A14 Study Output 2

Options Recommended for Further Assessment - Appendices

Department for Transport

May 2012

ATKINS

Plan Design Enable

THIS PAGE IS BLANK

Table of contents

Chapter

THIS PAGE IS BLANK

Appendix A. Study Governance

A.1. Study Steering Group

The Study Steering Group has ownership of the study objectives. It is chaired by DfT Director of Roads. It will meet to review outputs and then as necessary (likely to be infrequent) to monitor, and ensure, progress. Additional members may be invited to attend by the Chair of the SSG in an observatory or advisory role and to report on progress of relevant studies as appropriate.

Membership comprises:

- DfT Director of Roads (Chair)
- Greater Cambridge Greater Peterborough LEP Chair (Vice Chair)
- Senior HA representative
- DfT Sub-National Policy and Delivery Deputy-Director
- DfT Analytical representative (to provide advice on modelling, appraisal and analysis)
- DfT Freight representative
- Cambridge City Council Leader/Portfolio holder
- Cambridgeshire County Council Leader/Portfolio Holder
- Huntingdonshire District Council Leader
- South Cambridgeshire District Council Leader
- South East Midlands LEP representative
- New Anglia LEP representative
- Representative from Suffolk CC
- Representative from Northamptonshire CC
- Hutchison Ports – Senior Executive
- External expert adviser

The Study Steering Group is supported by:

- DfT SRO and Head of DfT Roads Policy Division
- DfT Project Manager
- GCGP LEP officer representative

A.2. Project Board (PB)

The Project Board has week to week control of the study, likely to meet regularly every 4 weeks. Additional members may be invited to attend by the Chair of the PB in an observatory or advisory role and to report on progress of relevant studies as appropriate. The Core Project Board members (indicated in bold) are expected to attend every meeting, the Wider Project Board members will get all relevant papers, will be invited to attend meetings where relevant issues are to be discussed and may request to attend meetings they feel are relevant.

Membership comprises:

- **DfT SRO and Head of DfT Roads Policy Division**
- **DfT project manager**. Responsible for day to day contact with the Consultant, including issuing instructions, and for coordinating any DfT/OGD input into the study.
- DfT rail freight representative
- DfT Freight Policy and Lorry Charging Division representative
- DfT analytical representative
- **Highways Agency representative**
- Cambridge City Council representative
- **Cambridgeshire County Council representative**
- **Greater Cambridgeshire and Greater Peterborough LEP representative**

- Huntingdon District Council representative
- South Cambridgeshire District Council representative
- **Northamptonshire CC representative**
- **Suffolk CC representative**
- **Haven Gateway Partnership**
- Freight Transport Association
- Network Rail representative
- Environmental representative

Appendix B. Social and Distributional Impacts

B.1. Introduction

The vulnerable groups assessed are drawn from Department's Guidance on Transport Innovation Funds (TAG Unit 3.12.4) and aim to cover groups affected by the following characteristics of a scheme:

- High levels of **noise** are experienced adjacent to busy transport corridors. The evidence suggests that children are vulnerable to high levels of noise, which affects their concentration when learning;
- Similarly, poor **air quality** is also experienced in areas adjacent to busy and congested road corridors, which often pass through deprived urban areas. Whilst it is well understood that poor air quality has serious health implications, particularly respiratory disease, there is limited evidence on the social groups that are at particular risk;
- Children and older people are at particular risk from **accidents** on the road network (as pedestrians), whilst young male drivers and motorcyclists are also high risk groups. There is also a clear link between pedestrian accidents and social class: children from Social Class V are five times more likely to be involved in fatal accidents than those from Social Class I;
- Certain groups of people have particular concerns about their **personal security** when using the transport network, including women (who value the ability to call for help if needed), younger people (who fear bullying), older people (many of whom wish to see greater control of youth behaviour) and disabled people (who often feel vulnerable to bullying and verbal abuse);
- **Severance** of communities by traffic and transport infrastructure is a particular problem for people without access to a car, some older people, people with disabilities, and school children, because they are often reliant on walking in the local community and in some cases have restricted mobility;
- **Accessibility** to services is often a particular problem for young people living in rural areas (access to further education and employment), school children (availability of school buses), some older people (physical mobility in boarding / alighting and on board the vehicle), disabled people (physical accessibility and lack of information), black and minority ethnic (BME) communities (routes to specialist shopping centres or places of worship) and carers (who have complex travel needs);
- The **affordability** of transport (both in terms of public transport fares and the costs of running a car) is often a problem for young people and low income households, particularly for travel to employment and education; and
- Low-income households and deprived communities often do not benefit from the **transport user** benefits resulting from improvements to the transport system if they are not users of the network, either because they do not have access to a car or have limited travel horizons in their use of public transport.

Social and Distributional Impacts (SDI) data, including Indices of Multiple Deprivation (IMDs), are available at Lower Super Output Area and Output Area levels. These data have been disaggregated to a postcode level to facilitate further interrogation.

B.2. Public Transport SDI Analysis

B.2.1. Approach

The core components for two bus route packages were mapped and a 1km buffer drawn around each of these (shown in the maps in Section B.2.2). Analysis of the SDI data was carried out for each of the proposed packages.

B.2.2. Maps of the Schemes

Figure B.1 Citi5 Bus Route

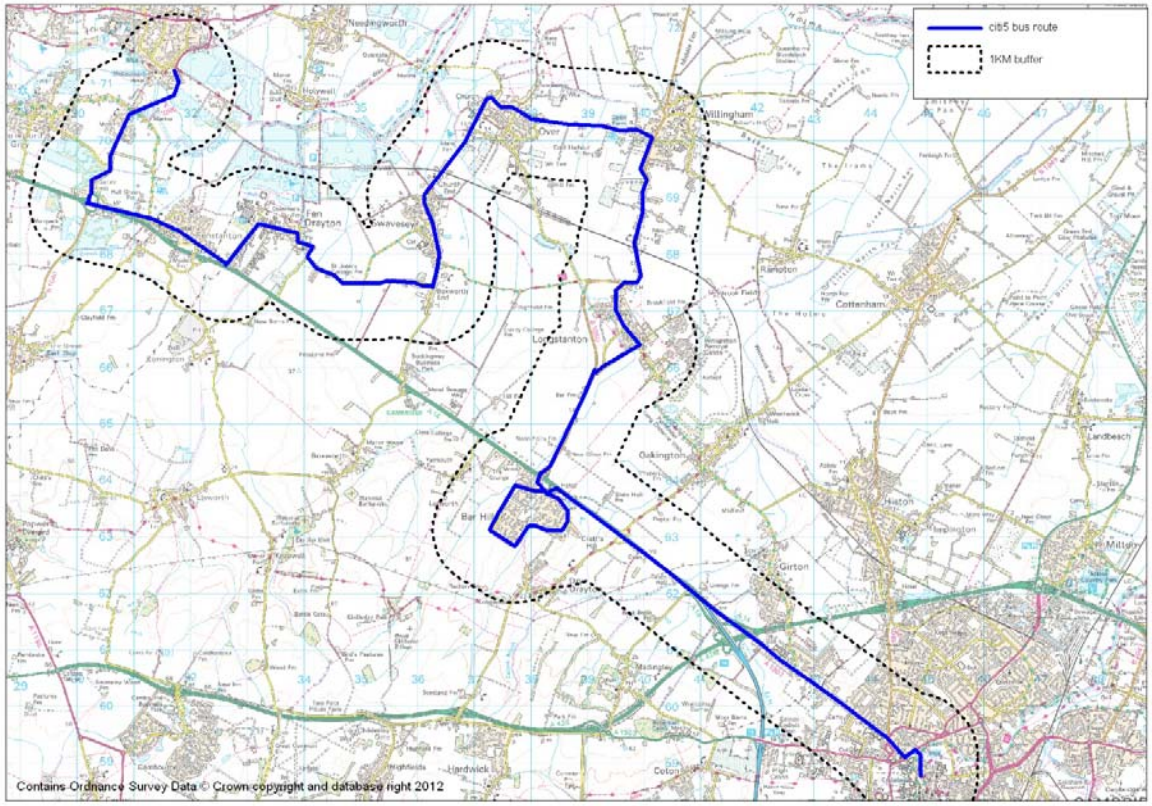
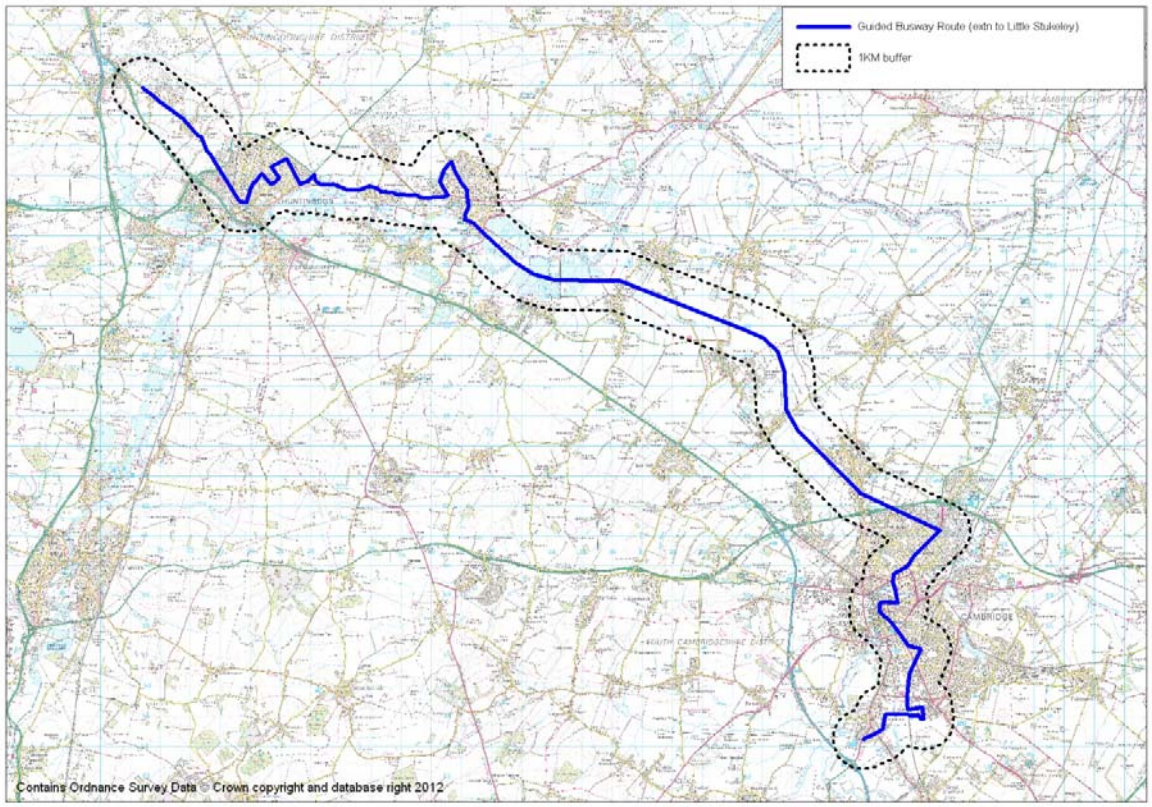


Figure B.2 Guided Busway Route



B.2.3. Lower Super Output Area

10% of the population of Cambridgeshire falls within the top 20% most deprived in the country. Of the population living within 1km of the citi5 route, none falls into that category. The 1km buffer of the Guided Busway route (with extension to Little Stukeley) includes a greater population, of which 2.5% falls into the top 20% IMD.

The proportion of Jobseekers Allowance claimants were lower in both the package area 1km buffers (1% and 1.7%) than Cambridgeshire as a whole (1.9%).

The proportion of Disability Living Allowance claimants were also lower than the Cambridgeshire total (4.3%).

Table B.1 A14 Packages: Lower Super Output Area SDI Data

	Population*	Pop within top 20% IMD (2010 Overall)	Pop within top 20% IMD (2010 Income)	Jobseekers Allowance Claimants % (2011)	Disability Living Allowance Claimants % (2011)
Cambridgeshire	**708726**	**9.8%**	**8.2%**	**1.9%**	**4.3%**
citi5	50665	0%	0%	1.0%	2.3%
Guided Busway	116129	2.5%	2.6%	1.7%	3.5%

*Apart from Cambridgeshire, population data is within a 1km buffer of Package

B.2.4. Output Area

The postcode data for each of the package buffers was compared to vulnerable groups within Cambridgeshire as a whole. This is noted in Table B.2, where the following colour coding has been used to indicate the difference to Cambridgeshire proportions:

>10% more
>5% less
+-5%
>5% more
>10% more

The communities within 1km buffer of both of the packages show similar proportions of Females and Age 65+. The proportion of Young People within the package areas was higher than Cambridgeshire as a whole; and the Guided Busway package had an increased proportion of households without a car, and of BME (Black and Ethnic Minority) to that of Cambridgeshire.

Table B.2 A14 Packages: Output Area SDI Data

	Pop	House-holds	Females %	Young Males %	Under 16%	65+ %	% BME	% No Car Households	% Young People (16-25)
Cambridgeshire	**708704**	**288319**	**51%**	**7%**	**20%**	**15%**	**5%**	**20%**	**13%**
citi5	50797	18817	49%	13%	15%	12%	4%	21%	25%
Guided Busway	116364	46234	50%	10%	17%	12%	8%	27%	21%

*Apart from Cambridgeshire, population data is within a 1km buffer of Package

B.3. Highway SDI Analysis

B.3.1. Approach

The core components for twenty-one packages were mapped and a 1km buffer drawn around each of these. Analysis of the SDI data was carried out for each package.

B.3.2. Lower Super Output Area

At a Lower Super Output Area, none of the package buffers had any population within the top 20% most deprived areas (this is compared to 10% overall in Cambridgeshire).

The proportion of Jobseekers Allowance claimants were lower in all the package area 1km buffers (0.8 – 1.5%) than Cambridgeshire as a whole (1.9%).

The proportion of Disability Living Allowance claimants were generally lower than the Cambridgeshire total (4.3%) apart from a very slight increase to 4.4% in Package G(part)J(d) and G(part)J(r).

Table B.3 A14 Packages: Lower Super Output Area SDI Data

	Population*	Pop within top 20% IMD (2010 Overall)	Pop within top 20% IMD (2010 Income)	Jobseekers Allowance Claimants % (2011)	Disability Living Allowance Claimants % (2011)
Cambridgeshire	**708726**	**69670 (10%)**	**58394 (8%)**	**1.9%**	**4.3%**
ACR	23260	0	0	1.5%	3.2%
TACR	25219	0	0	1.4%	3.2%
HACR	23578	0	0	1.5%	3.2%
CR	7262	0	0	0.8%	2.1%
TCR	13269	0	0	1.0%	2.4%
DS	7485	0	0	0.8%	2.1%
TDS	13493	0	0	1.0%	2.4%
HDS	9916	0	0	0.9%	2.4%
E*S	14610	0	0	1.1%	2.6%
ECR	14610	0	0	1.1%	2.6%
GB*CR(d)	9911	0	0	0.8%	2.2%
GB*CR(r)	9911	0	0	0.8%	2.2%
GDS(d)	9960	0	0	0.8%	2.2%
GDS(r)	9960	0	0	0.8%	2.2%
GPR(d)	19674	0	0	1.5%	3.5%
GPR(r)	19674	0	0	1.5%	3.5%
F	13326	0	0	1.3%	3.2%
GL	11027	0	0	1.0%	2.5%
G(part)J(d)	8665	0	0	1.3%	4.4%
G(part)J(r)	8665	0	0	1.3%	4.4%
K	11607	0	0	1.4%	3.9%

*Apart from Cambridgeshire, population data is within a 1km buffer of Package

B.3.3. Output Area

The postcode data for each of the package buffers was compared to vulnerable groups within Cambridgeshire as a whole. This is noted in Table B.4, where the following colour coding has been used to indicate the difference to Cambridgeshire proportions:

>10% more
>5% less
+-5%
>5% more
>10% more

The communities within 1km buffer of each of the packages show similar proportions of Women, Young Males, Under 16s, Young People, Age 65+ and BME (Black and Ethnic Minority) to that of Cambridgeshire as a whole.

The package areas all show lower proportions of households without a car: particularly F and K.

Table B.4 A14 Packages: Output Area SDI Data

	Pop	House-holds	Females %	Young Males %	Under 16%	65+ %	% BME	% No Car Households	% Young People (16-25)
Cambridgeshire	**708704**	**288319**	**51%**	**7%**	**20%**	**15%**	**5%**	**20%**	**13%**
ACR	23159	9682	51%	6%	20%	13%	4%	17%	12%
TACR	25095	10473	51%	6%	20%	13%	4%	16%	12%
HACR	23340	9763	51%	6%	20%	14%	4%	17%	12%
CR	7240	2862	51%	8%	18%	15%	5%	11%	15%
TCR	13174	5172	50%	6%	21%	11%	5%	10%	13%
DS	7467	2953	51%	8%	18%	15%	5%	11%	15%
TDS	13401	5263	50%	6%	21%	11%	5%	10%	13%
HDS	9754	3820	50%	7%	20%	12%	5%	10%	14%
ES	14523	5880	51%	6%	20%	14%	4%	14%	12%
ECR	14523	5880	51%	6%	20%	14%	4%	14%	12%
GBCR(d)	10033	3945	51%	7%	19%	15%	4%	11%	13%
GBCR(r)	10033	3945	51%	7%	19%	15%	4%	11%	13%
GDS(d)	10080	3965	51%	7%	19%	15%	4%	11%	13%
GDS(r)	10080	3965	51%	7%	19%	15%	4%	11%	13%
GPR(d)	19534	8268	51%	6%	19%	16%	4%	18%	7%
GPR(r)	19534	8268	51%	6%	19%	16%	4%	18%	12%
F	12783	4956	51%	7%	20%	15%	4%	8%	12%
GL	11239	4445	51%	6%	19%	16%	4%	11%	13%
G(part)J(d)	8237	3182	51%	6%	22%	13%	5%	11%	11%
G(part)J(r)	8237	3182	51%	6%	22%	13%	5%	11%	11%
K	11067	4272	50%	6%	21%	12%	3%	9%	11%

*Apart from Cambridgeshire, population data is within a 1km buffer of Package

B.3.4. Maps

The above data is shown on the following maps, with the percentages of each group coloured as a proportion of the total population of the particular Output, or Lower Super Output, Area.

