 Investment Strategy

Our AMP7 strategy is to become more proactive in addressing growth requirements for both our networks and WTWs to ensure timely provision of services – meeting both our statutory duties and developers' expectations.

It is vital we provide the best value solutions for customers, both direct bill payers and developers, maintain services which are fit for the future and ensure new developments do not have any negative impact on existing customers or the environment. Investment is required to ensure we strike this balance.

Opportunities to use existing headroom are limited, and we are increasingly exposed to the full cost of delivering infrastructure for new growth. This pressure is greater than for many other companies as the population of our region is predicted to grow faster than the England and Wales average[8], as it has over the past 2 AMP periods[9]. The ONS forecasts national average population growth at below 3%[10], however our population forecasts incorporating local developer projections suggest the Southern Water region will experience average growth above 4% – a significant differential compared to the rest of the country.

There are several strategic developments creating growth hotspots and representing significant planning, resourcing, engineering and environmental challenges that need to be addressed in AMP7. Two garden cities, Ebbsfleet and Otterpool, and strategic developments such as Whitfield, Kent and Welbourne, Hampshire, will significantly increase the population we serve and require the construction of end-to-end wastewater infrastructure. There are little synergies available with existing networks or treatment capacity to cater for these new large-scale developments therefore, due to dense high levels of population growth, the above requirements are not well represented by historic Ofwat revenue models.

In AMP6 we focussed on operational and incident management strategies, successfully outperforming industry averages for internal flooding and pollution incidents – and heading towards upper quartile performance. We will continue building on this performance in AMP7, further details are in the TA.12.WW07 Flooding and Pollution Strategies technical annex.

Key elements of our AMP7 strategy include:

- Increased use of catchment approaches to secure capacity and deliver social and natural capital benefits
- Maximising synergies with other future investment drivers to deliver outcomes as cost-effectively as possible
- Phasing and planning of engineering and construction works over multiple AMPs to reduce overall costs
- Using temporary or operational approaches to defer capital works to align with our wider strategies

[8] ONS Population Projections for Regions. https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/datasets/regionsinenglandtable1

[9] ONS Analysis of Population Estimates tool. https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/analysisofpopulationestimatestool

[10] ONS Population Projections for Regions. https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/datasets/regionsinenglandtable1

- Identifying innovative approaches to unlocking capacity, based around the principles for:
  - Sustainable Drainage 2030
  - Target 100
  - Collaborative planning with local authorities, developers and the EA

We will transform our approach to growth, particularly relating to customer services and make the most of the opportunities from the new connection charging mechanism. This reform is a crucial enabler for the key pillars of our strategy, along with our customer service and performance improvement activities detailed within the following section. A more detailed breakdown of how we intend to deliver this transformation is detailed in Section 5.2 below.

Our AMP7 performance commitments for growth are detailed below:

Table 2: Performance commitments directly associated with growth

PC	Definition	Outcome
Developer services measure of experience (D-Mex)	The developer services measure of experience (D-Mex) is a mechanism to incentivise water companies to provide an excellent customer experience for developer services (new connections) customers. These customers include small and large property developers, self-lay providers (SLPs), and new appointments and variations (NAVs).	By working together, we can secure a resilient economy for the south east.
Growth (Cost Adjustment Claim)	This measure is designed to monitor and assure the delivery of one enhancement scheme related to population growth in Whitfield. The measure ensures that customers are protected in the event that the scheme is delivered at a lower cost or if the scheme is not delivered in AMP7.	The services we provide are effective and fit for the future
Surface water management	This is a co-delivery measure with our customers to reduce the amount of surface water entering our combined or surface water sewerage network including through the use of SuDS, soakaways and other innovative methods. Removing surface water from the sewer network can help alleviate flooding and pollution.	We innovate to create sustainable communities

Table 3: Performance commitments that can be impacted by growth

PC	Definition	Outcome
Internal sewer flooding	The performance commitment is Internal Flooding Including Severe Weather.	The services we provide are effective and fit for the future
Pollution incidents (categories 1, 2 and 3)	The total number of pollution incidents (categories 1 to 3) in a calendar year emanating from a discharge or escape of a contaminant from a company sewerage asset affecting the water environment. Incidents affecting amenity of the water environment, e.g. Bathing Waters, are included.	The services we provide are effective and fit for the future
Risk of sewer flooding in a storm	Risk of sewer flooding in a storm is a new risk-based resilience metric for wastewater. It is measured by the percentage of population at risk of sewer flooding in a 1 in 50-year storm.	The services we provide are effective and fit for the future
External Sewer Flooding	The number of external flooding incidents. External sewer flooding is defined as per Ofwat's guidance.	The services we provide are effective and fit for the future
Asset Health: Treatment works compliance	Measured using the Environment Agency Environmental Performance Assessment (EPA) methodology.	The services we provide are effective and fit for the future

The summary of our AMP7 expenditure is detailed in the following table.

Table 4: AMP7 Forecast Post-Efficiency Figures (17/18 Prices) – Wastewater Growth

	AMP7					
	Price Control	QBEG	Ofwat Table	AMP7 Total	Contributions	AMP7 Net
TOTEX				**271.947**	**-89.093**	**182.854**
CAPEX				**267.458**	**-89.093**	**178.365**
101A Schemes	Wastewater networks +	Growth	WWS2 1	4.577	0	4.577
Infrastructure Capacity increase and networks	Wastewater networks +	Growth	WWS2 25	127,950	-89.093	38,857
New treatment capacity (non-infra)	Wastewater networks +	Growth	WWS2 26	123.637	0	123.637
Internal Flooding new additions	Wastewater networks +	Growth	WWS2 30	11.294	0	11.294

OPEX				4.489	0	4.489
Infrastructure capacity increase	Wastewater networks +	Growth	WWS272	0.040	0	0.040
New treatment capacity (non-infra)	Wastewater networks +	Growth	WWS273	0.164	0	0.164
AMP6 Enhancement Opex Adjustment	Wastewater networks +	Growth		4.285	0	4.285

5.2 Plan Options

Our plan options are based upon base solutions derived from our engineering development work. This section discusses options at programme level for network growth and at project level for treatment growth. This is due to network projects being far greater in number, generally of a lower value and more difficult to forecast as they are highly dependent on development specific demands that arise within the AMP. The projects are largely required to support localised development and are less predictable and foreseeable than treatment growth needs.

5.2.1 Programme Options - Wastewater Network Growth

Option 1 – Base plan including challenged scope on named catchments Chickenhall, Peel Common and Aylesford.

Detailed reviews and enhanced modelling work were undertaken on these catchments to test how far we could push efficiency through more innovative solutions, using the principles from **Sustainable Drainage 2030**, localised storage and updated modelling criteria. Significant savings of 30% were generated utilising this updated approach (see table below).

Table 5: Savings from the scope challenge in 3 target catchments (pre-efficiency values)

	Pre-challenge capex value (£k)	Post challenge capex value (£k)	Saving
Peel Common	7,622	2,827	63%
Chickenhall	23,285	12,390	47%
Aylesford	44,124	37,444	15%
Total	**75,031**	**52,661**	**30%**

This exercise resulted in a saving of approximately **£22m**. These values are incorporated into the base plan as the projects have been through the Asset+2 governance process. This option is lowest risk in terms of delivery, however it is the costliest.

Option 2 – Extrapolation of Option 1

Taking the results from Option 1 above and extrapolating across the remaining programme of strategic projects. This resulted in a potential additional savings of **£32m**.

This option is slightly higher risk than Option 1, however we are confident that the opportunity for savings is achievable. This would represent a higher efficiency saving (manifested in lower customer charges) at a lower level of risk. This is preferable to Option 1.

Option 3 – Transformational change of how growth is managed

This option involves a complete overhaul of our AMP7 approach to delivering growth solutions as detailed in Section 5.3. Although many areas of the transformation plan are focused on service improvement, financial savings can be predicted in several areas. The full details of the benefits will need to be developed as part of the programme definition phase although an early assessment is summarised in the following table.

Table 6: Projected financial savings as a result of the implementation of the transformation programme

Efficiency	Notes and assumptions	Gross Value
Extrapolated efficiencies	As option 2	£32m
Site specific sewers	Allowance for elements of the strategic catchments to allow for site-specific sewers (funded separately and differently from AMP7)[11]	£8m
Commercial properties	Development of a new approach to align more closely with billing and metering data on actual water usage, reducing predicted flow rates and anticipated scope	£4m
Updated modelling standards	Changes to modelling standards will reduce modelled flow rates for developments and reduce storage scope (only relates to element of costs that are based on AMP6 extrapolation – not bottom up estimates)	£7m
Supply chain	Improvements to the supply chain for delivering WW network activities (only relates to element of costs that are based on AMP6 extrapolation – not bottom up estimates)	£4m
Forward planning	Improved forward planning optimising AMP7 investment timing based on more comprehensive risk and resilience understanding (predominantly profiling into AMP8)	£15m
Total		**£70m**

This option is higher risk than both Option 1 and Option 2 as it is a fundamentally different approach for delivering growth investment. We believe the above activities have clear financial savings and the likelihood of delivering the savings is acceptable – therefore, the higher risk is also acceptable.

This option has significant savings over both Option 1 and Option 2, and results in a slight price increase in the infrastructure charge between our current charge and the forecast AMP7 charge (on a like for like calculation basis). We believe our customers and stakeholders will find this acceptable, especially as our water charge is likely to reduce significantly (see App 28 – Infrastructure Charge Income).

[11] New connections charges rules from April 2020. Ofwat, 2017. https://www.ofwat.gov.uk/wp-content/uploads/2017/11/New-connections-charges-rules-from-April-2020-–-England-Decision-Document.pdf

Option Selection

Our option selection matrix is detailed below.

Table 7: Option selection matrix for network growth

Option No.	Description	AMP7 Totex (£m)	Full Whole Life Cost (20 years) (£m)	Willingness to pay support	Ofwat Priority	Other regulator priority	Customer priority	Business strategic alignment	Is this option recommended?
1	Updated base plan including results from Chicken Hall, Peel Common and Aylesford detailed reviews	**£183**	**£65**	🔴	🔴	🟡	🔴	🟡	**No** – this plan is least risky however does not allow for recent solution and standard developments, transformation activities or future supply chain additions
2	Extrapolating the above results across the remaining programme of strategic catchments	**£151**	**£51**	🟡	🟡	🟡	🟡	🟡	**No** – this plan includes for the extrapolation of modelled solution savings but does not include the benefit from the transformation activities, standards improvements or supply chain additions
3	As option 2 but also including forecasted benefits from improved forward planning, updated model standards and supply chain improvements	**£113**	**£35**	🟢	🟢	🟡	🟢	🟢	**Yes** – this option increases the level of risk but within an acceptable tolerance. This keeps charges at a similar level to today and incorporates key transformational activities that will be delivered ahead of AMP7

As well as being the lowest cost option, Option 3 is most likely to meet the requirements of key stakeholders. The proposal has financial benefits, both in the value of income offset implied within the overall programme, and the costs to developers and other customers associated with the Infrastructure Charge. These costs are summarised in the following table.

Table 8: Income and infrastructure charges for the programme options

Option	AMP7 Capex	Income from customers*	Residual income offset*	Redefined Infrastructure Charge*
WNR1	£183m	£95m	£88m	£835
WNR2	£151m	£83m	£68m	£736
WNR3	£113m	£70m	£43m	£619

* Including the accommodation of the residual AMP6 income offset from requisitions

Option 3 has therefore been selected as our preferred option.

5.2.2 Scheme options - Wastewater Treatment Growth

Within the overall treatment programme, we have developed options at an individual project basis. The options for the process only solutions are summarised in the below table. The totex values for WLC comparisons are the pre-efficiency, project estimates.

Table 9: Wastewater treatment project level options*

Scheme	Description	Totex (£k)	WLC (£k) 20 yr. NP	Preferred	Reason
Park Rd Hancross WTW	Option 1	2,042	1,865	Y	WLC
Sandown WTW	Option 1	3,317	3,259	Y	WLC
Sittingbourne WTW	Option 1	23,583	21,117		WLC
	Option 2	23,233	20,340	Y	WLC
Bishops Waltham WTW	Option 1	3,121	3,750	Y	WLC
Faversham WTW	Option 1	11,453	11,019	Y	WLC
	Option 2	10,151	11,231		
Hurst Green WTW	Option 1	4,138	3,589	Y	WLC
Goddards Green WTW	Option 1	22,069	21,515	Y	WLC
Forest Green WTW	Option 1	2,025	2,047	Y	WLC
Stonegate WTW	Option 1	3,615	3,351		
	Option 2	3,603	3,393		
	Option 3	2,475	2,009	Y	WLC
Warninglid	Option 1	3,502	3,162	Y	WLC
Westwell WTW	Option 1	5,046	3,702		
	Option 2	3,213	2,202	Y	WLC
	Option 3	3,868	3,398		
	Option 4	3,207	2,564		
Gravesend WTW	Option 1	34,900	30,052		
	Option 2	20,165	18,373	Y	WLC
Northfleet WTW	Option 1	11,019	10,590	Y	WLC
Ford WTW	Option 1	19,394	15,515	Y	WLC
Otterpool WTW	Option 1	19,983	19,516		
	Option 2	13,194	11,174	Y	WLC
	Option 3	24,426	23,250		
Peel Common WTW	Option 1	18,955	19,356	Y	WLC
Lenham WTW	Option 1	10,104	9,571	Y	WLC

* These option totex values are pre-efficiency, pre-overhead, pre-synergy values as this is the basis that the option selection is made. Efficiency, QBEG, Q synergy and overhead values are only applied to the selected projects within the plan

The preferred option for Whitfield is based on the 20-year Whole Life Cost assessment for the combined network and process solution, as this is an integrated solution. Given the exceptional costs and circumstances surrounding this scheme, this has been developed into a Cost Adjustment Claim. The Whole Life Cost assessment is detailed below. This is explained in more detail within the technical annex TA.14.3 CAC03 Growth - Whitfield. The below option costs are detailed as post-efficiency, post QBEG allocation, post overhead to align with the content of the Cost Adjustment Claim.

Table 10: Whitfield combined solution options

Scheme	Description	Totex (£k)	WLC (£k) 20 yr. NP	Preferred	Reason
Whitfield Growth	Option 1	39,743	29,863		
Whitfield Growth	Option 2	48,102	39,844		
Whitfield Growth	Option 2a	46,211	36,588		
Whitfield Growth	Option 3	34,122	28,681		
Whitfield Growth	Option 4	35,713	29,385	Y	Viable and WLC
Whitfield Growth	Option 5	35,959	30,229		

We have carried this programme level option into the business plan and Cost Adjustment Claim.

5.2.3 Other Programme Investment

We have estimated costs of £4.6m for Section 101A schemes in AMP7. These schemes are related to a potential 3 sites where we believe that we may have AMP7 obligations. These sites are not currently confirmed therefore our estimate is based upon historic spend data.

We are forecasting £14.9m of investment in Wastewater Requisitions. This is based on our historic assessment of the proportion of requisitions that we delivered in AMP6 that were considered 'Site-Specific' under the new definitions within the New Connection Charging rules[12].

We are forecasting £11.3m of investment to protect customers from flooding associated with new growth. Although our larger developments and larger catchments will have detailed modelling work undertaken, smaller developments and catchments often don't due to the inefficiencies in modelling all developments. There is therefore an increased risk to customers in areas where smaller developments can have a cumulative impact. This estimate is to manage heightened customer risk from flooding and resolve as and when this becomes apparent. These costs are based on our AMP6 levels of activity but include our AMP7 efficiency targets.

5.2.4 General Optioneering

Many of the sites and catchments we have selected have been through a rigorous optioneering and challenge process to drive innovation and efficiency.

A significant number of the initial solutions we developed were high cost / low risk approaches to delivering the outcomes required. We challenged these solutions through our Asset+ process to explore innovative approaches and ultimately lower costs. These alternative solutions often increased some form of risk, however for each site our Asset+ process allowed for an objective level of risk to be agreed. For both Wastewater Treatment and Network projects we identified and secured considerable savings at multiple sites.

We have undertaken several challenge and review sessions focused on the growth portfolio, designed to place targeted efforts on key catchments, sites or asset types to drive efficiencies. These sessions have generally been successful and allowed greater confidence in the extrapolated efficiencies.

[12] Charging rules for new connections. Ofwat, 2016. https://www.ofwat.gov.uk/wp-content/uploads/2016/12/Charging-rules-for-new-connections-%E2%80%93-decision-document.pdf

5.3 Innovation

Given the high level of growth predicted for the South East, we face significant challenges to providing the capacity required for development whilst maintaining, and improving, current levels of service, compliance and performance. Innovative ways of working and technology are critical to meeting demand whilst keeping bills affordable.

5.3.1 Growth Transformation Plan

Our plan to transform how we support growth is centred on key capabilities which we will develop to ensure our approach becomes more forward-looking, collaborative and integrated. Our initial thinking, detailed below, will be complemented with external support to build a holistic strategy which meets the needs of future growth investment.

We are working with a business change specialist to fully review our end to end organisational approach to supporting growth, and the below areas will be key pillars and considerations when building our long-term model. Our recent work with customers and stakeholders highlights several areas requiring, and a clear mandate for, substantial change.

5.3.1.1 Treating customers as customers

Feedback from developers, NAVs and SLPs is that they do not feel treated as customers (see T.A .4.4 Customer Engagement) despite the fact they often fund large elements of work or have significant engagement with us. A perceived lack of accountability, disjointed service provision, poor quality information and lack of ability to work within development schedules are all issues they have raised.

We propose moving from a transactional approach focussed on discrete services to focussing on the whole customer journey, including investigating building an integrated service for all developer customers' requirements. New connection charging creates an opportunity for development-specific estimating and planning to be implemented, creating integrated, specific proposals and options for customers.

By creating Account Managers, we have started to address this. However, we need to ensure they have access to technical support to provide customers with the quality and speed of service they expect. All members of our team must be able to deliver high quality customer service, in line with the aspirations of our transformational programme and wider customer engagement strategy.

We will work collaboratively with customers and stakeholders to build a stronger understanding of the development and growth picture. We will develop shared plans and strategies to ensure our delivery proposals align more closely with development schedules, promoting growth and reducing delays and disruption.

5.3.1.2 Creating a transparent, performance driven culture

Stakeholders highlighted the need to improve accountability, timeliness and certainty of costs for growth schemes. While the new charging rules will address many issues around certainty, some of our charges (particularly wastewater) are amongst the highest in the industry whereas others (water) are relatively low.

While we have improved performance against the Water UK performance measures[13], developers have made it clear this is not always indicative of their experience. Currently, there are no reference time targets to deliver network reinforcement projects, resulting in a lack of certainty. A consistent, clear and open set of performance metrics will be designed to increase certainty, drive delivery of solutions in line with customers' expectations and reduce costs, at an acceptable level of risk, in the long term.

[13] Water UK Developer Services Level of Service Report. https://developerservices.water.org.uk/latest-reports

5.3.1.3 Stronger upfront planning capability; aligned with Local Area Plans and development schedules

Developers and local authorities have commented our planning is often reactive and utilises tactics which, from their perspective, slow development, with Grampian Conditions[14] being one of their biggest frustrations. We have committed to significantly reduce our use of Grampian Conditions.

We propose to align our planning approach with Local Authority Local Area Plans. This provides a longer-term planning horizon, moving our approach away from localised, development specific solutions to catchment-based approaches.

To become more effective at forward planning, we propose consolidating our various planning functions into an integrated team, responsible for planning related outputs across the organisation. This will include conceptual design of growth schemes, sponsoring work through delivery, responses to local authorities' plans and investigating catchment schemes that deliver multiple benefits to multiple sites.

We will collaborate with a range of stakeholders to co-create plans that meet the needs of all involved. These include local planning authorities, developers, suppliers and other water companies.

5.3.1.4 Adoption of more creative, innovative, risk-appropriate solutions

Much of the network growth construction activities are relatively traditional. When developing solutions, we will undertake a series of best practice reference approaches. For larger, catchment-based solutions these will include considering surface water removal, infiltration reduction, smart water butts, smart pumping stations and both online and offline localised storage.

These are key to **Sustainable Drainage 2030** and will be embedded in our business as usual approaches. Our surface water removal performance commitment will be aligned and targeted with growth management.

For smaller more localised developments, simpler, more straightforward solutions will be adopted, eliminating disproportionate effort on detailed modelling and solution development. We anticipate significant cost and time savings can be secured using alternative approaches that are embedded as industry best practice.

We have identified peak flows reaching wastewater treatment works can largely be diluted through groundwater infiltration. Network infiltration reduction options have been assessed along with alternative approaches at WTWs. The use of simpler, cost-effective side stream processes can be better suited to these dilute flows rather than a traditional approach of upsizing treatment processes – allowing for savings and maintaining high final effluent compliance.

5.3.1.5. Development of an aligned supply chain, incentivised and rewarded to deliver excellent customer outcomes

The AMP7 delivery model is currently under review and it is likely there will be opportunities for performance improvements within this area. Early proposals for our AMP7 model include procuring aligned delivery partners that specialise in network construction. Performance standards, timeframes for delivery and integrated working will be established as part of implementation. Effective incentive mechanisms, designed to align with our overall growth strategy, will be developed. These will include measures to promote strong customer

[14] 'Grampian Conditions' are planning conditions that are placed on developments to request progress does not begin until the supporting infrastructure is constructed

outcomes, such as timely delivery and strong customer services, in addition to traditional financial measures.

