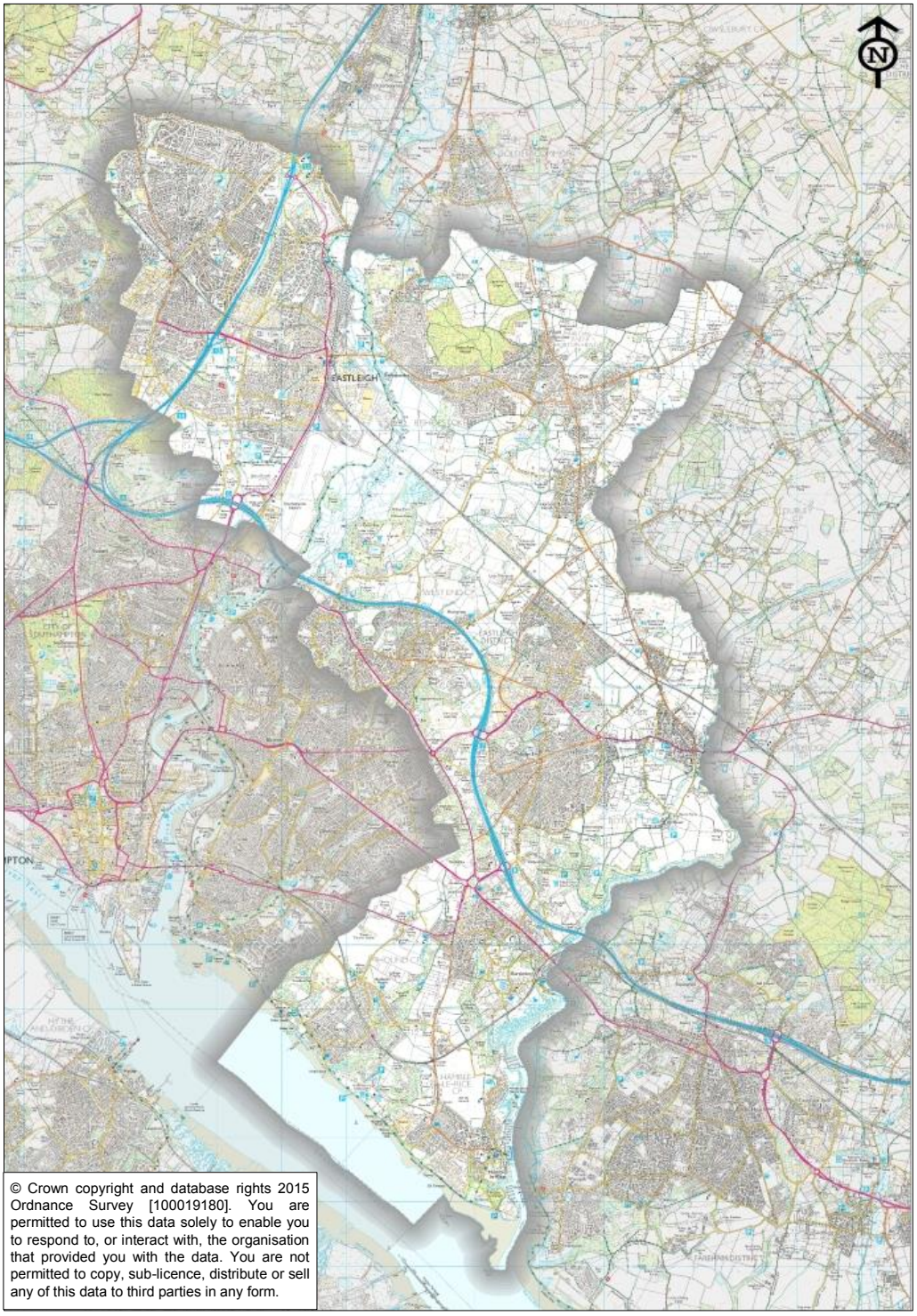
Eastleigh Strategic Transport Study

Interim Report - Issues and Options

December 2015



Contents

Executive Summary

The Eastleigh Strategic Transport Study (STS) will define the need for potential multi-modal strategic transport infrastructure improvements to be delivered over the next Eastleigh Borough Local Plan period (to 2036).

The STS will build upon optioneering work undertaken by Eastleigh Borough Council (EBC), which will inform the location and quantum of potential new development sites. The Borough Council will as a priority, seek to locate new development in locations which reduce the need to travel, using an integrated approach to land-use and transport planning.

The study will identify a range of viable transport improvements which can be delivered as part of a phased programme. These improvements will be designed to encourage the use of sustainable modes, reduce congestion, encourage economic growth and investment into the area, and deliver new housing and employment.

The overall aims of the completed study are to:

- Identify current strategic transport issues;
- Identify predicted future strategic transport issues, with and without planned development;
- Identify a range of transport schemes and measures to help manage future travel demands and support strategic development and growth to 2036;
- Carry out design work on scheme options in order to help arrive at preferred options, which can ultimately be formally safeguarded through the Local Plan process;
- Contribute towards a robust evidence base and provide a means to engage with local stakeholders to respond to the forthcoming consultations on the new Local Plan; and
- Strengthen the Highway Authority's position in securing appropriate transport contributions and mitigation works from new developments anticipated through the new Local Plan and Community Infrastructure Levy (CIL).

In advance of the full study report, this **Interim Report** provides information to support the EBC Issues and Options consultation in December 2015 on its emerging Local Plan 2011-2036. Specifically it provides an overview of the likely transport issues associated with potential new development sites in the Borough and presents and appraises some initial transport infrastructure options based upon broad corridors where opportunities exist for improvement.

Introduction

Based on the potential areas that are being promoted for development, the Borough area has been split into five study areas as follows:

1. Central Eastleigh, Eastleigh Riverside and the former Ford site;
2. North Bishopstoke/Fair Oak;
3. South Bishopstoke/Fair Oak;
4. Hedge End/Botley/West End; and

5. Hamble/Bursledon.

Current housing need scenarios set out in the EBC Issues and Options document suggest that the number of homes that will be required within the Borough for the period 2011-2036 range from 13,800 to 20,750. For the purposes of this study, a provisional figure of 17,000 new homes (as agreed with EBC) has formed the basis of initial modelling of the impact of future traffic growth. This would represent an increase of circa 7,000 homes compared to the previous draft Local Plan to 2029.

A requirement of between 115,500m^2-142,100m^2 of additional employment floor-space has also been assumed for the purposes of this study. This broadly accords with that proposed in the previous Local Plan and, as agreed with EBC, is considered a reasonable basis for assessing transport impacts in this study.

In line with the requirements of the National Planning Policy Framework (NPPF) one of the main considerations when deciding where to site new developments should be the ability to make the site as sustainable as possible, including maximising the use of sustainable transport modes (walking, cycling and public transport).

As part of this study consideration has been given to how the potential development areas would access existing sustainable transport infrastructure and services. 2011 Census data has been used to identify likely 'travel-to-work' characteristics for the potential development areas. These have been used to suggest what sustainable transport infrastructure each potential area could provide or contribute towards, to ensure a choice of travel modes from each area, enhance the existing links and network, and minimise the number of car trips.

Potential Highway Mitigation Schemes

Due to the scale of new housing development required in Eastleigh there is a need to look at how the impact of this development could be mitigated in highways terms.

