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Department for Transport
Great Minster House
33 Horseferry Road
London SW1P 4DR
Telephone 0300 330 3000
Website www.gov.uk/dft
General enquiries https://forms.dft.gov.uk

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1. Introduction

1.1 The A303/A30/A358 corridor feasibility study was one of six such studies undertaken by the Department for Transport to look at problems and identify potential solutions to tackle some of the most notorious and long-standing road hot spots in the country.

1.2 The commitment to the studies was part of the biggest ever upgrade of the strategic national roads network, announced by the Government at the time of the 2013 Spending Review.

1.3 The studies have been progressed alongside the Highways Agency's Route Strategy programme, which is considering the current and future performance of the entire strategic road network, in order to inform future investment decisions.

1.4 This summary document for the A303/A30/A358 corridor feasibility study outlines: the study's aims and objectives; the current and likely future problems along the route; the development and assessment of potential investment options; the assessment of business cases for prioritised investment options; and the investment decisions and outcomes announced by the Government in its Road Investment Plan\(^1\).

\(^1\) https://www.gov.uk/government/collections/road-investment-strategy
2. Context

2.1 The A303 corridor fulfils an important role in connecting the South East and London with the South West region. It is dualled over much of its length but between the M3 motorway, A358 and A30 in Devon there remain several unimproved single carriageway sections which cause congestion, especially during summer months and at weekends. The A303 also passes through the Stonehenge World Heritage Site and the Cranborne Chase & West Wiltshire Downs and Blackdown Hills Areas of Outstanding Natural Beauty.

2.2 The corridor is made up of a mixture of single and dual carriageway all-purpose trunk road, with approximately 63% dual carriageway and 37% single carriageway. Speed limits vary between 40mph and 70mph. There are numerous at-grade and grade separated junctions and private property accesses along the length of the route.

2.3 Previous studies have proposed completing the dualling of the route. Together with improvements to the A358 between Ilminster and Taunton, this would create a ‘second strategic route’ into the South West in addition to the M4/M5. The Government recognises the importance of the A303 corridor in terms of its role in providing access to the South West, facilitating the movement of goods and people, and its contribution to the economic performance of the corridor.

2.4 The Department for Transport and the Highways Agency have worked closely with the South West local authorities. This included the analysis and business cases for potential investment. Recent work undertaken by a grouping of local authorities and Local Enterprise Partnerships produced an initial analysis and business case for future improvements to the A303 corridor. This provided a useful starting point for this feasibility study.
3. Study aims and objectives

3.1 The aim of the study was to identify the opportunities and understand the case for future investment solutions on the A303/A30/A358 corridor that are deliverable, affordable and offer value for money.

3.2 In terms of geographic scope, the study considered the length of the A303/A30 corridor from the junction between the A303 and M3 in the east near Basingstoke to the junction between the A30 and the M5 in the west at Exeter, a length of 115 miles. The geographic scope of the study also included the A358 from its junction with the A303 at Ilminster to its junction with the M5 in Taunton, a length of 9 miles.

3.3 The A303 passes through Stonehenge World Heritage Site, so as part of the study, the impact of any proposed work on this landscape of international heritage significance needed to be understood. The A303/A30 section also passes through both the Cranborne Chase & West Wiltshire Downs and Blackdown Hills Areas of Outstanding Natural Beauty.

Figure 1: The geographic scope of A303/A30/A358 feasibility study
3.4 The modal scope of the study was predominantly road-based but also considered the availability of rail services in the area. The study considered the details of performance and current investment proposals for the identified parts of the strategic road network, as well as the local authority road network, particularly the A358 which is the responsibility of Somerset County Council.

3.5 The objectives of the A303/A30/A358 corridor study were to:

- identify and assess the case, deliverability and timing of specific infrastructure investments that address existing issues and likely future problems on the A303/A30/A358 corridor;
- understand the balance of benefits and impacts from potential individual investment proposals and any additional benefits or impacts from an investment on a corridor basis;
- evidence where possible the wider economic benefits from the transport investment in the corridor;
- understand the impacts of potential investment in the A303/A30/A358 corridor on the performance of other road corridors in the South West region; and
- understand the impacts of the proposed investment in the A303/A30/A358 corridor on the resilience of the road network.