5.3.1.6 Build truly effective delivery processes

Following the review of our organisational structure and model, there is an opportunity to review the supporting processes. Inputs, outputs and processes (including content and quality standards) will be comprehensively mapped to ensure effort is undertaken in the right place, capabilities are maximised, and risk is managed by the appropriate roles.

5.3.2 General Innovation in Supporting Growth

Strategic, catchment-based growth schemes will be included in AMP7 in growth hotspots. These solutions will look across catchments at both network and WTW capacity to determine the most cost-effective way to collect and treat wastewater. This will build on refined and updated Drainage Area Plans.

We will be piloting a co-creation approach to catchment plans in 2018, with the aim to develop joint investment plans where there is significant growth. Working with planning authorities, developers and the EA we intend to:

- identify potential synergies
- identify innovative solutions
- maximise wider benefits from planned investment

If successful, this will be adopted for business as usual planning, and form part of the forward planning element of our transformation plan detailed above.

Catchment First and **Sustainable Drainage 2030** will improve how we manage our existing wastewater networks – including separation of surface water, creating smart networks to manage peak flows and increasing customers' awareness to reduce demand on the system.

Advancements in these areas will result in more affordable and sustainable approaches to providing additional capacity, resolving internal flooding incidents whilst helping to ensure affordable bills and charges.

We will explore opportunities to work more effectively with developers SLPs and NAVs to better align activities and ensure cost-effective delivery of infrastructure. This could include agreements to construct various elements utilising each other's capabilities and supply chains to select the most efficient, integrated and least disruptive approaches to support growth.

5.4 Customer Benefits and Resilience

Through planned investment in AMP7 on growth for wastewater assets, we are confident of accommodating the additional population with no deterioration in service levels provided.

The industry standard is to design additional capacity able to accommodate rainfall from 1 in 30-year events. In response to Ofwat's new resilience metric, we will consider options to increase new infrastructure's capacity to 1 in 50-year events.

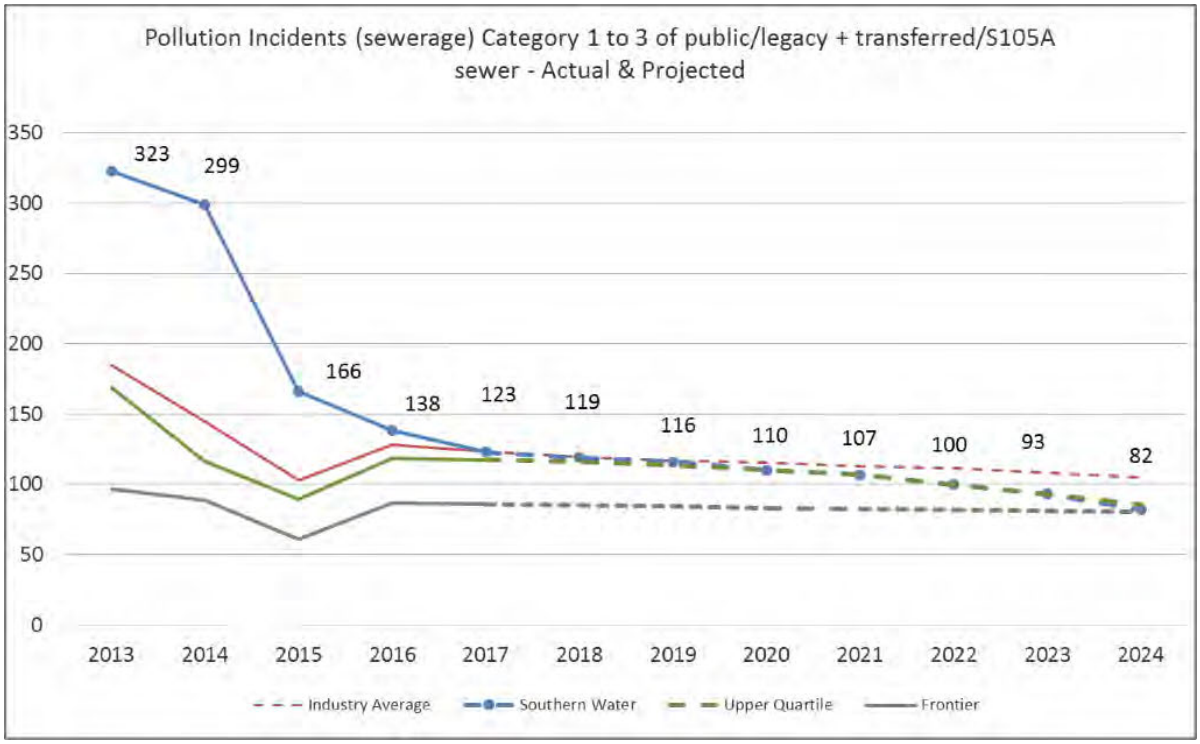


Figure 9: Projected Cat 1, 2 and 3 pollution incidents through AMP7

Supporting growth is fundamentally about maintaining a resilient asset base which meets the needs of current and future customers. Understanding resilience, particularly redundancy in the existing asset base is crucial to understanding the investment required to maintain existing serviceability. Understanding capacity and redundancy will become a critical part of our forward planning process, ensuring resilience is understood, balanced and not compromised as part of our plans.

As part of the 21st Century Drainage[15] project we have started to map out available capacity as part of the Capacity Assessment Framework. This is designed to provide a consistent approach for the indication of available capacity throughout our network. This work is starting to inform wider resilience and investment plans and is also useful in understanding and communicating current levels of available capacity. Figure 10 indicates relative levels of capacity in our key catchments.

[15] Water UK. https://www.water.org.uk/policy/improving-resilience/21st-century-drainage

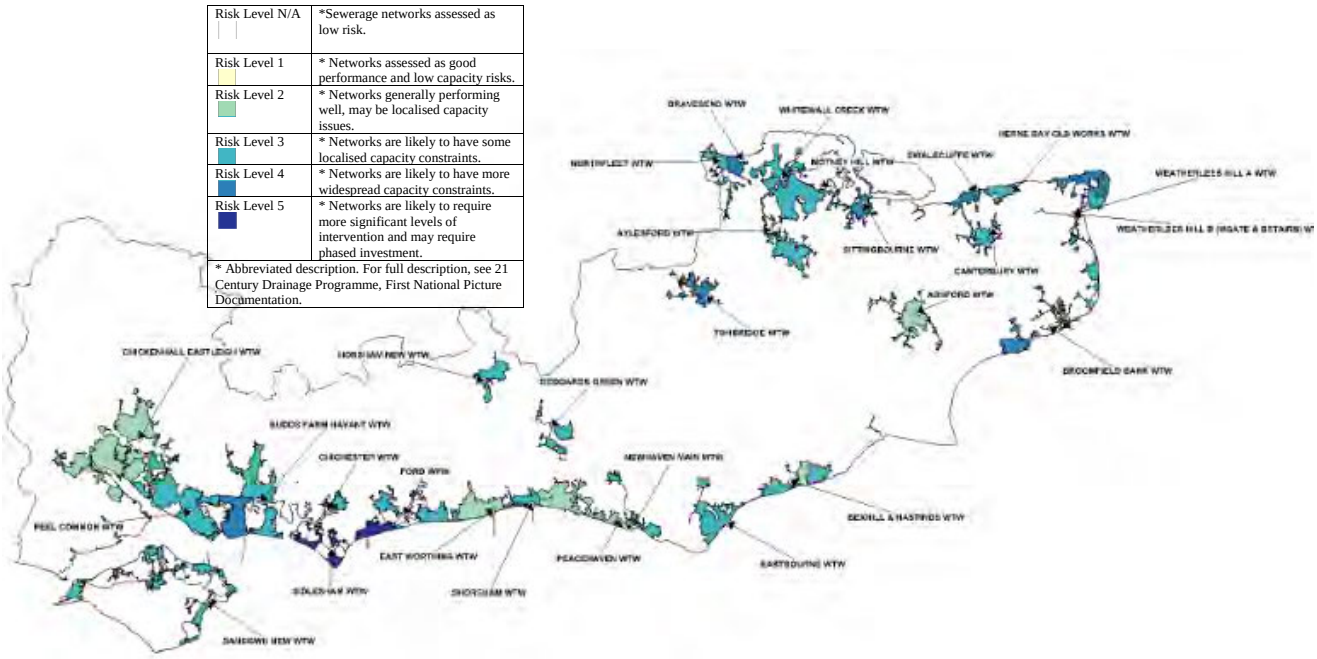
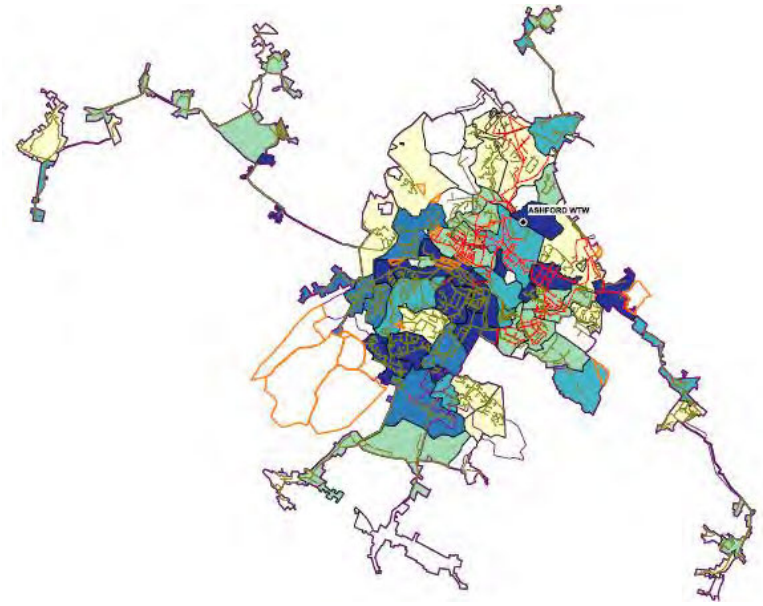


Figure 10: 21st Century Capacity Assessment Framework – Southern Water Catchments

Whilst this gives visible understanding of capacity constraints at an overall level, within catchments capacity constraints are often localised. This means although the overall catchment may appear to have available capacity, localised constraints mean network reinforcement is required to facilitate development.

An example is our Ashford catchment as detailed in Figure 11. At an overall catchment level, the risk is categorised as Level 2, however the location of proposed AMP7 developments (detailed in the orange polygon) are in areas of limited capacity. The map demonstrates the need for network reinforcement to avoid exacerbating existing capacity issues and further increasing risk to customers and the environment.



Risk Level N/A	*Sewerage networks assessed as low risk.
Risk Level 1	* Networks assessed as good performance and low capacity risks.
Risk Level 2	* Networks generally performing well, may be localised capacity issues.
Risk Level 3	* Networks are likely to have some localised capacity constraints.
Risk Level 4	* Networks are likely to have more widespread capacity constraints.
Risk Level 5	* Networks are likely to require more significant levels of intervention and may require phased investment.
* Abbreviated description. For full description, see 21 Century Drainage Programme, First National Picture Documentation.	

Figure 11: 21st Century Capacity Assessment Framework – Ashford Local Area Catchment

These tools can assist in the understanding and communication of capacity restrictions with key stakeholders. Proposals to improve resilience will need to take account of the rules for network reinforcement expenditure (with contributions from developers), which can only be made to maintain serviceability, not to enhance existing serviceability or network capability.

5.5 Value for Customers

The customer performance commitments that are impacted by investment in a resilient water future for the South East are consistently shown to be high priority for stakeholders and generally medium priorities for customers. We found that customers place the highest priority on commitments that impact their daily lives, and lower priority on areas that will affect them in the future. In contrast, our diverse range of stakeholder groups generally place high priority on investing in ensuring the resilience of our networks for future generations in an environmentally friendly manner.

Our triangulation of the relative priority of our proposed PCs highlighted internal sewer flooding as the highest priority for customers and stakeholders. External sewer flooding is also a high priority for customers and reported as a medium priority for our stakeholders. The number of pollution incidents and river water quality are reported as medium priorities for our customers and a high priority for stakeholders.

Relative to the PCs outlined above, Surface Water Management was highlighted as a medium priority for customers and a high priority for stakeholders. D-Mex was reported as a low priority for customers and a medium priority for stakeholders. Our growth specific Cost Adjustment Claim was reported as a low priority for customers and stakeholders.

Customers are highly averse to accepting reductions in service in exchange for lower bills, and in general are willing to pay for improvements in service levels for our proposed wastewater measures:

- the total amount that SW customers would be willing to pay for a reduction of 1 in the number of cases of '**Sewer flooding inside customers' properties'** was **£100,207** per property per year.
- the total amount that SW customers would be willing to pay for a reduction of 1 in the number of cases of '**Sewer flooding outside customers' properties'** was **£6,899** per property per year.
- the total amount that SW customers would be willing to pay for a reduction of 1 in the number of **'Pollution incidents'** was **£708,481** per incident per year.

Our additional ODI research into willingness to pay for service level improvements indicated that our customers demand and are willing to invest in significant improvements to internal sewer flooding and pollution incidents. Customers reported willingness to pay for significant improvement to external sewer flooding and surface water management, and for minimal service level improvements to improve river water quality, to reduce risk of sewer flooding in a storm and in growth. Full detail on our customer engagement findings can be found in **Chapter 4 – Customer and Stakeholder Engagement**.

Table 11: Willingness to pay for Wastewater measures

Service Attribute	Unit	WTP [£/Unit/Year]		
		Central	Low	High
SEWER FLOODING INSIDE CUSTOMERS' PROPERTIES	Case/prop	£100,207	£75,641	£124,773
SEWER FLOODING OUTSIDE CUSTOMERS' PROPERTIES	Case/prop	£6,899	£5,237	£8,562
POLLUTION INCIDENTS	Incident	£708,481	£539,656	£877,305

There are different revenue models for wastewater treatment and network growth. Wastewater treatment is delivered within the wholesale revenue control, with the revenue assessed through Ofwat's models likely to be based on historic expenditure. Our forecast spend is significantly higher than the likely revenue model, even with our plans to deliver significant performance improvements in this area

Funding for network capacity improvements is shared, with the majority of funding coming from developer contributions through the redefined infrastructure charge. The remainder comes from residual income offsetting, incorporated within the infrastructure charge during the transition to the current approach. Developers are therefore a key customer as they directly contribute towards network capacity improvements.

The above means there is a strong degree of customer protection in terms of investment levels. There is limited scope for further significant reduction to the Wastewater Treatment growth portfolio as the investment is required to meet our statutory duties. With network reinforcement, customers' contributions through the Infrastructure Charge aligns with a rolling five-year average of expenditure. As such, if investment is lower (through efficiency or delayed investment), customers' charges will fall.

Whilst our wider customer base has a strong desire to support growth, many developers feel our wastewater infrastructure charges are high, particularly compared to other companies. Our plans include significant levels of efficiency when compared to more recent expenditure. Building strong, effective relationships with developers is a key goal for AMP7 so they do appreciate the value of the infrastructure and support investment to build a resilient water future for the South East.

A primary aim of the transformation plan will be to stabilise and optimise developer customers' satisfaction and build stronger relationships. This will ensure we have a deeper understanding of our customers' needs and they have a strong appreciation of our investment plans and proposals. Achieving these will support strong D-Mex performance, reducing the risk of financial penalties.

5.6 Use of Market Mechanisms

Part of our transformational approach is to investigate alternative delivery mechanisms for elements of the growth portfolio. We are exploring collaborating with developers, especially where they are in control of, and manage elements of, site-specific works. It could be possible to construct storage on their sites or allow their suppliers to construct elements of network reinforcement. If greater value, or more efficient delivery, could be achieved through this approach it could be a key area to drive value for customers.

We are also investigating working closely with NAVs to provide appropriate long-term solutions for customers. The increasing prevalence of large-scale developments means collaborative approaches with NAVs may be the best long-term value proposition for customers. We are currently looking to work with NAVs on case studies, including Whitfield where we have a Cost Adjustment Claim, to understand the best value option for provision in the market.

6. Costing Strategy

Costing for AMP7 investment in wastewater growth has used both historic expenditure and bottom up estimates for schemes to resolve the highest growth risk sites.

Costing for wastewater treatment is based on site-specific solutions targeting main growth risks.

The network growth schemes were compiled from prioritised Drainage Area Plan growth position statements.

The solutions developed have been costed in accordance with our standard cost estimating approach for PR19. An allowance has been made for routine network reinforcement based upon historic spend rates which have been subjected to our PR19 efficiency targets.

The project-based solutions have been developed in line with the standard PR19 Asset+ scoping and CET estimating models. Further details can be found in our TA.14.4 Bottom-Up Cost Estimation technical annex.

7. Key Risks and Opportunities

Key risks and opportunities relevant to this business case are highlighted below.

7.1 Risks

- There is a risk that the new property connections required in AMP7 occur more frequently than assumed in catchments where growth is complex and expensive. This might be because of a lack of available land and/or additional loads trigger a requirement for expensive treatment and network investments. This could lead to significant additional costs in AMP7.
- There is a risk that we will not be able to deliver new capacity to the timetable required by developers. This is because their formal forecasts are often unavailable, often optimistic and it is difficult to us to identify those developments which will be delayed for local technical or commercial factors. Collaborative approaches with developers to develop realistic forecasts will mean we do not invest inefficiently ahead or behind actual need.
- There is a risk that the **Sustainable Drainage 2030** principles may not divert the assumed levels of flood and storm water away from our drainage network. This may result in new developments overloading parts of our network and this will require us protect customers by investing in costly additional engineering works.
- There is a risk that political or economic pressure may result in local authorities choosing to approve higher levels of developments than is currently assumed. This may not give us enough time to plan, design and re-configure our drainage and wastewater treatment networks to accommodate these requirements. In addition, as only some of the costs for extending our network are funded by connections and related income from customer charges this will impose additional unfunded costs on us.

7.2 Opportunities

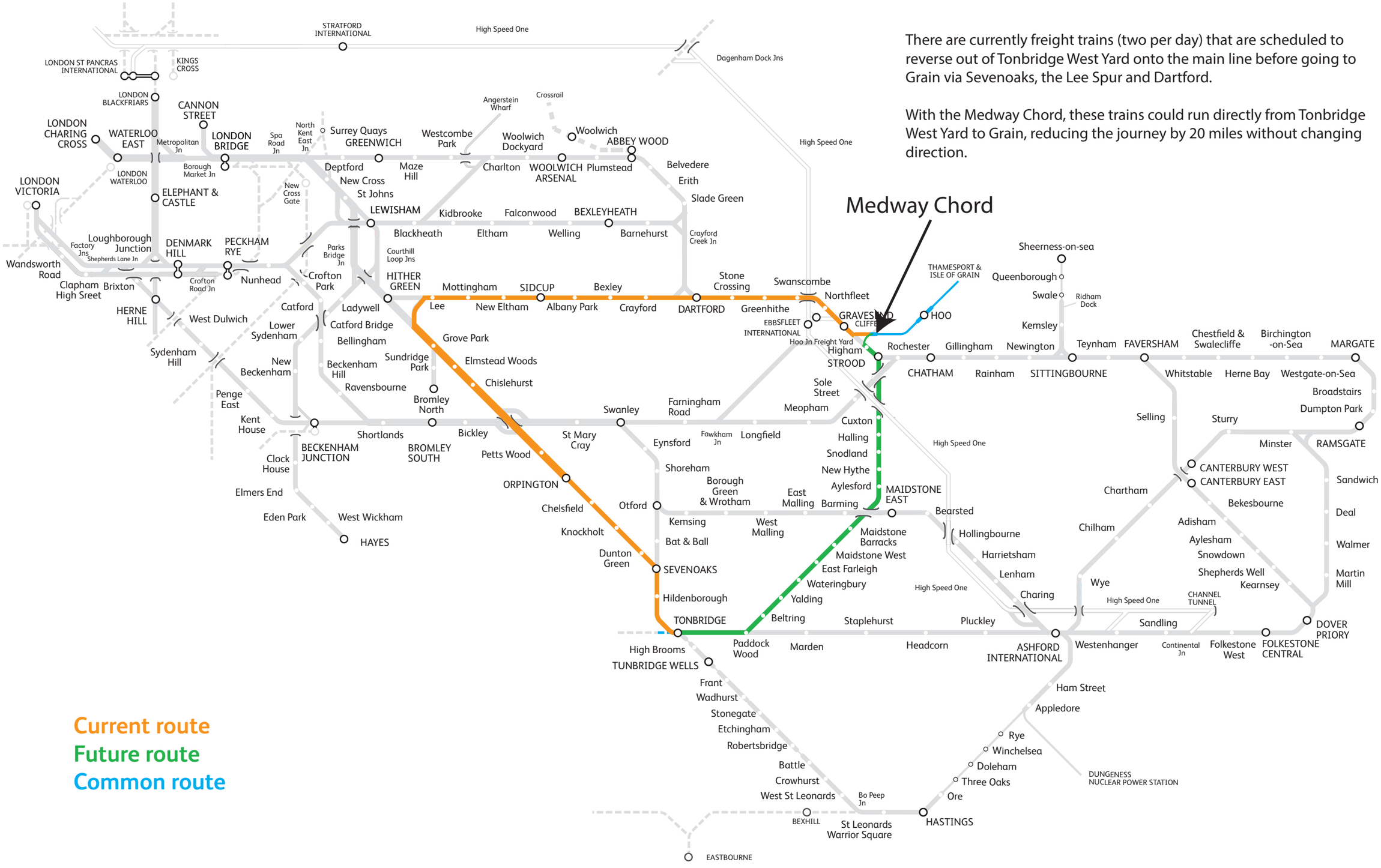
- There is an opportunity that the success of **Target 100** will result in even lower than predicted household consumption of water and therefore reduced wastewater volumes.
- There is an opportunity that by working closer with local authorities we can better align their local plans with our catchment plans and so encourage them to promote

growth and development in areas where network reinforcement is easier to deliver without excessive cost.