Figure B.3 Young People (16-25)

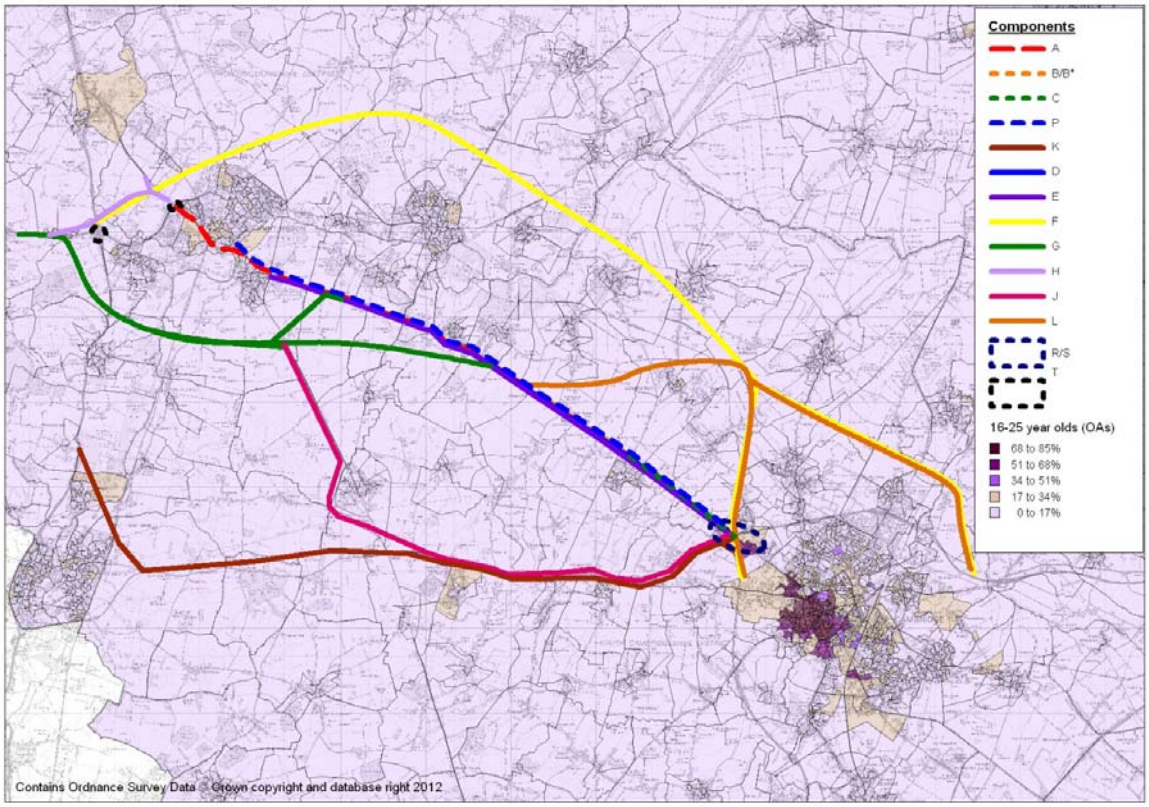


Figure B.4 Proportion Aged 65+

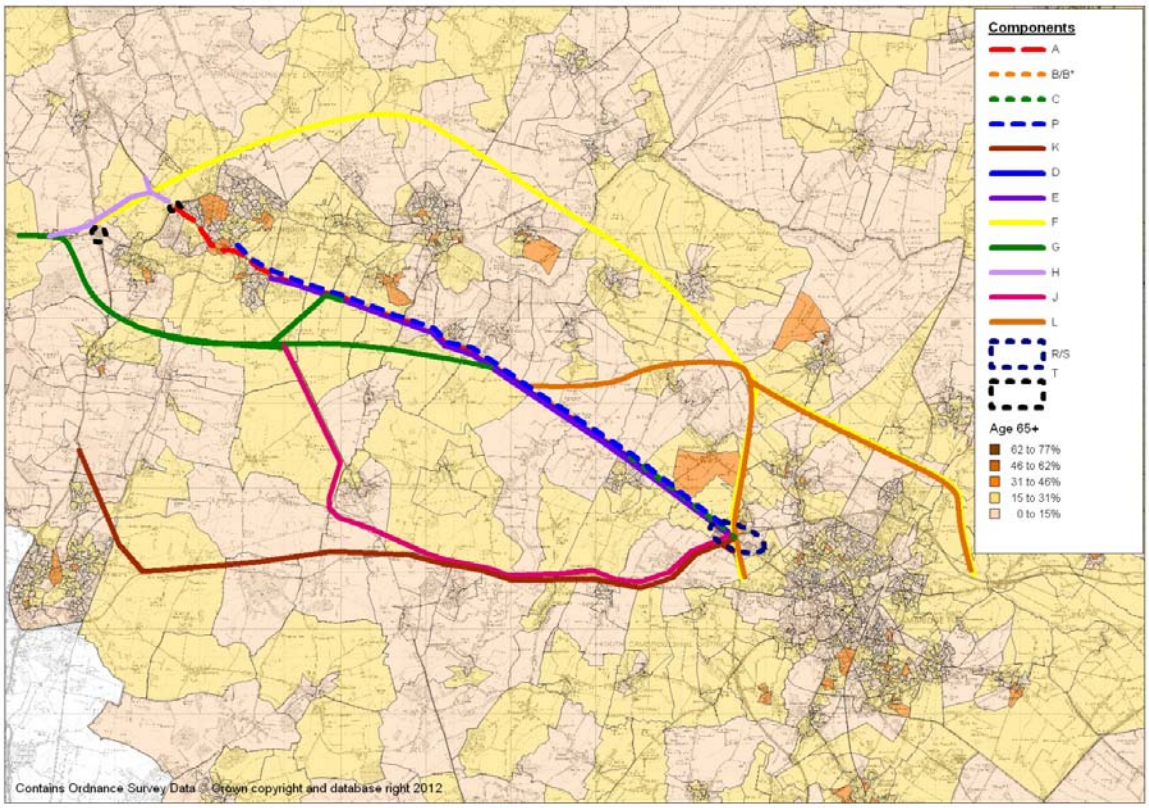


Figure B.5 Proportion of Females

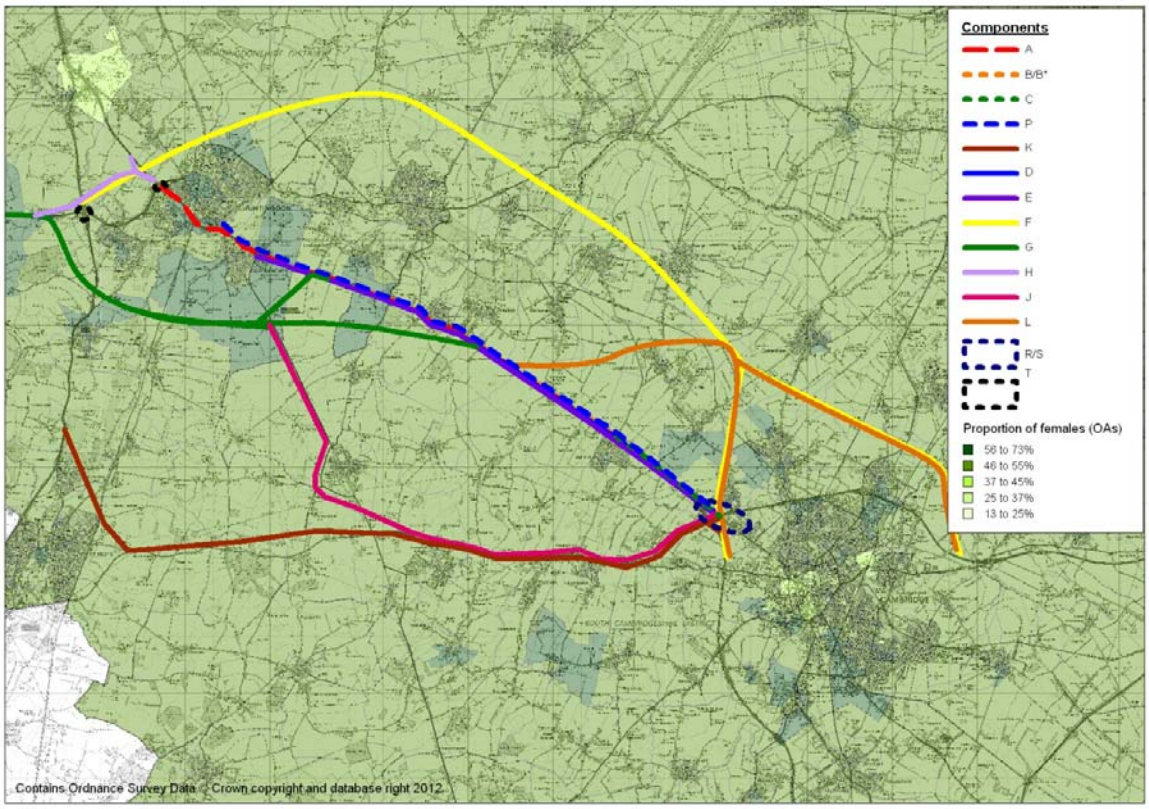


Figure B.6 Proportion of No Car Households

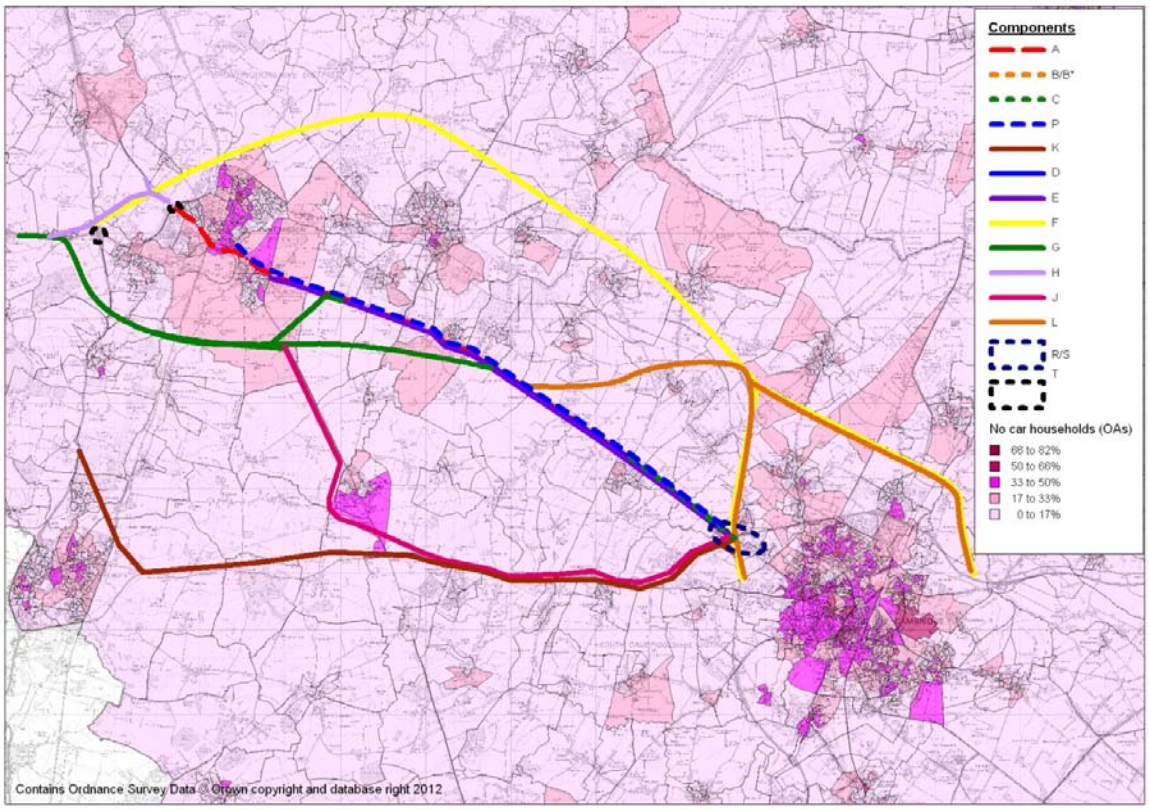


Figure B.7 Proportion of Under 16s

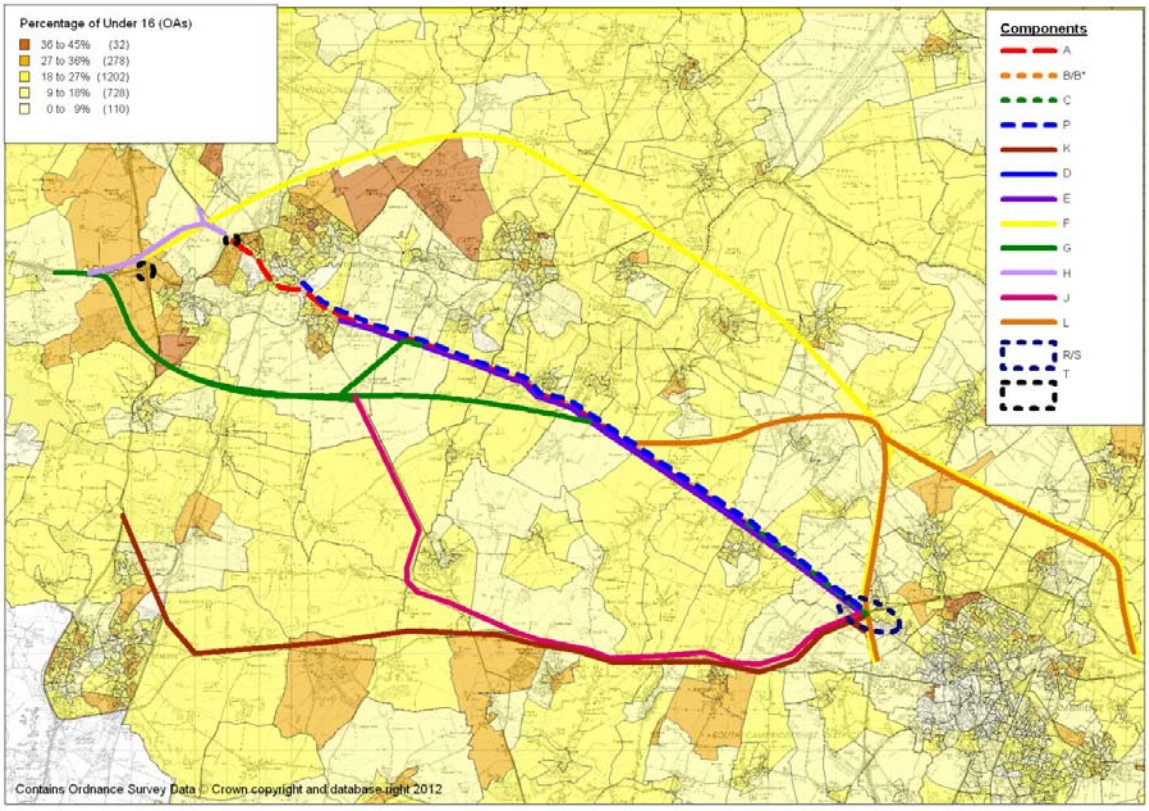


Figure B.8 Proportion of Young Males

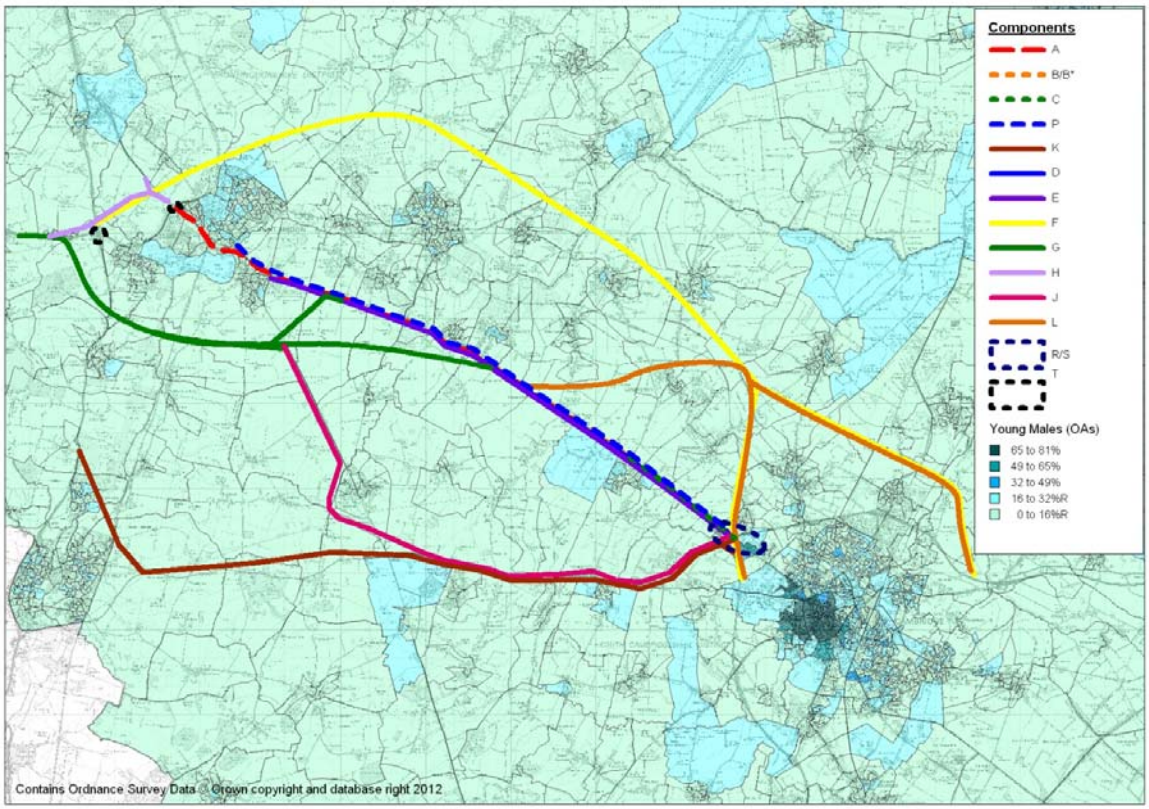
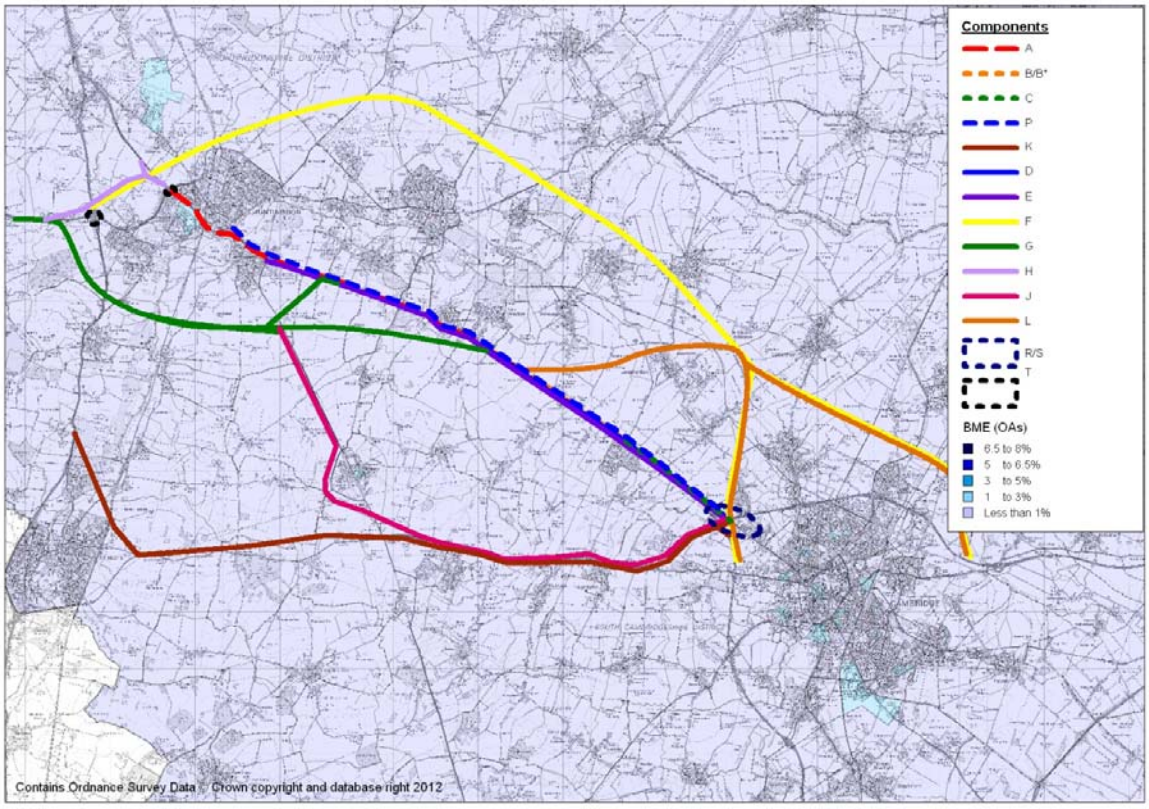