3.6 The study took place from spring to autumn 2014 and was undertaken by the Highways Agency and its consultants. The study process followed that in the Department for Transport’s guidance (WebTAG) for such studies and a stakeholder Reference Group was formed to ensure effective external involvement. This Reference Group acted as a sounding board and allowed the views of stakeholders to be captured and considered during the study process. The organisations represented on the group are listed in the Annex.
4. Current and future situation

4.1 The first part of the study involved reviewing evidence and analysis from other relevant study work to form a view as to the nature and scale of current and future performance on the A303/A30/A358 corridor. It also established both the availability of suitable transport models and the need to undertake additional transport modelling for the study.

4.2 Analysis of traffic data has shown that the corridor is used for many different journey purposes including commuting, leisure, business and retail. The highest traffic flows are found at the eastern and western extremities of the corridor with flows varying between 35,000 and 50,000 vehicles per day. The lowest flows are found on the A303/A30 section through the Blackdown Hills, with flows varying between 13,000 and 15,000 vehicles per day. Many of the sections in the middle of the corridor have flows between 20,000 and 25,000 vehicles per day, and typical HGV proportions are 10% which, bearing in mind the high variation in flow, indicates a relatively high proportion of local as well as longer distance HGV traffic.

4.3 Traffic flows along the whole corridor are significantly affected during the summer months with increases due to holiday traffic. The largest observed increase is on the A303/A30 section through the Blackdown Hills where an increase of up to 50% in traffic was observed, with other sections typically seeing an increase of the order of 20% to 30%.

4.4 On certain sections of the route the traffic flows can exceed the design capacity leading to congestion, delay and unreliable journey times. Many of the single carriageway sections of the route are over-capacity under normal conditions, including the Amesbury to Berwick Down section that passes through the Stonehenge World Heritage Site. Other single carriageway sections of the route are also over-capacity during the summer months.

4.5 The corridor was found to have a comparable safety record to other sections of the strategic road network. However, analysis of the safety data showed that the majority of the traffic incidents recorded along the corridor occurred on the single carriageway sections of the route.

4.6 Rail is by far the most significant alternative to road-based travel along the A303/A30/A358 corridor as there are limited coach and express bus operations. Although air routes exist, they are also limited, particularly with the closure of Plymouth Airport and current limited flight schedules to Newquay.
4.7 It can take a substantial period of time to get from London to Exeter and beyond by rail.\(^2\) The time taken for a road journey on a typical weekday between the centres of Exeter and London is either comparable or longer in duration\(^3\), especially during weekend and holiday peaks. However, the vast majority of those travelling appear to need a car at the destination end and therefore drive.

4.8 A lack of convenient and efficient road-rail transfer and interchange facilities within the corridor also hampers modal transfer or bi-modal travel for trips within the corridor.

4.9 The SWARMMS study conducted in 2002 was the last to comprehensively consider the A303/A30/A358 corridor in its entirety including all modes and modal transfer and travel demand possibilities. Despite recommending a preferred strategy that featured significant upgrading of both rail and road provision between London and Exeter\(^4\), the SWARMMS study also concluded that whilst there is a degree of interaction between rail and road within the corridor, the extent to which they ‘compete’ for the same travellers is relatively small.\(^5\)

4.10 There are growth proposals in the Exeter, Taunton, Yeovil, Amesbury and Andover areas which may impact on corridor flows. Taken together, the planned developments for the South West amount to over 200,000 new homes and 150,000 jobs by 2031, which is estimated to increase congestion along the route.

4.11 These specific growth proposals, together with general forecast increases in traffic along the corridor, mean that the issues of congestion, delay and safety on the single carriageway sections are likely to be exacerbated.

4.12 Due to the length of the A303/A30/A358 corridor, the decision was taken to focus further stages of the study work on those sections of the route that experience the worst conditions in terms of congestion and delay, reliability of journey times and safety. These sections were:

- A303 between Amesbury and Berwick Down;
- A303 between Chicklade Bottom and Mere;
- A303 between Sparkford and Ilchester;
- A303 between South Petherton and Southfields; and
- A303/A30 between Southfields and Honiton, including consideration of the A358.