Appendix 1: List of schemes

The below schemes include the total post efficiency project costs, prior to any QBEG assessment, programme efficiencies, income and other allocations.

Scheme Name	Business Case Investment Line	AMP7 Totex (£m)
Aylesford Growth 2025	Infrastructure capacity increase (infra)	33.584
Ashford Growth 2025	Infrastructure capacity increase (infra)	9.306
Budds Farm - growth 2025	Infrastructure capacity increase (infra)	41.583
Motney Hill Growth 2025	Infrastructure capacity increase (infra)	11.499
Peel Common Growth 2025	Infrastructure capacity increase (infra)	11.342
Romsey Growth 2025	Infrastructure capacity increase (infra)	1.476
Whitewall Creek - Growth 2025	Infrastructure capacity increase (infra)	2.227
Goddards Green Growth 2025	Infrastructure capacity increase (infra)	3.360
Chickenhall Eastleigh Growth 2025	Infrastructure capacity increase (infra)	2.588
Bognor Growth 2025 Option 1	Infrastructure capacity increase (infra)	14.720
Littlehampton Growth 2025 Option 1	Infrastructure capacity increase (infra)	1.863
Lidsey to Ford	Infrastructure capacity increase (infra)	6.920
Whitfield	Infrastructure capacity increase (infra)	4.291
Otterpool (network)	Infrastructure capacity increase (infra)	1.977
Ebbsfleet (network)	Infrastructure capacity increase (infra)	20.837
Wastewater Network Growth Unallocated	Infrastructure capacity increase (infra)	39.176
Wickham	Infrastructure capacity increase (infra)	0.233
AMP7 Wastewater requisitions	Infrastructure capacity increase (infra)	14.944
101A Schemes	101A Schemes	4.577
Bishops Waltham WTW Growth	New treatment capacity (Non-Infra)	2.717
Faversham WTW - Growth	New treatment capacity (Non-Infra)	10.343
Goddards Green – Growth	New treatment capacity (Non-Infra)	6.502
Hurst Green WTW - Growth	New treatment capacity (Non-Infra)	3.753
Park Road Handcross WTW - Growth	New treatment capacity (Non-Infra)	1.869
Sandown Growth	New treatment capacity (Non-Infra)	1.214
Sittingbourne WTW - Growth	New treatment capacity (Non-Infra)	14.718
FOREST GREEN WTW	New treatment capacity (Non-Infra)	1.818
GRAVESEND WTW	New treatment capacity (Non-Infra)	18.021
LENHAM WTW	New treatment capacity (Non-Infra)	3.734
STONEGATE WTW	New treatment capacity (Non-Infra)	2.263
WESTWELL WTW	New treatment capacity (Non-Infra)	2.932
Whitfield	New treatment capacity (Non-Infra)	31.422
Welbourne (Peel Common WTW)	New treatment capacity (Non-Infra)	16.724
Warninglid	New treatment capacity (Non-Infra)	3.178
Ford	New treatment capacity (Non-Infra)	17.510
Otterpool (process)	New treatment capacity (Non-Infra)	2.746
Ebbsfleet (process)	New treatment capacity (Non-Infra)	9.885
Internal Flooding new additions	Internal Flooding new additions	11.294



There are currently freight trains (two per day) that are scheduled to reverse out of Tonbridge West Yard onto the main line before going to Grain via Sevenoaks, the Lee Spur and Dartford.

With the Medway Chord, these trains could run directly from Tonbridge West Yard to Grain, reducing the journey by 20 miles without changing direction.

Current route
Future route
Common route

NetworkRail

System Operator

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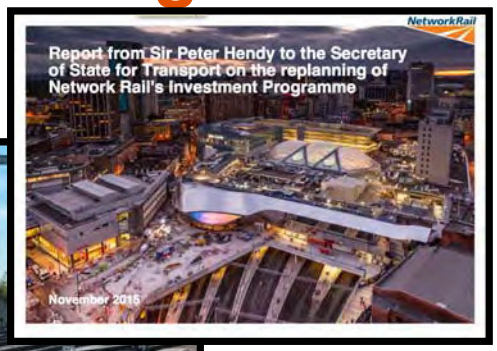
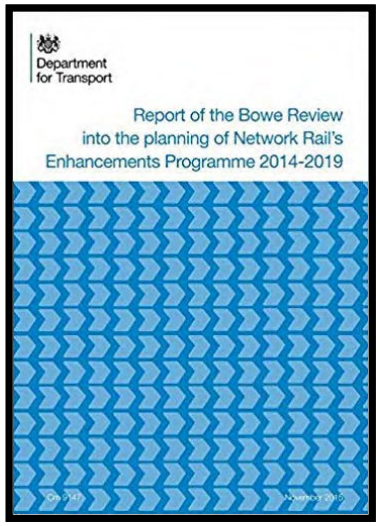
Network Rail Enhancement Funding & RNEP

For your information & discussion

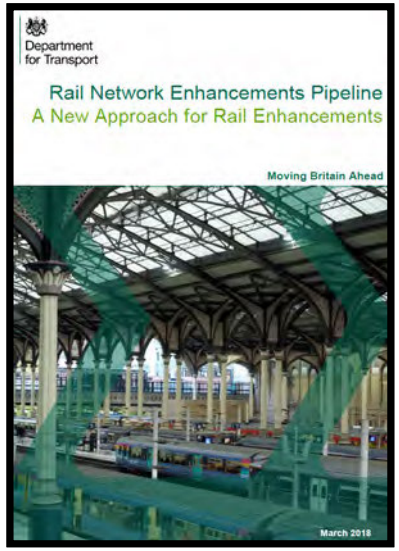
1. Strategic Context





- **Control Period 5 (2014 – 2019) an ambitious programme**, involving several complex enhancements – such as Great Western Electrification
- Cost and Programme slippages prompted several landmark reviews and reports into the rail industry/ NR
- **Hendy Report**: Readjusted the portfolio for deliverability and affordability; 'pausing' of some enhancement programmes for progression in CP6
- **Bowe Review**: Report into planning processes
- **Shaw Review**: Report into funding, financing, and governance arrangements
- **Hansford Review**: Report into contestability, third party capital, barriers to entry

2. Key outcomes & changes



- **Transformation Plan:** Devolution of responsibility/ discretion to operational routes, with TOC/FOC alignment in objectives & scorecards.
- **MoU/ RNEP (to be discussed):** Outlining a new approach to enhancements.
- **Open for Business:** Publication of opportunities for third party investors, appointment of Business Development Directors.
- **System Operator:** Reorganised national strategic planning function.

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3. …Results for funding in CP6 (2019-2024)

- Rail funding is categorised by Operations, Maintenance, Renewals, and Enhancements **(OMR&E).**
  - **OMR** are essential to keep the railway running safely, and assets up to date.
  - **Enhancements** are capacity and capability improvements to the infrastructure.
- **Control Periods** are 5 year funding and business planning periods in rail, to give suppliers and programmes certainty.
- **The MoU** committed both the DfT and NR to implement a new process managing enhancements outside of the traditional Control Period process.
- Enhancements are now developed through a pipeline process, on a case by case basis – the **Rail Network Enhancement Pipeline (RNEP)**
- **Control Period 6 is focussed on OMR, Enhancements are not guaranteed.**

4. Examples of investment sources

Franchise TOC fund allocations

Infrastructure financing?

Direct DfT funding (RNEP)

Business rate retentions?

Govt. funding pots (AfA, HIF, NSIP…)

Devolved funding pots (City Mayors, Scotland)

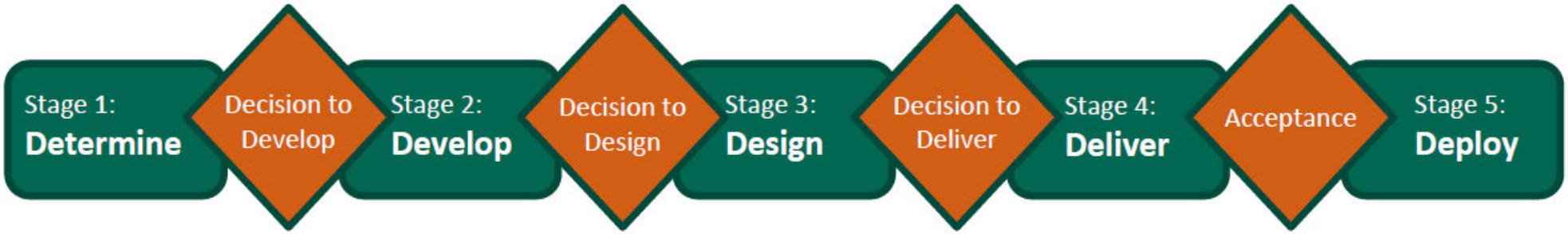
CIL/ s106 allocations

Local Authority direct funding

LEP direct funding

5. Rail Network Enhancements Pipeline (RNEP)

- Rail enhancements now case-by-case, aligned to Treasury Green Book principles of the 3 evolving business cases:
  - Strategic Outline Business Case (SOBC)
  - Outline Business Case (OBC)
  - Final Business Case (FBC).
- Required for schemes seeking funding from DfT in full, and in part.
- Looks to understand and outline key risks at each key stage of work.
- GRIP deliverables, interfacing process deliverables (such as planning consents)
- **No guarantee of delivery until FBC (Decision to deliver), funding is only released for the subsequent stage of work.**



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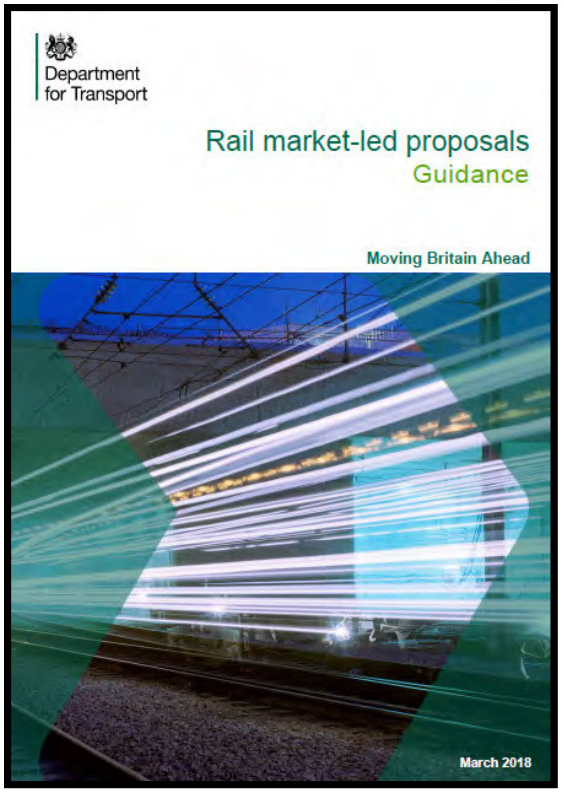
6. Market-Led Proposals

- Govt. and NR welcomes private sector bids for opportunities not necessarily identified in NR's long term planning process
- For example; a Port may wish to construct a new rail terminal, privately funded or financed
- If Govt. support is required, it will require a business case development in line with the RNEP
- Otherwise, strategic fit can be provided by System Operator and a delivery model can be agreed with the operational Route i.e. through Asset Protection, or commercial agreement with Network Rail to deliver.



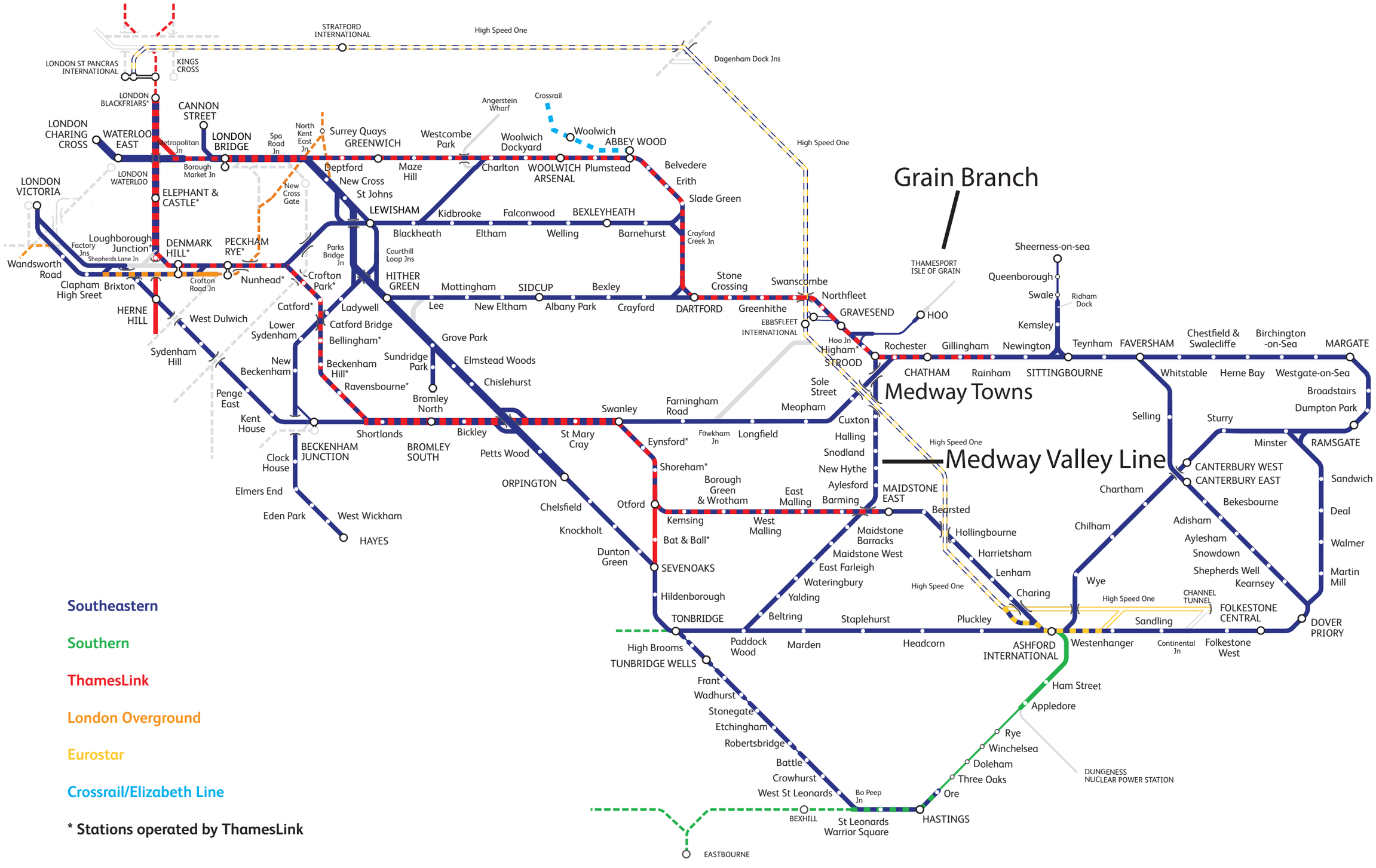
6. Key Initial Contacts & Progression

Business Development (South-East) - Business Development Director – John Gill

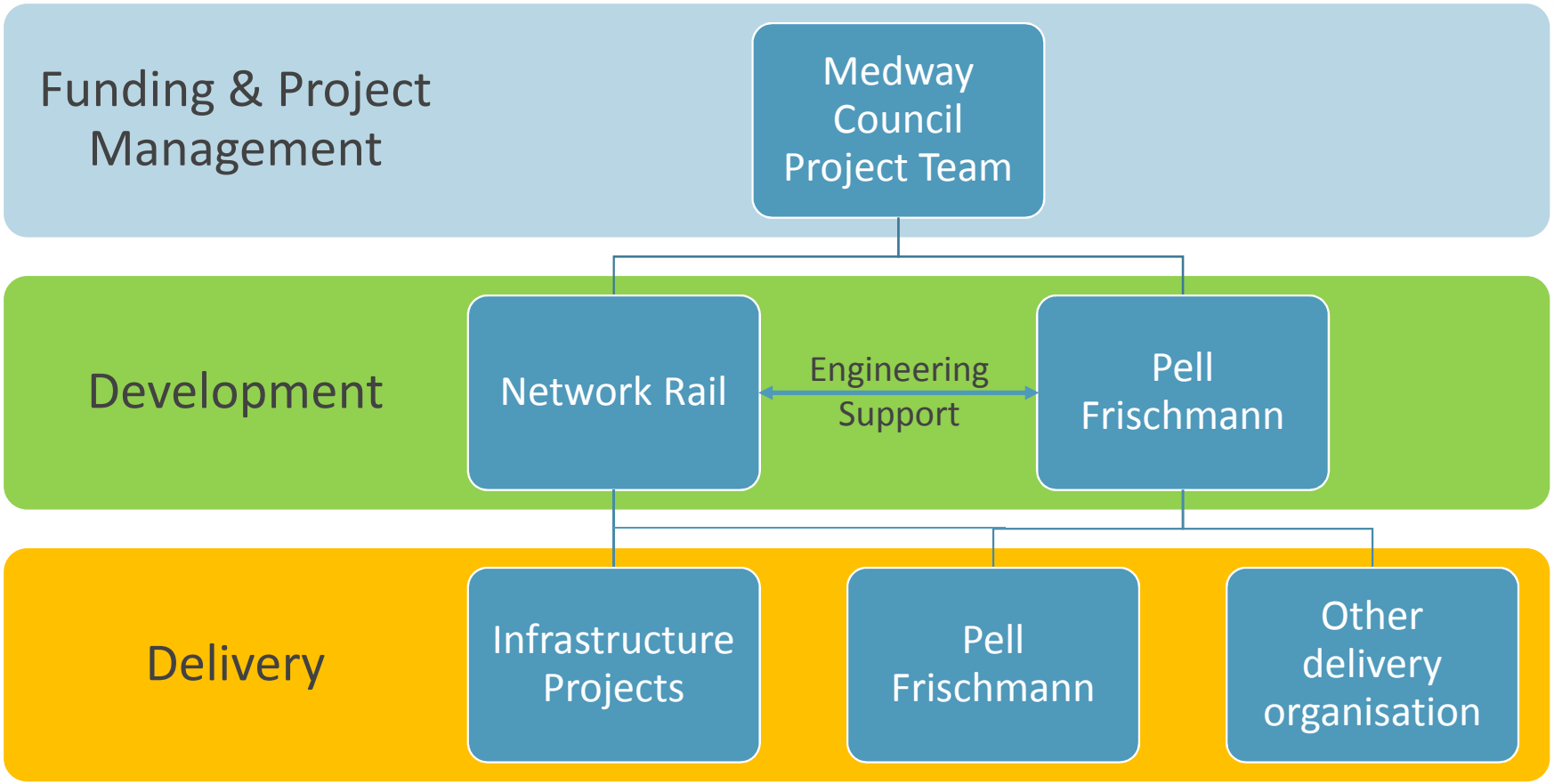
- Can help guide and introduce investment propositions through NR, provide commercial engagement, and a point of contact for the Route.
  - Commercial & Route point of contact through entire process

System Operator (South-East) – Head of Strategic Planning – Mike Smith

- The contact for national and route strategy for future growth, requirements, and change (including franchising), providing strategic guidance on opportunities, assessment of proposals for strategic fit
  - Business Case construction, Economic Case Appraisal, Timetable Analysis