Figure B.9 Proportion of Black and Ethnic Minority



THIS PAGE IS BLANK

Appendix C. A14 Challenge Responses

THIS PAGE IS BLANK

Working Paper: ideas received via the A14 Challenge

The A14 Challenge Survey closed on 31 January. Using the on-line survey and via email over 220 responses were submitted.

The following provides a sample of ideas submitted to the A14 Challenge that may have the scope to cost-effectively address the issues identified by output 1 (and revisited in output 2A). These ideas are arranged by theme. Ideas that relate to enforcing existing rules regulations on driver behaviour and vehicles, and HGV restrictions will be considered separately by the Department.

At this stage in the study, the ideas received could usefully be used to infill or begin to optimise the initial packages already identified. Where options overlap with those on the Output 2A long list, the most similar package reference or component ID is given in square brackets. An opportunity exists to return to the ideas and views submitted in more detail, if and when they should become relevant to the shortlisted options under detailed assessment.

The inclusion of information here about a particular option is to enhance the range of opinions and views available to the study – it does not imply any assessment of the merit of options.

Freight

- Upgrade the rail network for heavy goods from Felixstowe to the North and West [F7, F19, F3, F13], including:
    - Double tracking between Ely and Soham (recently announced in the Autumn Statement)
    - Syston resignalling
    - 4 tracking Syston – Wigston
    - Grade separation of Wigston North Junction (allowing freight traffic to traverse the Midland Mainline and avoid conflicts with passenger services).
    - Gauge clearance between Syston and Stoke, providing an alternative route to the West Coast Mainline which also relieves congestion on the WCML between Nuneaton and Crewe.
- Encourage modal shift by upgrading the freight rail links from the ports and transfer as much freight as possible to rail, bringing mode share for freight at the Haven Ports up to same level as Southampton [F7, F19, F3, F13]
- Sites for strategic road/rail Interchange depots in the region, serving freight movement from the Thames ports and the Channel Tunnel as well as Felixstowe [OD]
- Greater incentives to encourage cargo to come via the underused ports of Hull and Grimsby which are served by good roads for distribution to the north.
- Critical rail freight should be given priority (e.g. perishable goods) as they have no option but to travel through peak times
- Discourage HGVs using M11/A14 route from Dover to North
- Scope for carrying more freight originating at London Gateway ports on East and West Coast mainlines, including gauge clearance via the Hertford Loop.

Travel demand management

- Reducing local commuting demand along A14 corridor –
- Smarter choices, behavioural change measures [123]
- Review how transport needs of future developments can be met, without excessive car dependency [98]
- Workplace parking controls [32]

Improvements to public transport and sustainable alternatives

- Smart ticketing– multi-modal, multi-operator)
- Improved longer distance public transport (e.g. Huntingdon railway station to Cambridge, Cambridge to Birmingham by rail)
- Fast direct buses from Huntingdon to employment centres in Cambridge with a possible new Park and Ride site at Godmanchester [113,114, MA, MB]
- Additional bus services, increasing the bus network scope [114, MB]
- Extension of the guided busway
- Expansion of guided busway services [114, MB]
- Better cycling provision [120]

- Extra direct buses to more destinations off the busway [114, MB]
- Better connections between local villages and the Busway Park & Ride and railway stations (feeder routes) [114, MB]
- Provide new bus routes to directly serve major employment areas.[114, MB]
- Provide better evening local bus services. Some communities wouldn't do anything to resolve peak hour issues
- New park and ride facility at Brampton Racecourse or Alconbury [113, MA]
- Improved East-West passenger rail links (Cambridge to Bedford rail link)
- Parkway rail station at Impington, better advertising of Whittlesford
- Railway station at Abbots Ripton
- Railway link from Cambourne to Cambridge

Demand management/sustainable travel planning

- Personalised travel planning [123]
- Introduce car share schemes [123]
- Encourage local firms to support people wishing to work at home [123]
- Encourage non motorised transport e.g. cycle/ walking lanes [120]

Major improvements to existing roads:

- Upgrade existing A14 to a modern/higher standard, D3 min with free-flow junctions (many suggested motorway standard)
- Improve Cambridge Northern Bypass using collector/distributor lanes to resolve merging/exiting traffic issues [18, 82-86]
- Improvements to hotspots needed
- Managed motorway technology/ATM [92]
- Add a hard shoulder/emergency refuges to the A14 [116]
- Remodel Spittals (free-flow) and Girton (particularly the cloverleaf 270 degree turning movements), grade separation at Brampton Hut [H, R, S]
- Improve and rationalise junctions, providing longer merges/acceleration lanes, local distributor/collector roads [78, 79, 82 – 86]
- Dual remaining single carriageway sections of A428 and improve connection between A428 and A421 (via the A1) [GJ, K]
- Upgrade low standard dual carriageway A1 between Baldock and Alconbury, providing an alternative north-south route, starting with Black Cat Interchange
- Provide direct access between M11 and A428 (northbound to westbound) and vice versa (eastbound to southbound) [J,K]
- Controlled access to A14 [92, 78, 79]
- Dual the A10 from Cambridge to Ely in conjunction with new Northern Strategic Route (see, under new offline roads)

Complementary improvements to existing roads

- Close lay-bys on A14 (and providing other, safer stopping places) [117]
- HGV parking and rest facilities (e.g. 2 places east and west of existing strategic route) [89a, 122]
- Provide emergency refuges [116]
- Close and rationalise minor junctions and accesses [78, 79, 82 – 86]
- Improved signage and lighting
- Re-phasing signals [92]
- Speed limits [112]
- Low noise road surfaces and road side noise barriers

New offline sections of road:

- Huntingdon Southern Bypass [G]
- D2 Northern Brampton/Spittals Bypass [H]
- Strategic route options via A428 near Caxton Gibbet, connecting with A1 – there were suggestions of an offline tolled section or a single-carriageway Northern Bypass to St.Neots [J, K]
- New routes for local traffic on settlements parallel near to the A14 [D, E, P]
- Value engineered/phased Ellington to Fen Ditton scheme (including re-routing of A14 away from Huntingdon) [GDS(d)]
- New offline tolled alignment between Girton and Fenstanton, with downgrade to existing parallel A14
- Parallel route new alignment between Ellington and Caxton Gibbet, or between Ellington and Girton, principally for HGVs [GJ, GDS, GPR]

- Local distributor/collector/relief routes north of the A14 to service villages, both at eastern end (Bar Hill to Milton) and western end (near Stukeleys)
- Local access roads (many parallel to existing, to reduce conflict between local and strategic traffic) [D, E, P]
- Separate northern strategic route options between Huntingdon and the A14 east of Cambridge Quy Roundabout (possibly Newmarket) [F], existing A14 then used for local traffic
- Local traffic northern route options (e.g. A1123, A142)
- Extend M11 to A1 either at Huntingdon or Peterborough with no local access

Tolling new road infrastructure

There was a range of views on acceptability, and what fair and workable tolling might encompass. A prevalent view was that tolled road should be attractive to through traffic, otherwise demand will shift to non-tolled alternative roads - traffic management measures may be needed to prevent this. There were differing views about whether non-tolled alternative should/should not exist for local traffic. The following views were suggested:

- Revenues of £20m-£30m are achievable, and under value of time assumptions rationally work/HGV trips may be willing to pay £3 to achieve a 20 min time saving
- Tolling levels should be set to £1.50 per car, £3 for HGVs
- All those in favour, and expressing a view on the mechanics of tolling suggest ANPR or TAG technology used to collect revenue
- Tolls to manage demand and yield – varying toll by time of day, and by user type
- A variable number of tolled and toll free lanes on the same section of the road.
- Toll single occupant vehicles, or reduce rates for car sharers
- Tolls restricted to peak periods only

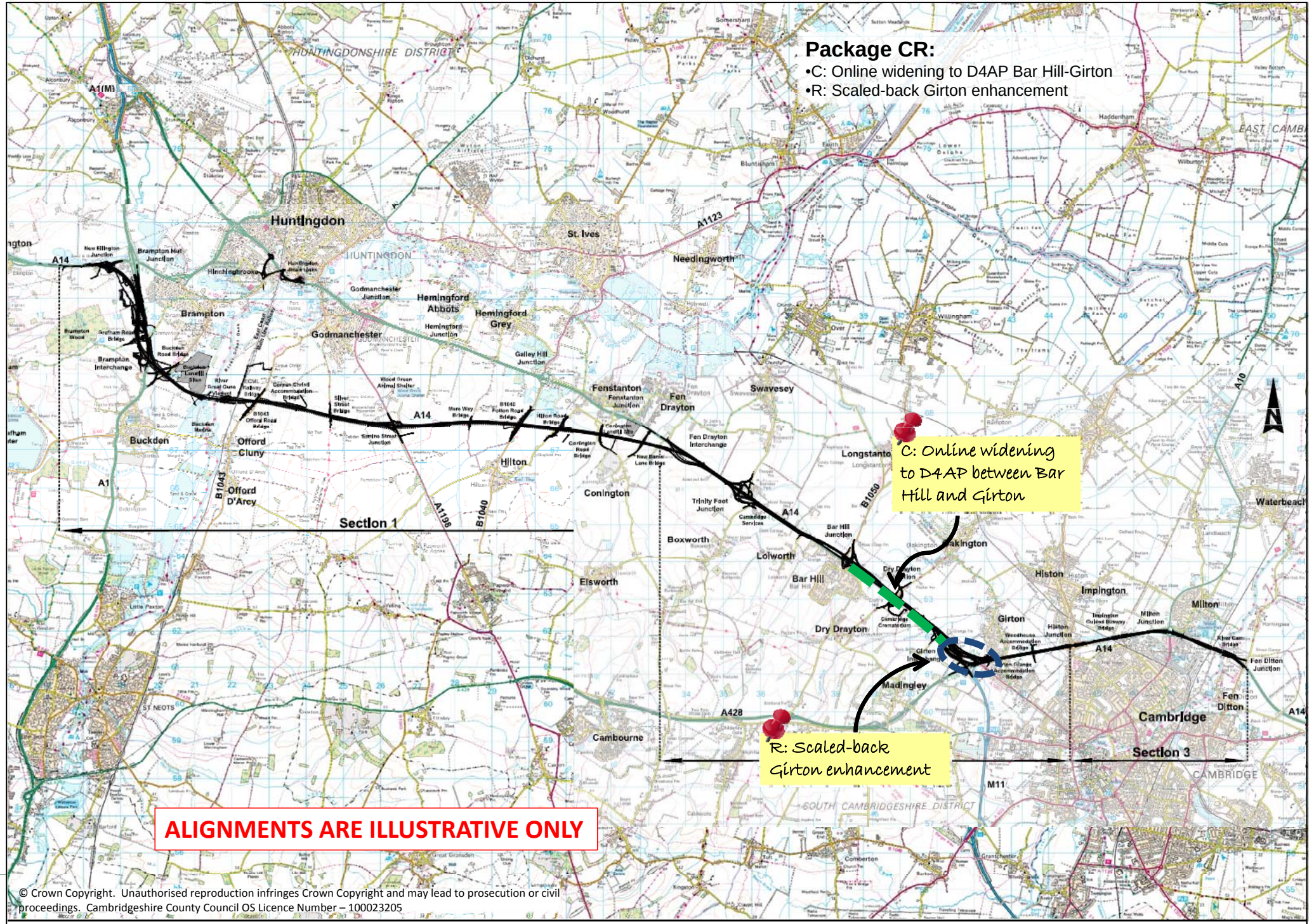
Funding and finance suggestions

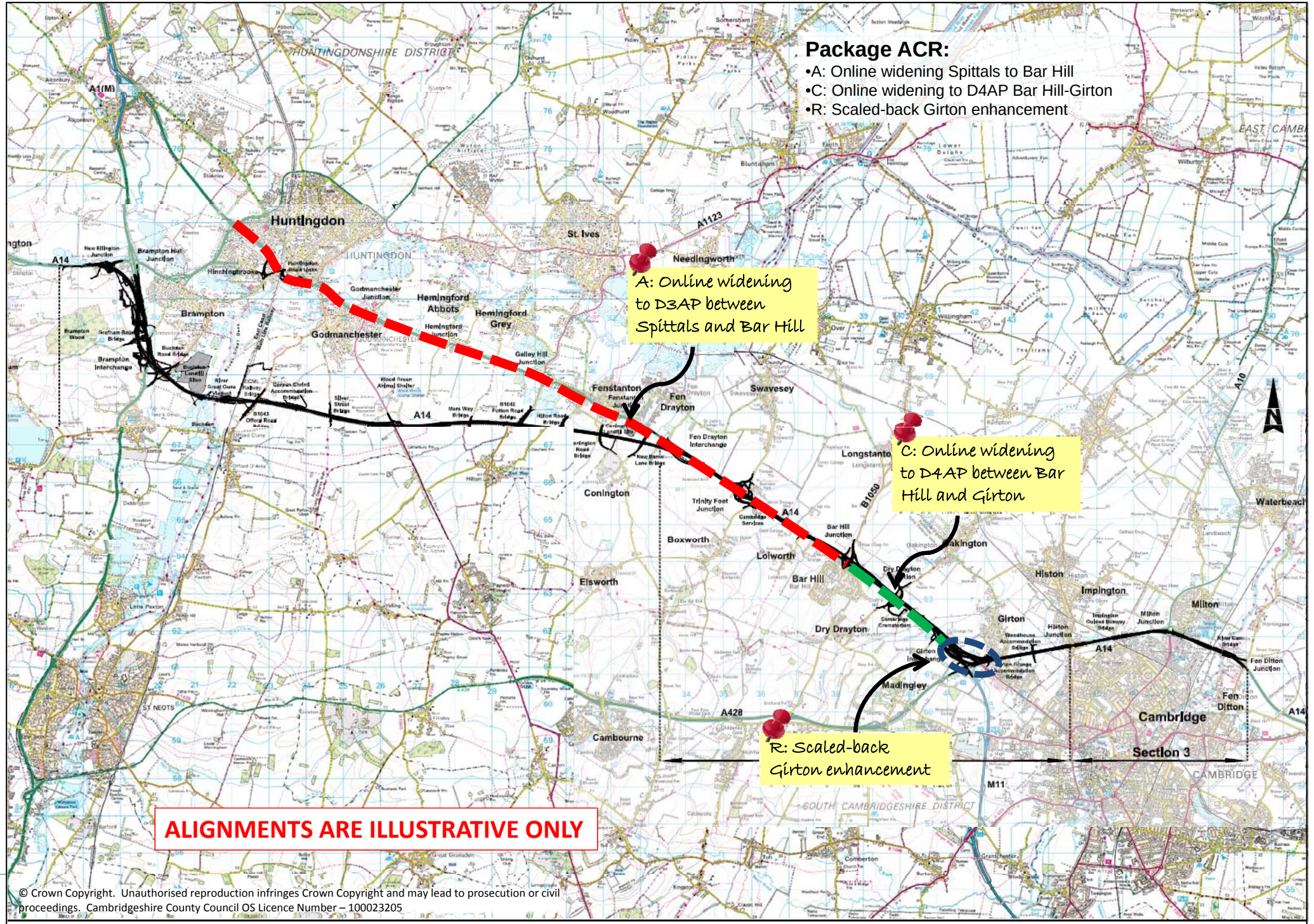
- Business Rate Supplement/Tax Increment Financing (‘TxIF’)
- Work place parking levy (for demand management)
- Section 278
- Site-Specific Business Rates income
- Community Infrastructure Levy
- EU Grants (TEN-T programme)
- Huntingdon/Cambridge A14 Low Emission Zone