As a first stage of assessment all the known potential strategic transport schemes were reviewed with the aim of excluding any schemes that are not likely to be viable or deliverable within the Local Plan Period. All known schemes have been considered based on an initial view of the following:

- The overall benefits they offer;
- Costs; and
- Likely deliverability within the Local Plan period.

The schemes that were considered to satisfy all of the above criteria were taken forward to either be considered as part of a feasibility option appraisal process, or taken forward directly to be part of the high level traffic modelling exercise, depending on the status of the scheme.

Several potentially major highway schemes were identified through the above process. These are at an early stage of development and therefore require an assessment to be made of different options for their design prior to determining whether the schemes are deliverable.

Options have been developed for the following potential schemes, which have been appraised from a number of perspectives using a Red Amber Green (RAG) scale to assess their relative merits, and also assessed through high-level transport modelling:

- A new link road to the north of Bishopstoke between the B3354 Winchester Road and the B3335 Highbridge Road, including improvements to Highbridge Road, hereafter to be known as the **North Bishopstoke Bypass**;
- A new link road between the B3335 Allbrook Hill/Highbridge Road and the A335 Allbrook Way, hereafter to be known as the **Allbrook Hill Relief Road** and an integral part of the North Bishopstoke Bypass;
- A new link road to the south of Bishopstoke between Allington Lane and Chickenhall Lane or the B3037 Bishopstoke Road, hereafter to be known as the **South Bishopstoke Bypass**;
- Junction improvements along the B3037 Bishopstoke Road corridor, including at the A335 **Twyford Road/Romsey Road roundabout**, the **Chickenhall Lane roundabout**, and the **Riverside priority junction**;
- Improvements to the **Wide Lane bridge** over the railway, located to the south of Southampton Airport Parkway rail station; and
- Junction and link improvements along the A3025 **Hamble Lane**, including at the Tesco access roundabout, the Jurd Way roundabout and the Portsmouth Road junction.

Further design work has been undertaken for the following scheme, in order to review and address a number of issues and take this scheme forward towards the level of outline preliminary design, as well as assessing scheme benefits using high-level transport modelling:

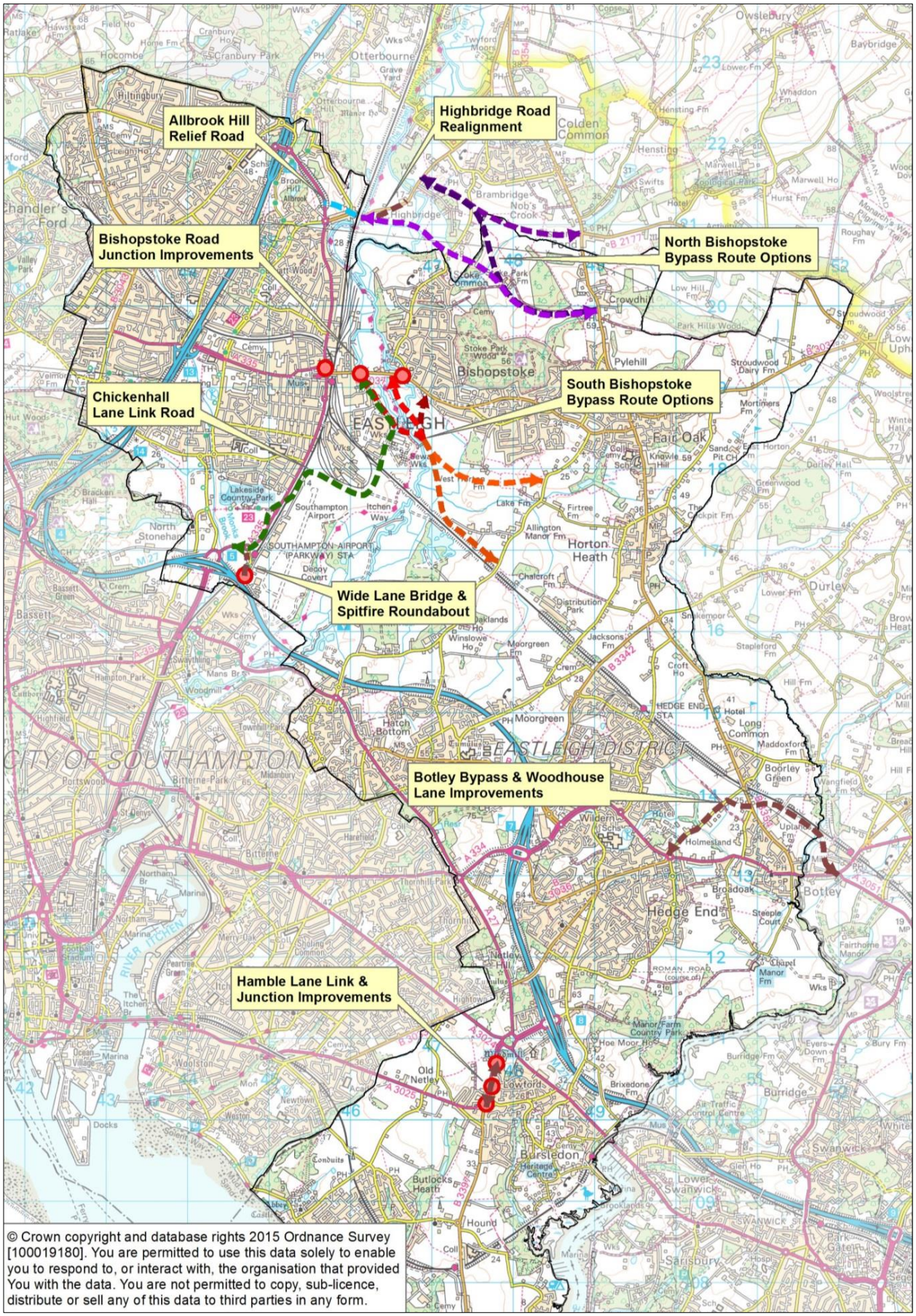
- A new link road to the north of Botley between Woodhouse Lane and the A334 Station Hill/Mill Hill, including widening of Woodhouse Lane, hereafter to be known as the **Botley Bypass**.

A significant amount of design work has historically been undertaken for the following scheme and although no new design work has been necessary at this stage, it is considered pertinent to assess the high-level transport benefits using transport modelling:

- A new link road between the A335 Wide Lane (adjacent to Southampton Airport Parkway rail station) and Chickenhall Lane, including improvements to Chickenhall Lane, hereafter to be known as the **Chickenhall Lane Link Road**.

All the above schemes are shown indicatively on Figure ES1 overleaf.

Figure ES1 – Location of Potential highway Mitigation Schemes



Scheme Options

North Bishopstoke Bypass (NBB) & Allbrook Hill Relief Road (AHRR)

Three feasibility options have been developed for the alignment of the NBB, as well as five options for realigning a section of Highbridge Road immediately to the east of the rail bridge to the east of Allbrook Hill. The realignment of Highbridge Road is being proposed due to the sharp bends that are located on the existing route of Highbridge Road immediately to the east of the railway bridge.

The principal differences between the options for the NBB are related to the length of new road to be provided, whether it crosses the River Itchen floodplain and the directness of the connection between the B3354 and the B3335.

The main differences between the options for the Highbridge Road realignment relate to the amount of land take required, the impact on the existing bridge over the River Itchen channel and the ability to 'smooth out' the road by providing bends of a higher radius.