Grain Branch
Medway Towns
Medway Valley Line
STRATFORD INTERNATIONAL
High Speed One
LONDON ST PANCRAS INTERNATIONAL
KINGS CROSS
Dagenham Dock Jns
LONDON BLACKFRIARS*
CANNON STREET
Angerstein Wharf
Crossrail
LONDON CHARING CROSS
WATERLOO EAST
LONDON BRIDGE
Metropolitan Jn
Spa Road Jn
North Kent East Jn
Surrey Quays
GREENWICH
Westcombe Park
Woolwich Dockyard
Woolwich
ABBEY WOOD
Borough Market Jn
Deptford
Maze Hill
Charlton
WOOLWICH ARSENAL
Plumstead
Belvedere
Erith
Slade Green
LONDON WATERLOO
LONDON VICTORIA
ELEPHANT & CASTLE*
New Cross Gate
New Cross
St Johns
LEWISHAM
Kidbrooke
Falconwood
BEXLEYHEATH
Blackheath
Eltham
Welling
Barnehurst
Crayford Creek Jn
Loughborough Junction
Factory Jns
Shepherds Lane Jn
DENMARK HILL*
PECKHAM RYE*
Parks Bridge Jn
Courthill Loop Jns
Wandsworth Road
Clapham High Sreet
Brixton
Crofton Road Jn
Nunhead*
Crofton Park*
HITHER GREEN
Mottingham
SIDCUP
Bexley
Stone Crossing
Swanscombe
HERNE HILL
Catford*
Ladywell
Lee
New Eltham
Albany Park
Crayford
DARTFORD
Greenhithe
Northfleet
GRAVESEND
EBBSFLEET INTERNATIONAL
THAMESPORT ISLE OF GRAIN
HOO
Hoo Jn
Higham*
STROOD
Rochester
Gillingham
Newington
Sheerness-on-sea
Queenborough
Swale
Ridham Dock
Kemsley
Teynham
FAVERSHAM
Chestfield & Swalecliffe
Birchington -on-Sea
MARGATE
CHATHAM
Rainham
SITTINGBOURNE
Whitstable
Herne Bay
Westgate-on-Sea
Broadstairs
Dumpton Park
RAMSGATE
Minster
Sturry
Selling
West Dulwich
Lower Sydenham
Catford Bridge
Bellingham*
Grove Park
Sydenham Hill
New Beckenham
Beckenham Hill*
Sundridge Park
Elmstead Woods
Ravensbourne*
Chislehurst
Penge East
Bromley North
Sole Street
Kent House
Shortlands
Bickley
Swanley
Farningham Road
Meopham
Cuxton
Halling
Snodland
New Hythe
Aylesford
Barming
Clock House
BECKENHAM JUNCTION
BROMLEY SOUTH
Petts Wood
St Mary Cray
Eynsford*
Fawkham Jn
Longfield
High Speed One
Elmers End
Eden Park
West Wickham
HAYES
ORPINGTON
Shoreham*
Borough Green & Wrotham
East Malling
MAIDSTONE EAST
Bearsted
Chelsfield
Otford
Kemsing
West Malling
Maidstone Barracks
Maidstone West
East Farleigh
Wateringbury
Yalding
Hollingbourne
Harrietsham
Lenham
Charing
Knockholt
Bat & Ball*
Dunton Green
SEVENOAKS
Hildenborough
TONBRIDGE
Beltring
Staplehurst
Pluckley
Chartham
Chilham
Wye
Sandling
CHANNEL TUNNEL
FOLKESTONE CENTRAL
DOVER PRIORY
CANTERBURY WEST
CANTERBURY EAST
Bekesbourne
Adisham
Aylesham
Snowdown
Shepherds Well
Kearnsey
Sandwich
Deal
Walmer
Martin Mill
Paddock Wood
Marden
Headcorn
ASHFORD INTERNATIONAL
Westenhanger
Continental Jn
Folkestone West
High Brooms
TUNBRIDGE WELLS
Frant
Wadhurst
Stonegate
Etchingham
Robertsbridge
Battle
Crowhurst
West St Leonards
Bo Peep Jn
BEXHILL
St Leonards Warrior Square
HASTINGS
Ham Street
Appledore
Rye
Winchelsea
Doleham
Three Oaks
Ore
DUNGENESS NUCLEAR POWER STATION
EASTBOURNE
Southeastern
Southern
ThamesLink
London Overground
Eurostar
Crossrail/Elizabeth Line
* Stations operated by ThamesLink

Station name	Train operator(s)	Service types	Fastest journey to London St Pancras Intl	Average daily users (includes interchange)	Annual users (entries & exits) 2017/18
Rainham	Southeastern ThamesLink	Main Line and High Speed ThamesLink Metro	50 minutes	6,440	1,822,540
Gillingham			42 mins	10,784	2,744,182
Chatham			38 minutes	9,648	2,730,506
Rochester			34 minutes	6,529	1,817,314
Strood		High Speed and Medway Valley Line Thameslink Metro	35 minutes	5,583	1,071,564
Halling	Southeastern	Medway Valley Line	48 minutes	334	94,422
Cuxton			44 minutes	181	51,124
TOTALS				**39,499**	**10,331,652**



Project Team led by Medway Council

Network Rail maintenance engineers work with Pell Frischmann

Delivery organisation to be decided nearer the time

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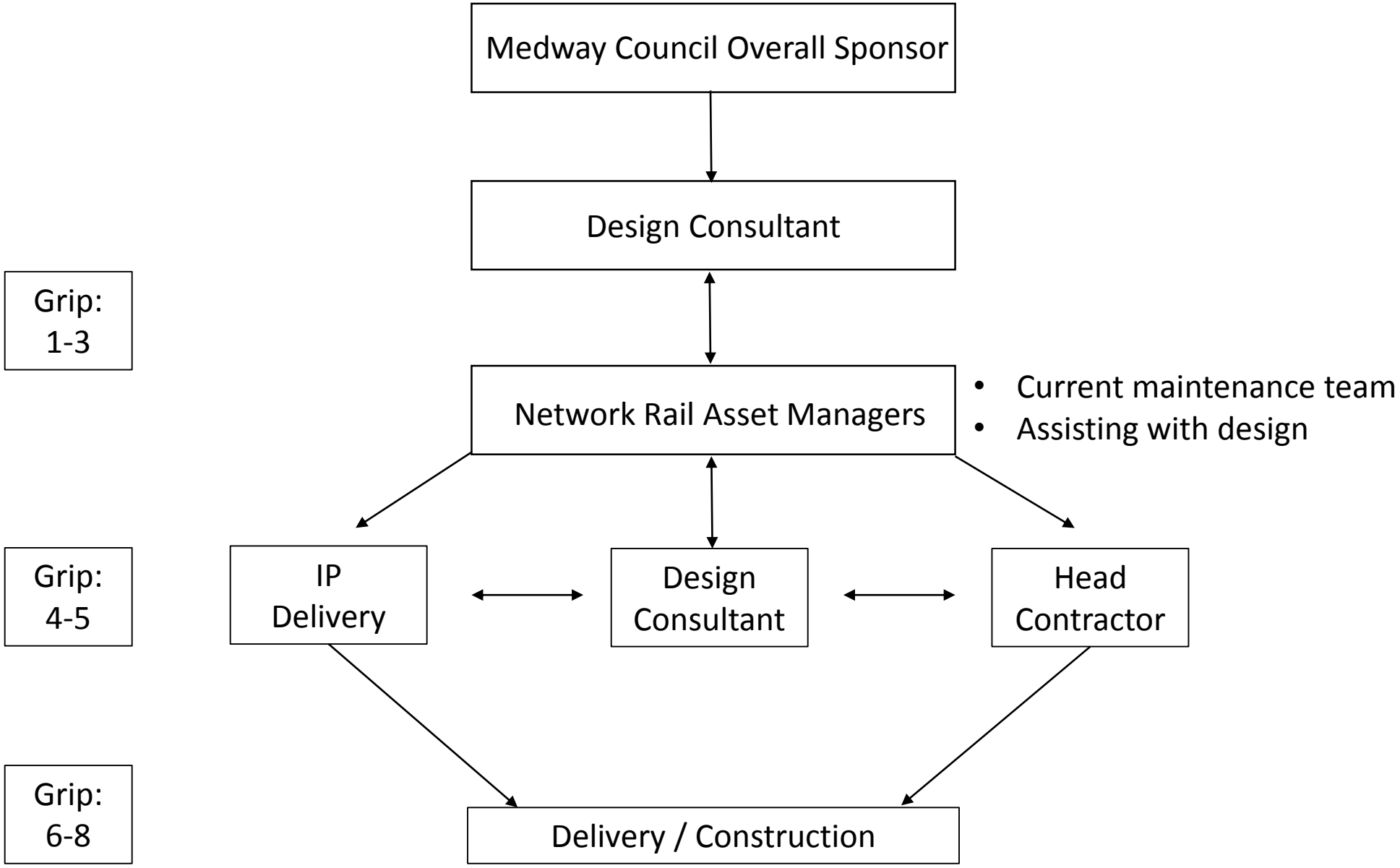

Medway Council Overall Sponsor
Design Consultant
Grip: 1-3
Network Rail Asset Managers
• Current maintenance team
• Assisting with design
Grip: 4-5
IP Delivery
Design Consultant
Head Contractor
Grip: 6-8
Delivery / Construction

Thames Estuary 2050 Growth Commission

2050 Vision

June 2018

Thames Estuary 2050 Growth Commission

Sir John Armitt (Chair), Chairman, City & Guilds Group and National Express

Prof. Sadie Morgan (Deputy Chair), Director, dRMM Architects

Lord Norman Foster, Chairman and Founder, Foster + Partners

Prof. Alice Gast, President, Imperial College

Gregory Hodkinson, Chairman, Arup

Sir George Iacobescu, Chairman and Chief Executive, Canary Wharf Group

Sir Stuart Lipton, Partner, Lipton Rogers Developments LLP

Sir Edward Lister, Chairman, Homes England

Tony Pidgley, Group Chairman, Berkeley Group

Nick Roberts, President, Atkins

Geoffrey Spence, Infrastructure Finance Expert

Note: All figures quoted in this document are referenced in the accompanying Technical Document.

Foreword

The Thames Estuary flows from one of the world's greatest cities and passes through areas of extraordinary natural beauty. It stretches from the global financial centre at Canary Wharf past the country's busiest river crossing to world-class coastal wetlands.

The Thames Estuary area faces some real challenges, including significant pockets of deprivation. But we believe it has the potential to support growth across the country. Our vision reflects both the interconnectedness and the distinctiveness of the places that make up the Thames Estuary; a tapestry of productive places along a global river, generating an additional £190 billion GVA and 1.3 million new jobs by 2050. At least 1 million new homes will need to be delivered to support this growth.

The Thames Estuary 2050 Growth Commission was established in March 2016 to develop an ambitious vision and delivery plan for north Kent, south Essex and east London. We are honoured to have been given the opportunity to lead this vital piece of work, which began under Lord Heseltine's chairmanship.

We have carried out the work in close collaboration with our fellow Commissioners and in consultation with local partners. We ran a Call for Ideas from July to September 2016 and were overwhelmed by the response: there were over 100 respondents, including public, private and third sector organisations, and members of the public, all brimming with great ideas and ambitions for the Thames Estuary. We worked with our fellow Commissioners over the next few months to review these responses alongside supporting analysis on the area's key challenges and opportunities. From this, we began to crystallise our thinking on a 2050 Vision for the Thames Estuary, announcing our priorities in December 2017. The conclusions of this work are presented within this 2050 Vision.

Throughout this exciting journey, we took part in numerous visits to the Thames Estuary, including along the river itself, and met with a wide range of stakeholders. We would like to thank all those who have provided input and hosted visits. Your contributions have helped to bring our vision for this exciting area to life.

Sir John Armitt
Chair, Thames Estuary 2050 Growth Commission

Sadie Morgan
Deputy Chair, Thames Estuary 2050 Growth Commission

The Case for Investment

The Thames Estuary is an area with great potential. It has sizeable economic power, a strong feeling of collaboration and a 'can do attitude' from London right out to the sea. The Estuary has an important brand and status, which makes a significant contribution to the UK economy and UK plc.

However, over the past few decades it has consistently been unable to deliver the same levels of economic growth as other parts of the UK. Whilst there are recent success stories, including Canary Wharf and the Thames Estuary's ports, the benefits of these pockets of growth have not necessarily been felt across the area. This has resulted in a large disparity in wealth and opportunity. The Thames Estuary partners want to work together to ensure that this is not an enduring problem.

The Thames Estuary has significant strengths: its proximity to London; international trade via its ports, strong universities, further education and research institutions; and availability of land to deliver high-quality homes. Yet, given its underperformance across a range of social and economic measures (see opposite), identifying what is needed to spread opportunity and growth is a complex task.

In order to answer this question, the Commission has interrogated what has not worked, and why. It has also sought to understand how the significant strengths in the area can be capitalised upon to make sure that economic growth is not reserved for some; rather it can have a lasting impact for existing and new businesses and residents across the area. It has done this through a detailed review of the existing context, engagement with stakeholders over the last two years and a review of existing and proposed projects.

The evidence gathered reaffirms the Commission's view that the 'business as usual' approach is not working. Without concerted action, there is a risk that the Thames Estuary will fail to achieve its potential, at huge opportunity cost to local communities and the national economy. By way of example since 2008, the Thames Estuary (outside London) grew more slowly than any of the other London corridors including, for example, the Thames Valley, London-Stansted-Cambridge corridor.

The Commission acknowledges that the area needs strong delivery and investment to make sure that, as other high growth corridors around London expand, the Thames Estuary is not left behind. The Thames Estuary has vast potential and could catch up with other London corridors that have outpaced UK growth. To do this it needs a clear vision and a focus on delivery.

This 2050 Vision sets out the key challenges and opportunities of the area, alongside future trends. It then presents a vision for the Thames Estuary and resulting recommendations and priorities which will be central to its delivery. This was informed by a review and prioritisation of existing and proposed projects. It concludes with a focus on the governance reforms and delivery models needed to realise the Commission's aspirations.

The Challenges

Scale of the area: The Thames Estuary is home to many boroughs, cities, towns and villages, which have their own distinctive characteristics. The diversity of the area, the natural barrier provided by the River Thames and the different functional economic areas mean that developing a singular 'vision' is challenging; it makes more sense to 'read' the area as a series of interconnected places.

Stimulating economic growth: The Kent and Essex parts of the area have struggled to keep pace with the scale of employment growth in east London. Between 2009 and 2016 east London employment grew by 27%, in comparison to the Thames Estuary average of 19% and the London average of 21%.

Low skills and education levels: There is a higher proportion of adults with no formal qualifications compared with the regional average across the Thames Estuary although this challenge is particularly acute in Essex. Relative to the London, South East and East regions, residents in the Thames Estuary are more likely to work in trade, sales or machine activities, which have historically been less highly skilled. This makes the area a less attractive location for employers seeking skilled and agile workers.

Entrenched deprivation: The area is characterised by a 'low wage' economy with limited connectivity to employment centres and a shortage of jobs and skills. The average weekly household income in the area is £800 before housing costs, which is below the combined average for London, South East and East of England at £885. Most settlements in the Thames Estuary therefore contain neighbourhoods with high levels of deprivation (in the top two deciles of the Index of Multiple Deprivation). The area also has higher levels of unemployment (5.3%) compared with the average for England (4.5%).

Delivering homes: The area needs to cater for population growth and demographic change. Whilst an increased number of planning permissions are being granted, this is not being reflected in delivery rates. Between 2012/2013 and 2014/2015, on average, fewer than 10,000 homes were built per annum against Local Plan targets of 19,495 per annum. Low land values, challenging site conditions and a limited number of house builders are all contributing to the delivery gap.

Limited mobility: Outside of London, the high speed railway network has been the focus of historic transport investment. Beyond this, access to affordable, high-quality public transport or active transport links is more limited between and within cities and towns. This is affecting access to jobs.

Environmental constraints: The Environment Agency estimates that the sea level will rise between 20cm and 90cm by 2100. Without intervention, this could affect up to 1.25 million people who live in the Thames tidal floodplain and 1,200 hectares of internally designated habitats. The Thames Estuary 2100 Plan is the Government's current strategy to adapt to the challenges of future sea level rise. The area also suffers from poor air quality, particularly near congested river crossing points.

Fragmented governance: There are 18 local authorities alongside the Greater London Authority, Kent and Essex County Councils and two development corporations in the area. The lack of coordinated governance structures makes strategic planning and prioritisation of interventions more difficult. This is in the context of significant funding gaps, particularly for infrastructure delivery.

The Future

Jobs: The Commission believes that up to 1.3 million new jobs could be created in the Thames Estuary by 2050. The Industrial Strategy identifies the pillars and priorities for national focus. The Thames Estuary, given its assets, is well placed to deliver against these priorities including boosting economic growth, increasing employment, skills and earning potential and delivering infrastructure to support jobs and homes. This supports the National Infrastructure Assessment which seeks to reduce congestion and carbon whilst increasing the capacity of the country's infrastructure.

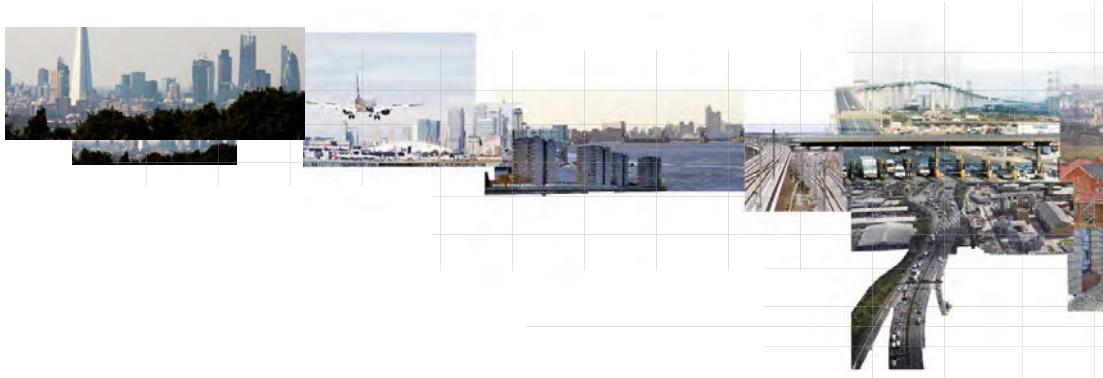
Homes: A minimum of 1 million homes will be required to support economic growth in the Thames Estuary by 2050. This equates to 31,250 homes per annum. The Commission believes that the scale and pace of delivery will need to increase to meet this demand. In terms of the distribution of these homes, based on the Ministry of Housing, Communities and Local Government's standardised methodology for calculating housing need, around two thirds of these homes should be delivered in east London. The Commission believes that solely focusing on homes in London is unsustainable and that more of these homes should be provided in Kent and Essex.

Technology and innovation: Sectors and jobs could take a variety of forms in the future. The Commission believes that a skilled and agile workforce will be most able to respond to this uncertainty. Traditional sectors in the Thames Estuary, including ports, logistics and construction, must respond to automation and technical innovation by changing operating practices and the number and types of jobs required.

Economic resilience: The impacts of Brexit on economies are still uncertain and may require changes to the ports, logistics and aviation sectors. The Commission believes that the Thames Estuary can capitalise on the challenges and opportunities presented by Brexit, transforming the area and reducing pressure and reliance on London. This is reflected in the planned and on-going investment, for example, at the Port of Tilbury and London Gateway Port.

Environmental change: The Government's 25 Year Environment Plan sets out action to help the natural world regain and retain good health. It includes a number of policy areas which are relevant to the future of the Thames Estuary: using and managing land sustainably; recovering nature and enhancing landscapes; connecting people with the wider environment; and increasing resource efficiency and reducing pollution. The Commission believes the long view of the 2050 Vision provides an opportunity to embed these principles in the future of the area.

The River Thames is an iconic driver of economic activity. It has led to the rich tapestry of places, communities, landscapes and economies, which characterise the Estuary today. They contribute to the breadth of challenge and opportunity in the area.



The Opportunities

Strengthen existing sectors: The Commission believes that the area should continue to grow 'traditional' industries of freight, logistics and construction, capitalising on the five major ports and growing logistics and manufacturing sectors around them as well as the planned modular homes factories. The creative and cultural industries (spearheaded through the Thames Estuary Production Corridor) and medical sectors (e.g. medical instruments manufacturing at Southend-on-Sea) should also be supported.

Diversify sectoral mix: Locally distinctive sectors which capitalise on the area's assets should continue to be supported, whether they are existing or emerging sectors. The Commission believes this includes health, tourism, creative and cultural industries, agriculture and renewable energy and green technologies.

Utilise higher education institutions: The Commission believes that links between the South East Local Enterprise Partnership, institutions, employers and schools should be strengthened to maximise economic growth and provide pathways from school to employment. This includes building on the skills legacy from large infrastructure schemes in the area such as High Speed 1.

Prioritise infrastructure investment: There are over 327 infrastructure projects identified by local authorities to address existing constraints and/or support future growth in the area. The Commission believes that delivery of infrastructure will support delivery of homes and jobs. For example, the extension of Crossrail to Ebbsfleet could support up to 50,000 jobs and 55,000 new homes. Investment in and delivery of green infrastructure will also be key to securing good growth.

Improve intra-town connectivity: The Commission believes this should be achieved by making better use of existing capacity, and delivering currently planned road and rail infrastructure. Providing additional capacity within the transport network will reduce congestion and journey times. The delivery of transport hubs will provide opportunities for agglomeration and regeneration.

Integrate environmental assets: The Commission believes that the Thames Estuary area provides the long term solution to managing the impacts of sea level rise on London. If appropriately planned, opportunities including maximising flood attenuation and improving air quality should be pursued alongside provision of replacement habitats and improved access for recreation and leisure (as promoted by the Thames Estuary 2100 Plan).

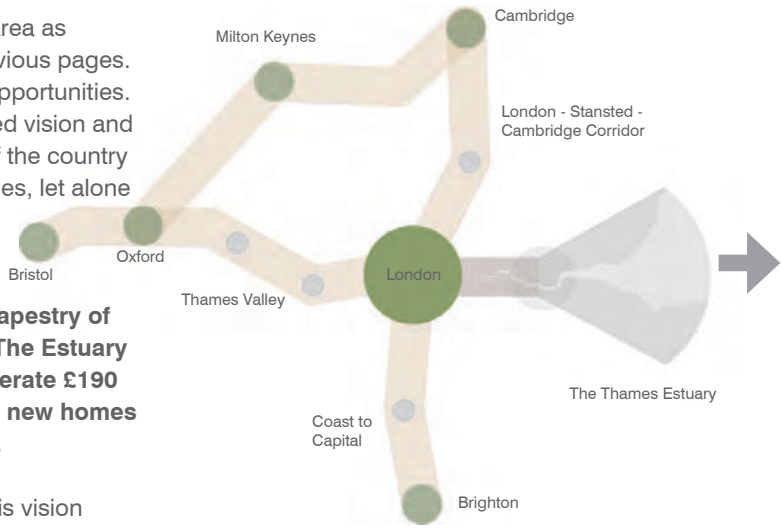
Realise planned development: There is an opportunity to deliver the homes (including affordable homes) and employment space that are needed to support demographic change and new jobs in the area. Homes and jobs should be delivered across the Thames Estuary to support the tapestry of places.