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\(^2\) SWARMMS cited the following: Exeter-Waterloo 3hrs 25mins via Yeovil and Exeter-Paddington via Taunton and Reading 2hrs 20mins. National Rail’s journey planner confirms both journey times.

\(^3\) SWARMMS cited 3hrs 15mins. Google maps confirms this journey time.


4.13 The data collection and identified problems and issues informed the definition of a set of intervention-specific objectives that were used to assess potential options to improve the route:

- **Support economic growth**: facilitate growth in employment and housing in key locations and hotspots along the corridor;
- **Capacity**: reduce delay and queues that occur during peak hours and seasonal times of the year;
- **Resilience**: improve the resilience of the route such that the number of incidents and the effect of accidents is reduced;
- **Safety**: reduce the number of collisions on the A303/A358/A30 corridor;
- **Connectivity**: improve the connectivity of the South West to the rest of the UK, to reduce peripherality and improve business and growth prospects; and
- **Environmental**: avoid unacceptable impacts on the surrounding natural environment and landscape and optimise the environmental opportunities and mitigation that the intervention could bring.
5. Investment options

5.1 Following the identification of problems on the route, the study reviewed previous work to identify infrastructure proposals that could address the problems. A range of potential investment proposals and combinations of proposals was considered, initially building on work done to date on potential proposals, rather than completing a fresh process of identification of investment proposals.

5.2 The study drew upon a range of related work in term of studies or strategies for the A303 corridor, including the 2002 London to South West and South Wales Multi-Modal Study (SWARMMS) and Somerset County Council's A303 Corridor Improvement Programme work. The study also captured details of potential investment proposals emerging from the first phase of the Highways Agency's South West Peninsula Route Strategy which was published in April 2014.

5.3 The option generation process identified an initial long list of highway interventions for each section of the corridor. This ranged from small-scale operational interventions such as reduction in speed limits and right-hand turn provisions, together with large-scale interventions such as dualling proposals and bypasses. The next stage was then to use the Department’s Early Assessment and Sifting Tool to qualitatively score and assess each option.

5.4 A small number of better performing options were then identified. These were taken forward for more detailed assessment against the DfT’s Option Assessment Framework, with evidence presented against the best practice Treasury five case model (the strategic, economic, financial, management and commercial cases):

- **A303 between Amesbury and Berwick Down**
  - Part on-line, part off-line dual carriageway with tunnel
  - Off-line dualling to the north of existing route

- **A303 between Chicklade Bottom and Mere**
  - Combination of on-line and off-line widening

- **A303 between Sparkford and Ilchester**
  - Combination of on-line and off-line widening

- **A303 between South Petherton and Southfields**
  - On-line dualling

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- A303/A30 between Southfields and Honiton, including the A358
  - Improvements on A303/A30 between Honiton and Rawridge Hill, Rawridge Hill and Stopgate Cross and Eagle Tavern and Broadway
  - Dualling the A358
  - Combination of the two above

5.5 All options scored beneficially against the majority of strategic and objective goals, with the larger-scale dualling options scoring the highest. However, these larger-scale options tended to score lower on deliverability, particularly when considered against environmental factors. This was due to the extent of engineering works required and the impact that this could have on the surrounding landscape and environment.

5.6 Based on the assessment against DfT’s Option Assessment Framework, all options were prioritised for more detailed work. Together with the individual options above, an assessment of the case for full dualling of the route was also taken forward for further development.
6. Investment cases

6.1 The affordability, value for money (VfM) and deliverability of the prioritised proposals were then assessed. The study used the Department’s transport appraisal guidance and considered the benefits and business cases for each of the transport investment proposals, as well as the cumulative or additional benefits and impacts from investment in the corridor as a whole.

6.2 The appraisal conducted was appropriate to the early stage of development of the proposals and will be developed further to ensure a full understanding of the impacts of the proposals and value for public money. An explanation of the way DfT assesses VfM can be found in the VfM note7.