Three options have been developed for the AHRR, which relate to how the road connects to the existing highway network at the south-eastern end of the new link road. It is suggested that Allbrook Hill could become either one-way in a westerly direction or be closed off at its south-eastern end altogether in order to improve traffic flow and safety on this link, and encourage use of the new road.

South Bishopstoke Bypass (SBB)

The South Bishopstoke Bypass has been split into north-western and south-eastern sections, with three feasibility options being developed for the alignment of the north-western section and two options for the south-eastern section. The split between the northern and southern sections is located to the east of the River Itchen, approximately level with the sewage works at the southern end of Chickenhall Lane.

The main difference between the options for the northern section are related to the location for crossing the River Itchen and associated channels, and the connection point to the B3037 Bishopstoke Road. The principal difference between the options for the southern section relates to the connection point to Allington Lane.

B3037 Bishopstoke Road Corridor Improvements

Three options have been developed to improve capacity at the Twyford Road / Romsey Road roundabout, two of which involve new/improved roundabouts and one of which involves new traffic signals. Any potential alterations to the junction are significantly constrained by the level differences between the Bishopstoke Road bridge over the railway line, the bridge itself, and the proximity of properties on the western side of the A335 Station Hill.

Three options have been considered for the Chickenhall Lane junction, including two that involve larger roundabouts and one that involves traffic signals. Alterations to the junction are constrained by the proximity of the Barton River to the east, the petrol filling station to the west and an office building (Collins House) to the north.

Three options have been considered for the Riverside junction, two of which involve alterations to the existing priority junction and one that involves traffic signals. Alterations to the junction are heavily constrained by the River Itchen channels, one of which is

located to the immediate west of the junction and another is to the north-east. There is also a property on the north-west side of the junction.

Wide Lane Bridge, south of Eastleigh

Four options to improve/replace the bridge were considered initially, but the first option, which was to improve the existing bridge, was discounted as structural investigations revealed that the bridge cannot be widened. Three options were developed further which all involved constructing a new bridge; Option One involves retaining the existing bridge for southbound traffic with northbound traffic using the new bridge; Option Two involves two-way movement on a new single carriageway bridge with the existing bridge demolished, and Option Three is the same as Option Two but with a new dual carriageway bridge.

There are significant constraints to improvements to the bridge by the presence of the railway line, by existing properties on the eastern side of the bridge and by the required gradients on approach to the bridge from the existing roundabouts on either side.

A3025 Hamble Lane Corridor Improvements

A range of interventions from 'Do Minimum' to 'Do Maximum' junction improvements have been investigated. 'Do Minimum' junction improvements are largely constrained by the current highway boundary and are therefore likely to have less benefits, while 'Do Maximum' options provide a comparison of junction improvements that can be achieved if Hamble Lane was widened between Portsmouth Road and the Tesco roundabout.

An improved roundabout option and a signalised junction option have been considered at the Jurd Way and Tesco roundabouts, for both the 'Do Minimum' and 'Do Maximum' scenarios. At the Portsmouth Road junction various signalised junction options have been considered.

Botley Bypass

The preferred option from a previous design feasibility report undertaken on behalf of EBC has been reviewed with a view to identifying a preferred route from a Highway Authority perspective, updating the scheme cost estimate and undertaking further work on the bridge over the River Hamble. The alignment of the western end of the bypass was also re-visited with a view to reducing the significant impact on statutory undertakers apparatus that was associated with where the bypass crossed Winchester Street in Botley.

A revised HCC preferred alignment has been developed as a result, which joins to Woodhouse Lane in Hedge End slightly further south than previously and crosses Winchester Street in Botley further south, minimising the impact on statutory undertakers apparatus. The route alignment has been shifted slightly closer to the railway line and more detail has been provided of the proposed bridge over the River Hamble. The proposed roundabout with the A334/A3051 has been shifted to the west in order to avoid third party land take and improve the bypass alignment on approach to the junction.

Chickenhall Lane Link Road (CLLR)

A significant amount of design work has historically been undertaken on the CLLR and no changes to the design are proposed as part of this study. The scheme involves a new bridge over the A335 and Southampton-Eastleigh railway lines, as well as a new

bridge over the Eastleigh-Hedge End railway line, and passes to the north of the Airport runway.

This scheme is extremely costly and therefore raises significant uncertainty about its deliverability during the new Local Plan period and consequently represents a longer-term aspiration. However, it remains a long-held ambition of the community and in the most recent Council Budget meeting (February 2015) the Borough Council reaffirmed its longstanding commitment to the scheme. It has been included in this study to enable the relative transport merits to be tested alongside other proposals.

High-level Transport Modelling

High-level transport modelling assessment of the impact of the above schemes has been undertaken using the Sub-Regional Transport Model (SRTM). The SRTM covers a wide geographic area including the cities of Southampton and Portsmouth and contains all motorways, primary routes, A-roads and B-roads, as well as many other minor roads.

Various different model scenarios have been tested in order to assess the impact of the development sites both independently and cumulatively. The impact of the sites has been tested alongside the implementation of the various transport infrastructure improvement schemes, in order to identify whether development can be mitigated in transport terms.

At this early stage all modelling has been undertaken up to a 2036 end date. The modelling has included two different **development** scenarios, termed 'Do Minimum' scenarios. In addition six different **transport intervention** scenarios, termed 'Do Something' scenarios have also been modelled.

The initial modelling work indicates that the identified highway schemes all have potential to improve congestion along existing links with beneficial impacts for existing residents, as well as helping to offset the impact of new development envisaged to come forward within Eastleigh Borough over the next 10-20 years.

Further analysis and testing of the model outputs, as well as refinement of some elements of the schemes, will be required prior to progressing the schemes further.

Where Next

The next steps to be taken leading to production of the full study report are as follows:

- Await the outcomes of the EBC Local Plan consultation process on Issues and Options document;
- Following comments back from the consultation, advise on preferred options based on feedback and other stakeholder views received;
- Produce final report in 2016 to include details of preferred options to be safeguarded as part of the emerging Local Plan; and
- In the interim, completion of traffic modelling for scheme options, including junction modelling for the Bishopstoke Road and A3025 Hamble Lane corridors, and detailed corridor modelling for the Hamble Lane improvements.

1 Introduction

1.1 Introduction

1.1.1 The Eastleigh Strategic Transport Study (STS) will define the need for potential multi-modal strategic transport infrastructure improvements to be delivered over the next Eastleigh Borough Local Plan period (to 2036).

1.1.2 The STS will build upon optioneering work undertaken by Eastleigh Borough Council (EBC), which will inform the location and quantum of potential new development sites. The Borough Council will, as a priority, seek to locate new development in locations which reduce the need to travel using an integrated approach to land-use and transport planning.

1.1.3 Given the scale of both housing and employment development which is required throughout the Local Plan period, it is likely that there will still be a need to mitigate the impacts of additional development related traffic in key locations, particularly where there are existing problems of congestion which are negatively impacting the local economy.

1.1.4 The strategy will seek to identify new transport improvements which will help to encourage the use of sustainable modes, address existing congestion and identify mitigation measures which will support committed, allocated and potential new development sites. The study will identify a range of viable transport improvements which can be delivered as part of a phased programme. These improvements are designed to encourage the use of sustainable modes, reduce congestion in central areas, encourage economic growth and investment into the area, and deliver new housing and employment.