The Vision

From an underperforming river region to a tapestry of ‘productive places’ along a global river.

A lot of good work is already taking place in the Thames Estuary. Examples include public and private investment in the economy (e.g. Port of Tilbury and London Gateway Port), homes (e.g. through Ebbsfleet Development Corporation) and infrastructure (e.g. Lower Thames Crossing). The foundations to build on are strong.

There is significant latent potential in the area as illustrated through the analysis on the previous pages. There are also common challenges and opportunities. However, without a coherent and integrated vision and associated priorities, this important part of the country will not deliver ‘business as usual’ outcomes, let alone more ambitious ones.



By 2050, the Thames Estuary will be a tapestry of productive places along a global river. The Estuary will create 1.3 million new jobs and generate £190 billion additional GVA. At least 1 million new homes will be delivered to support this growth.

The Commission believes that realising this vision requires a change in thinking. The evidence shows that the Thames Estuary will not be successful when considered as a single functional economic area, single place or single community. It is a tapestry of interconnected but different economies, places and people, performing well in parts, but underperforming in others.

The Commission therefore recommends a different structure: a structure of five ‘productive places’, which are based on existing areas and their assets; with a clear vision for each area, a tight focus on priorities and stronger, streamlined governance.

In 2050, this tapestry of ‘productive places’ in the Thames Estuary will form part of the series of productive and connected places that ‘orbit’ London. Like Cambridge and Oxford, the ‘productive places’ of the Thames Estuary will be higher performing places, retaining their own distinct character and economic function.

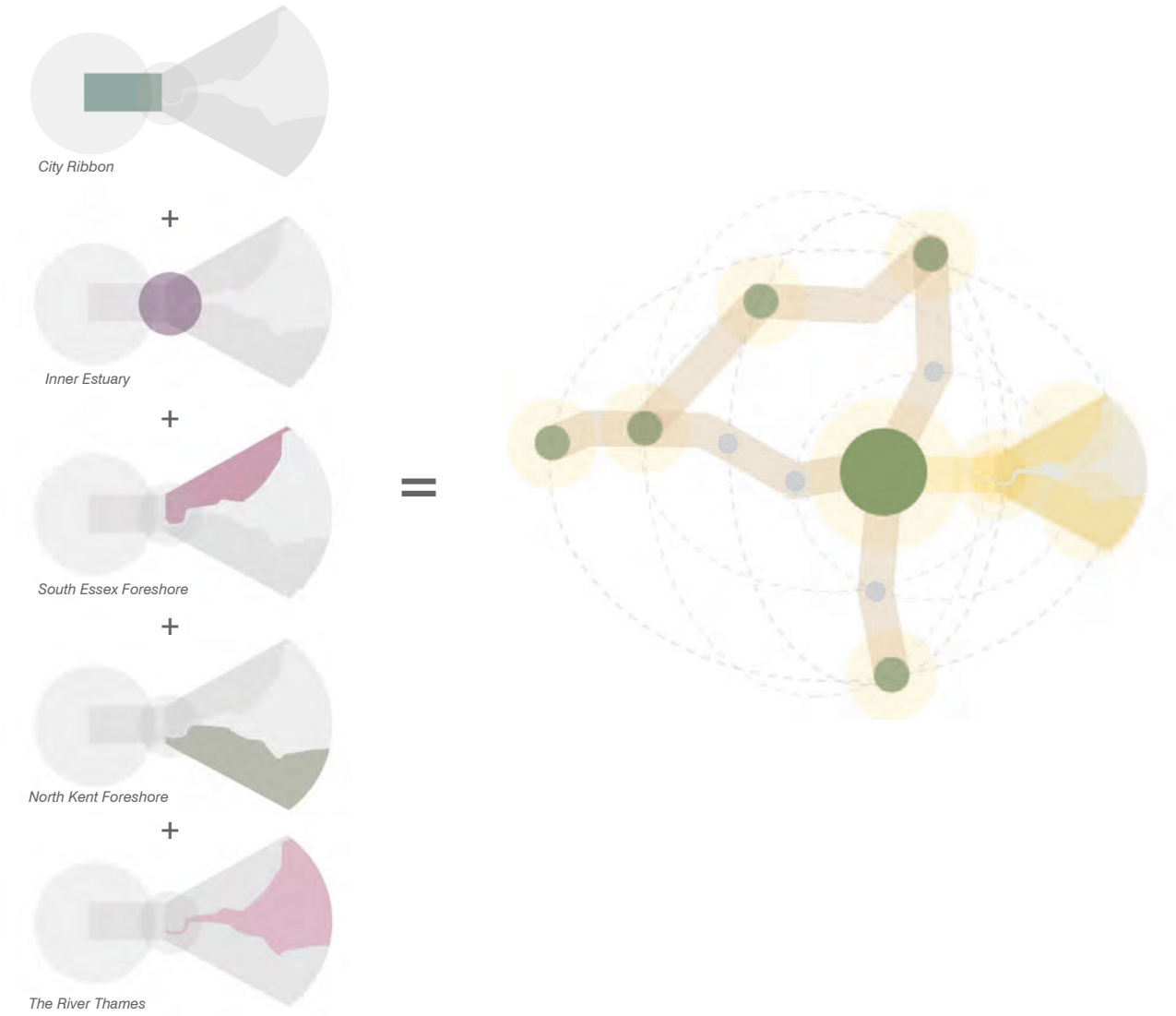
Thames Estuary Today

There is significant potential as an economic area, but there is not a clear economic or spatial framework to realise this potential in comparison to other successful corridors and cities around London like Cambridge, Oxford and Brighton. The current context is:

1.3 million jobs

£89 billion GVA

1.4 million homes



Five Productive Places

The different areas and characters of the Thames Estuary form into the proposition for five 'productive places'. Individually these places will be more productive and set up to deliver. Places will deliver the Commission's key priorities of:

Sectors

Connectivity and Communities

Delivery

Vision for Thames Estuary 2050

Each of the five places focuses on: developing strong and specific sectors, increasing skills, delivering homes and jobs at scale and pace, addressing the 'low wage economy', connecting to and enhancing natural assets and green infrastructure, and planning for long term and resilient development. This vision aims to deliver:

1.3 million new jobs

£190 billion* additional GVA

At least 1 million new homes

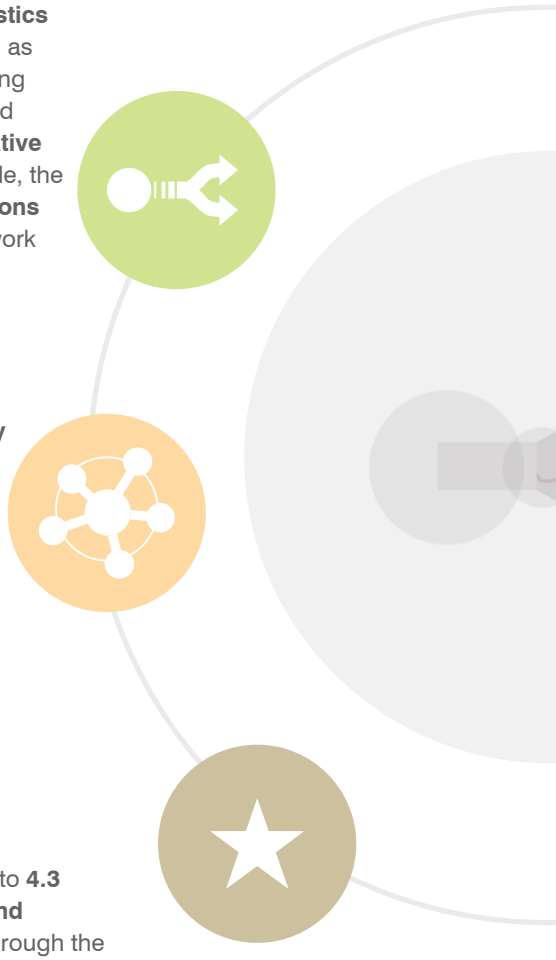
* assuming an annual average growth rate of 1.25% at current GVA per job

The Objectives

The Vision is underpinned by six objectives. They provide further direction on how the Thames Estuary can boost productivity, make a greater contribution to the UK economy and deliver a series of positive outcomes by 2050.

Productive Places

The places of the Thames Estuary will support the sustained growth of its high value, healthy wage sectors achieving up to **1.3 million new jobs by 2050**. Existing sectors will be strengthened including **freight and logistics** and **construction**, maximising opportunities from existing assets such as the **ports**. Emerging sectors will be nurtured including: **health**, reflecting the supercentre in Kent; niche heritage and wildlife **tourism** in Kent and Essex; and the Thames Estuary Production Corridor - a ribbon of **creative and cultural industries** along the River Thames. In part and as a whole, the places will harness entrepreneurial spirit, **strong educational institutions** and **unique natural assets** to create a distinctive and productive network of economies.

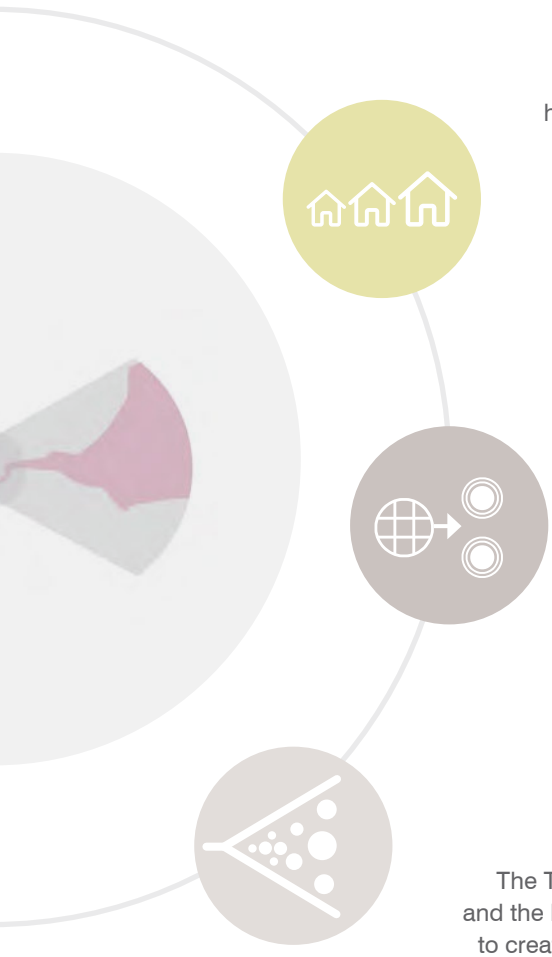


Connected Places

There will be **improved connections** between and within cities, towns, villages and industries be it for people or goods. This will support **improved productivity** through increased access to jobs and services. New and improved rail, bus, cycle and pedestrian links will reduce car dependency and increase the use of the area's **integrated public transport** systems. Completing the Thames Path will also improve connections for recreation for cyclists and pedestrians. The area will benefit from the highest level of **digital connectivity**, adopting the latest technological innovation. New **river crossings** such as the Lower Thames Crossing and Silvertown Tunnel will strengthen local and national links. New railway infrastructure including the extension of **Crossrail 1 to Ebbsfleet** and the **Thames East Line** will connect into the country's high speed network and complete the orbital railway around the Capital.

Thriving Places

The growing communities of the Thames Estuary, which will be home to **4.3 million people by 2035**, will pride themselves on their **rich cultural and economic activity**. Through **people-led projects** - in part delivered through the Thames Estuary Fund - each distinctive city, town and village will be the well-loved **heart of the community**. They will demonstrate the importance of good design and creating attractive places that work for the community. Improved **educational attainment** and **local skills** will **increase aspiration** and show that new job opportunities are for them. These thriving places will be **attractive to investors** and will celebrate their **individual sense of place** by offering bespoke opportunities to live, work, visit and play within the Thames Estuary setting.



Affordable Places

A further **1 million high-quality homes,** balanced to suit the affordable needs of the community, will be provided by 2050. They will offer a diversity of choice to all parts of the community, including **ageing populations**, and ensure that **supply keeps pace with demand**. The production of **statutory Joint Spatial Plans** will set out where these homes will be located and include tools, such as design review panels, to ensure high-quality development is delivered. **Healthy lifestyles** will be supported by the provision of new social places alongside integration with existing places and community networks. This will support **resilient communities** that respond to the needs of residents throughout their lives.

Adaptable Places

The many places and spaces in the Thames Estuary will adapt to the changing environment ensuring the people, economies and ecology of the area **thrive**. Infrastructure investment will be **integrated and multi-functional**, maximising the benefits to people, places, and ecology. This will assist in the creation of nearly **900 hectares of new habitat by 2100** to replace the 1,200 hectares lost to tidal flooding. Projects such as the completion of the Thames Path will provide **improved access to the natural environment**. The use of natural assets for recreation and economic activity will be balanced with their **protection and enhancement**.

Deliverable Places

The Thames Estuary will complete what it has started; delivering the homes and the balanced jobs it has planned, at the required **scale and pace**, in order to create thriving and affordable places. This will be achieved through robust, **locally-led governance** structures, which **build on existing** partnerships and bring together, as needed, the **18 local authorities**, plus the three upper tier authorities. The area will also be a space to try something - a place that **supports innovative models of delivery** be that through capitalising on Modern Methods of Construction (such as modular homes) or innovative models of public sector housing delivery. Across the many places of the Thames Estuary this will enable the **significant aspirations to become meaningful realities**.

City Ribbon

The area 'City Ribbon' includes the east London boroughs of Tower Hamlets, Newham, Barking and Dagenham, Havering, Lewisham, Bexley and Greenwich and the London Legacy Development Corporation.

The core strengths of this place include the **growing cultural and creative industries sector**, supported by the Mayor's Production Corridor, and significant projected **population growth**, which is collectively one of the **youngest on average in London**. This is allied to major regeneration programmes in areas including Barking Riverside and Thamesmead.

The challenges of the area include integrating and delivering **future connectivity** projects, including river crossings and the Crossrail 1 extension to Ebbsfleet, and ensuring this unlocks the delivery of **affordable housing**. The area suffers from some of the **highest levels of deprivation** in London with **high levels of unemployment** and **low skills**.

Within this context the Commission's vision for City Ribbon is:

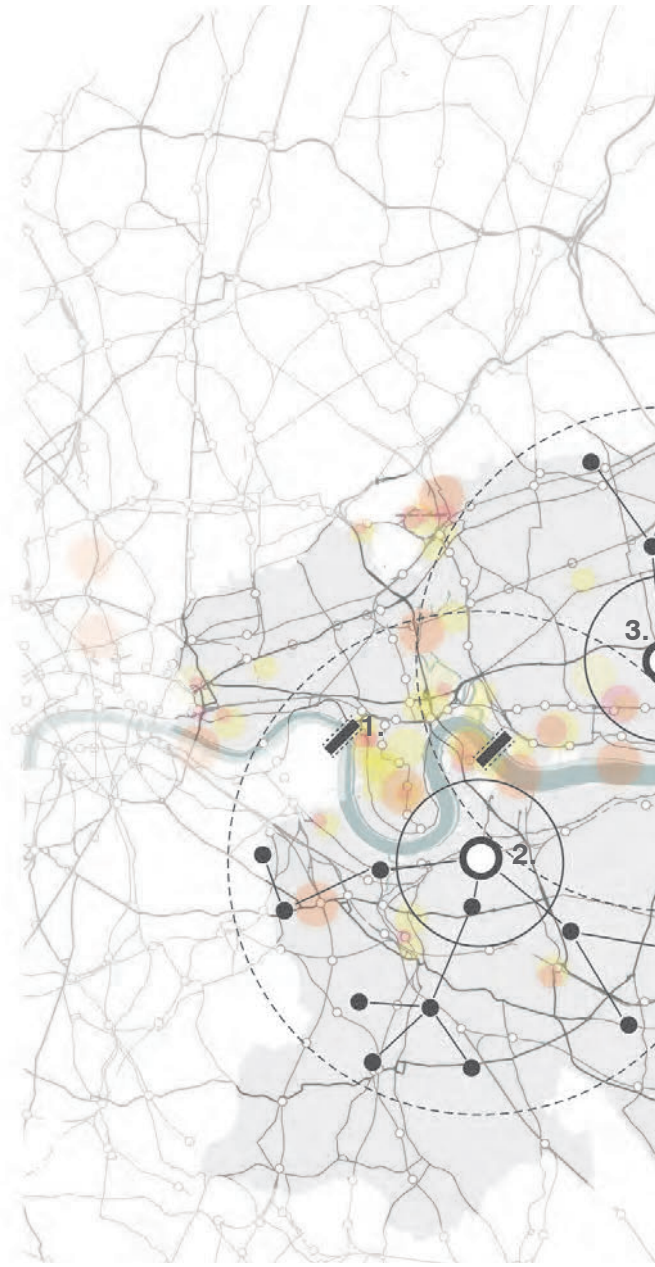
Places which celebrate the skills and creativity of the area

City Ribbon will be a hub for production. Space will be created for start-ups and grow-on spaces for small and medium sized businesses. Communities will be connected by multiple public transport links and served by culturally rich town centres. Through the implementation of a multi-generational skills strategy, the area will connect the creative and cultural industries to a highly skilled workforce.

"Both banks of the Thames were rejuvenated. There are now large blocks of apartments where there were once derelict wharves. Shopping areas, apartments, public houses and walkways . . . The neighbourhood of the river is recovering its ancient exuberance and energy, and is reverting to its existence before the residents and houses were displaced by the building of the docks in the 19th century."

Peter Ackroyd, Sacred River

City Ribbon



Within City Ribbon, 196 infrastructure, skills and employment projects were subject to the prioritisation review. Some 139 projects were sifted out where they were either: a duplicate entry; there was insufficient information available on the project to meaningfully assess it; or because it represented 'business as usual' where it was considered that the project would not make a significant contribution to meeting the Commission's vision for the area. Of the remaining 57 projects, 88% contributed to connected places, 82% towards adaptable places and 70% to productive places. Half contributed to affordable places.

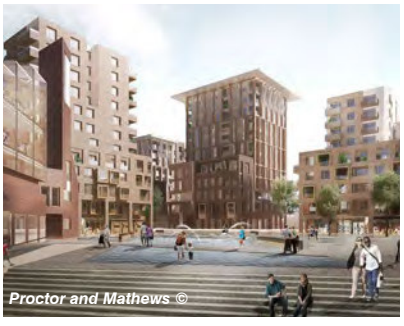
In addition, 209 large scale known and proposed employment and residential developments were identified. All the developments were categorised as 'business as usual'.

There is much already happening in City Ribbon, with existing delivery structures in place. However, the Commission believes there are opportunities to make more of what is planned to realise the aspirations for the area. The Commission's priorities are set out opposite.

Beyond these three priorities, there are other projects which the Commission supports and considers are central to its vision for City Ribbon being achieved. These include the expansion of City Airport, the continued growth of Canary Wharf, the delivery of Thamesmead which could provide up to 20,000 new homes - the largest regeneration project in Europe - and the extension of Crossrail 1 to Ebbsfleet. This project is discussed further in the Inner Estuary; within City Ribbon the project could help to accelerate delivery of 30,000 new homes in Bexley, directly unlocking 16,000 of these and support Canary Wharf's ambitious expansion, which is set to create up to 80,000 new jobs.