Entire route options

6.3 The study looked at the costs, benefits and impacts of dualling all remaining single carriageway sections of the A303 between its junction with the M3 in the east and the A358 in the west. This option included proposals for a 1.8 mile tunnel as the road passes Stonehenge, dualling of all remaining single carriageway sections of the A303 between the M3 and the junction with the A358, plus grade-separation of several junctions and dualling of the A358.

6.4 This proposal was found to perform well against the objectives, as it will improve connectivity and access to the South West, improving the resilience of the strategic road network in the region and helping to promote economic growth.

6.5 This also provided a good strategic fit to Department for Transport, Highways Agency, Local Authority and Local Enterprise Partnership objectives, and would help stimulate economic growth in the area by providing a second dual carriageway link to the South West.

6.6 However, this would have adverse impacts on biodiversity and landscape, particularly where the route is off-line. Dualling would also affect the Cranborne Chase & West Wiltshire Downs Area of Outstanding Beauty and would have adverse impacts on landscape in that area. Dualling of the entire route with tunnelling would have some beneficial impacts on biodiversity and landscape in other sections of the route, in particular along the Amesbury the Berwick Down section as the route passes Stonehenge.

6.7 The case for this proposal suggests, at this early stage of business case development, high to very high value for money.

The modelling suggests that the value for money of upgrades to the entire route is higher than we might expect when considering the schemes individually. This is because individual schemes, as listed below, need to be considered in the context of the other route improvements. Those which do not appear to offer value for money as stand-alone investments may be worthwhile enhancements, once other parts of the route have been upgraded.

Amesbury to Berwick Down options

In terms of the Amesbury to Berwick Down section, the study looked at the costs, benefits and impacts of three individual options:

- Part on-line, part off-line dual carriageway with 1.6 mile tunnel;
- Part on-line, part off-line dual carriageway with 1.8 mile tunnel; and
- Off-line dualling to the north of the existing route.

Each option also included a bypass of Winterbourne Stoke and grade separated interchanges at Countess Roundabout and the A360 junction.

To inform their position, English Heritage and the National Trust commissioned a piece of work to assess the impacts of the options on the Stonehenge World Heritage Site. The assessment found that a twin-bored tunnel of between 1.6 miles and 1.8 miles, if designed well, could have a beneficial impact on the Outstanding Universal Value of the Stonehenge World Heritage Site. This was based on removing the surface road and minimising the harmful impacts of any tunnel scheme which lies within the boundaries of the World Heritage Site. The work also found that the off-line dualling option would have a large adverse impact on the Outstanding Universal Value of the Stonehenge World Heritage Site.

Both tunnel options were found to perform well against the objectives, as they will improve connectivity and access to the South West, therefore improving the resilience of the strategic road network in the region and helping to promote economic growth. Both tunnel options also provide a good strategic fit to Department for Transport, Highways Agency, Local Authority and Local Enterprise Partnership objectives. These were aligned with the aim in the Stonehenge World Heritage Site Management Plan 2009 to reduce the impacts of intrusive features on the Outstanding Universal Value of the Heritage Site, including the A303.

The off-line dualling to the north of the existing route performed well against some objectives, helping to improve journey times and connectivity. However, it would have an adverse impact on biodiversity and the landscape and historic environment of the World Heritage Site.

Taken in isolation, the 1.6 mile tunnel was found to have a poor to low benefit to cost ratio and the 1.8 mile tunnel was found to have a poor benefit to cost ratio based on the monetised assessment of travel time savings and reliability. This did not consider the large benefit to the

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World Heritage Site of a tunnel option and this needs to be factored into further considerations regarding value for money. Furthermore, this assessment does not consider interactions with upgrades to other parts of the route, which may bring further travel time benefits. Therefore, the value for money of the tunnel options remains uncertain at this early stage of development and needs to be viewed in this wider context.

6.15 The off-line dualling option was found to have poor to medium value for money taking into consideration both the monetised assessment of travel time savings and reliability and the adverse impact on the World Heritage Site.