1.2 Overall Study Aims

1.2.1 The Eastleigh STS, when completed, will:

- Identify current multi-modal strategic transport issues;
- Identify predicted future multi-modal strategic transport issues: firstly without planned development; and secondly, with planned development;
- Identify a deliverable range of transport mitigation measures to help manage future travel demands across the Borough and support strategic development and growth to 2036;
- Provide a high-level indicative phased programme of work;
- Carry out outline feasibility design work on scheme options where this work is not already available, in order to help arrive at preferred options for identified transport interventions which can ultimately be formally safeguarded through the Local Plan process;
- Inform the update (if / where appropriate) of the EBC Transport Assessment of the Revised Pre-submission Local Plan (January 14);
- Contribute towards a robust evidence base and provide a means to engage with local stakeholders to respond to the forthcoming public consultations on the new Eastleigh Local Plan that are anticipated in December 2015 and beyond; and

- Strengthen the Highway Authority's position in securing appropriate transport contributions and mitigation works from new developments anticipated through the Eastleigh Local Plan and Community Infrastructure Levy (CIL).

1.3 Background to Study

Hampshire County Council (HCC) – Highway Authority Role

1.3.1 As local Highway Authority, the County Council has a duty to manage and maintain its transport network and ensure the expeditious movement of traffic by minimising disruption. As part of this role there is a requirement to ensure that development proposals do not have a detrimental impact upon the operation of the transport network and that where required appropriate multi-modal improvements are put in place to mitigate the impact of traffic generated by developments.

1.3.2 The preparation of a new Local Plan presents a timely opportunity to identify the appropriate transport infrastructure that is now likely to be required in response to the level of development anticipated in Eastleigh Borough over the next 20 years.

Eastleigh Borough Council Local Plan

1.3.3 EBC recently started work on a new Local Plan covering the period from 2011 to 2036. This followed a Planning Inspector failing to support a previous Plan prepared for the period 2011 to 2029 because it did not provide sufficient housing. A new Local Plan, covering the period up to 2036 is now being prepared in response.

1.3.4 The level and location of new housing and employment development will be determined through the planning process. However, comments made by the Inspector in his report on the 2011-29 Plan suggest that the next Plan period to 2036 could see a significant increase in the number of homes to be delivered in the Borough, over and above the circa 10,000 homes that were included previously, whilst allocations for employment floor-space were considered adequate.

1.3.5 The Borough Council will be consulting on what is the appropriate level of development in the Borough to 2036. However for the purposes of this study only, a provisional figure of 17,000 homes (as agreed with EBC) has formed the basis of high level modelling of the impact of future traffic growth, which will provide a robust basis for assessment in the absence of any definitive information at this stage.

1.3.6 Prior to the new Local Plan being brought forward, a number of pre-emptive developer-led housing and employment schemes are being promoted by developers across the Borough. These sites now require consideration and appraisal across a range of criteria, one of which being transport. Forthcoming public consultations on the new Eastleigh Local Plan are anticipated in December 2015 and in 2016 with subsequent examination by the Secretary of State. A robust transport evidence base will be required to inform this process.

Solent Transport

1.3.7 Solent Transport plays a key role in developing strategy and providing a coordinated approach to transport provision in South Hampshire. It is a partnership comprising the four Local Transport Authorities of HCC, Southampton City Council (SCC), Portsmouth City Council and Isle of Wight Council. Given the number of

transport linkages between Eastleigh Borough and the City of Southampton area, (as well as Winchester District) there is a need for a co-ordinated approach to the provision of interventions, with a need to understand and provide for additional journeys towards and into the city by car and by strengthening the role of alternative transport modes.

Solent Local Enterprise Partnership (LEP)

1.3.8 Solent LEP objectives are aimed at unlocking housing sites and delivering economic growth. In relation to the Eastleigh area the key drivers are the re-development of the former Ford site, the development of Eastleigh Riverside, and Southampton Airport as an important area for future employment growth.

Southampton City Council (SCC)

1.3.9 SCC and HCC are currently working with Highways England (HE) on a corridor study for the eastern access into Southampton from Junction 8 of the M27 via the A3024. Junction 8 of the M27 and its surrounding area fall within Eastleigh Borough and there is therefore a clear overlap between the corridor study and this project. Furthermore there are numerous cross-boundary transport links between Eastleigh Borough and the SCC area.

Winchester City Council (WCC)

1.3.10 There are several cross-boundary transport links between Eastleigh Borough and the WCC area that will need to be considered as part of this project. The most notable links are to the east and south-east of Botley with a potential new Botley Bypass and new connection to Whiteley Way, and also in the north of the Borough on routes towards Winchester.

Highways England (HE)

1.3.11 Highways England manage the M27 and M3 corridors that pass through Eastleigh Borough and have identified planned improvements within their M25 to Solent Route Based Strategy (April 2014), which involve implementing Smart Motorways between Junctions 4 and 11 of the M27, and between junctions 9 and 14 of the M3. These improvements were also identified in the Department of Transport Road Investment Strategy (RIS) for the 2015/16-2019/20 Road Period (March 2015), where further improvements between junctions 5 and 8 of the M27 through Eastleigh were announced that involve providing additional capacity at junction 8 through improvements to the Windhover roundabout. A further scheme was also announced in the RIS for junctions 12-14 of the M3 involving improved slip-roads around junctions 12 and 13, providing an additional lane on part of the route and improving capacity through the junctions.

1.4 Interim Report

1.4.1 In advance of the full study report, this Interim Report provides information to support the EBC 'Issues and Options' consultation in December 2015 on its emerging Local Plan 2011-2036. Specifically it provides an overview of the likely transport issues associated with potential new development sites in the Borough and presents and appraises some initial transport improvement options. These options take into account sustainable transport solutions as well as larger infrastructure schemes, based upon broad corridors where mitigation is likely to be required due to this development. Accordingly this report is structured with the following sections:

2. Overview of Study Area and Issues/Constraints
3. Initial sift of Transport schemes
4. Highway improvement scheme options
5. High level traffic modelling information
6. Option assessment tables
7. Sustainable Transport Improvements
8. Where next

- Appendices

2 Overview of Study Area – Issues and Constraints

2.1 Introduction

2.1.1 In order to provide context for the remainder of the report, this chapter provides an overview of the study area and discusses some of the existing transport issues in Eastleigh Borough.

2.2 Transport Context

2.2.1 The Borough of Eastleigh is located to the north and east of Southampton and also borders Winchester to the north and east, Test Valley to the west, Fareham to the east and the South Downs National Park to the north-east. The Borough is one of the largest exporters of labour in the county of Hampshire, but it is also one of the largest importers of labour and these trends place a significant strain on the transport networks within the Borough, at both strategic and local levels. Figure 2.1 below provides an overview of the Borough's strategic transport network.

2.2.2 The highway network is characterised by peak period congestion, particularly at motorway junctions and on the limited number of east-west connections between Eastleigh town centre and the areas to the east. The Borough also experiences a significant number of through movements due to both its proximity to the City of Southampton and the availability of several alternative routes for traffic when there is congestion on the motorway.

2.2.3 Within Eastleigh town there are a number of junctions which experience frequent peak period congestion and potential solutions are constrained by a number of factors including railway lines, railway sidings, Southampton Airport runway, and environmental features e.g. the River Itchen. Figures 2.2 and 2.3 overleaf provide an overview of the delay experienced by vehicular traffic during the AM and PM peak periods. These are based on journey time data collected during school term-times in the year 2013/14 by Trafficmaster Ltd.[1]

2.2.4 With regard to public transport, the Borough is relatively well served by frequent rail services to key urban areas. There are also three main 'Quality Bus Partnership'[2] corridors which provide frequent bus services that together connect Eastleigh town, Hedge End, West End, Fair Oak, Bishopstoke and Chandlers Ford with Southampton and Winchester. However, due to a lack of bus priority measures buses are frequently delayed in the same congestion as other road users. In addition, rail services to the Borough from the east are hampered by an indirect connection to Southampton (particularly the Airport) via Eastleigh Railway Station.