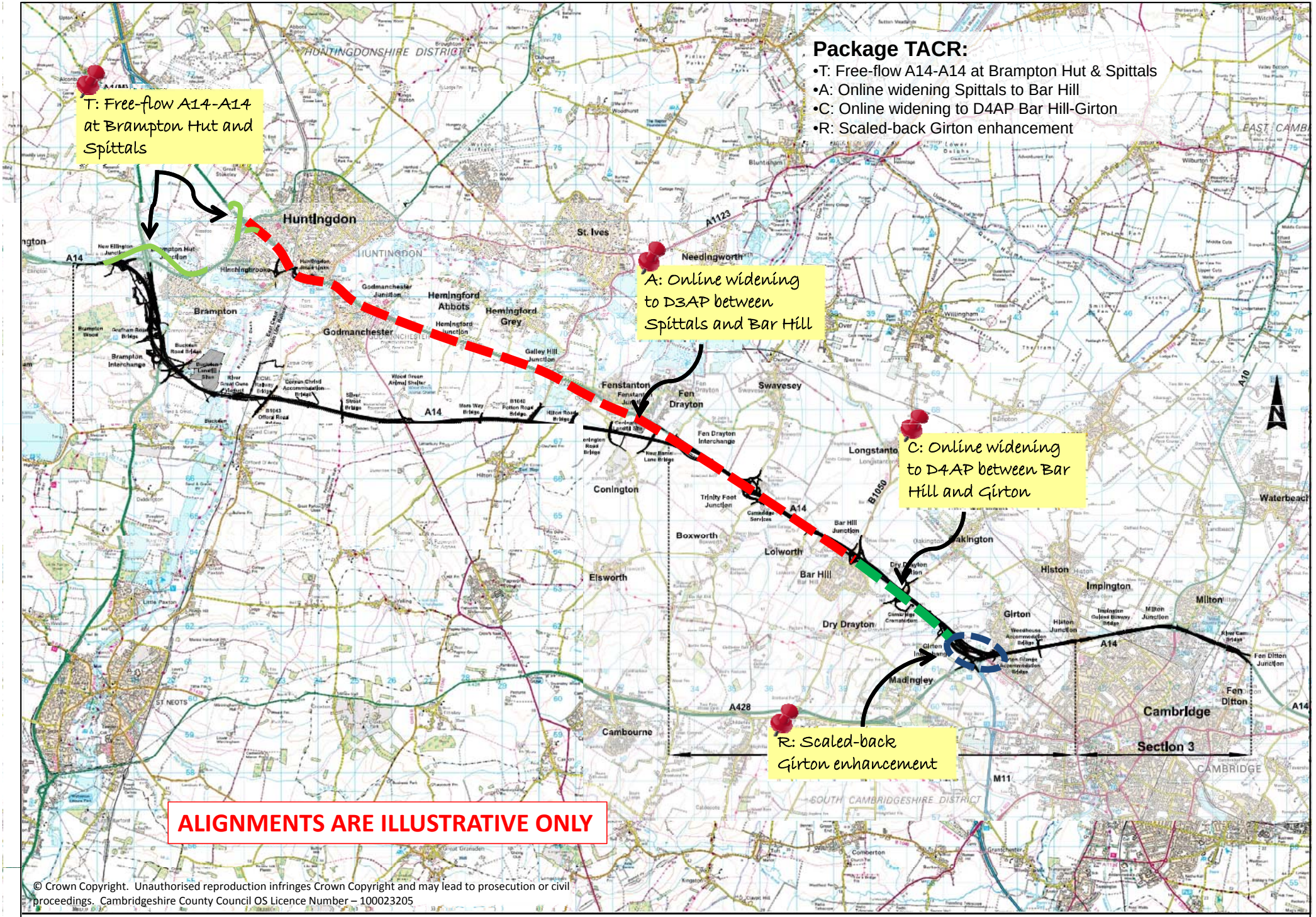
THIS PAGE IS BLANK

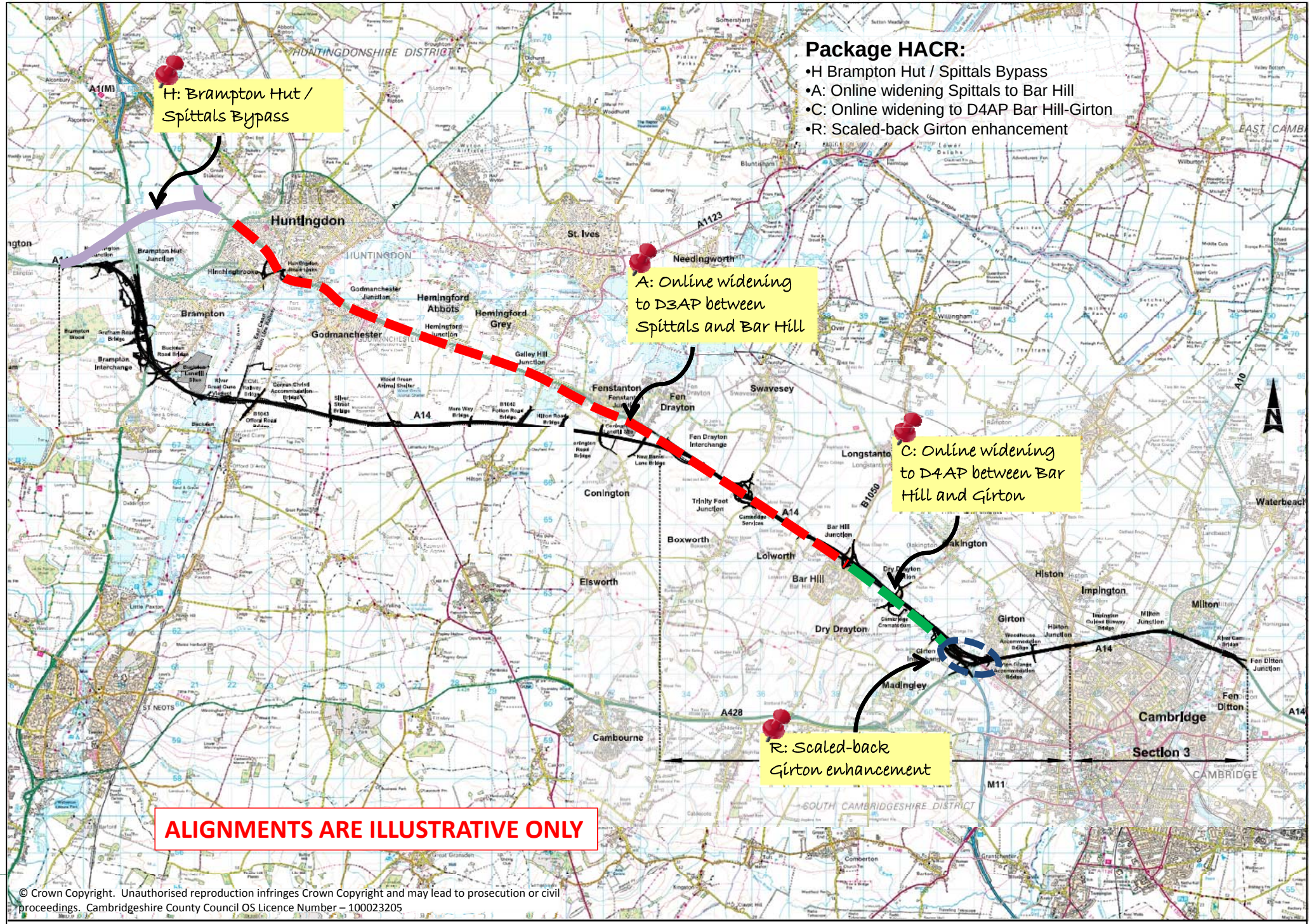
Appendix D. Schematic Illustrations of Modal Packages (core highway components only)