Commission's Priorities

Accelerated Delivery Pilot

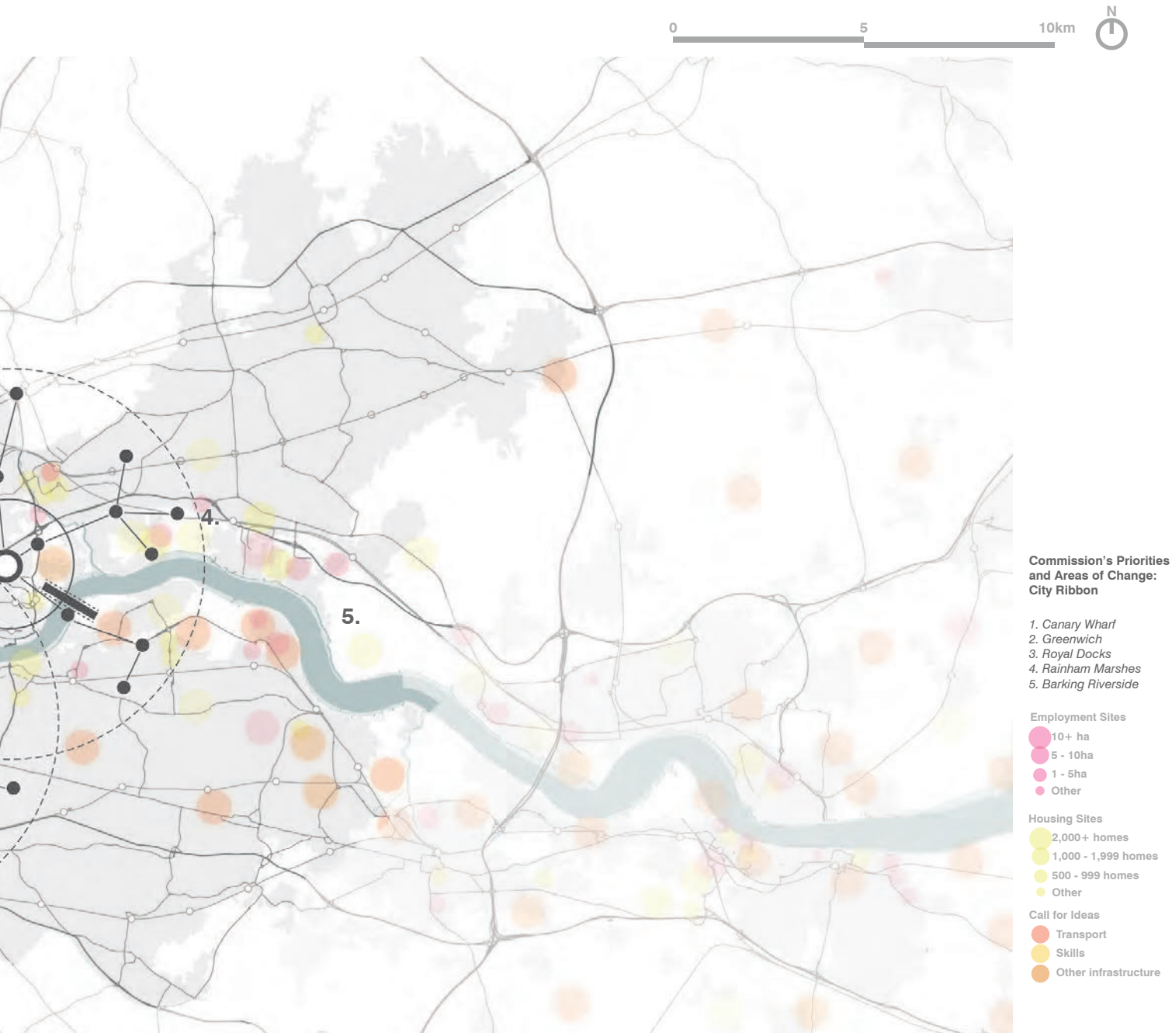


What: *Trial new delivery models to accelerate the scale and pace of delivery of homes and jobs in the Opportunity Areas within City Ribbon to bring forward the development stated in the London Plan by 2035. This could be done through housing delivery companies and the public sector acting as master developers.*

Why: *East London is a major focus for home and job growth. It should showcase how Government is delivering against the Industrial Strategy and need for new homes.*

How: *The Mayor of London, London boroughs and Homes England should work together to expedite delivery of jobs and homes. These organisations should make best use of existing powers, find solutions to current constraints such as borrowing caps and develop the skills and expertise to enable delivery.*

When*: Short term to bring forward stated delivery in 50% less time.*



New Thames Crossings

What: *Prioritise the planning and funding of river crossings. The Silvertown Tunnel and the DLR extension to Thamesmead should be operational by 2030. A third river crossing should be considered to facilitate homes and jobs.*

Why: *Poor accessibility limits the ability of the area to realise its full potential. New public transport and active travel crossings will unlock homes and jobs and contribute to place making.*

How: *The Mayor of London should deliver Silvertown Tunnel as quickly as possible. He should prioritise and bring forward the planning for public transport and active travel crossings.*

When*: Medium term delivery of the three crossings; short term priority planning.*

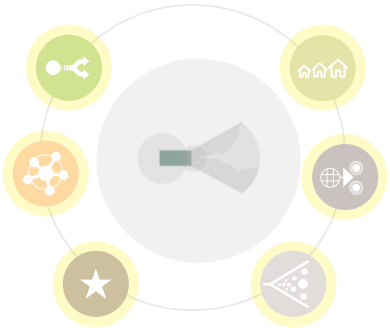
An Integrated Skills Strategy

What: *Implement a more targeted skills strategy that provides clear pathways to employment. It should support the area's existing and emerging economic sectors including the Production Corridor and the growing interest in the cultural and creative industries.*

Why: *Build on the success of the London Schools programme and be thought leaders for the Thames Estuary. The strategy should showcase how education and skills training can be used to address generational skills shortfalls and reduce levels of unemployment.*

How: *The Mayor of London should work with the boroughs, the Local Enterprise Partnership, employers and/or educational institutions to translate his Skills for Londoners strategy into a targeted plan for the area to ensure it meets current and future employer needs.*

When*: Quick win building off existing skills strategies including the Skills for Londoners Strategy and Place Making Institute.*



Inner Estuary

High performing dock infrastructure which creates opportunities for a wide range of sectors based in the surrounding community

The area 'Inner Estuary' includes Thurrock, Dartford and Gravesham Councils, and Ebbsfleet Development Corporation. The area has approximately **22km of Thames waterfront**.

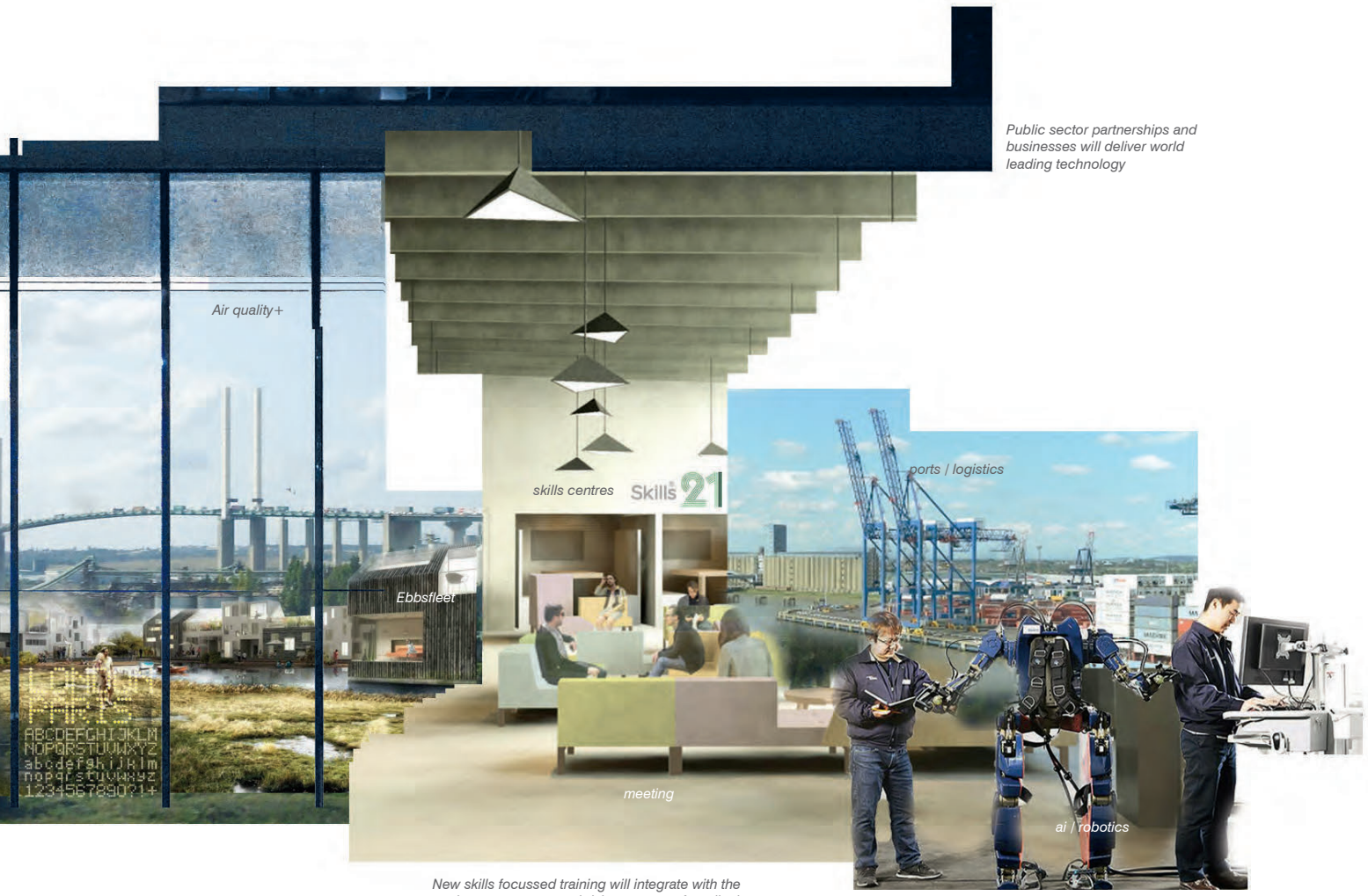
The core strengths of this place are its **connectivity** (which supports a growing higher value logistics and freight sector, including the **£1 billion investment in the Port of Tilbury** and further investment in the London Gateway Port) and the planned growth of **new town centres** at Ebbsfleet, Bluewater and Lakeside. The place is also promoting innovation in construction through **Modern Methods of Construction** with a particular focus on modular housing construction.

The challenges for the area include the unresolved **approach to the Swanscombe Peninsula**, **air quality** issues as a result of congested **river crossings**, the **slow pace of delivery** at Ebbsfleet Garden City (where delivery of 15,000 planned homes has slowed and there is a lack of job creation), **poor education and skills attainment**, and the need to maximise the homes and jobs that could be unlocked through **infrastructure investment** including the Lower Thames Crossing and Crossrail 1 extension to Ebbsfleet.

Innovations in mobility and public transport will connect communities to the adjacent landscapes and diverse employment opportunities

Within this context the Commission's vision for the Inner Estuary is:

A thriving and higher value Port of Tilbury and London Gateway Port will create opportunities for an upskilled and aspirational population. Healthy town centres will be home to creative businesses and high achieving schools. The delivery of Ebbsfleet Garden City, including a new Medical Campus and integrated sustainable transport systems, will bring new homes and jobs to a unique river landscape.



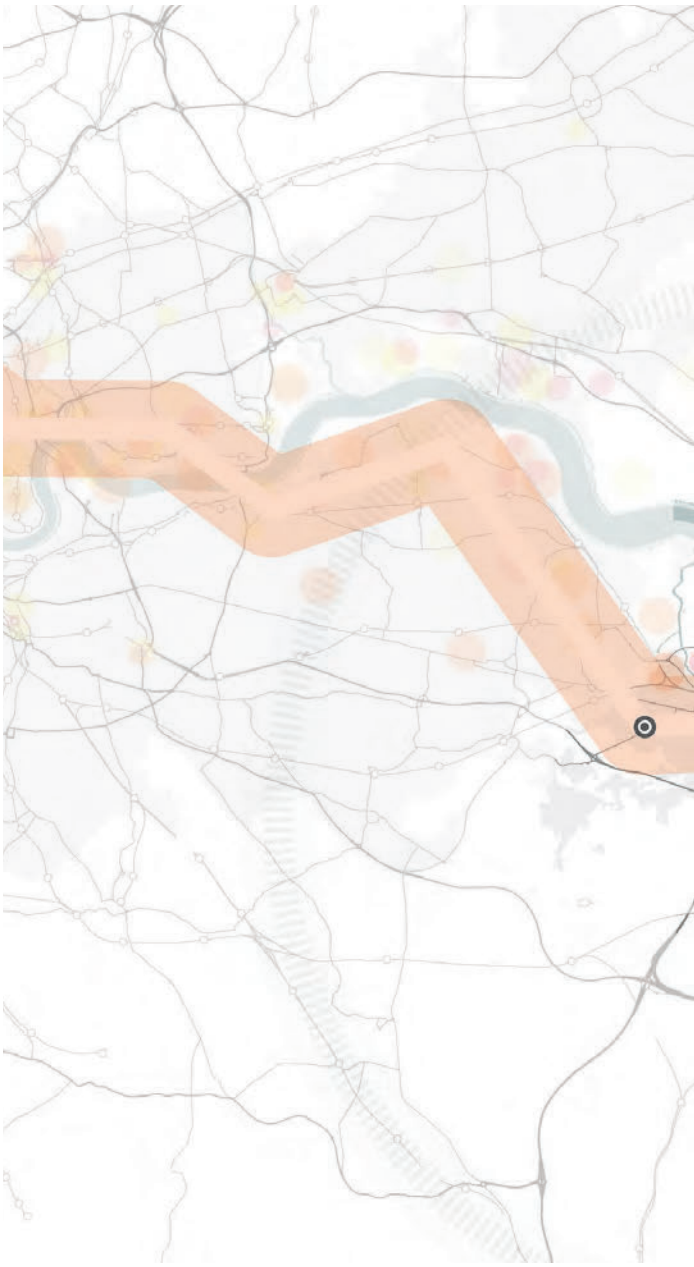
Public sector partnerships and businesses will deliver world leading technology

New skills focussed training will integrate with the work spaces to create thriving centres of medical excellence connected to open spaces that support healthy lifestyles

"A great future lies before Tilbury Docks... free of the trammels of the tide, easy of access, magnificent and desolate, they are already there, prepared to take and keep the biggest ships that float right upon the sea. They are worthy of the oldest river port in the world."

Joseph Conrad, The Mirror and the Sea

Inner Estuary



Within Inner Estuary, 109 infrastructure, skills and employment projects were subject to the prioritisation review. Some 73 projects were sifted out where they were either: a duplicate entry; there was insufficient information available on the project to meaningfully assess it; or because it represented 'business as usual' where it was considered that the project would not make a significant contribution to meeting the Commission's vision for the area. Of the remaining 369 projects, almost 64% contributed to productive places and 58% to connected places. Around a third of the projects contributed to each of the affordable, thriving and adaptable places.

In addition, 58 large scale known and proposed employment and residential developments were identified. All of the developments were categorised as 'business as usual'.

The Commission believes there is the potential to increase the scale and pace of delivery through some transformative projects; these priorities are set out opposite.

Beyond the three priorities, there are other projects which the Commission considers central to achieving its aspirations for the Inner Estuary. This includes resolving the proposals for the Swanscombe Peninsula. The Commission encourages the promoters of the London Resort to submit a Development Consent Order application for the proposal as soon as possible. Should an application not be submitted by the end of 2018, the Government should consider all the options for resolving the uncertainty this scheme is creating for the delivery of the wider Ebbsfleet Garden City.

The Commission is supportive of the proposals for the Lower Thames Crossing. However, in order to future-proof the proposed crossing, the Commission believes that the design should, as a minimum, not preclude the future delivery of infrastructure to support rail transport links and/or autonomous vehicles. Highways England should also work with the relevant local authorities to ensure that the design and location of the crossing and connector roads minimise impact on traffic flows, unlock jobs and homes growth in the surrounding area.

Commission's Priorities

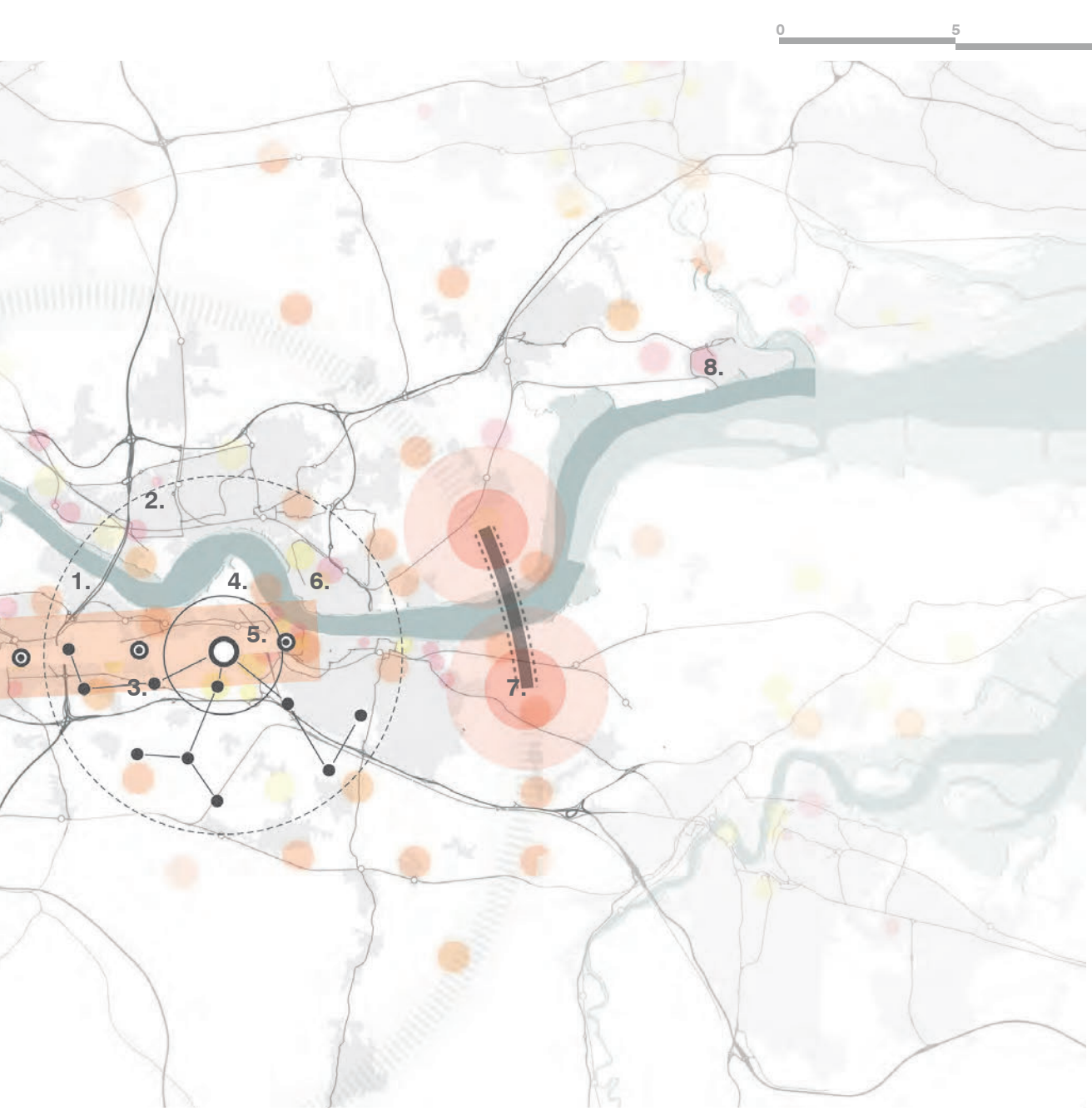
Extension of Crossrail 1

What: *Deliver an extension to Crossrail 1 from Abbey Wood to Ebbsfleet.*

Why: *The project could help to unlock 55,000 new homes, up to 50,000 new jobs and uplift skills and education by increasing rail capacity and creating new connections between economic hubs. This would need to go ahead in conjunction with upgrading supporting junctions. Key growth areas include Dartford town centre, Ebbsfleet Garden City and Swanscombe Peninsula.*

How: *Government should provide funding for the expected £20m cost of the next phase of project development. This would enable the detailed engineering, design, land and financial modelling and legal framework to be progressed.*

When*: Medium term delivery of the railway (by 2029); quick win to provide funding for the next phase of project development.*



Transport Innovation Zone

What: *Create a Transport Innovation Zone which promotes clean technology in transportation, logistics and data systems and unlocks housing opportunities with new means of public transport.*

Why: *The area forms part of the national road network for freight movements, and has a high density of tech and digital logistic usage. Also, due to the volume of traffic using its crossings and associated congestion, it suffers from significant air quality issues.*

How*: Government should incentivise research and development into sustainable travel and related digital technologies where it supports 'clean' movement.*

When: *Quick win to establish the governance arrangements and associated incentives for the Zone.*

Medical Campus

What: *Expedite the delivery of the Medical Campus at Ebbsfleet.*

Why: *Delivery of jobs at Ebbsfleet Garden City has been slower than planned. To make the area more attractive to the market, the delivery of the Medical Campus will provide an anchor employment institution.*

How: *Government should work with Kings College London to deliver the Medical Campus.*

When*: Short term (delivery by 2022).*

South Essex Foreshore

The area 'South Essex Foreshore' includes Basildon, Castle Point, Southend-on-Sea and Rochford Councils. Southend-on-Sea and Basildon are the major centres of a string of towns to the north of Canvey Island and the marshes around Hadleigh Ray and Holehaven Creek.

The core strengths of this place include the established and coordinated voice of **Opportunity South Essex**, the **unique wetland habitats** of the river edge and the emerging **cultural sectors** and medical and aviation related **advanced manufacturing in Southend-on-Sea**. The challenges of the area include **poorly performing town centres**, **slow speeds of delivery** linked to limited clarity on priorities across the area, and a **skills and jobs mismatch** between the primary employers and the majority of the workforce. In the future, the threat from **sea level rise** will require major investment in integrated flood defences.

Within this context the Commission's vision for South Essex Foreshore is:

Local Investment in the public realm of High Streets including child friendly spaces

The rich patchwork of places which form the South Essex Foreshore will be celebrated. Empowered by a statutory Joint Spatial Plan the area will go beyond 'business as usual'. Locally driven town centre transformation will help create lively places that people choose to work, live, learn and play in. These policies and local initiatives will see development unlocked, post-industrial landscapes restored, and the filling of empty business spaces to create a thriving and creative economy.