[1] It should be noted that that the length of the road sections used in the Trafficmaster data vary widely and this has an effect on the reported average delay for each section, with longer sections showing as having high levels of delay despite the fact that relatively low levels of delay *may* actually be incurred. For example a 500m section of road with an average delay of 30 seconds will show as black despite having only 1 second of delay for every 17m of road. In contrast a 100m section of road with 20 seconds of delay would only show as red despite having 1 second of delay for every 5m of road.

[2] Quality Bus Partnership schemes are partnerships between the Council and local bus operators to improve the quality of services and facilities. Typically the council will undertake to provide bus priority measures, new bus stops and/or real time information systems. In return bus operators provide new vehicles with improved levels of accessibility and environmental performance and/or enhanced driver training. They may also provide an enhanced level of service frequency.

Figure 2.1 – Eastleigh Borough Strategic Transport Network

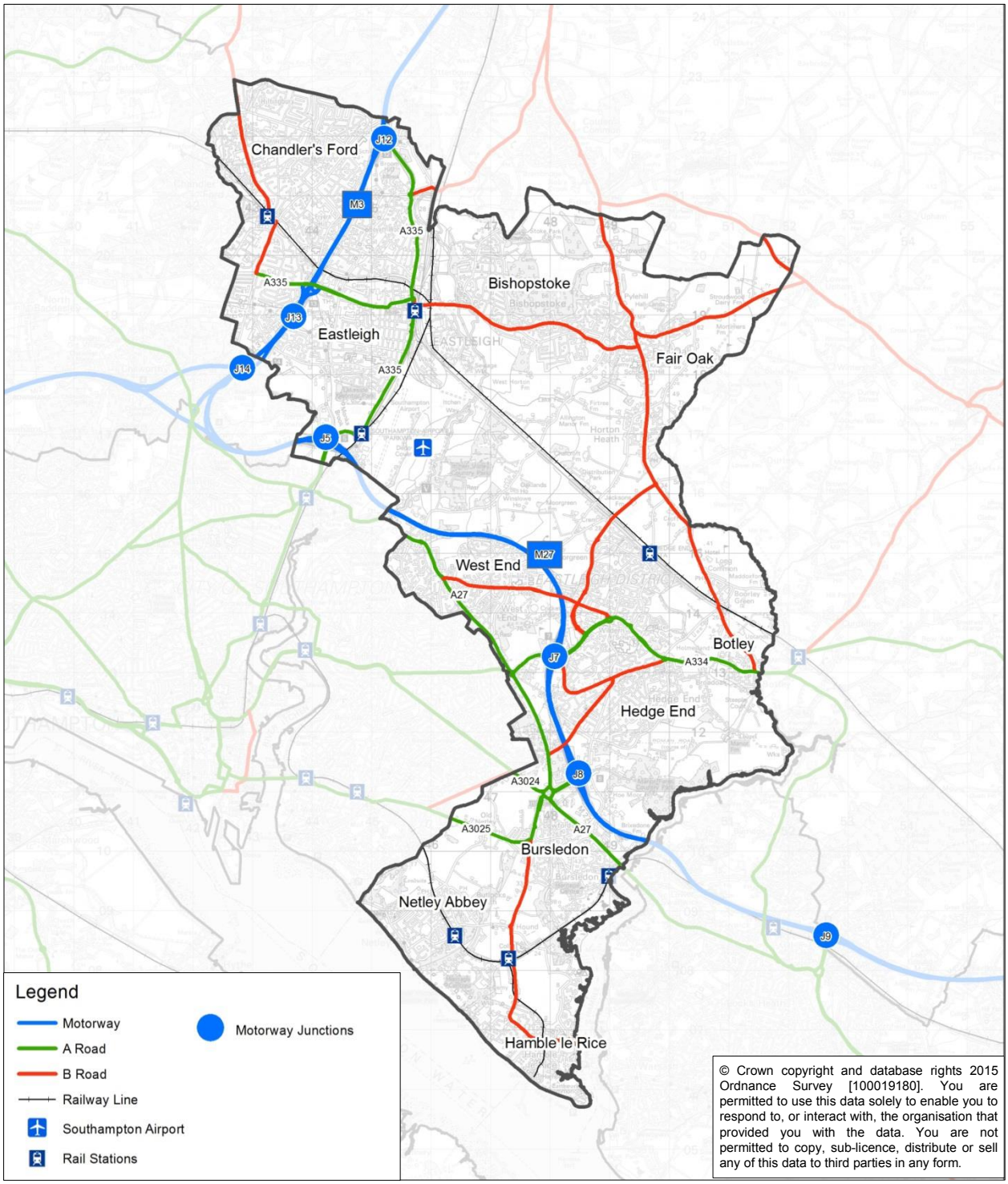


Figure 2.2 – Average Delay 2013/14: AM Peak Period

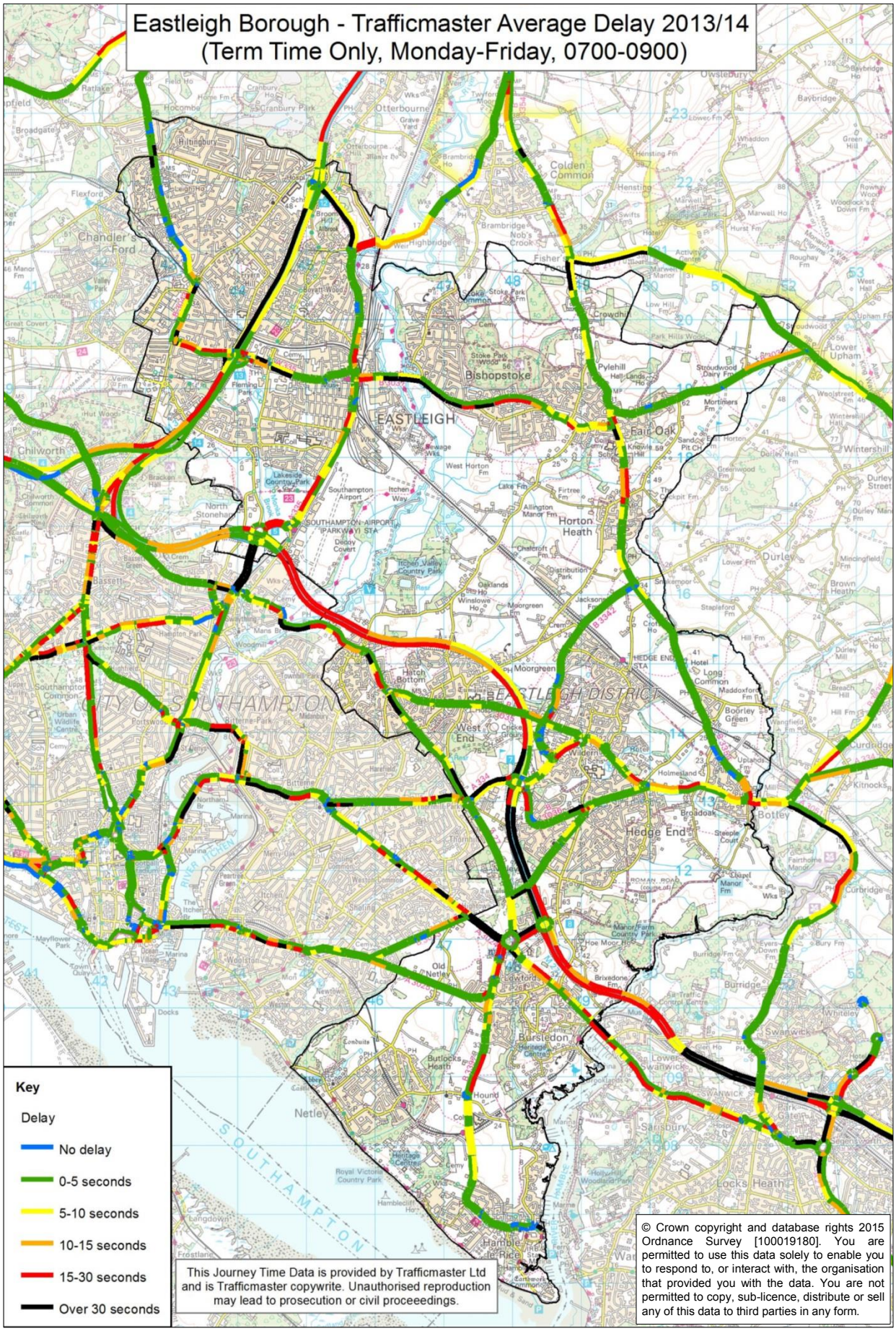
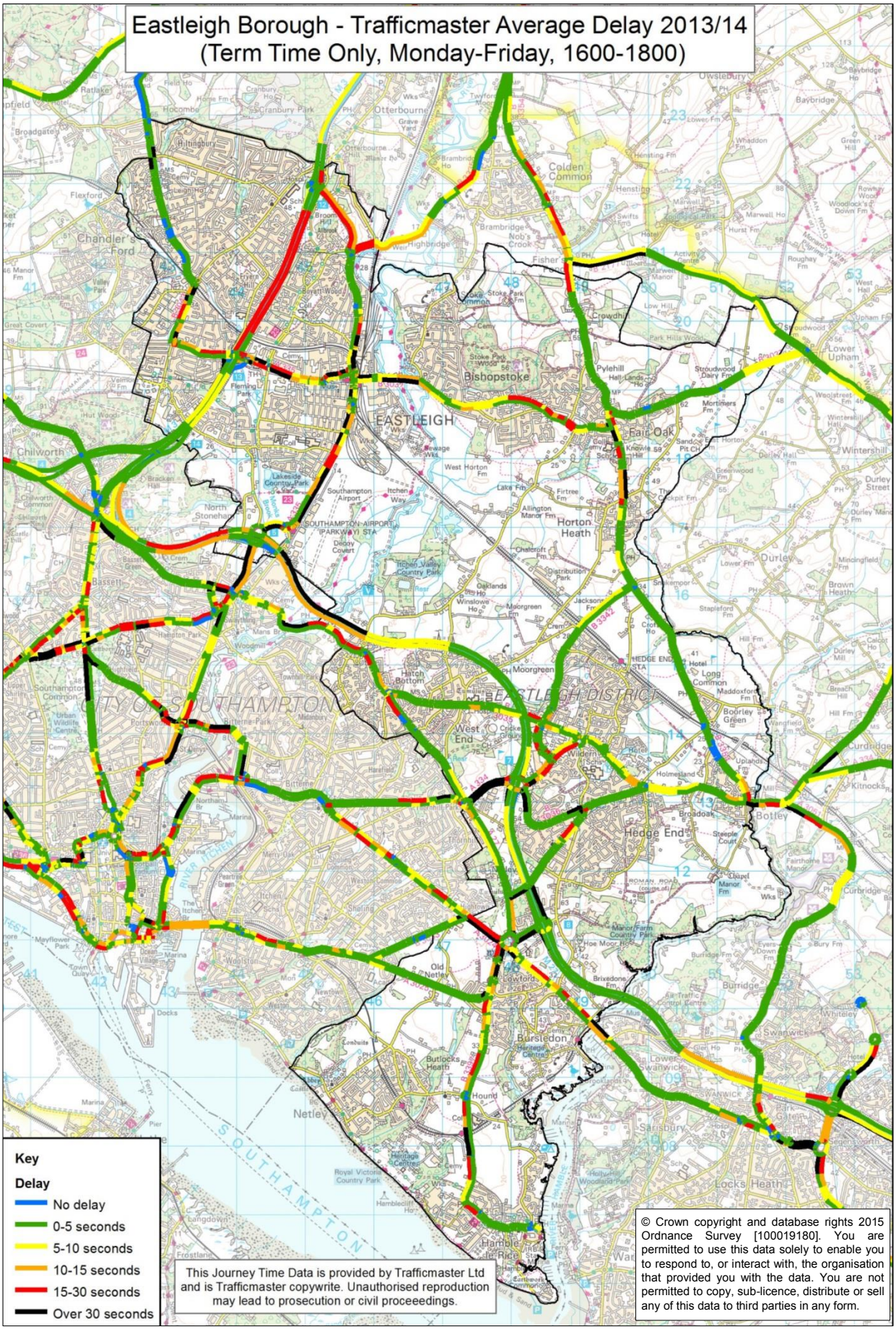


Figure 2.3 – Average Delay 2013/14: PM Peak Period



2.3 Corridors of Interest

2.3.1 For ease of discussion the study area has been split into five distinct geographical areas. Within each area there are one or more potential transport corridors of interest that have been identified for assessment as part of the study. These have been identified either because they are currently congested or they pass through areas that have the potential to accommodate a significant proportion of future development. The corridors also provide an indication of the key junctions that will be considered for improvements as part of the study. They are summarised as follows and shown on Figure 2.4:

1. **Eastleigh town, Riverside and Ford Site** – Includes the town of Eastleigh plus the Ford site to the south, which is itself located just south of the EBC/SCC boundary;
2. **North Bishopstoke/Fair Oak** – Includes areas to the north of the B3037 Bishopstoke Road/Fair Oak Road, and the north-south links to the WCC area;
3. **South Bishopstoke/Fair Oak** – Includes areas to the south of the B3037 Bishopstoke Road/Fair Oak Road, but north of the M27 and Hedge End;
4. **Hedge End/Botley/West End** – Generally includes areas to the east of the M27, but also includes the West End area and east-west links to the WCC area; and
5. **Hamble/Bursledon** – Includes sites to the south-west of the M27 in and around Hamble, Bursledon and Netley, and the east-west links to the SCC area.