Chicklade Bottom to Mere options

6.16 In terms of the Chicklade to Mere options, the study looked at the costs, benefits and impacts of a combination of on-line and off-line widening, which would include grade separated junctions and a bypass of the village of Chicklade.

6.17 This proposal was found to perform well against some of the objectives, as it will improve connectivity and access to the South West region, therefore improving the resilience of the strategic road network in the region and helping to promote economic growth. It will also help to reduce delay and congestion on this section, leading to a reduction in incidents. This option will however have adverse impacts on the landscape and environment of the Cranborne Chase & West Wiltshire Downs Area of Outstanding Natural Beauty and adverse impacts in terms of noise emissions.

6.18 This option provides a good strategic fit to Department for Transport, Highways Agency, Local Authority and Local Enterprise Partnership objectives and visions.

6.19 This proposal was found to demonstrate poor value for money at this stage. The assessment took account of both the monetised assessment of travel time savings and reliability and the adverse environmental impact on the Cranborne Chase & West Wiltshire Downs Area of Outstanding Natural Beauty.

Sparkford to Ilchester options

6.20 In terms of the Sparkford to Ilchester options, the study looked at the costs, benefits and impacts of a combination of on-line and off-line widening, including grade separated interchanges.

6.21 This proposal was found to perform well against some of the objectives, as it will improve connectivity and access to the South West region, therefore improving the resilience of the strategic road network in the region and helping to promote economic growth in the region. It will also help to reduce delay and congestion on this section, also leading to a reduction in incidents. This option will however have an adverse impacts on landscape and biodiversity where the route goes off-line.

6.22 This option also provides a good strategic fit to Department for Transport, Highways Agency, Local Authority and Local Enterprise Partnership's own objectives and visions.
The assessment of this proposal at this stage, suggests a high to very high value for money case.

South Petherton to Southfields options

In terms of the South Petherton to Southfields options, the study looked at the costs, benefits and impacts of online dualling including bridge widening and a grade separated interchange at Hayes End.

This proposal was found to perform well against some of the objectives, as it will improve connectivity and access to the South West region, therefore improving the resilience of the strategic road network in the region and helping to promote economic growth in the region. It will also help to reduce delay and congestion on this section, also leading to a reduction in incidents. This option will however have some adverse environmental impacts due to an increase in overall noise emissions.

This option also provides a good strategic fit to Department for Transport, Highways Agency, Local Authority and Local Enterprise Partnership objectives and visions.

The assessment of this proposal at this stage, suggests a poor to low value for money case.

Southfields to Honiton options, including consideration of the A358

In terms of Southfields to Honiton options, the study looked at the costs, benefits and impacts of three individual options:

- A303/A30 improvements between Honiton and Broadway (Honiton to Rawridge Hill, Rawridge Hill to Stopgate Cross and Eagle Tavern to Broadway). This includes part on-line, part off-line improvements to create overtaking opportunities, improve junctions and bypass the village of Monkton;
- Dualling of the A358 which will include grade-separated interchanges and a bypass south of Henlade; and
- Combination of both options above.

Both the A303/A30 and the A358 options provide a good strategic fit to Department for Transport, Highways Agency, Local Authority and Local Enterprise Partnership objectives and visions. Both were also found to perform well against the objectives, as they will improve connectivity and access to the South West region, therefore improving the resilience of the strategic road network in the region and helping to promote economic growth in the region.

The A303/A30 improvements pass through the Blackdown Hills Area of Outstanding Natural Beauty and were therefore found to have an adverse impact on landscape and biodiversity. Although the improvements considered were not full dualling proposals, they would involve the provision of an extra lane.

The A358 dualling option would also include an off-line bypass of Henlade which would have adverse impacts on landscape. However, the A358 dualling option was found to have a greater impact on improving journey times and reliability than the A303/A30 option.
6.32 At this stage of assessment, the A303/A30 improvement option was considered to have a low to medium value for money case, taking into consideration both the monetised assessment of travel time savings and reliability and the adverse impact on the Blackdown Hills Area of Outstanding Natural Beauty. The A358 dualling option was considered to represent very high value for money and when both improvements were considered as a package they were also considered to represent very high value for money.