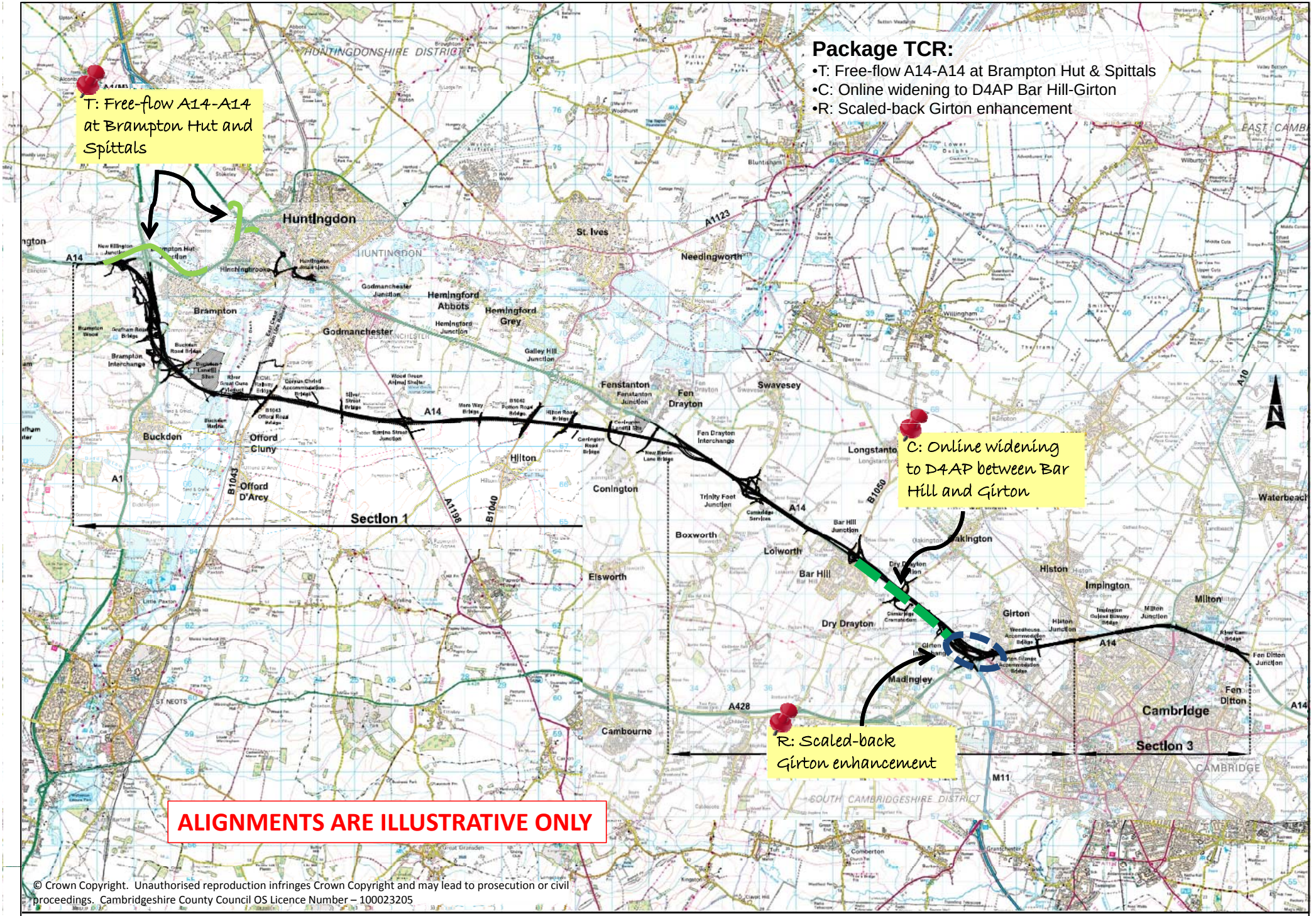
THIS PAGE IS BLANK

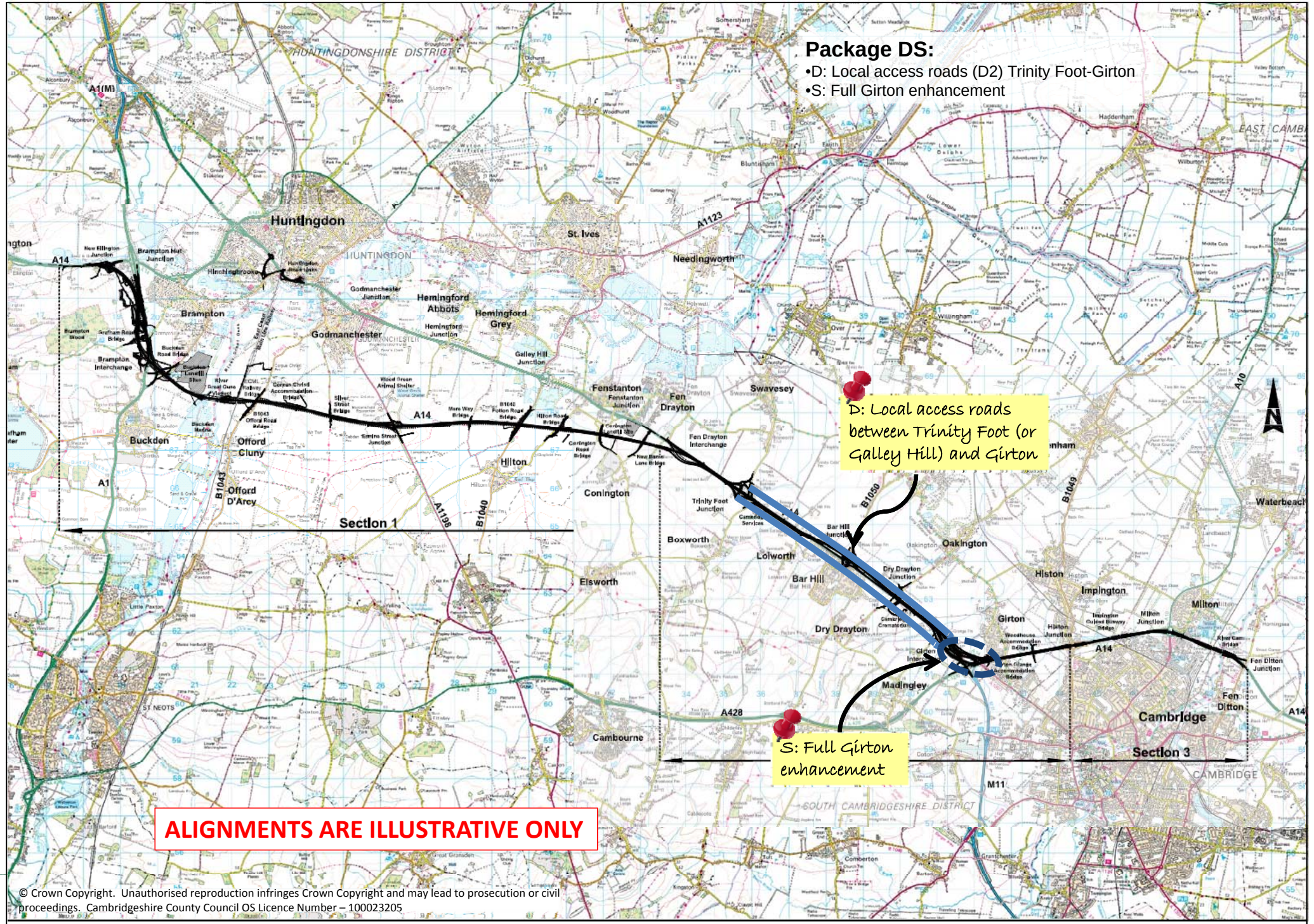


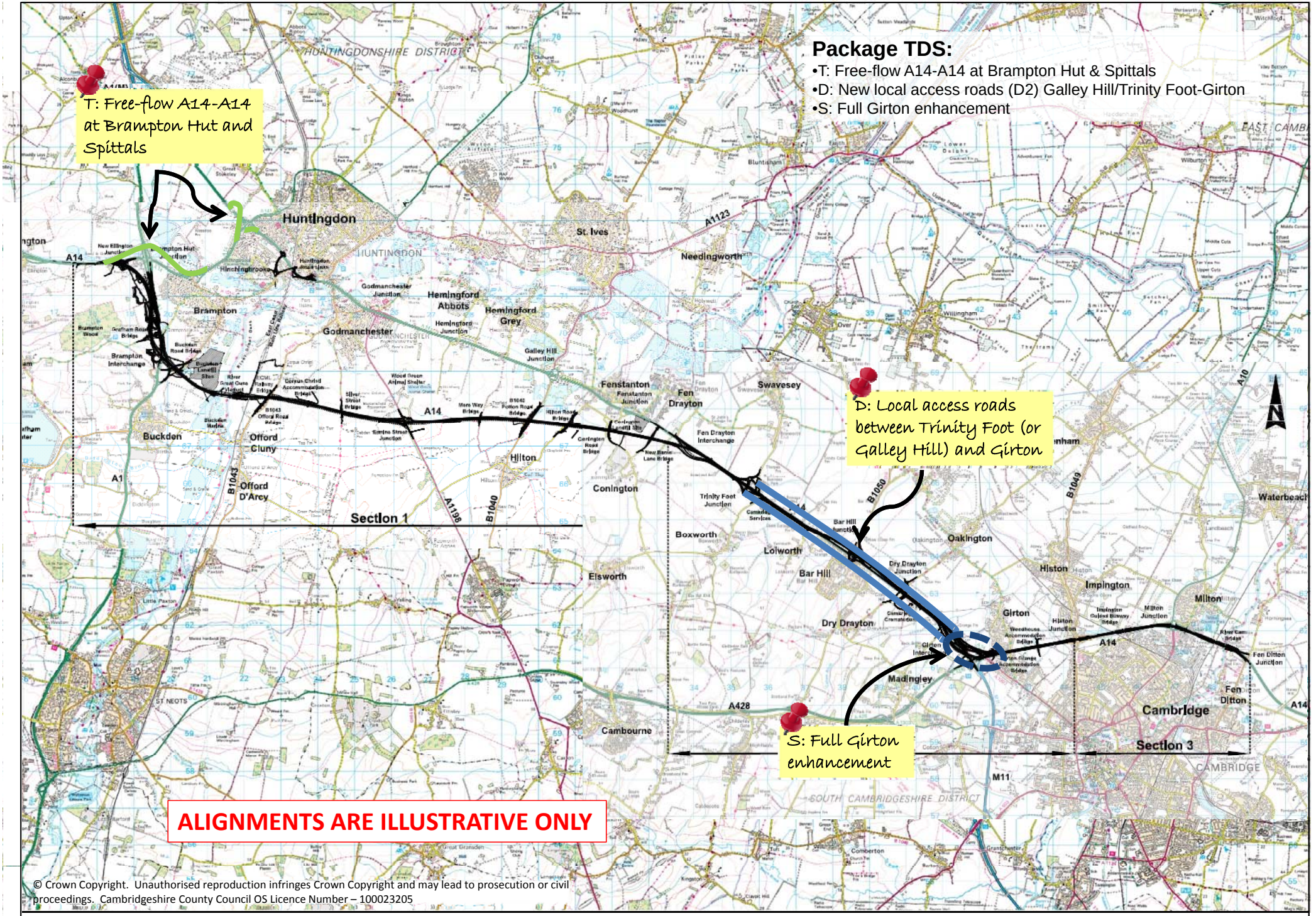


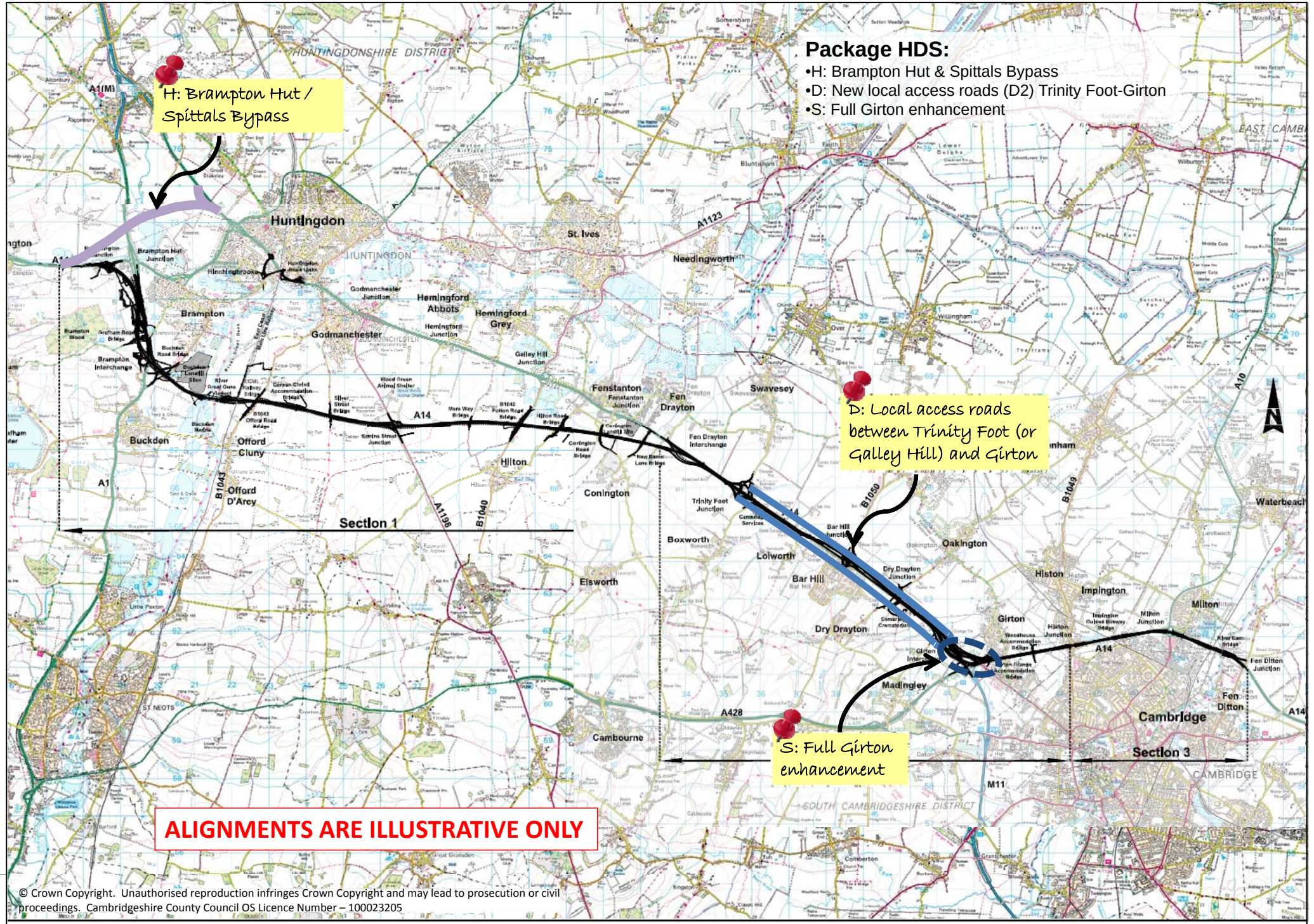


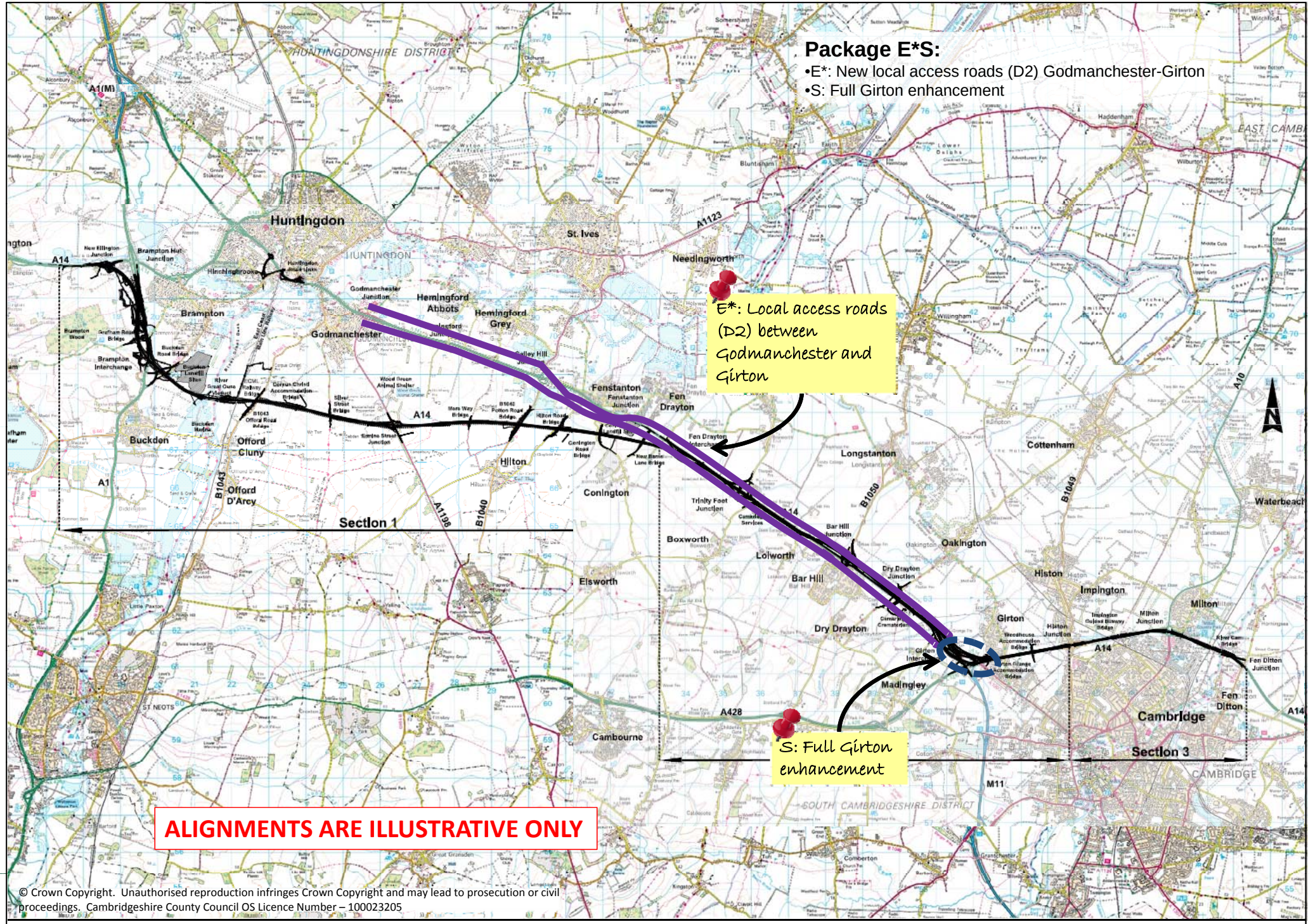


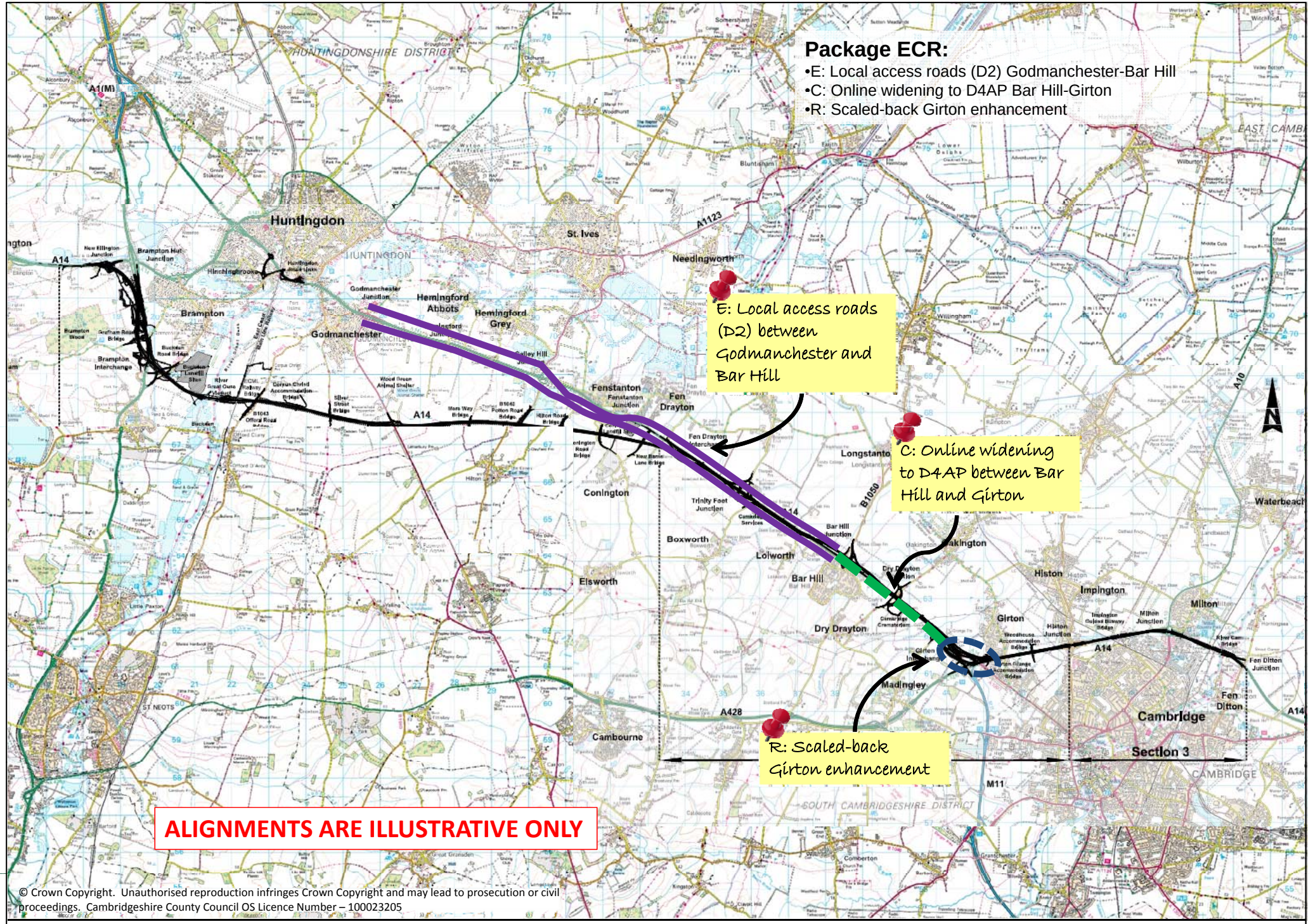


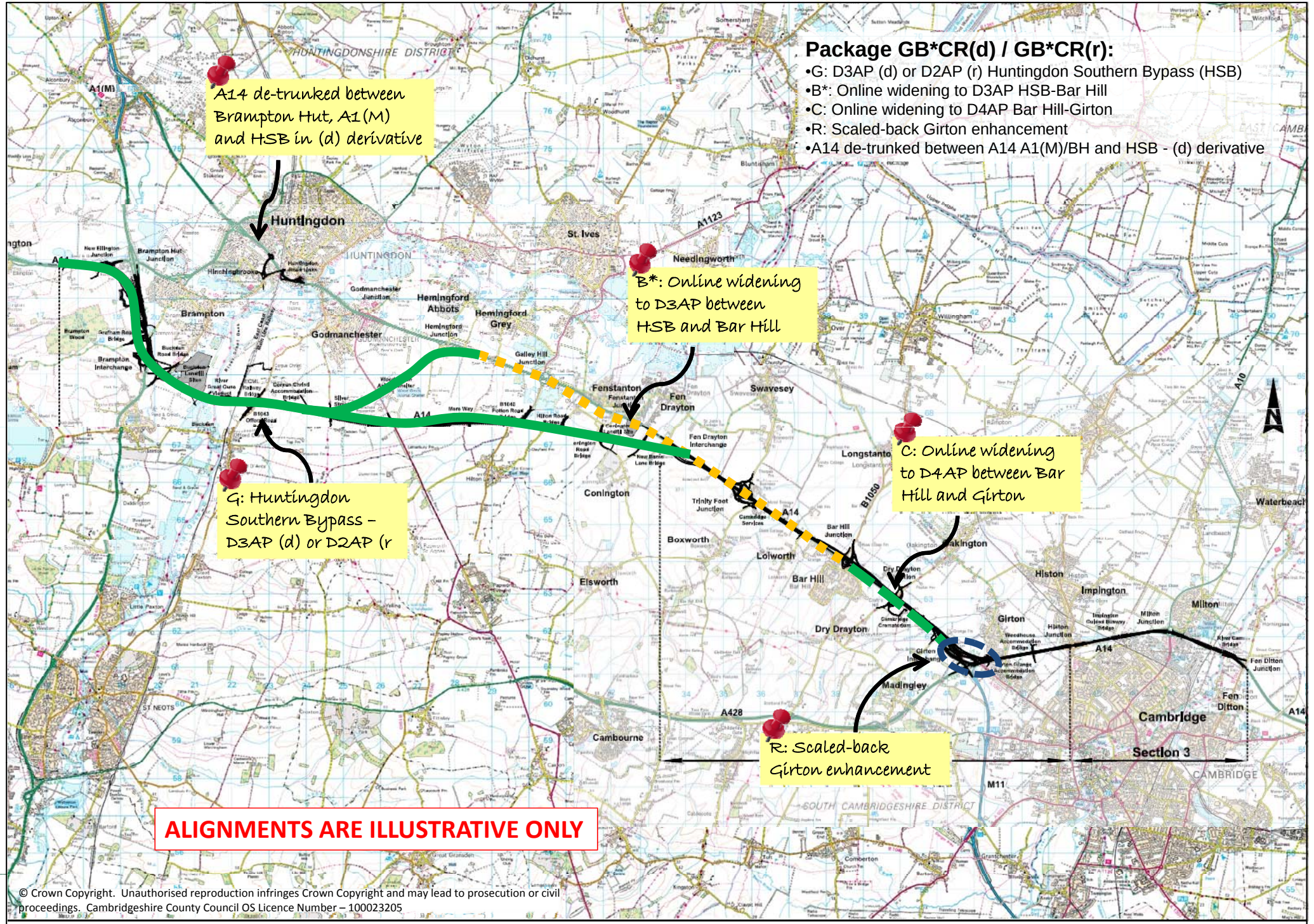