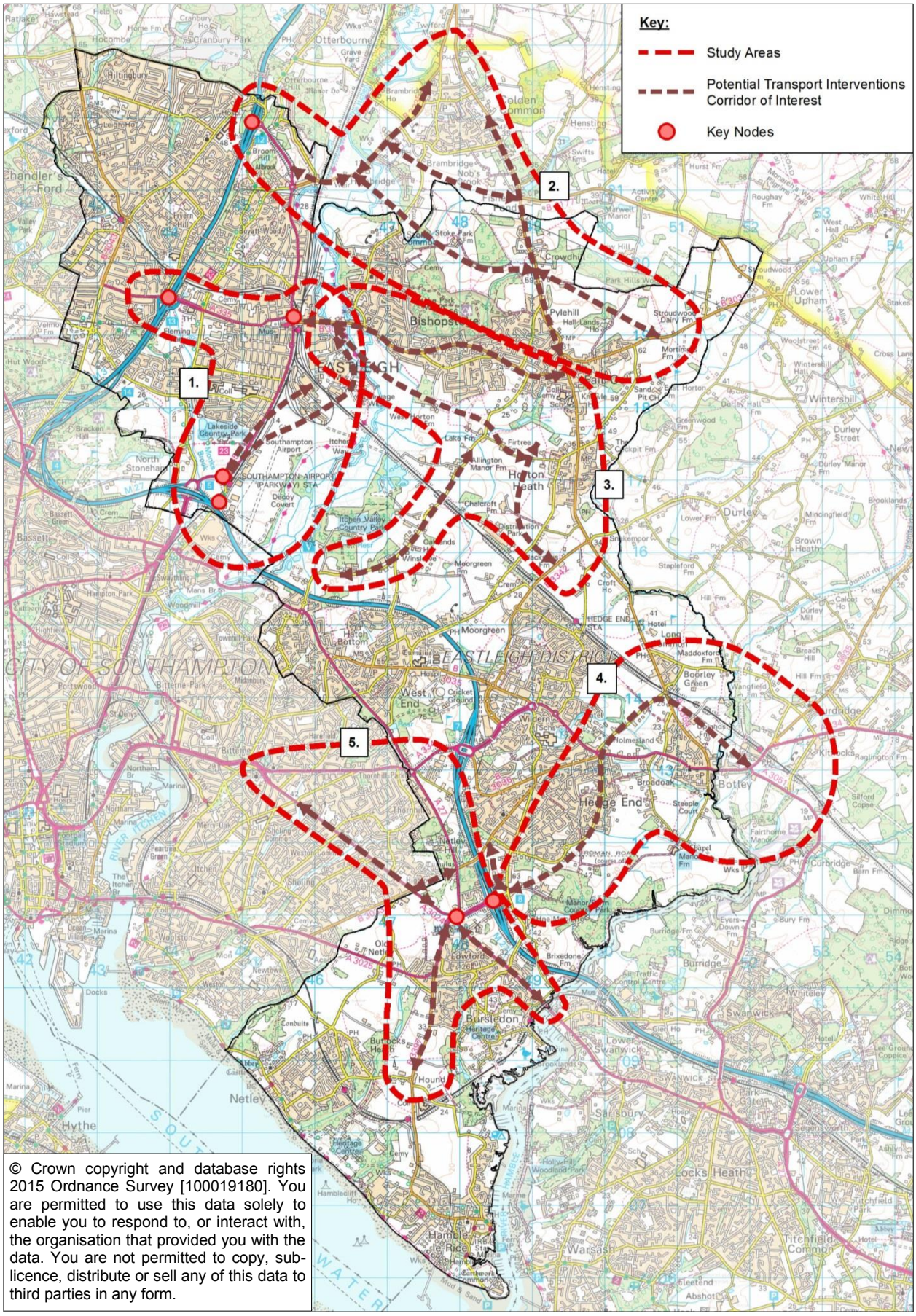
2.4 Development Sites

2.4.1 In terms of the likely location for future development, EBC have indicated that housing and employment sites that were previously allocated for development as part of the Draft Local Plan to 2029 are also likely to be included in the new Plan and many have now secured planning permission or a resolution to grant permission by the Borough Council. In addition to previously identified sites there are a number of speculative development sites that have come forward in the interim period, as well as sites that have been identified by various parties as having the potential to accommodate development.

2.4.2 Current housing need scenarios suggest that the number of homes that will be required within the Borough for the period 2011-2036 range from 13,800 to 20,750 and these scenarios will be tested through the emerging Local Plan process and associated consultation[3]. For the purposes of this study only a provisional figure of 17,000 homes (as agreed with EBC) has formed the basis of modelling the impact of future traffic growth, which would represent an increase of circa 7,000 homes compared to the previous Local Plan's provision of just over 10,000 homes for the period 2011 to 2029. It is therefore likely for there to be a need for significant additional sites to be found for housing development, in addition to those sites identified in the previous Plan.

[3] See Section 5 of Eastleigh Borough Local Plan 2011-2036 Issues and Options consultation document

Figure 2.4 – Study Areas and Corridors of Interest



2.4.3 With regard to employment sites, between 115,500m^2-142,100m^2 of additional employment floor-space may be required within the Borough by 2036. This broadly accords with that proposed in the previous Local Plan and, as agreed with EBC, is considered a reasonable basis for assessing transport impacts in this study. Therefore no changes were required for the high level modelling of transport impacts over and above that undertaken for the TA of the previous draft Local Plan.

2.4.4 The new floor-space would be likely to be provided at Chalcroft Farm in Horton Heath, the Ageas Bowl, and Eastleigh Riverside/Airport Northern Business Park. The site at Chalcraft Farm is now a committed development, while the other two sites remain part of the ongoing **Strategic Land Availability Assessment (**SLAA) update being undertaken by EBC. New employment floor-space is also included within each of the strategic development locations

Initial Sift of Potential Development Sites

2.4.5 The assessment of potential additional housing development sites is ongoing and is being undertaken by EBC. The assessment will be informed by the results of the consultation on the SLAA update and on the Issues and Options Plan and associated assessments. For the purposes of the STS, assumptions have been made on where development may come forward over the period to 2036. This was required in order to evaluate potential transport solutions to mitigate the impact of development and to provide a basis for the high-level transport modelling assessment (see Chapter 6).

2.4.6 Development sites included in the study fall into two main categories as follows and the broad areas for development are shown indicatively on Figure 2.5:

1. Those that are committed (have a planning permission or resolution to grant) and therefore have a degree of certainty regarding delivery; and
2. Those that are potential sites, i.e. are speculative and have no formal planning status at this stage, some of which may be allocated as part of the forthcoming new Local Plan, based on the outcomes of this and other assessments.

2.4.7 It should be noted that the allocation of new development sites as part of the new EBC Local Plan will be an iterative process which takes into account and evaluates a number of criteria including land-use and transport considerations in a balanced manner. It should also be noted that the overall purpose of this study is not to establish the transport principles for the new EBC Local Plan, but rather for HCC as Highway Authority to assess potential strategic transport options for Eastleigh that may be required as a result of future development.

Sustainable Development

2.4.8 In line with the requirements of the National Planning Policy Framework (NPPF) one of the main considerations when deciding where to site new developments should be the ability to make the site as sustainable as possible, including maximising the use of sustainable transport modes (walking, cycling and public transport). It therefore follows that the potential for a site to utilise good access to existing sustainable transport infrastructure and services, or where there is a clear ability to provide good access as part of development proposals, should be recognised when selecting sites for development.

2.4.9 A clear benefit of maximising access by sustainable modes is that it will reduce the number of vehicular trips associated with the site and therefore minimise the impact of the site on the surrounding highway network and potentially reduce the scale of highway mitigation that is required. However, whilst travel plans, transport assessments and transport statements are all methods of assessing and mitigating the negative transport impacts of development and promote sustainable development, they do not necessarily lead to sustainable settlements.