Innovative delivery models for affordable housing and workspace in town centre environments

Continued support for local culture and creative enterprises

Continued support for distinctive 'Essex' architecture in housing design

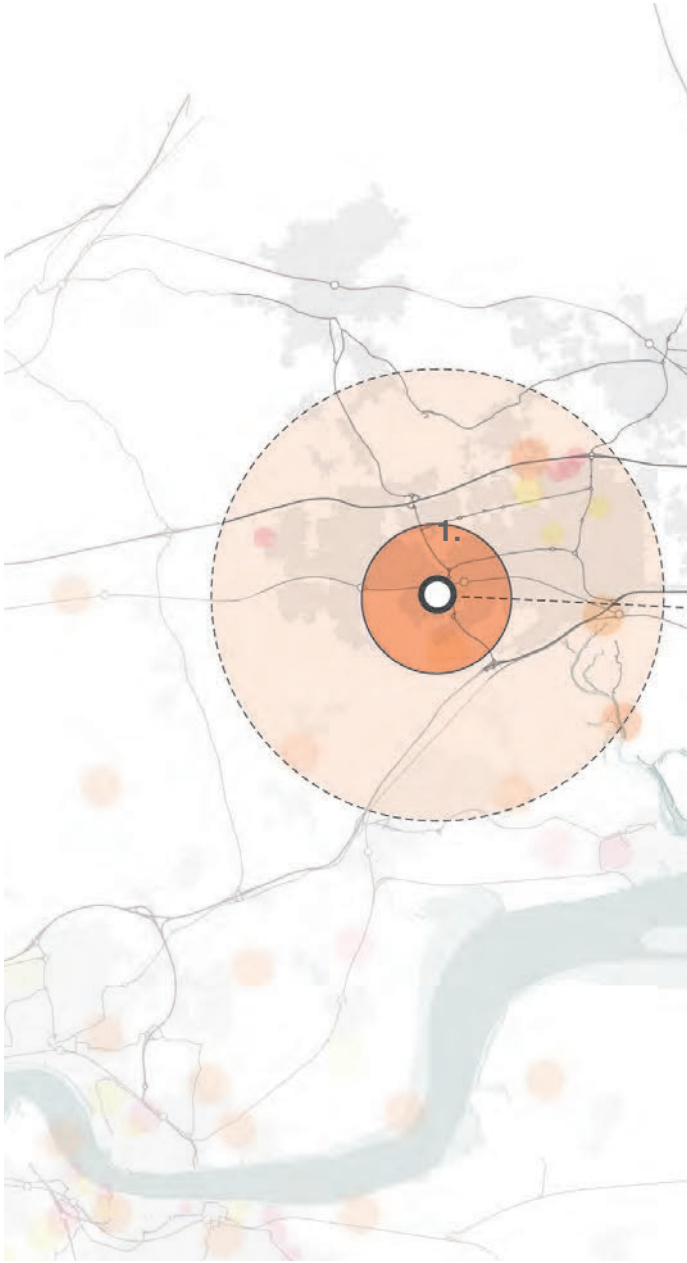
Strong connections to Southend Airport to add value / skills to local centres

Protection of, and increased access to, unique foreshore landscapes through partnership

"What we've seen over the past 10 years is this huge burgeoning of the artistic scene in Southend...You've got a lot of creative people coming out of London and looking for new, affordable spots. Southend has such an opportunity to be a thriving place for the creative industries, but you need that underlying structure to support it. This is only the starting point."

Joe Hill, Focal Point Gallery

South Essex Foreshore



Within the South Essex Foreshore area, 119 infrastructure, skills and employment projects were subject to the prioritisation review. Some 56 projects were sifted out where they were either: a duplicate entry; there was insufficient information available on the project to meaningfully assess it; or because it represented 'business as usual' where it was considered that the project would not make a significant contribution to meeting the Commission's vision for the area. Of the remaining 63 projects, around 71% contributed to productive places, with 49% contributing to connected places and 46% contributing to affordable places.

In addition, 35 large scale known and proposed employment and residential developments were identified. All of the developments were categorised as 'business as usual'.

There is a large number of identified local and strategic projects throughout South Essex Foreshore. The Commission believes that these projects can be better coordinated and prioritised to maximise their impact. The Commission therefore supports the work already being undertaken by local authorities on a Joint Spatial Plan and believes it should have a statutory footing. In completing the Plan, the local authorities should continue to work with other authorities within the Housing Market Area/neighbouring areas, Essex County Council and Opportunity South Essex to produce an integrated strategy for delivering and funding high-quality homes, employment, transport and other infrastructure. The Plan should also be ambitious - going above the minimum housing numbers set by Government - to attract substantial infrastructure investment from Government.

The Commission also supports a number of related initiatives, which are central to achieving its vision for the area. Firstly, local authorities should explore what support can be provided to SMEs, financial or otherwise, to help bring forward needed new employment space. Secondly, planned railway improvements, particularly around Southend-on-Sea and London Southend Airport, should be delivered to increase capacity. Lastly, road, rail and relevant local authorities should work together to minimise conflict between goods and people on the transport network, with the aim of increasing road capacity/number of services on existing railway lines.

Beyond these projects, the Commission has identified three other priorities.

Commission's Priorities

SE Foreshore Fund

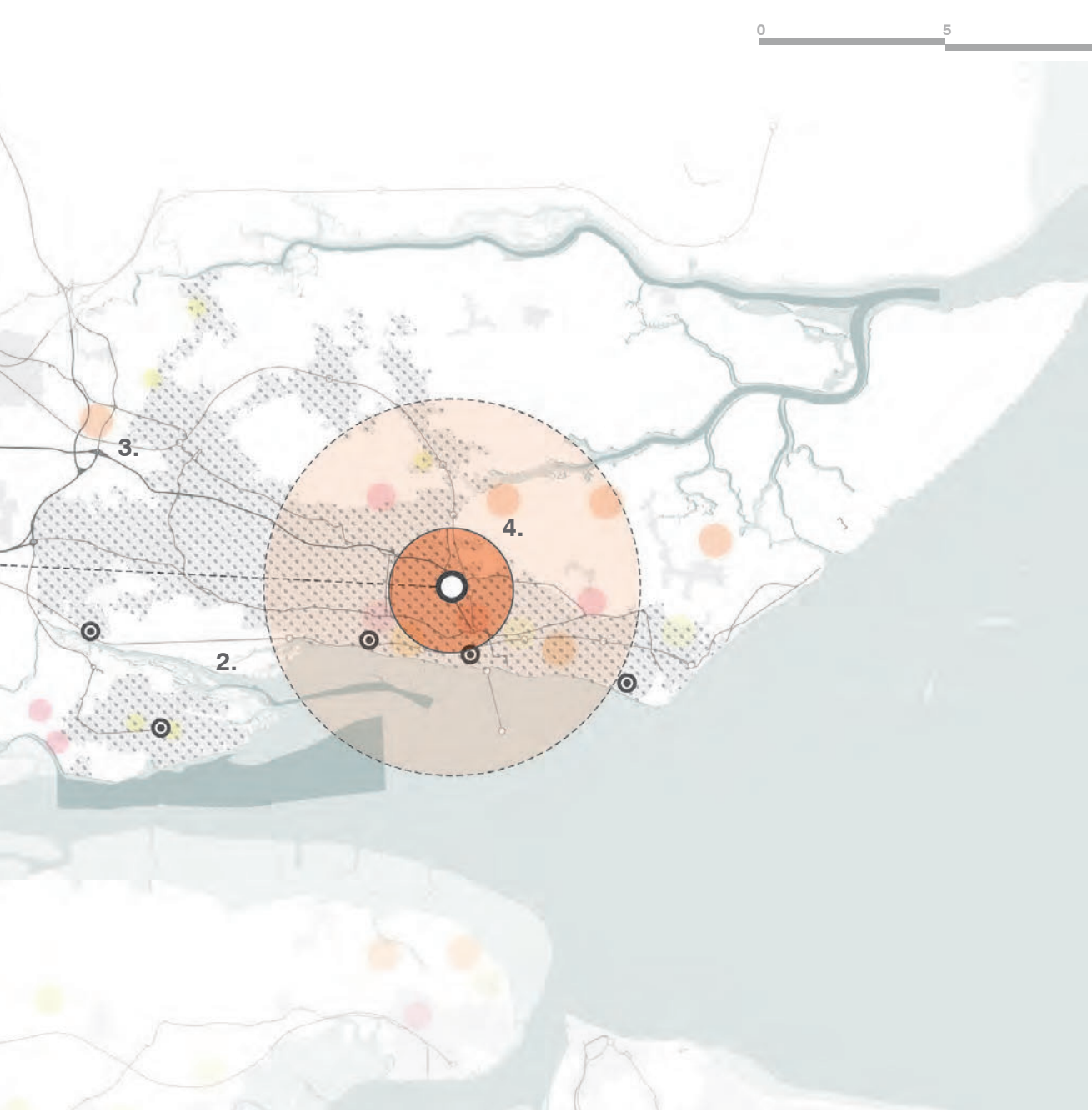
Rose Street Market ©

What: *Create a fund which local authorities and local communities can bid for. Projects should support town centre regeneration and/or community development.*

Why: *Give local communities and organisations the opportunity to direct investment where it is most needed to support local aspirations and town centre regeneration.*

How: *Government to make available a £20 million fund and provide support to the four local authorities and local communities in their funding bids.*

When*: Quick win for first raft of funding in 2019.*



SEC Relocation


South Essex College ©

What: *Expedite the relocation of the South Essex College's Nethermayne campus to Basildon town centre.*

Why: *This site is central to the Council's aspirations for redevelopment of Basildon town centre. It provides the opportunity to introduce new courses which align with the needs of local employers and sectors and address lower education and skills levels in the area across multiple generations.*

How: *Basildon Council and Essex County Council should work with South Essex College to deliver the re-location.*

When*: Short term (delivery by 2022).*

Institute for Resilient Infrastructure


Purdue University ©

What: *Establish a centre for the research, design and funding and financing of integrated infrastructure to address contemporary and future city challenges.*

Why: *The Institute needs to be up and running to ensure the Thames Estuary has the skills and knowledge needed to design and deliver key infrastructure such as the second Thames Barrier. It will also identify delivery and governance models that can enable strategic infrastructure to be funded by the private sector.*

How: *Government to approach existing institutions to identify interest. If possible, Government should explore the potential for collaboration with private sector education and technology leaders to provide teaching and skills development training space.*

When*: Short term delivery (by 2024); Quick win to approach existing institutions.*

North Kent Foreshore

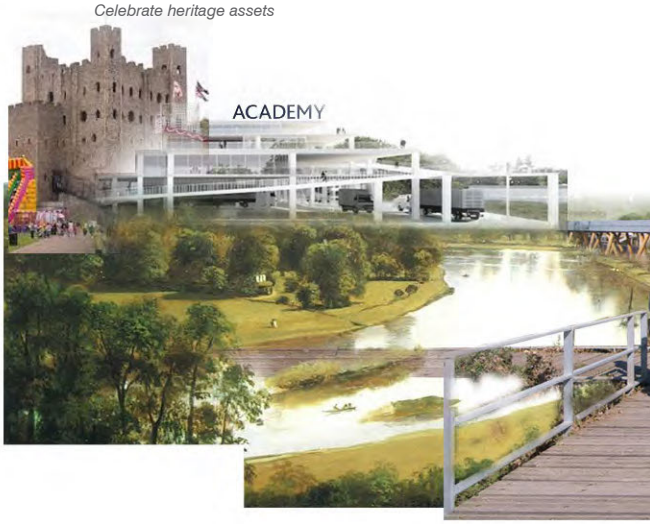
The area 'North Kent Foreshore' includes Medway, Swale, Canterbury and Thanet Councils. It is a rich and diverse area formed by the **ancient Medway Towns**, and the settlements that stretch along the Roman '**Wattling Way**' between Sittingbourne, Canterbury and the arc of distinctive coastal places between Whitstable and Ramsgate.

The strengths of this place include its **universities** which together form an emerging **medical research corridor** connecting the Francis Crick Institute through Chatham to Canterbury. The historic assets of the area's cities are matched by **productive agricultural landscapes** which spread out between them, both of which provide opportunities for continued growth of niche tourism.

The challenges of the area include the connection between the **skills** needs of employers and the education and skills training available to the community. The area also has a high level of '**digital deprivation**' which is seen to stymie start-up and SME growth in the digital industries.

Within this context the Commission's vision for North Kent Foreshore is:

Celebrate heritage assets



Improved and managed access to unique wetland landscapes

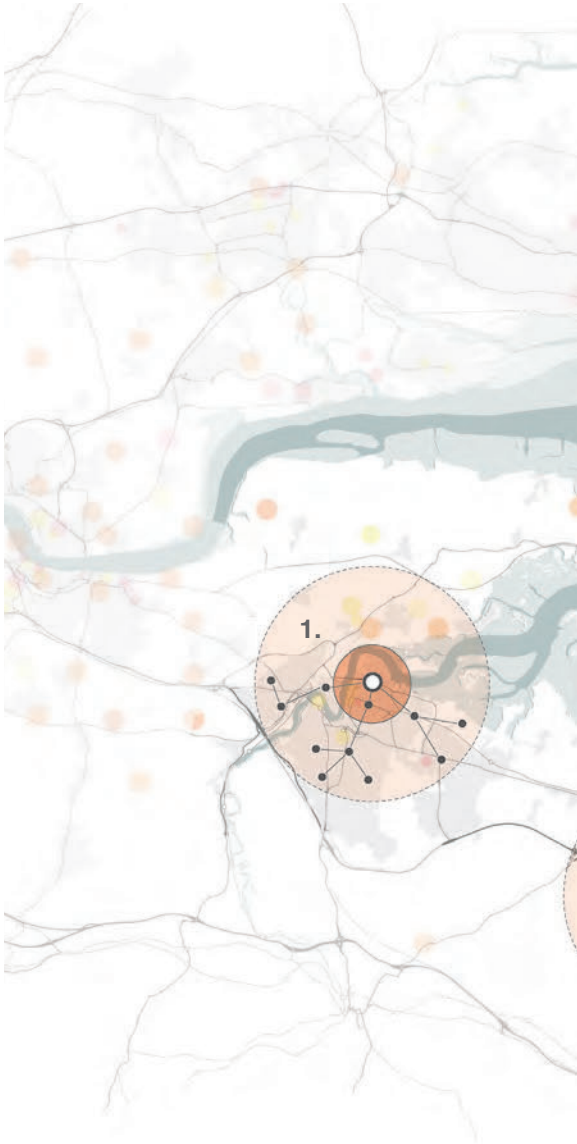
At the heart of a new medical research corridor, North Kent Foreshore will be home to a supercentre of health and wellbeing. Through a statutory Joint Spatial Plan, and strong connections between local government and business, the area will balance delivering growth in the health sector with new jobs, new homes, a renewed focus on skills, and high-quality town centres set around world-class heritage and natural assets.

Increased access to landscape as part of strong links between nature, agriculture, health innovation and wellbeing

"The Thames Estuary is an edgeland - not quite river, not quite the open sea. It is an in-between place, a place of transition, a welcoming gateway, a corridor of trade, the front line for the defence of the realm and a gradual opening into the rest of the world."

Colette Bailey, Artist Director of Metal

North Kent Foreshore



Within the North Kent Foreshore area, 152 infrastructure, skills and employment projects were subject to the prioritisation review. Some 67 projects were sifted out where they were either: a duplicate entry; there was insufficient information available on the project to meaningfully assess it; or because it represented 'business as usual' where it was considered that the project would not make a significant contribution to meeting the Commission's vision for the area. Of the remaining 85 projects around 80% contributed to productive places, 75% to connected places and 42% to affordable places.

In addition, 54 large scale known and proposed employment and residential developments were identified. All of the developments were categorised 'business as usual'.

There are significant opportunities for growth and development in North Kent Foreshore. The Commission believes that further work is needed to coordinate initiatives already underway and to propose new initiatives to optimise the potential outcomes. This should be achieved through a statutory Joint Spatial Plan led by the local authorities, with the participation of other authorities within the Housing Market Area/ neighbouring areas, Kent County Council and Thames Gateway Kent Partnership to produce an integrated strategy for delivering and funding high-quality homes, employment, transport and other infrastructure. The Plan should also be ambitious - going above the minimum housing numbers set by Government - to attract substantial infrastructure investment from Government.

The Commission also supports the following related initiatives, which are central to achieving its vision for the area: local authorities should explore what financial and other support can be provided to SMEs to help them bring forward needed employment floorspace; planned railway improvements particularly around Canterbury should be delivered to increase capacity; and road and rail authorities should work together (with local authorities where relevant) to minimise conflict between goods and people with the aim of increasing road capacity/number of services on existing railway lines.

Beyond these projects, the Commission has identified three other priorities. These are set out opposite.

Commission's Priorities

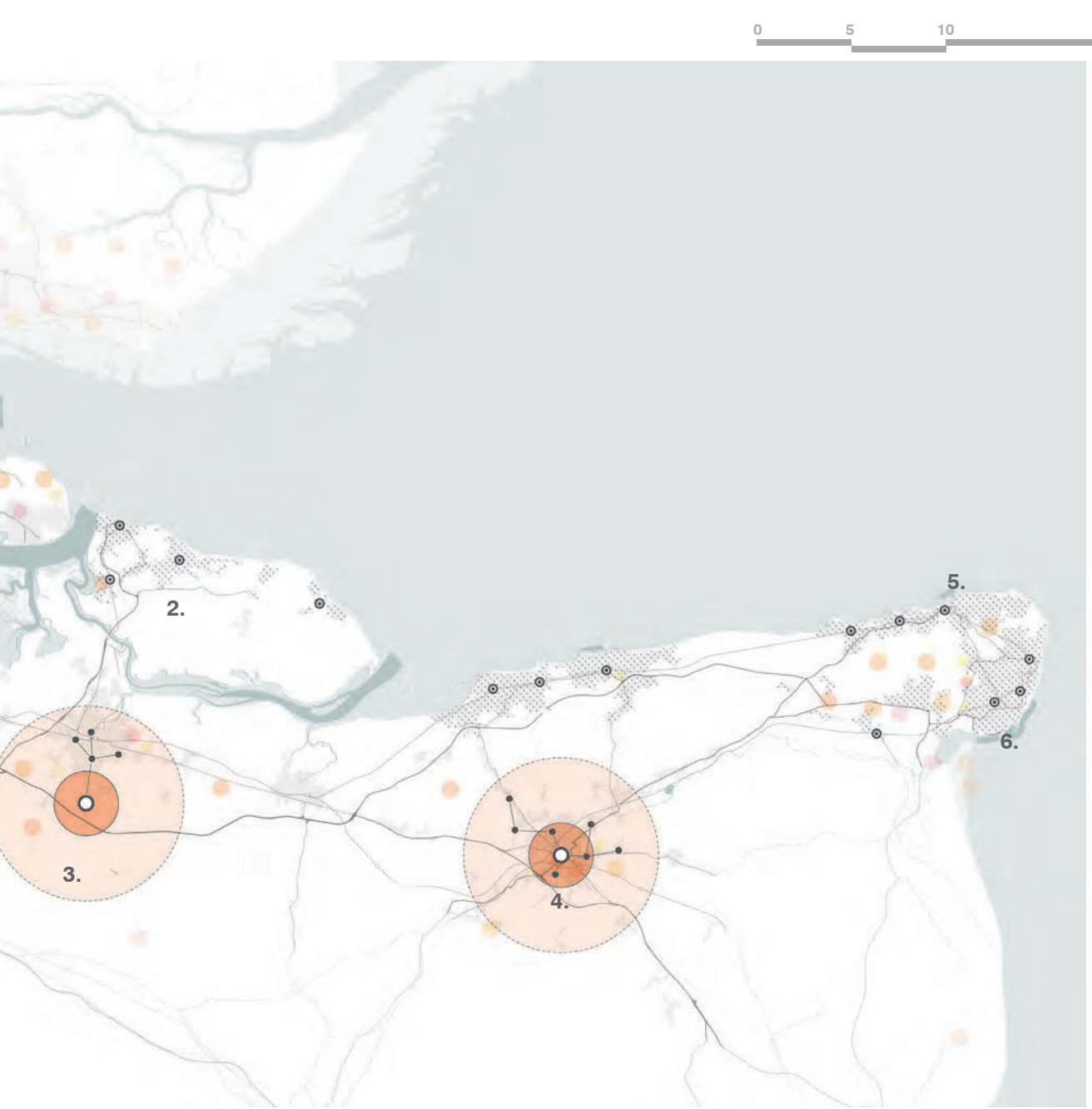
NK Foreshore Fund

What: *Create a fund which local authorities and local communities can bid for. Projects should support town centre regeneration and/or community development.*

Why: *Give local communities and organisations the opportunity to direct investment where it is most needed to support local aspirations and town centre regeneration.*

How: *Government to make available a £20 million fund and provide support to the four local authorities and local communities in their funding bids.*

When*: Quick win for first raft of funding in 2019.*



Education and Skills

What: *Implement a more targeted skills strategy with employers and educational institutions that provides clear pathways to employment that support the area's existing and growing economic sectors.*

Why: *The 30 year vision allows this project to address generational skills shortfalls. It will improve educational attainment and skills in the area, across multiple age groups, therefore reducing levels of unemployment.*

How: *Kent County Council should work with the local authorities, the Local Enterprise Partnership, employers and/or educational institutions to develop a targeted plan for the area, which meets current and future employer needs.*

When*: Quick win building off existing skills strategies in place.*

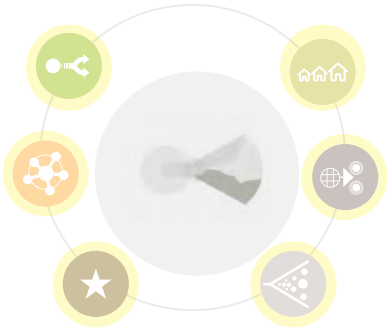
Health Supercentre

What: *Develop the new health and medical facilities at Canterbury to provide the eastern anchor to the supercentre.*

Why: *This project will act as a catalyst to the health supercentre building on the emerging health sector, cluster of academic institutions and transport connections in the area to increase productivity and jobs in the area.*

How: *Universities should be supported by Government and work closely with local communities to deliver promised facilities, to boost medical research and services while supporting workforce retention.*

When*: Short term delivery of facilities (by 2023).*



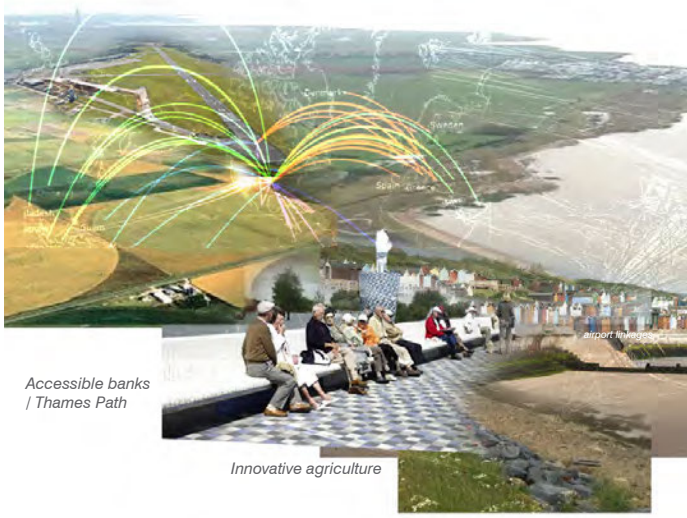
The River Thames

The River Thames is the **ancient heart** of the places of the Thames Estuary. It is a **global river** - connecting the Capital and five of the UK's largest ports to the rest of the world.