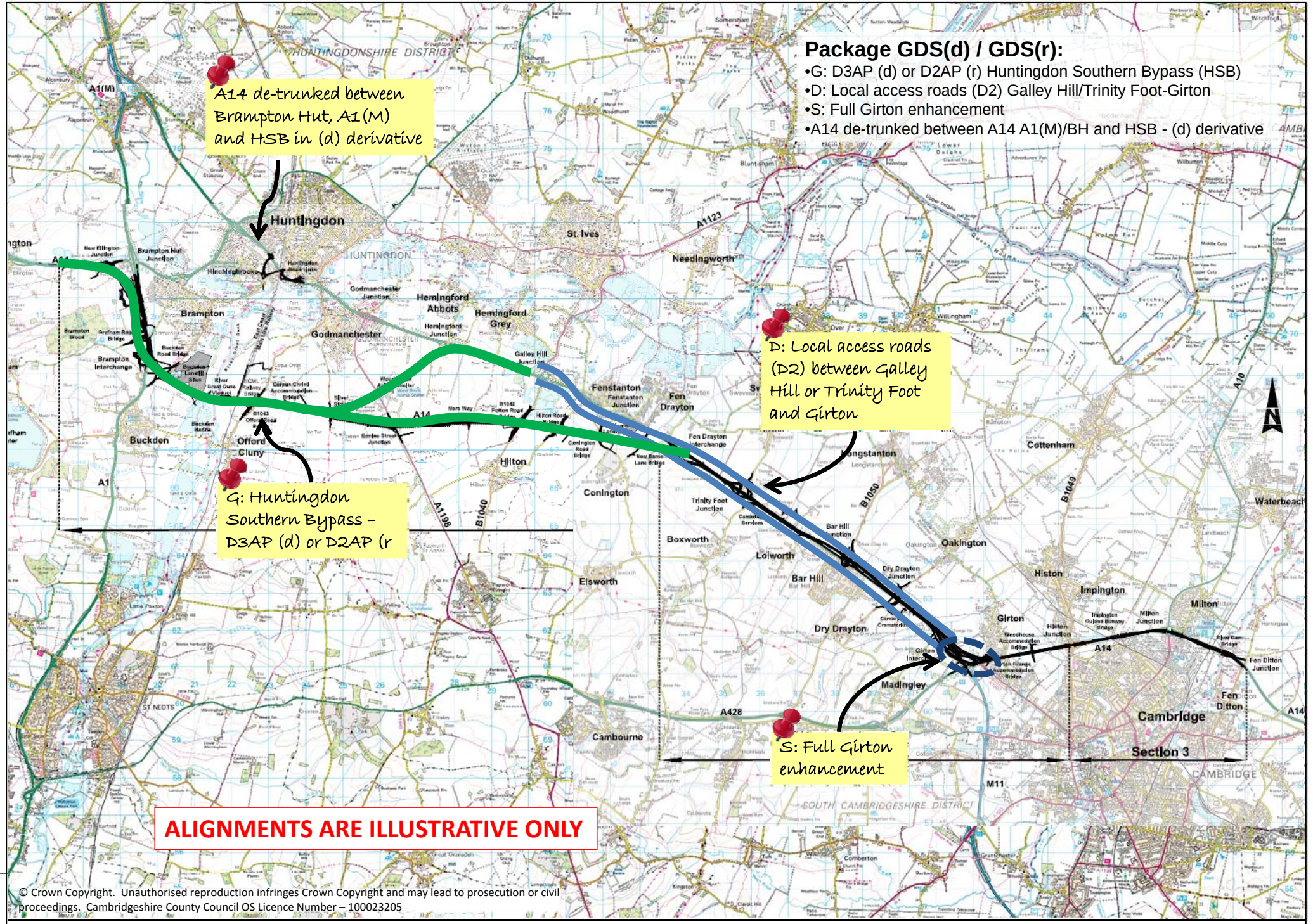






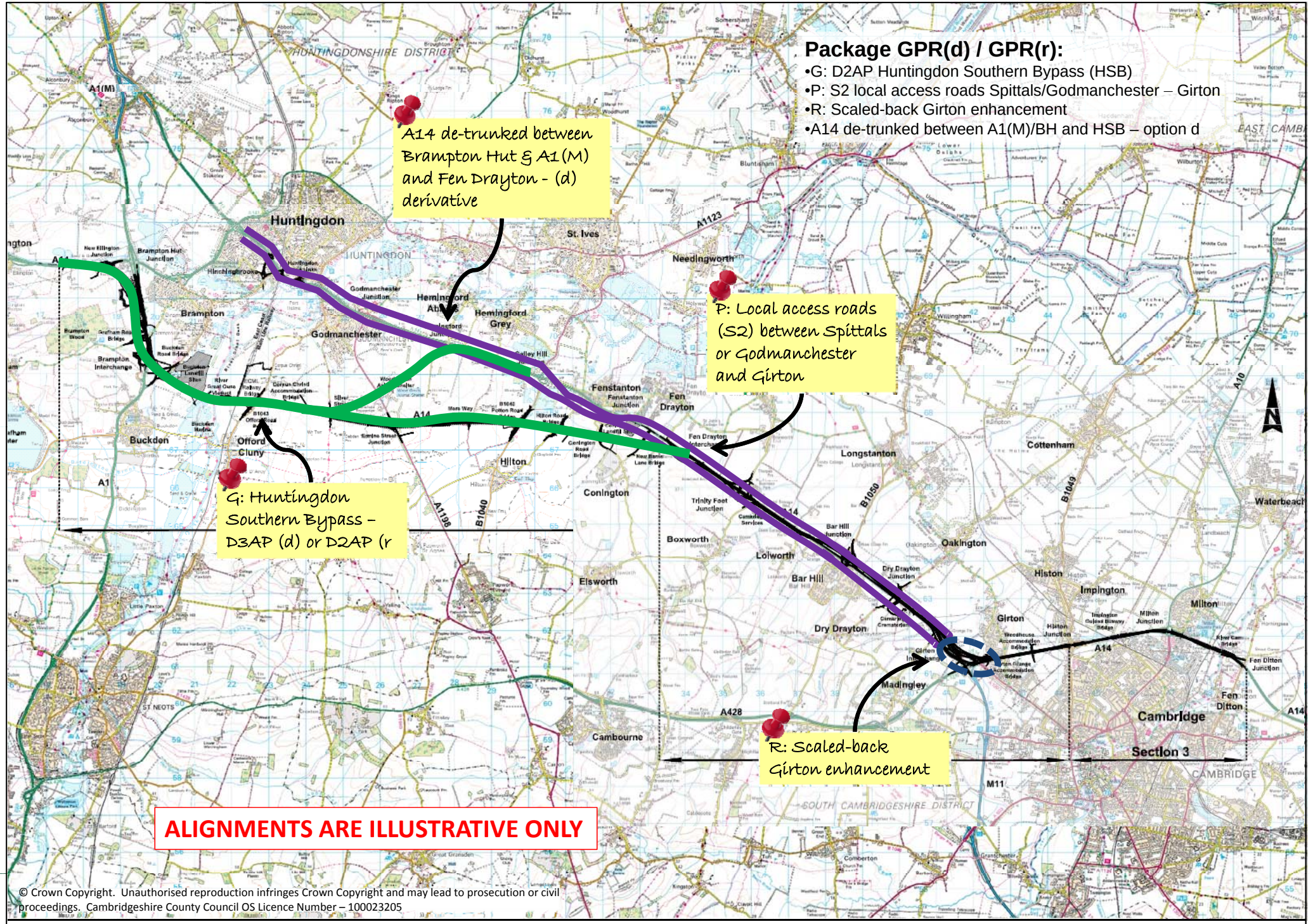


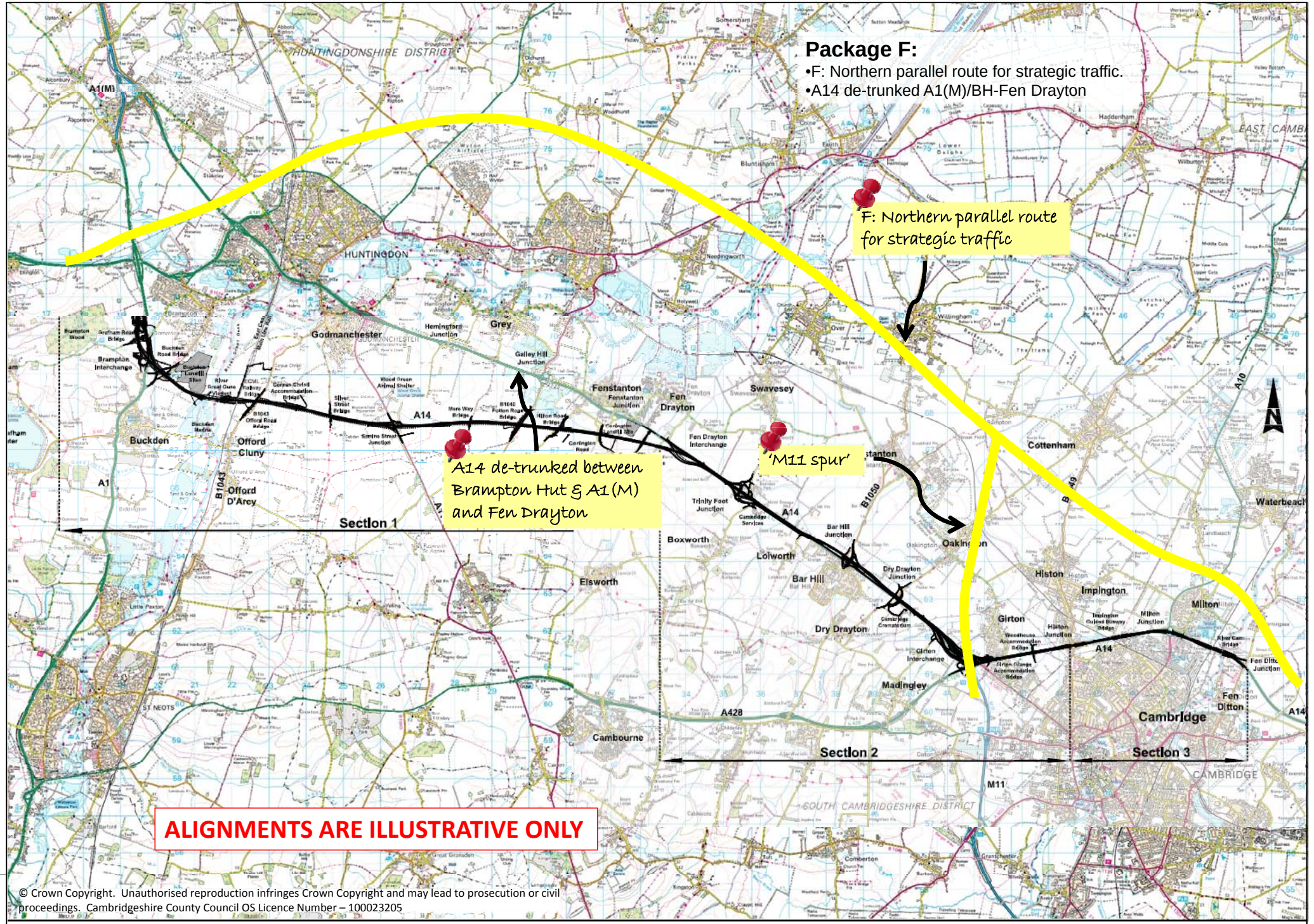


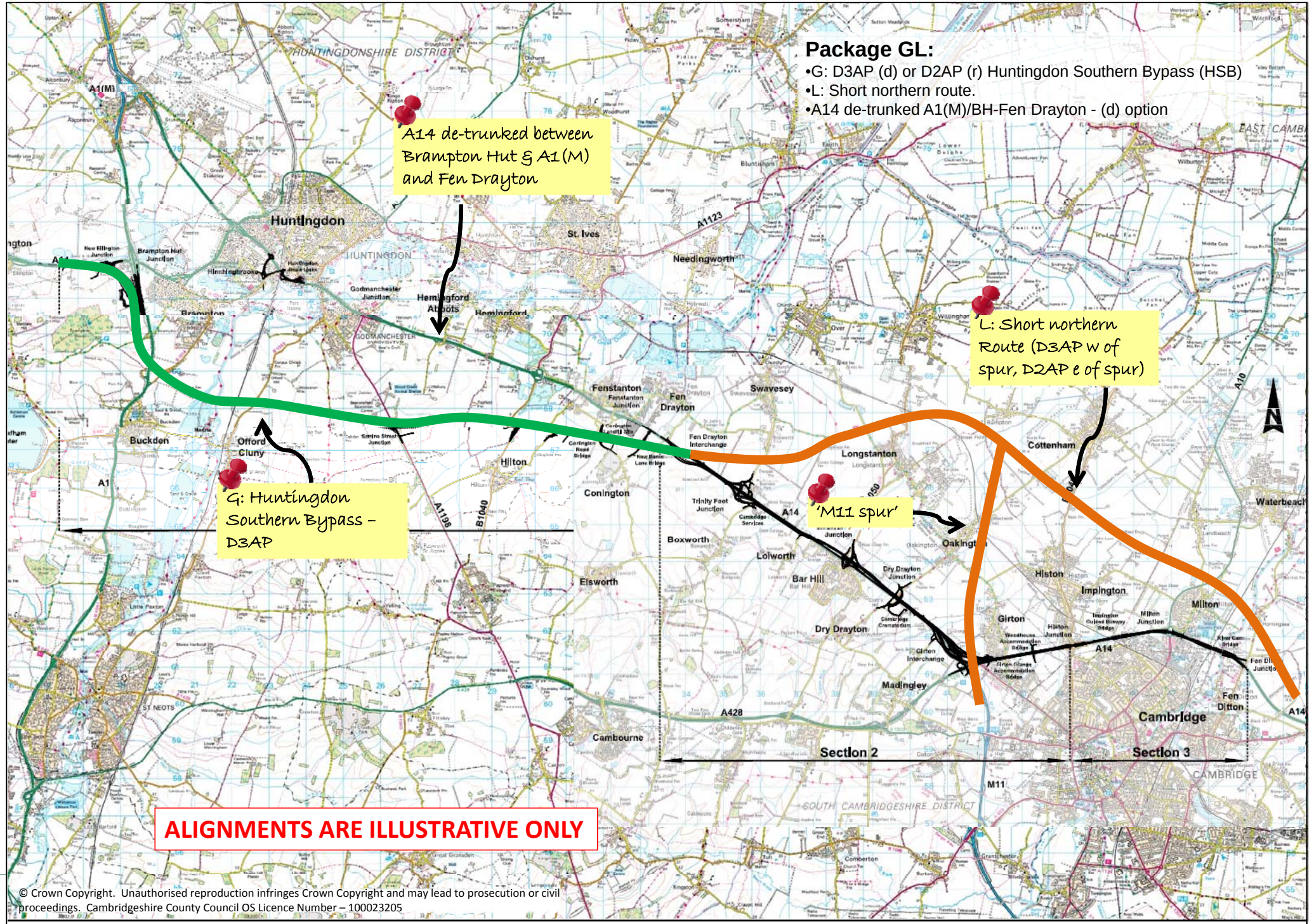


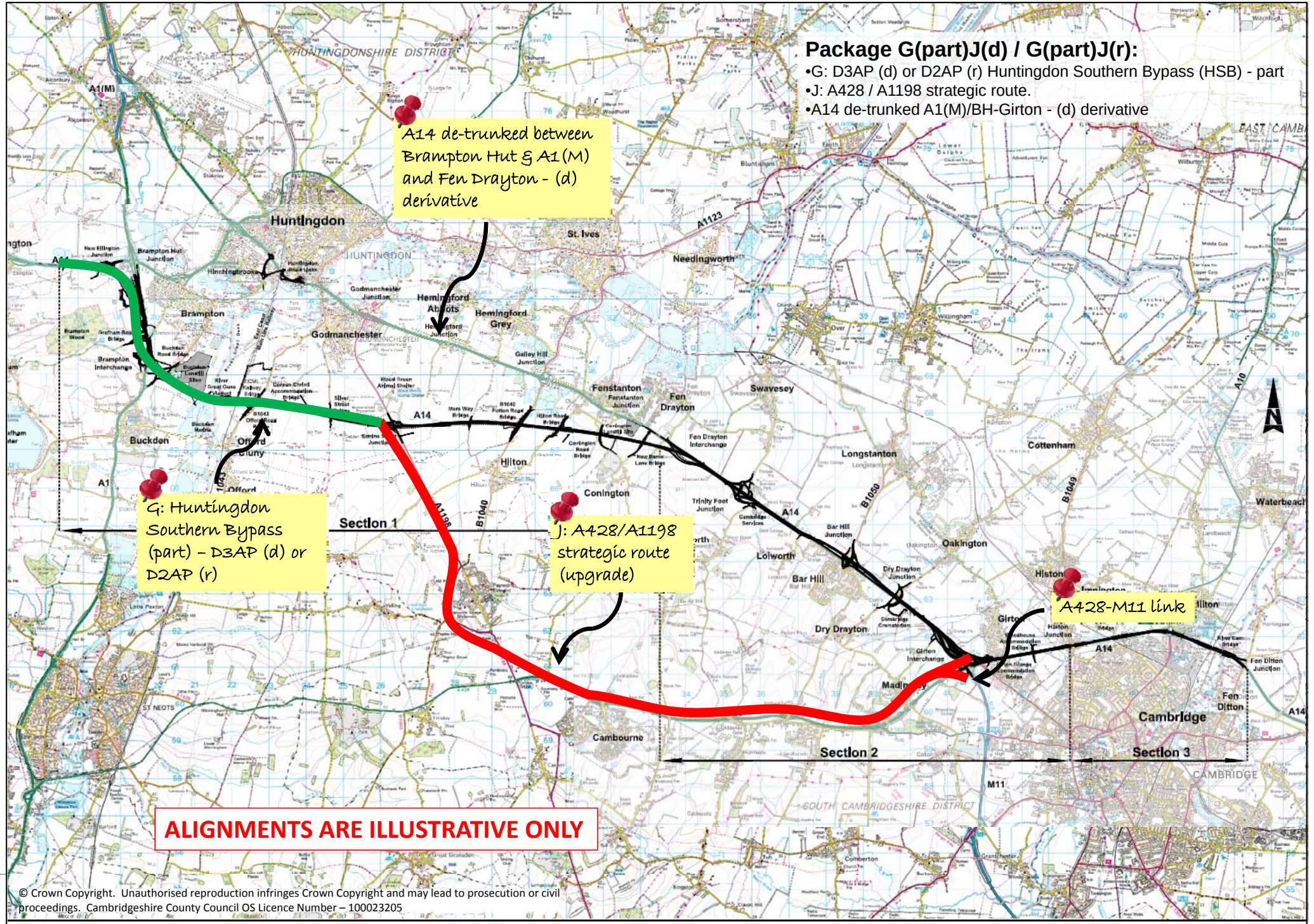
A14 Study Output 2: Option Generation & Initial Sifting Report
Package GDS9d) / GDS(r)