Summary

6.33 Improvement options for five different sections of the A303/A30/A358 corridor were developed. The value for money of each option was assessed, which included consideration of both the impacts that can be expressed in monetary terms and those which have been assessed qualitatively.

6.34 At this stage, the whole route improvement, including dualling of the A358 and the provision of a 1.8 mile tunnel as the road passes Stonehenge, was found to represent high to very high value for money. The whole route option also had the greatest impact in terms of improving journey times and reliability for users and also has the biggest impact in terms of encouraging economic growth in the region due to the fact that it would provide a second reliable strategic route to the South West.

6.35 There were two other improvements which were found to perform well in terms of value for money: improvements to the A358 and to the A303 between Sparkford and Ilchester. Other options, including proposals for Chicklade to Mere and for improvements to the A303/A30 between Southfields and Honiton were found to perform less well in terms of value for money, with adverse impacts on the landscape where the proposals would pass through Areas of Outstanding Natural Beauty.

6.36 The value for money of the tunnel option at Stonehenge is uncertain due to the fact that the impacts on the World Heritage Site were assessed qualitatively. Both the National Trust and English Heritage consider that a twin-bored tunnel of somewhere between 1.6 miles and 1.8 miles, if designed well, could have a beneficial impact on the Outstanding Universal Value of the Stonehenge World Heritage Site.
7. Study outcomes

7.1 Following completion of the study work and consideration of the potential investment options, the Government has committed to take forward an overall investment package of around £3.5 billion for the six feasibility studies.

7.2 The need to tackle the difficult issues that exist along this route is well recognised, including the proximity of a congested road to the Stonehenge World Heritage Site. The Government has made a long-term commitment worth £2 billion to upgrade all remaining single-carriageway sections of A303 between the M3 and the A358 to dual carriageway standard together with providing a dual carriageway link from the M5 at Taunton to the A303. We intend to start this process with three major improvements which were announced as part of the Road Investment Strategy in December 2014. These will be developed sensitively and with due care and consideration given to the surrounding environment:

- **A303 Amesbury to Berwick Down dualling** – construction of a tunnel of at least 1.8 miles long as the road passes Stonehenge and a bypass for Winterbourne Stoke to link the existing dual carriageway section around Amesbury with the dual carriageway at Berwick Down.

- **A303 Sparkford to Ilchester dualling** – dualling of the 3 mile single carriageway section of the A303 between Sparkford and Ilchester.

- **A358 Taunton to Southfields dualling** – creating a dual carriageway link from the M5 at Taunton to the A303.

7.3 We will also set aside funding for smaller-scale improvements to the A303/A30 section between Southfields and Honiton. This will improve safety and journey quality for road users recognising that large scale improvements would be challenging given the protected landscape and topography surrounding the route. This includes some small-scale work in the Blackdown Hills Area of Outstanding Natural Beauty which will take account of the environmental sensitivity of the area.

7.4 Full implementation of these proposals will run beyond the first Road Period, and we intend that subsequent Road Investment Strategies will fund the remaining improvements.

7.5 These proposals will require further work, engagement and consultation in order to reach agreement on the specific details of the proposals. Any schemes progressed will require completion of the necessary statutory planning process and the continued development of business cases and demonstration of value for money.
Figure 2: Outcomes from the A303/A30/A358 corridor feasibility study
Annex: Reference Group Members

Local Highway and Planning Authorities:
Devon County Council
Dorset County Council
Hampshire County Council
Plymouth City Council
Somerset County Council
Torbay Council
Wiltshire County Council

Local Enterprise Partnerships:
Cornwall and Isles of Scilly LEP
Dorset LEP
Heart of the South West LEP
Solent LEP
Swindon and Wiltshire LEP
West of England LEP

Statutory Bodies:
English Heritage
Natural England

Other organisations:
Blackdown Hills Area of Outstanding Natural Beauty
Campaign for Better Transport
Campaign to Protect Rural England
Devon and Cornwall Business Council
International Council on Monuments and Sites
National Trust
Somerset Chambers of Commerce
Travel Watch South West
The Wildlife Trusts

Members of Parliament:
David Heath MP
John Glen MP