The strengths of the river remain its **strategic role** as a gateway to UK trade and industry and a vital and **flexible** component of the national infrastructure strategy. This is **balanced** by its **unique natural qualities** of ecology, habitat and landscape, which have long inspired the area's cultural and creative industries. The River Thames defines the quality of place of the cities, settlements and deep 'foreshores' which line it.

One of the challenges to the River Thames supporting the growth of the area is its **fragmented governance.** The multiple agencies (including the Environment Agency, Natural England, Port of London Authority, Marine Management Organisation) and private agendas prevent integrated solutions to some of the river's key challenges. **New crossings** will require careful integration, and the mitigation of sea level rise with **multi-functional defences**, which protect people and infrastructure from flooding will require new and innovative ways of working. Improving **water quality** and increased use of the river for **aquaculture** and **leisure** will enable the river to play a key role in the area's sustained growth.

Within this context the Commission's vision for the River Thames is:



Accessible banks / Thames Path

Innovative agriculture

A continuous Thames Path - celebrating the diversity of the River along its length

The river's ebb and flow will continue to connect the Foreshores, Inner Estuary and City Ribbon. Its multi-functionality will continue to evolve, from freight to fishing and from beach to boardroom - constantly emphasising the value of the river to its surrounding places and ensuring that the current level of flood protection is maintained. Its vital contribution to economic and social prosperity will place it at the heart of Thames Estuary 2050.

Centre for future logistics - connecting the assets of the river to local skills and local jobs

Continued investment in culture and programming of the River and its connected communities

"The River Thames is ancient; older than England, older than humanity, even older than the British Isles themselves. Its life cycle operates on a geological timescale. The river is almost a living being, writhing sinuously across its flood plain, eroding its banks and altering its channel, constantly changing."

Andrew Sargent, The Story of the Thames

The River Thames

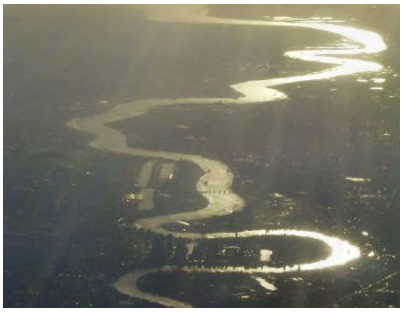
Within the River Thames, 25 infrastructure, skills and employment projects were subject to the prioritisation review. Some 15 projects were sifted out where they were either: a duplicate entry; there was insufficient information available on the project to meaningfully assess it; or because it represented 'business as usual' where it was considered that the project would not make a significant contribution to meeting the Commission's vision for the area. Of the remaining 10 projects, 80% contributed to adaptable places and 70% contributed to connected places. This reflects that the projects largely focus on environmental improvements associated with flood defences and increasing access to the river.

No large scale known and proposed employment and residential developments were identified.

The Commission believes the River Thames can be a catalyst for growth and change in the four other 'productive places'. In order to do so it must be well used and well-loved. Three priorities have been identified to achieve this.

Commission's Priorities

Great Thames Park

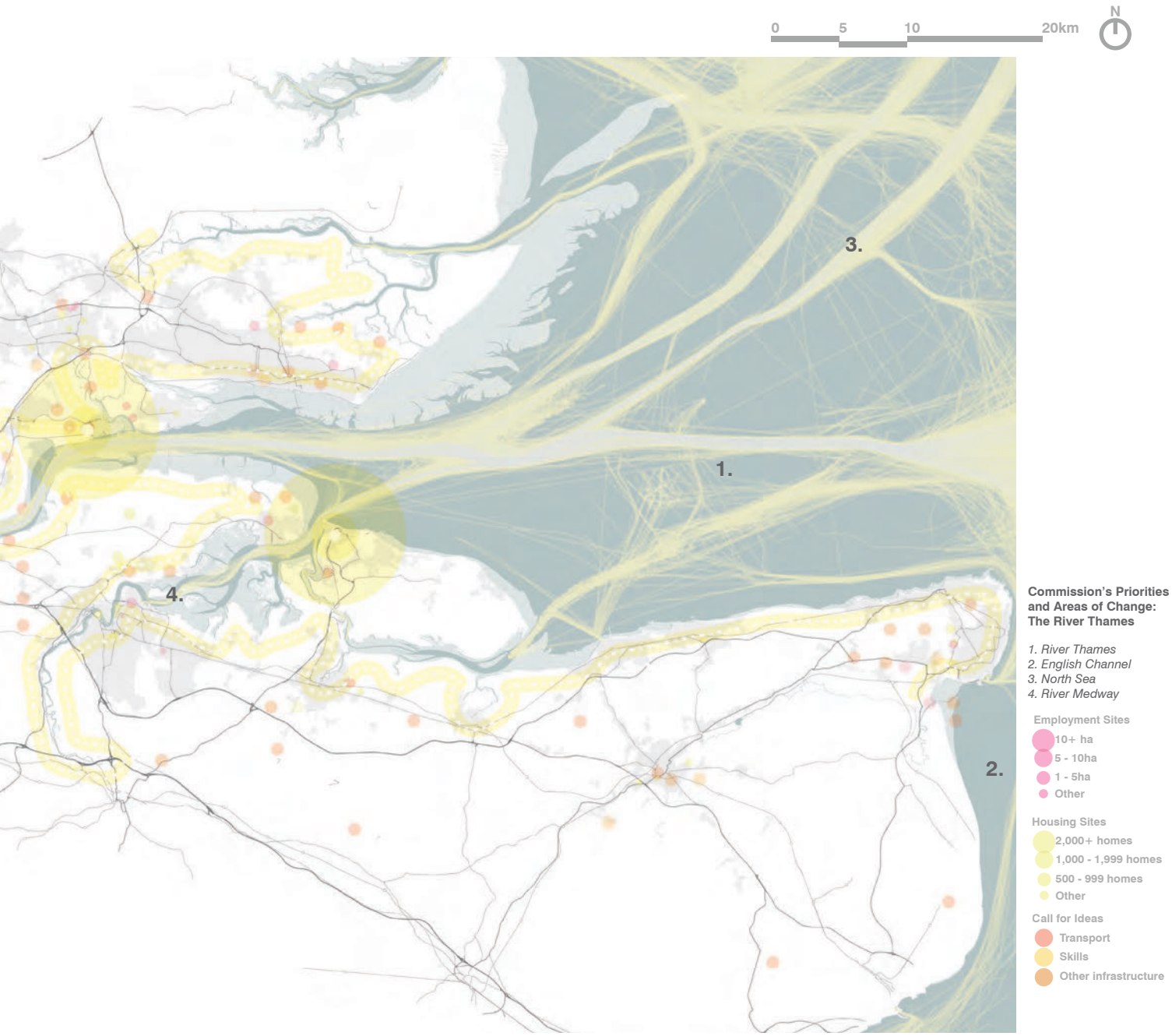


What: *Establish the Great Thames Park to celebrate and maximise the value of the area's natural assets. This should include improving access to and use of the River Thames for pedestrians and cyclists.*

Why: *It will create a 'brand' which attracts inward investment as well as residents and visitors to the area and improves connections between places.*

How: *Local authorities, environmental bodies and river regulators should prioritise investment in the Thames Path and associated projects. Government to consider the governance arrangements required to support the Great Thames Park.*

When: *Medium term with measures in the short term to put governance strategies in place. Quick win to deliver first new section of the Thames Path by 2020.*



Thames East Line

What: *Delivery of new multi-modal (including rail) crossing east of the Lower Thames Crossing combined with the second Thames Barrier. Potential interchange points could be Basildon and the Medway Towns.*

Why: *To maximise the benefits arising from a second Thames Barrier (which will provide a world-class standard of flood protection) including improved north-south connectivity, enhanced linkages with other high productivity corridors around London, agglomeration opportunities at interchanges and improved access to England's high speed railway network.*

How: *Government should consider a multi-modal crossing as part of its planning for the next Thames Barrier. This includes the financing models which could be used to deliver the project by 2050.*

When*: Long term delivery with measures in the short and medium term to commence project planning.*

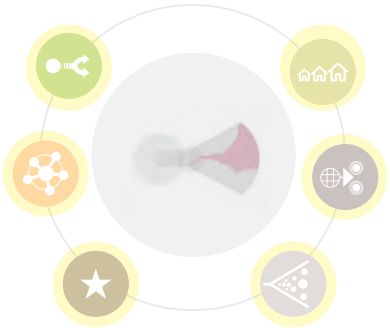
Celebrate the Thames

What: *Build on the success of the existing Thames Festival and the Port of London Authority's Thames Vision to create a programme of festivals, events and promotional activities.*

Why: *To celebrate the River Thames, its creative and cultural industries and to attract inward investment and visitors to the area.*

How: *A programme of events should be developed and led by the Thames Gateway Strategic Group working with local businesses and community groups.*

When*: Quick win to ensure additional funding and support for Estuary Festival 2019.*



Governance and Delivery

The Commission has an ambitious vision for the Thames Estuary, which it believes has the potential to deliver 1.3 million new jobs and £190 billion additional GVA by 2050. At least 1 million new homes will need to be delivered to support this growth, but the Commission believes there is scope for the Thames Estuary to be even more ambitious in responding to London's ever growing housing need. Realising this ambition will require a coordinated delivery plan, which will in turn be dependent on strong, streamlined governance.

The resounding message from the consultation that the Commission has undertaken is that there is ambition in the Thames Estuary to deliver high-quality development and the best economic outcomes for people. However, the Commission believes that a 'business as usual' approach will not deliver growth at scale and pace; governance reform and new delivery models are needed.

The Commission believes that Government should work closely with local partners to determine the governance reform required to drive growth in the Thames Estuary. In the first instance, the Commission recommends that a **robust, locally-led review of governance arrangements be undertaken, to be concluded within six months**. This review should bring forward proposals for strong, streamlined governance arrangements to drive growth - particularly in Kent and Essex - but encompassing the whole area. In undertaking the review, local partners should draw on lessons learned from places that have secured City, Devolution and Growth Deals, attracted major private sector investment, and delivered significant change.

It is right that local partners should, in the first instance, define the governance reform needed to drive growth in the Thames Estuary. However, if robust proposals to reform governance and drive delivery are not forthcoming from local partners within six months, a more top-down approach will be required.

The Commission has undertaken extensive engagement over the past two years and carefully considered the case for the role of governance reform in driving growth in the area. The Commission believes that the optimal governance arrangements should include the following:

A single voice for the Thames Estuary through a strengthened and streamlined Thames Gateway Strategic Group (TGSG): The TGSG as presently constituted is ill-equipped to articulate a shared vision and strategy for the area. Local authorities should strengthen it by providing capacity funding and streamlining membership, so that it may speak to Government with a single voice on key strategic, Estuary-wide issues. Government should endorse the Chair of the TGSG, who would act as a single 'champion' for the Thames Estuary to spearhead collaboration and help make the case for inward investment.

The development of statutory Joint Spatial Plans in Kent and Essex: The Commission believes that, to enable the continued prioritisation of investment, statutory Joint Spatial Plans should be produced in Kent and Essex. The precise geography should be defined by local partners in the first instance as part of the locally-led governance review, building on existing collaborations and administrative boundaries. On this basis, there is a clear case for focusing a Joint Spatial Plan on south Essex, where work is already underway. The optimal geography for a Joint Spatial Plan in north Kent is less clear, and local authorities should work

toward agreeing a preferred geography within the next six months. The Plans should build consensus around areas of focus, continue to strengthen the growth narrative for the area, and package and prioritise key projects. This will enable more effective delivery and provide a stronger focus for attracting private sector investment. If these Plans demonstrate sufficient growth ambition - going above the minimum threshold set out by Government for local housing need; and being given statutory status - **Government should reward this ambition with substantial infrastructure investment and freedoms and flexibilities**. This could take the form of a 'roof tax', or other incentive to accelerate housing delivery and support growth.

A revision of the geographical boundaries of South East Local Enterprise Partnership (LEP): Analysis undertaken by the Commission suggests that the Thames Estuary is a tapestry of productive places, requiring tailored growth strategies. Through the locally-led governance review, local partners should bring forward proposals to revise the geographical boundaries of South East LEP. South East LEP is one of the biggest LEPs in the country, second only to London in terms of population and number of local authorities. The Commission suggests that local partners consider the formation of two new LEPs within the Thames Estuary, one for Essex, Southend-on-Sea and Thurrock, and another for Kent and Medway. Aside from geography, the Government review into strengthening LEPs should consider the best organisational structure for LEPs, and whether they are adequately resourced to drive growth.

Development corporation(s) with planning, and compulsory purchase powers to drive the delivery of homes and jobs aligned to major infrastructure investment: Whether these are locally-led should be dependent on the scale of the development. In addition, local partners should consider whether Homes England's full resources and powers, including plan-making and development control powers, should be deployed to maximise the local growth benefits of major infrastructure investments like the Lower Thames Crossing. The Commission believes that development corporations, backed by substantial investment, planning powers and freedoms and flexibilities from Government, and coordinated by a strengthened and streamlined TGSG would be an effective way to drive growth in the Thames Estuary in key opportunity areas across the Thames Estuary.

Strengthened governance arrangements for the River Thames itself: The creation of a co-ordination office or lead organisation could be more effective in maximising the potential of the River Thames.

In return for strengthened and streamlined governance arrangements, the Commission would like to see **revenue raising powers and tax (or other) incentives granted to the Thames Estuary** to drive delivery of infrastructure, housing and jobs.

The Commission's Priorities

The Commission believes that the fifteen priorities identified in this document are critical to achieving its vision for the Thames Estuary by 2050. The priorities for each 'productive place' should be pursued simultaneously so that their impact is maximised and they work together to provide 'whole place' solutions.

QUICK (BY 2020)

3. An Integrated Skills Strategy

5. Transport Innovation Zone

7. SE Foreshore Fund

9. Institute for Resilient Infrastructure

10. NK Foreshore Fund

11. Education and Skills

13. Great Thames Park

15. Celebrate the Thames

SHORT (BY 2024)

1. Accelerated Delivery Pilot

6. Medical Campus

8. SEC Relocation

12. Health Supercentre

MEDIUM (BY 2030)

2. Three New Thames Crossings

4. Extension of Crossrail 1

LONG (BY 2050)

14. Thames East Line

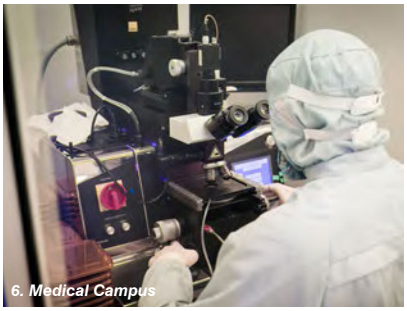

1. Accelerated Delivery Pilot


2. Three New Thames Crossings


3. An Integrated Skills Strategy


4. Extension of Crossrail 1


5. Innovation Zone


6. Medical Campus

7. SE Foreshore Fund


8. SEC Relocation

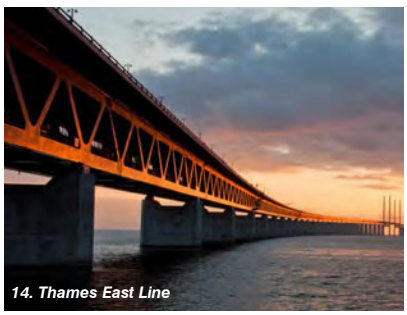

9. Institute for Resilient Infrastructure


10. NK Foreshore Fund


11. Education and Skills


12. Health Supercentre

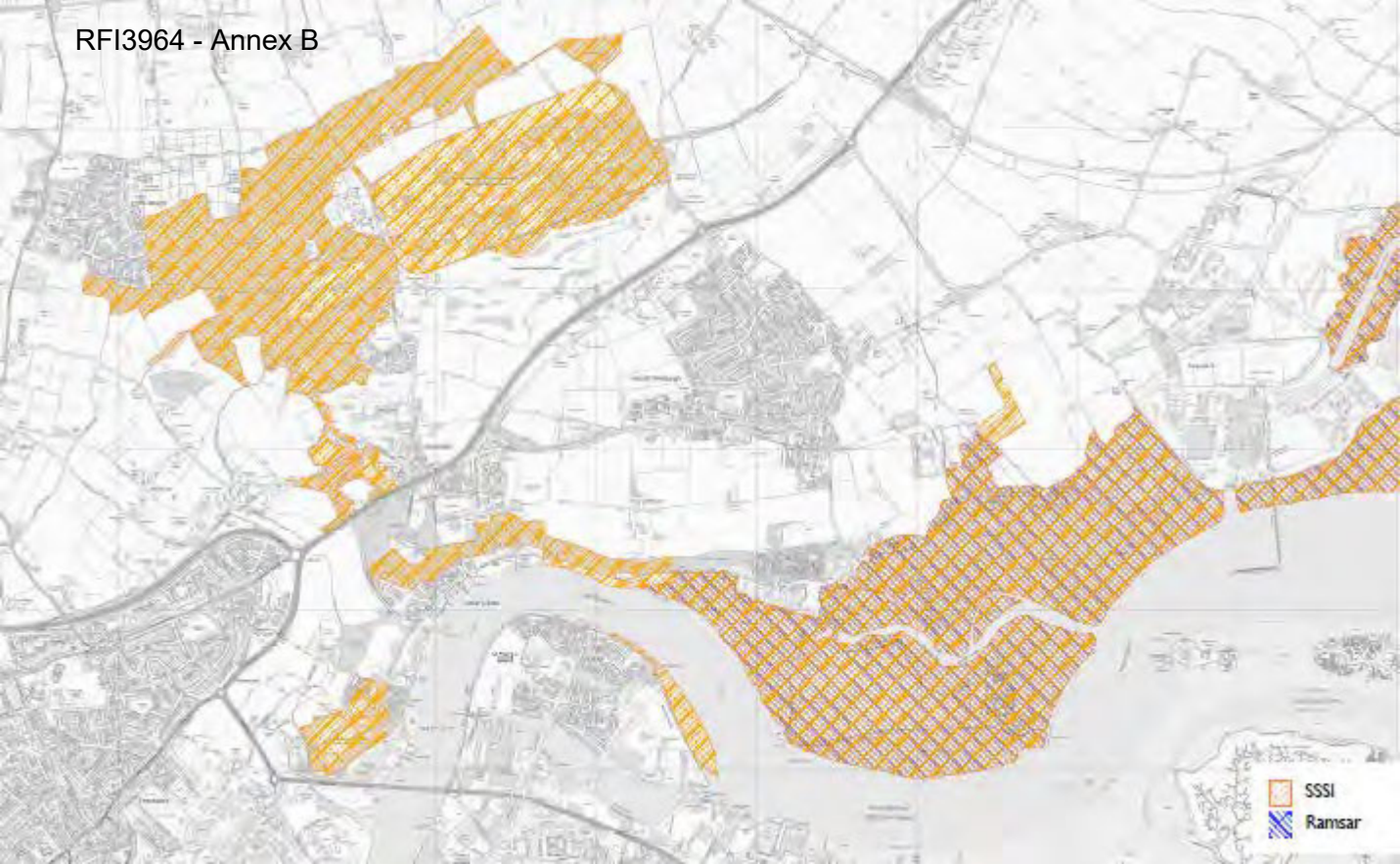

13. Access to the River


14. Thames East Line

15. Celebrate the Thames

ARUP

RFI3964 - Annex B



RFI3964 - Annex B

JOINT BOARD *Leader, Ward Member's rep, Parish Council's rep, Asst. Director, NRGG HoS, Hoo Consortium rep, Homes England, Department for Transport, Natural England, Gravesham Borough Council Member, MP*

Steering and Delivery Group *HIF Officers, Network Rail, DfT, CCG, Homes England, GBC Officer, Hoo Consortium rep,*

Thematic Delivery Group (RAIL) *HIF Officers, Network Rail, GBC, Parish, HC rep ...*

Thematic Delivery Group (ROAD) *HIF Officers, Network Rail, GBC, Portfolio holder, Parish, HC rep ...*

Thematic Delivery Group (Essential Additional Infrastructure) *HIF Officers, Parish, CCG, Health, Sports, NE, HC rep, RSPB ....*

Community Participation Group *HIF Officers, Parish Councils, RSPB ....*