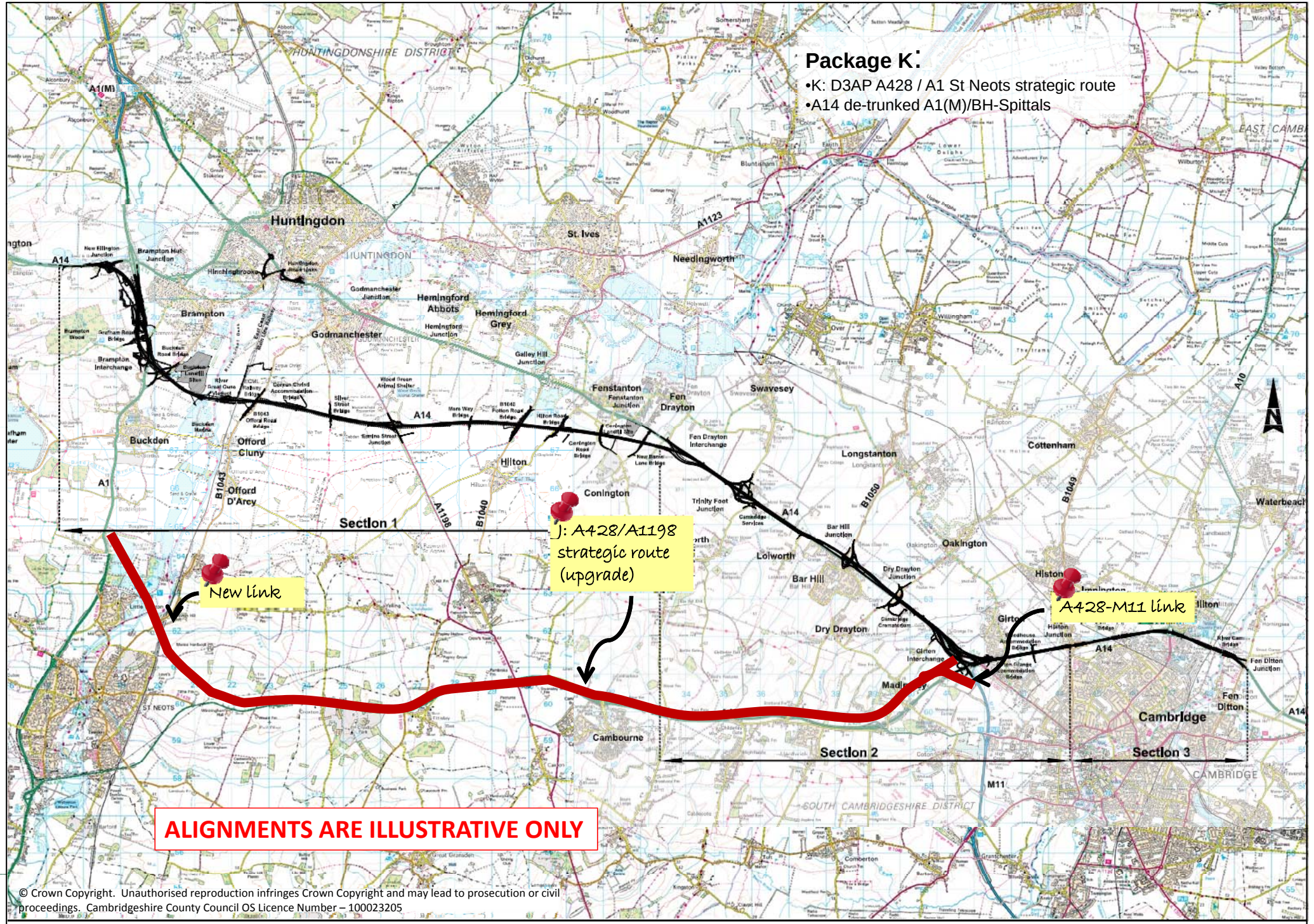
ATKINS











Appendix E. Qualitative Strategic and Economic Case indicators

THIS PAGE IS BLANK

PT and Freight Packages

Package Ref	Notes	Support the growth of the Greater Cambridge economy		Improve access to labour markets	Access to goods, services, people and places	Fit with wider transport and Government objectives	GENERAL COMMENTS
		Housing developments unlocked	Impact on commercial development	Assessment of travel times to key employment sites	Change in ease of access to key locations including schools, hospitals etc	Fit with EU transport policy and wider UK Government objectives	
		7-point scale: -3 to +3					
PUBLIC TRANSPORT / TRAVEL DEMAND PACKAGES							
M(A)	*Would need to be supported by enhanced service provision.*	0	0	0	1	1 - potentially some decongestion benefits to TEN designated route; potentially some increase in active travel to/from P&R plus reduced car use and related local air pollution which may bring minor health benefits; potentially positive impact on access to health and education facilities depending on extent / scope of improvements.	Public transport provision an essential component of providing access to new developments but unlikely to unlock signfificant housing developments in isolation. Impact is clearly positive but difficult to identify with ininitial scoring system adopted here. Labour catchment to key employment sites will be enhanced depending on site locations and extent of works.
M(B)		0	0	0	1	1 - potentially some decongestion benefits to TEN designated route; potentially some increase in active travel to/from bus services plus reduced car use and related local air pollution which may bring some health benefits; potentially positive impact on access to health and education facilities depending on extent / scope of improvements.	Public transport provision an essential component of providing access to new developments but unlikely to unlock signfificant housing developments in isolation. Extension of CGB to Enterprise Zone at Alconbury a potentially important intervention for extending labour catchment.
M(AB)		1	1	1	2	1 - potentially some decongestion benefits to TEN designated route; potentially some increase in active travel to/from bus services plus reduced car use and related local air pollution which may bring some health benefits; potentially positive impact on access to health and education facilities depending on extent / scope of improvements.	Public transport provision an essential component of providing access to new developments but unlikely to unlock signfificant housing developments in isolation. Providing both enhanced park and ride services plus extenstions to CGB will increase impact against these indicators including labour market impacts where greater public transport 'reach' will extend labour pool to potential employees without access to a car.
FREIGHT PACKAGES							
O(ABCD)	*Assumes that timetabling would be reviewed to maximise benefits.*	0	1	0	0		Likely positive, but very minor, impact across all indicators with some freight modal shift providing some very marginal headroom for further development in the corridor and some very minor impact on labour catchments. Provision of strategic rail freight interchanges could bring commercial / employment opportunities, with general rail freight improvements enhancing employment potential of sites/destinations served.
O(D)		0	0	0	0		As above.

Highway Packages

Package Ref	Notes	Support the growth of the Greater Cambridge economy		Improve access to labour markets	Access to goods, services, people and places	Fit with wider transport and Government objectives	GENERAL COMMENTS
		Housing developments unlocked	Impact on commercial development	Assessment of travel times to key employment sites	Change in ease of access to key locations including schools, hospitals etc	Fit with EU transport policy and wider UK Government objectives	
		7-point scale: -3 to +3					
WIDENING OPTIONS							
ACR		2	2	2	2	2 - some capacity enhancements on a Trans European Network (TEN) link providing enhanced EU connectivity; positive contribution to economic growth through partial removal of highway bottleneck at Girton and lower section of A14; may result in marginal but negative health impact if get increased local air pollution and shift from active travel modes; some impact on accessibility to education.	Significant highway improvements provide increased capacity to accommodate development, both at housing sites such as Northstowe and commercial opportunities more widely. Capacity enhancements also increase peak period labour catchment. Provides general improvement in highway-based accessibility to hospitals at Hinchingbrooke and (arguably) Addenbrookes from the corridor together with education facilities including Cambridge Regional College, elsewhere in Cambridge, and in Huntingdon.
TACR		2	2	2	2	2 - some capacity enhancements on a Trans European Network (TEN) link providing enhanced EU connectivity; positive contribution to economic growth through partial removal of highway bottleneck at Girton and lower section of A14; may result in marginal but negative health impact if get increased local air pollution and shift from active travel modes; some impact on accessibility to education.	As above but Spittals improvements should bring extra additional capacity which contributes to facilitiating housing developments proposed for Alconbury and Huntingdon area - however incremental impact over and above ACR not readily distuinguishable in 7-point scoring system.
HACR		2	2	2	2	2 - some capacity enhancements on a Trans European Network (TEN) link providing enhanced EU connectivity; positive contribution to economic growth through partial removal of highway bottleneck at Girton and lower section of A14; may result in marginal but negative health impact if get increased local air pollution and shift from active travel modes; some impact on accessibility to education.	As above with Spittals / Brampton bypass contributing additional capacity to potentially facilitate development in Huntingdon and Alconbury. Bypass should further extend drive time isochrones and enhance labour market accessibility but difficult to capture incremental impact of this in coarse initial appraisal.
CR		1	1	1	1	1 - limited capacity enhancements on a Trans European Network (TEN) link; positive contribution to economic growth through partial removal of highway bottleneck at Girton and lower section of A14; may result in marginal but negative health impact if get increased local air pollution and shift from active travel modes; some impact on accessibility to education.	Will enhance capacity for housing growth at Northstowe and potentially at Cambridge end of study area but reduced benefits in wider corrridor. Extent of improvement has more limited impact on labour market catchment as secion north/west of Bar Hill not improved.
TCR		1	1	1	1	1 - limited capacity enhancements on a Trans European Network (TEN) link; positive contribution to economic growth through partial removal of highway bottleneck at Girton and lower section of A14; may result in marginal but negative health impact if get increased local air pollution and shift from active travel modes; some impact on accessibility to education.	Adds additional capacity at northern end compared to preceding option, thereby potentially contributing to development in Huntingdon and at Alconbury; lack of improvement to Spittals to Bar Hill section could impact on wider growth potential.

Highway Packages

Package Ref	Notes	Support the growth of the Greater Cambridge economy		Improve access to labour markets	Access to goods, services, people and places	Fit with wider transport and Government objectives	GENERAL COMMENTS
		Housing developments unlocked	Impact on commercial development	Assessment of travel times to key employment sites	Change in ease of access to key locations including schools, hospitals etc	Fit with EU transport policy and wider UK Government objectives	
		7-point scale: -3 to +3					
LOCAL ACCESS ROADS (LARs) OPTIONS							
DS		1	1	2	1	1 - limited capacity enhancements on a Trans European Network (TEN) link but LARs should leave more headroom for strategic traffic; positive contribution to economic growth through partial removal of highway bottleneck at Girton and lower section of A14; may result in marginal but negative health impact if get increased local air pollution and shift from active travel modes; some impact on accessibility to education.	Local access roads provide potential increased capacity for housing development art Cambridge end of study area including Northstowe; lack of improvements elsewhere including north/ west of Bar Hill limits wider development impacts but addressing Girton bottleneck could enhance labour catchment for key employment sites eg: Cambridge Science Park.
TDS		1	1	2	1	1 - limited capacity enhancements on a Trans European Network (TEN) link but LARs should leave more headroom for strategic traffic; positive contribution to economic growth through partial removal of highway bottleneck at Girton and lower section of A14; may result in marginal but negative health impact if get increased local air pollution and shift from active travel modes; some impact on accessibility to education.	As above with improvements at Brampton Hut and Spittals providing some potential headroom for further housing growth in Huntingdon part of study area. Difficult to reflect thuis incremental impact in scoring system.
HDS		1	1	2	1	1 - limited capacity enhancements on a Trans European Network (TEN) link but LARs should leave more headroom for strategic traffic; positive contribution to economic growth through partial removal of highway bottleneck at Girton and lower section of A14; may result in marginal but negative health impact if get increased local air pollution and shift from active travel modes; some impact on accessibility to education.	Broadlly as above but extension of access LARs to Fenstanton plus junction bypasses at Spittals and Brampton Hut will extend drive-time isochrones and potential labour catchment.
E*S		2	2	2	2	2 - limited capacity enhancements on a Trans European Network (TEN) link itself but lengthier LARs should leave more headroom for strategic traffic; positive contribution to economic growth through partial removal of highway bottleneck at Girton and lower section of A14; may result in marginal but negative health impact if get increased local air pollution and shift from active travel modes; some impact on accessibility to education.	Extension of LARs to Godmanchester provides increased capacity for housing growth including at Huntingdon end of study area (eg: Northbridge). LARs plus Girton enhancements should improve general journey times through corridor on congested sections west of Swavesey thereby enhancing labour marker catchment area.

Package Ref	Notes	Support the growth of the Greater Cambridge economy		Improve access to labour markets	Access to goods, services, people and places	Fit with wider transport and Government objectives	GENERAL COMMENTS
		Housing developments unlocked	Impact on commercial development	Assessment of travel times to key employment sites	Change in ease of access to key locations including schools, hospitals etc	Fit with EU transport policy and wider UK Government objectives	
		7-point scale: -3 to +3					
ECR		2	2	2	1	2 - limited capacity enhancements on a Trans European Network (TEN) link itself but lengthier LARs should leave more headroom for strategic traffic; positive contribution to economic growth through partial removal of highway bottleneck at Girton and lower section of A14; may result in marginal but negative health impact if get increased local air pollution and shift from active travel modes; some impact on accessibility to education.	General increases in highway capacity across Godmanchester to Girton section providesadditional headroom for housing growth throughout much of core corridor. Lack of increased capacity at Spittals / Brampton Hut may impact on housing potential at northern end plus with more limited improvements at Girton coud reduce labour market benefits compared to preceding option.
HUNTINGDON SOUTHERN BYPASS (HSB) PLUS WIDENING/LOCAL ACCESS ROADS OPTIONS**							
GB*CR(d)	*All strategic traffic via HSB. A14 de-trunked.*	3	3	3	2	3 - signficant capacity enhancements on a Trans European Network (TEN) link providing enhanced EU connectivity; positive contribution to economic growth through partial removal of highway bottleneck at Girton and lower section of A14; may result in marginal but negative health impact if get increased local air pollution and shift from active travel modes; positive impact on highway-based accessibility to education.	Significant increased highway capacity provides potential headroom for housing growth at key sites throughout corridor. Enhamcements also extend drive time isochrones bringing labour market impacts but smaller scale Girton improvements could potentially impact on extent of these benefits.
GB*CR(r)	*Strategic N-S traffic remains on 'old' A14.*	2.5	2.5	2.5	2	3 - signficant capacity enhancements on a Trans European Network (TEN) link providing enhanced EU connectivity; positive contribution to economic growth through partial removal of highway bottleneck at Girton and lower section of A14; may result in marginal but negative health impact if get increased local air pollution and shift from active travel modes; positive impact on highway-based accessibility to education.	Benefits assessed to be broadly as for preceding option but could be marginally less beneficial if strategic traffic retained on 'old' A14 were to impact on headroom for accommodating housing growth in Huntingdon area.
GDS(d)	*All strategic traffic via HSB. A14 de-trunked.*	3	3	3	2	3 - signficant capacity enhancements in a Trans European Network (TEN) corridor (LARs increased available capacity for strategic traffic) providing enhanced EU connectivity; positive contribution to economic growth through removal of highway bottleneck at Girton and lower section of A14; may result in marginal but negative health impact if get increased local air pollution and shift from active travel modes; positive impact on highway-based accessibility to education.	Impacts assessed to broadly as per first option in this section due to general capacity enhancements across key sections of A14 and diversion of strategic traffic onto HSB potentially providing further headroom for Huntingdon and Alconbury; additionally inclusion of full Girton enhancements should bring labour market benefits for key sites in Cambridge northern fringe (eg Science and Business Parks).

Highway Packages

Package Ref	Notes	Support the growth of the Greater Cambridge economy		Improve access to labour markets	Access to goods, services, people and places	Fit with wider transport and Government objectives	GENERAL COMMENTS
		Housing developments unlocked	Impact on commercial development	Assessment of travel times to key employment sites	Change in ease of access to key locations including schools, hospitals etc	Fit with EU transport policy and wider UK Government objectives	
		7-point scale: -3 to +3					
GDS(r)	*Strategic N-S traffic remains on 'old' A14.*	2.5	2.5	2.5	2	3 - signficant capacity enhancements in a Trans European Network (TEN) corridor (LARs increased available capacity for strategic traffic) providing enhanced EU connectivity; positive contribution to economic growth through removal of highway bottleneck at Girton and lower section of A14; may result in marginal but negative health impact if get increased local air pollution and shift from active travel modes; positive impact on highway-based accessibility to education.	Benefits assessed to be broadly as for GB*CR as generalised capacity increases throughout corridor should provide for broadly similar levels of housing / commercial growth and labour market effects overall.
GPR(d)	*All strategic traffic via HSB. A14 de-trunked.*	2.5	2.5	2.5	2	2 - highway capacity enhancements in a Trans European Network (TEN) corridor (LARs increased available capacity for strategic traffic) providing enhanced EU connectivity; positive contribution to economic growth through partial removal of highway bottleneck at Girton and lower section of A14; may result in marginal but negative health impact if get increased local air pollution and shift from active travel modes; positive impact on highway-based accessibility to education.	Local access roads will provide some headroom for accommodating vehicular traffic from new developments but with overall less capacity provision (S2) that preceding options impact is assessed to be less strong; scaled back Girton may impact on catchment of key sites in north Cambridge relative to options with full enhancements.
GPR(r)	*Strategic N-S traffic remains on 'old' A14.*	2.5	2.5	2.5	2	2 - highway capacity enhancements in a Trans European Network (TEN) corridor (LARs increased available capacity for strategic traffic) providing enhanced EU connectivity; positive contribution to economic growth through partial removal of highway bottleneck at Girton and lower section of A14; may result in marginal but negative health impact if get increased local air pollution and shift from active travel modes; positive impact on highway-based accessibility to education.	Impacts assessed to be broadly as per preceding option although potentially impacts could be lower with strategic traffic remaining on old A14 impacting upon headroom and hence development opportunities at Huntingdon and Alconbury.
NEW ROUTE OPTIONS							
F	*All strategic traffic via new route. A14 de-trunked.*	2	2	2	2	3 - signficant capacity enhancements in a Trans European Network (TEN) corridor (assuming new link is designated as TEN) providing enhanced EU connectivity; positive contribution to wider economic growth through bypassing existing bottlenecks and providing wider highway connectivity; may result in marginal but negative health impact if get increased local air pollution and shift from active travel modes; positive impact on highway-based accessibility to education.	Assumed removal of strategic traffic from old A14 provides headroom for growth in corridor plus extends labour market catchments; lack of improvements to current A14 could result in some impacts on growth potential depending on extent of strategic diversion but impacts strong and positive.

Highway Packages

Package Ref	Notes	Support the growth of the Greater Cambridge economy		Improve access to labour markets	Access to goods, services, people and places	Fit with wider transport and Government objectives	GENERAL COMMENTS
		Housing developments unlocked	Impact on commercial development	Assessment of travel times to key employment sites	Change in ease of access to key locations including schools, hospitals etc	Fit with EU transport policy and wider UK Government objectives	
		7-point scale: -3 to +3					
GL	*All strategic traffic via new route. A14 de-trunked.*	2	2	2	2	3 - signficant capacity enhancements in a Trans European Network (TEN) corridor (assuming new link is designated as TEN) providing enhanced EU connectivity; positive contribution to wider economic growth through removal of highway bottleneck at Girton and lower section of A14; may result in marginal but negative health impact if get increased local air pollution and shift from active travel modes; positive impact on highway-based accessibility to education.	Assessed as similar to preceding optionat this stage as detailed impact will depend on extent of strategic diversion.
G(part)J (d)	*All strategic traffic via new route. A14 de-trunked.*	2	2	2	2	2 - significant highway capacity enhancements overall but not to the TEN route itself - if A14 detrunked then strategic route less direct which may have EU connectivity consequences; positive contribution to wider economic growth through general increase in highway capacity; may result in marginal but negative health impact if get increased local air pollution and shift from active travel modes; positive impact on highway-based accessibility to education.	Improvements to A428/A1198 provide general headroom in corridor and potentially unlock housing developments across wider area; however the new strategic route is lengthy and unclear as to how much strategic traffic will divert and hence what spare capacity will be available in main A14 corridor for growth. Impact will clearly be positive and significant but difficult to distinguish impacts from preceding new route options at this stage.
G(part)J(r)	*Strategic N-S traffic remains on 'old' A14.*	2	2	2	2	2 - significant highway capacity enhancements overall but not to the TEN route itself - if A14 detrunked then strategic route less direct which may have EU connectivity consequences; positive contribution to wider economic growth through general increase in highway capacity; may result in marginal but negative health impact if get increased local air pollution and shift from active travel modes; positive impact on highway-based accessibility to education.	With strategic traffic retained on old A14 and hence limited diversion to new route the headroon for housing and commercial development likely to be lower compared to preceding options. However improvements to A428/A1198 would extend labour catchments for key employment sites in Cambridge.
K	*All strategic traffic via new route. A14 de-trunked.*	2	2	2	2	2 - significant highway capacity enhancements overall but not to the TEN route itself - if A14 detrunked then strategic route less direct which may have EU connectivity consequences; positive contribution to wider economic growth through general increase in highway capacity; may result in marginal but negative health impact if get increased local air pollution and shift from active travel modes; positive impact on highway-based accessibility to education.	On assumption that strategic traffic diverts from old A14 this does provide headroom for growth in corridor plus extends labour market catchments; lack of improvements to current A14 could result in some impacts on growth potential depending on extent of strategic diversion. Improved A428 could bring wider economic benefits to the Cambridge-Bedford-MK corridor including commerical opportunities and potentially provides additional capacity for housing growth in areas such as St Neots.

Appendix F. Deliverability

THIS PAGE IS BLANK

Deliverability Issues

Potential deliverability issues (in terms of environmental constraints, engineering constraints and public/political acceptability) were initially considered on a component basis, before looking at the overall packages to see whether any additional issues arose when components were combined.
The table below reflects this methodology: the assessments for each component are listed in the rows labelled Component 1-4 (with the order being that in which the components appear in the package name).

	Package	CR	ACR	TACR	HACR	TCR	DS	TDS	HDS	E*S
Environmental constraints	Component 1	Limited impact on environmental designations.	Potential showstoppers at western end in Huntingdon due to importance of environmental sites and designations and impact on surrounding townscape: Registered Commons and Listed Buildings; International and National ecology site (Portholme); Built up area with important open spaces/commons; increased impact of viaduct. Constraints between Godmanchester and Fenstanton: Listed buildings close to the route; County Wildlife Sites abutting or in close proximity (important local wetland areas); Historic Landfill site - Conington and Godmanchester; Properties abutting route around Fenstanton.	Limited impact on environmental designations.	Limited impact on environmental designations.	Limited impact on environmental designations.	Limited impact on environmental designations between Trinity Foot and Girton. Constraints around Fenstanton if Local Access Roads extended to Galley Hill: Listed buildings close to the route; County Wildlife Sites abutting or in close proximity (important local wetland areas); Historic Landfill site - Conington; Properties abutting route around Fenstanton. Potential for greater impact than on-line widening as footprint of scheme likely to be bigger.	Limited impact on environmental designations.	Limited impact on environmental designations.	Limited impact on environmental designations between Trinity Foot and Girton. Constraints between Godmanchester and Fenstanton: Listed buildings close to the route; County Wildlife Sites abutting or in close proximity (important local wetland areas); Historic Landfill site - Conington and Godmanchester; Properties abutting route around Fenstanton. Potential for greater impact than on-line widening as footprint of scheme likely to be bigger.
	Component 2	As for option S but less impact.	Limited impact on environmental designations.	Potential showstoppers at western end in Huntingdon due to importance of environmental sites and designations and impact on surrounding townscape: Registered Commons and Listed Buildings; International and National ecology site (Portholme); Built up area with important open spaces/commons; increased impact of viaduct. Constraints between Godmanchester and Fenstanton: Listed buildings close to the route; County Wildlife Sites abutting or in close proximity (important local wetland areas); Historic Landfill site - Conington and Godmanchester; Properties abutting route around Fenstanton.	Potential showstoppers at western end in Huntingdon due to importance of environmental sites and designations and impact on surrounding townscape: Registered Commons and Listed Buildings; International and National ecology site (Portholme); Built up area with important open spaces/commons; increased impact of viaduct. Constraints between Godmanchester and Fenstanton: Listed buildings close to the route; County Wildlife Sites abutting or in close proximity (important local wetland areas); Historic Landfill site - Conington and Godmanchester; Properties abutting route around Fenstanton.	Limited impact on environmental designations.	Impacts can largely be mitigated over time.	Limited impact on environmental designations between Trinity Foot and Girton. Constraints around Fenstanton if Local Access Roads extended to Galley Hill: Listed buildings close to the route; County Wildlife Sites abutting or in close proximity (important local wetland areas); Historic Landfill site - Conington; Properties abutting route around Fenstanton. Potential for greater impact than on-line widening as footprint of scheme likely to be bigger.	Limited impact on environmental designations between Trinity Foot and Girton. Constraints around Fenstanton if Local Access Roads extended to Galley Hill: Listed buildings close to the route; County Wildlife Sites abutting or in close proximity (important local wetland areas); Historic Landfill site - Conington; Properties abutting route around Fenstanton. Potential for greater impact than on-line widening as footprint of scheme likely to be bigger.	Impacts can largely be mitigated over time.
	Component 3		As for option S but less impact.	Limited impact on environmental designations.	Limited impact on environmental designations.	As for option S but less impact.		Impacts can largely be mitigated over time.	Impacts can largely be mitigated over time.	
	Component 4			As for option S but less impact.	As for option S but less impact.					
Engineering constraints	Component 1	Limited engineering constraints envisaged. Issues during construction.	Highly complex issues in Huntingdon relating to space, river and rail crossings. Significant impacts during construction including on environmental issues.	Off-line construction presents fewer challenges, lower impact during construction.	Off-line construction presents fewer challenges, lower impact during construction, includes new structures over the A1.	Off-line construction presents fewer challenges, lower impact during construction.	Off-line construction presents fewer challenges, and lower impact during construction.	Off-line construction presents fewer challenges, lower impact during construction.	Off-line construction presents fewer challenges, lower impact during construction, includes new structures over the A1.	Off-line construction presents fewer challenges, and lower impact during construction, but issues around Fenstanton with extended Local Access Roads.
	Component 2	Large number of structures, but scaled back from S.	Limited engineering constraints envisaged. Issues during construction.	Highly complex issues in Huntingdon relating to space, river and rail crossings. Significant impacts during construction including on environmental issues.	Highly complex issues in Huntingdon relating to space, river and rail crossings. Significant impacts during construction including on environmental issues.	Limited engineering constraints envisaged. Issues during construction.	Large number of structures.	Off-line construction presents fewer challenges, and lower impact during construction.	Off-line construction presents fewer challenges, and lower impact during construction.	Large number of structures.
	Component 3		Large number of structures, but scaled back from S.	Limited engineering constraints envisaged. Issues during construction.	Limited engineering constraints envisaged. Issues during construction.	Large number of structures, but scaled back from S.		Large number of structures.	Large number of structures.	
	Component 4			Large number of structures, but scaled back from S.	Large number of structures, but scaled back from S.					
Acceptability (public / political)	Component 1	On-line widening perceived as less contentious than off-line option.	Potential show-stoppers relating to impacts at Huntingdon end.	Off-line route but relatively shortly and potentially limited impact on populous areas.	Off-line route but relatively shortly and potentially limited impact on populous areas.	Off-line route but relatively shortly and potentially limited impact on populous areas.	Local access roads have potential to be more contentious than on-line widening. Acceptability issues around potential impacts on Fenstanton with extended Local Access Roads.	Off-line route but relatively shortly and potentially limited impact on populous areas.	Off-line route but relatively shortly and potentially limited impact on populous areas.	Local access roads have potential to be more contentious than on-line widening. Acceptability issues around potential impacts on Fenstanton.
	Component 2	Similar to on-line widening, changes to configuration of existing junction.	On-line widening perceived as less contentious than off-line option.	Potential show-stoppers relating to impacts at Huntingdon end.	Potential show-stoppers relating to impacts at Huntingdon end.	On-line widening perceived as less contentious than off-line option.	Similar to on-line widening, changes to configuration of existing junction.	Local access roads have potential to be more contentious than on-line widening. Acceptability issues around potential impacts on Fenstanton with extended Local Access Roads.	Local access roads have potential to be more contentious than on-line widening. Acceptability issues around potential impacts on Fenstanton with extended Local Access Roads.	Similar to on-line widening, changes to configuration of existing junction.
	Component 3		Similar to on-line widening, changes to configuration of existing junction.	On-line widening perceived as less contentious than off-line option.	On-line widening perceived as less contentious than off-line option.	Similar to on-line widening, changes to configuration of existing junction.		Similar to on-line widening, changes to configuration of existing junction.	Similar to on-line widening, changes to configuration of existing junction.	
	Component 4			Similar to on-line widening, changes to configuration of existing junction.	Similar to on-line widening, changes to configuration of existing junction.					
Permissions / Planning / Orders	All components	Scale of all packages likely to require development consent from Major Infrastructure Planning Unit. All packages likely to need CPO, though this can be progress outwith the other processes. Scope for LARs to be delivered by LA, but unlikely that these would be viewed as a local project, more likely to be seen as something of national significance. Most packages likely to take a minimum of 5 years from decision to proceed to start of construction.								
Timescales / phasing	All components	Issues envisaged if attempt to progress one element of a package in isolation through the planning/approvals processes. On that basis phasing considered in relation to construction/opening.								
	Whole package		C/A/R - keep 'throttles' at either end of improved section	C/A/R - keep 'throttles' at either end of improved section, do T last	C/A/R - keep 'throttles' at either end of improved section, do H last	Keep 'throttles' at either end of improved section, do T and R last	No phasing, though option exists to put in temporary connections between LARs and mainline carriageway.	No phasing of D/S, though option exists to put in temporary connections between LARs and mainline carriageway. Open T/H at same time as S.	No phasing of D/S, though option exists to put in temporary connections between LARs and mainline carriageway. Open T/H at same time as S.	No phasing, though option exists to put in temporary connections between LARs and mainline carriageway.
	Packages containing G									
Inter-dependencies	All packages	No known links to other projects/scheme delivery. All links related to land-use planning aspirations. Assumed that Northstowe needs some improvement between Bar-Hill and Girton, but consideration should be given to phasing/likely build-out rates as part of the planning approvals process. HA requirement likely to be nil-detriment in the short-term. Alconbury may need Spittals improvements but not known at this stage. Raises questions about potential demand to keep viaduct to maintain access from the east. Questions around proposed timescales. Waterbeach - potential impacts on CNB								

Deliverability Issues

Potential deliverability issues (in terms of environmental constraints, engineering constraints and public/political acceptability) were initially considered on a component basis, before looking at the overall packages to see whether any additional issues arose when components were combined. The table below reflects this methodology: the assessments for each component are listed in the rows labelled Component 1-4 (with the order being that in which the components appear in the package name).

	Package	ECR	GB*CR	GDS	GPR	F	GL	G(part)J
Environmental constraints	Component 1	Limited impact on environmental designations between Trinity Foot and Girton. Constraints between Godmanchester and Fenstanton: Listed buildings close to the route; County Wildlife Sites abutting or in close proximity (important local wetland areas); Historic Landfill site - Conington and Godmanchester; Properties abutting route around Fenstanton. Potential for greater impact than on-line widening as footprint of scheme likely to be bigger.	Provides relief to Huntingdon. Constraints around Fenstanton if the Huntingdon Southern Bypass ties in to the west of Fenstanton: Listed buildings close to the route; County Wildlife Sites abutting or in close proximity (important local wetland areas); Historic Landfill site - Conington; Properties abutting route around Fenstanton.	Provides relief to Huntingdon. Constraints around Fenstanton if the Huntingdon Southern Bypass ties in to the west of Fenstanton: Listed buildings close to the route; County Wildlife Sites abutting or in close proximity (important local wetland areas); Historic Landfill site - Conington; Properties abutting route around Fenstanton.	Provides relief to Huntingdon. Constraints around Fenstanton if the Huntingdon Southern Bypass ties in to the west of Fenstanton: Listed buildings close to the route; County Wildlife Sites abutting or in close proximity (important local wetland areas); Historic Landfill site - Conington; Properties abutting route around Fenstanton.	Long route through open countryside, therefore greater probability of adverse environmental impacts and potential for showstoppers: Great Stukeley Railway Cutting SSSI; County Wildlife Sites - Wyton, Rivers Ouse and Cam; Needingworth Reserve (new wetland habitat creation area); Open countryside, impacts on views from/to several settlements and from viaducts/bridges over rivers; Wicken Fen Vision and Green Belt planning considerations; Several Flood Zone 3 areas to cross; Wyton Airfield (bomb dump), Potential impact on Historic Landfill (Ellington)	Provides relief to Huntingdon. Constraints around Fenstanton if the Huntingdon Southern Bypass ties in to the west of Fenstanton: Listed buildings close to the route; County Wildlife Sites abutting or in close proximity (important local wetland areas); Historic Landfill site - Conington; Properties abutting route around Fenstanton.	Provides relief to Huntingdon.
	Component 2	Limited impact on environmental designations.	Constraints around Fenstanton if online widening extended to Galley Hill: Listed buildings close to the route; County Wildlife Sites abutting or in close proximity (important local wetland areas); Historic Landfill site - Conington; Properties abutting route around Fenstanton.	Limited impact on environmental designations between Trinity Foot and Girton. Constraints around Fenstanton if Local Access Roads extended to Galley Hill: Listed buildings close to the route; County Wildlife Sites abutting or in close proximity (important local wetland areas); Historic Landfill site - Conington; Properties abutting route around Fenstanton. Potential for greater impact than on-line widening as footprint of scheme likely to be bigger.	Potential showstoppers at western end in Huntingdon due to importance of environmental sites and designations and impact on surrounding townscape: Registered Commons and Listed Buildings; International and National ecology site (Portholme); Built up area with important open spaces/commons; increased impact of viaduct. Constraints between Godmanchester and Fenstanton: Listed buildings close to the route; County Wildlife Sites abutting or in close proximity (important local wetland areas); Historic Landfill site - Conington and Godmanchester; Properties abutting route around Fenstanton. Potential for greater impact than on-line widening as footprint of scheme likely to be bigger.		Long route through open countryside, therefore greater probability of adverse environmental impacts and potential for showstoppers: County Wildlife Sites - River Cam; Open countryside, impacts on views from/to several settlements and from viaducts/bridges over rivers, Crosses guideway, proximity to edge of Northstowe development; Wicken Fen Vision and Green Belt planning considerations; Several Flood Zone 3 areas to cross.	Limited impact on environmental designations.
	Component 3	As for option S but less impact.	Limited impact on environmental designations.	Impacts can largely be mitigated over time.	As for option S but less impact.			
	Component 4		As for option S but less impact.					
Engineering constraints	Component 1	Off-line construction presents fewer challenges, and lower impact during construction, but issues around Fenstanton with extended Local Access Roads.	Off-line construction presents fewer challenges, lower impact during construction, includes new structures for river and rail crossings. Potential for less complicated junction arrangements depending on the d/r derivative.	Off-line construction presents fewer challenges, lower impact during construction, includes new structures for river and rail crossings. Potential for less complicated junction arrangements depending on the d/r derivative.	Off-line construction presents fewer challenges, lower impact during construction, includes new structures for river and rail crossings. Potential for less complicated junction arrangements depending on the d/r derivative.	Challenging structures, but relatively straight forward off-line construction. Lower impact during construction. Extent of flood plain more likely to cause problems. Tie-in at Girton more complex than with ECI therefore additional issues may be identified.	Off-line construction presents fewer challenges, lower impact during construction, includes new structures for river and rail crossings. Potential for less complicated junction arrangements depending on the d/r derivative.	Off-line construction presents fewer challenges, lower impact during construction, includes new structures for river and rail crossings. Potential for less complicated junction arrangements depending on the d/r derivative.
	Component 2	Limited engineering constraints envisaged. Issues during construction.	Limited engineering constraints envisaged, though some potential issues around Fenstanton with extended widening. Issues during construction.	Off-line construction presents fewer challenges, and lower impact during construction.	Off-line construction presents fewer challenges, and lower impact during construction, but highly complex issues in Huntingdon relating to space, river and rail crossings.		Same issues as eastern end of F, plus CGB crossing.	Limited engineering constraints envisaged for section adjacent to A1198. Constraints with existing overbridges around Cambourne.
	Component 3	Large number of structures, but scaled back from S.	Limited engineering constraints envisaged. Issues during construction.	Large number of structures.	Large number of structures, but scaled back from S.			
	Component 4		Large number of structures, but scaled back from S.					
Acceptability (public / political)	Component 1	Local access roads have potential to be more contentious than on-line widening. Acceptability issues around potential impacts on Fenstanton.	Proximity to populous areas. Extent of new route through open countryside.	Proximity to populous areas. Extent of new route through open countryside.	Proximity to populous areas. Extent of new route through open countryside.	Proximity to populous areas. Extent of new route through open countryside.	Proximity to populous areas. Extent of new route through open countryside.	Proximity to populous areas. Extent of new route through open countryside.
	Component 2	On-line widening perceived as less contentious than off-line option.	On-line widening perceived as less contentious than off-line option.	Local access roads have potential to be more contentious than on-line widening. Acceptability issues around potential impacts on Fenstanton with extended Local Access Roads.	Local access roads have potential to be more contentious than on-line widening. Acceptability issues around potential impacts on Fenstanton and impacts on Huntingdon with extended Local Access Roads.		Proximity to populous areas. Extent of new route through open countryside.	Additional capacity in existing transport corridor. Potential impacts on Papworth/Cambourne.
	Component 3	Similar to on-line widening, changes to configuration of existing junction.	On-line widening perceived as less contentious than off-line option.	Similar to on-line widening, changes to configuration of existing junction.	Similar to on-line widening, changes to configuration of existing junction.			
	Component 4		Similar to on-line widening, changes to configuration of existing junction.					
Permissions / Planning / Orders	All components							
Timescales / phasing	All components							
	Whole package	No phasing, though option exists to put in temporary connections between LARs and mainline carriageway.				No phasing, could provide M11 spur later, but limited merit in this	No phasing, would need to open both elements together to release Spittals/Girton bottlenecks at same time.	A428 element of J, then G/A1198 element of J
	Packages containing G		G would always be last option delivered/opened, but otherwise sequencing as for other packages.	G would always be last option delivered/opened, but otherwise sequencing as for other packages.	G would always be last option delivered/opened, but otherwise sequencing as for other packages.			G would always be last option delivered/opened, but otherwise sequencing as for other packages.
Inter-dependencies	All packages							

Greg Hartshorn
Atkins Ltd
The Axis
10 Holliday Street
Birmingham B1 1TF
England

Email: greg.hartshorn@atkinsglobal.com
Tel: +44 (0) 121 483 5000
Fax: +44 (0) 121 483 5252