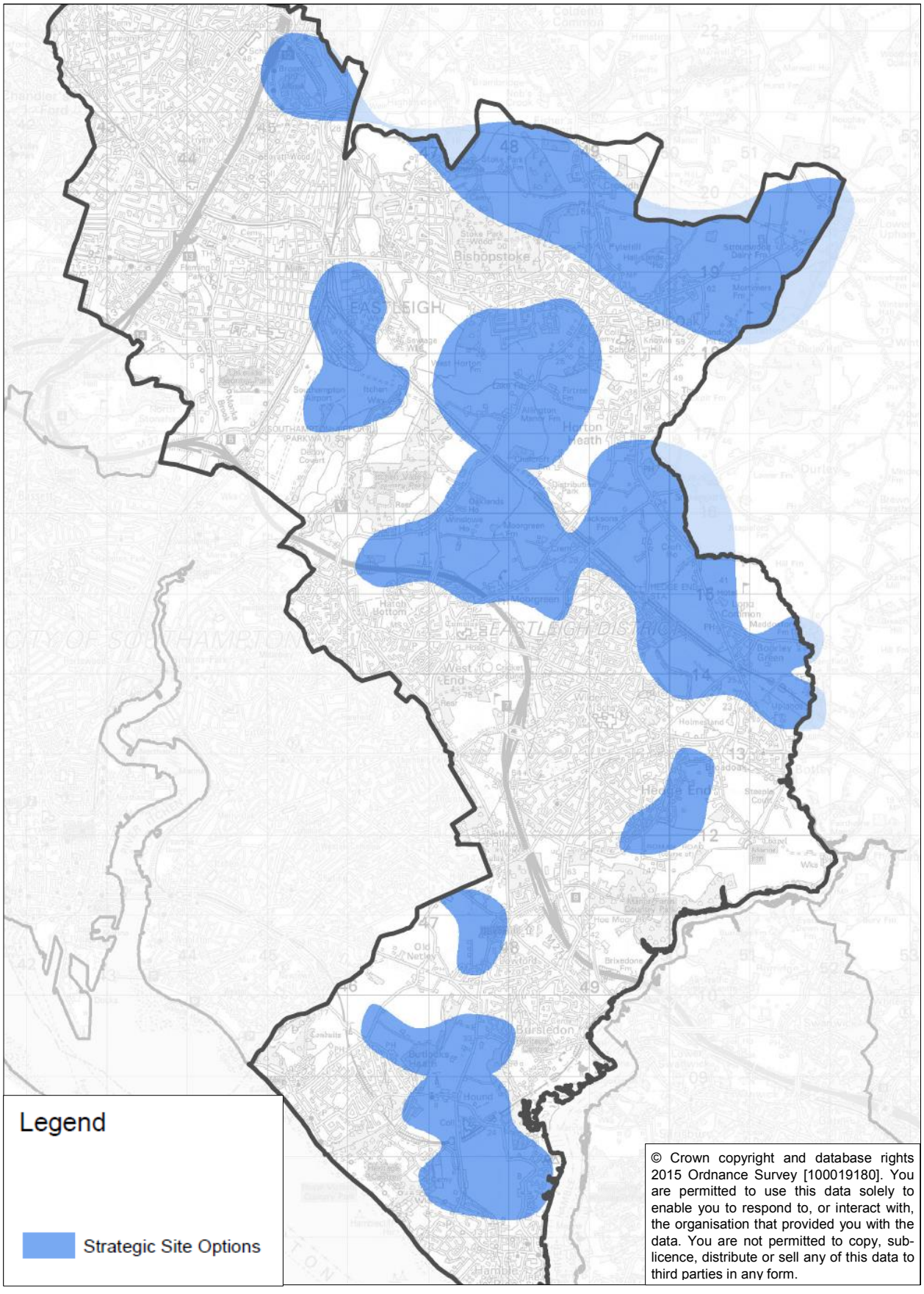
2.4.10 On its own, the provision of sustainable transport infrastructure is often insufficient to encourage sustainable travel habits. Sustainable transport infrastructure should be supported by development which is either self sufficient, or can utilise existing services and facilities to reduce the need to travel.

2.4.11 It therefore follows that those potential development areas located closest to existing settlements are considered at the outset to be more accessible and provide a choice of travel modes. Where employment opportunities, services and facilities are also offered, the need to travel by car is further reduced; Eastleigh town centre is such a location. The same is true of potential development areas that are larger in scale, as they are more likely to generate greater financial contributions and have a critical mass to make certain sustainable transport interventions more viable and deliverable.

2.4.12 The location of new employment development is critical to how people travel and also needs to be fully considered in the development of a sustainable transport strategy for Eastleigh.

2.4.13 Further details of suggested potential improvements to sustainable transport infrastructure and services that could be brought forward in conjunction with the potential development sites under consideration is provided in Chapter 7 of this report.

Figure 2.5 – Strategic development sites under consideration



3 Initial Sift of Transport Schemes

3.1.1 Following work to optimise the use of sustainable transport solutions the next stage of assessment relates to the identification of measures necessary to mitigate residual impacts. To this end a schedule of all the known potential strategic transport schemes has been produced. These schemes have been drawn from a number of sources including the Transport Assessment (TA) of the Revised Pre-Submission Local Plan produced by SYSTRA for EBC in January 2014, the Eastleigh Borough Transport Statement (HCC) and associated Schedule of Transport Proposals, and the TfSH Transport Delivery Plan. Transport schemes that have been put forward to support potential new development sites have also been included.

3.1.2 A sifting process has then been undertaken with the aim of excluding any transport schemes that are not likely to be viable or deliverable within the Local Plan period. Different schemes will have different status, in terms of whether they are committed, planned, longer term aspirations, or a proposed new scheme, but **all** known schemes have been considered based on an initial view of the following:

- The overall benefits they offer;
- Costs; and
- Likely deliverability within the Local Plan period.

3.1.3 The schemes that were considered to satisfy all of the above criteria have been taken forward to either be considered as part of feasibility option appraisal process (see Chapters 5 and 7), or taken forward directly to be part of the high level traffic modelling exercise (see Chapter 6), depending on the status of the scheme. This sifting process primarily aims to discount, at an early stage, those schemes that are not likely to come forward within the next Local Plan period.

3.1.4 Table 3.1 below provides a comprehensive list of all known transport schemes that are of a strategic nature and indicates whether they have been discussed further in this report and/or taken forward for inclusion in the high-level strategic modelling assessments.

3.1.5 It should be noted that the table overleaf is based on the following progression of the scheme's design, from the initial concept through to the detailed design prior to construction:

- Concept – Outline – Feasibility – Preliminary – Detailed.

Table 3.1 - Schedule of potential strategic transport schemes for initial Sift

Location/Scheme Proposal	Design Status	Included in Strategic Modelling	Discussed in Report
Area 1 - Eastleigh/Chandlers Ford and Ford Site			
Chickenhall Lane Link Road, Access to Eastleigh Riverside	Detailed Preliminary	Yes	Yes – see Sections 4-5
New Park and Ride in vicinity of M27 Junction 5 roundabout	Concept	No – previously assessed	No[4] (see footnote)
A335 Twyford Road / Romsey Road / B3037 Bishopstoke Road junction in Eastleigh town centre	Outline	Yes	Yes – see Sections 4-6
Southampton to Chandlers Ford and Southampton to Eastleigh cycle routes via Hutt Hill and Old Stoneham Lane	Detailed Design	No – outside main areas of interest	No – already underway
Eastleigh Chord, New Railway Line	Feasibility	No – Not deliverable in LP period: Cost	No
Spitfire roundabout improvements and Wide Lane bridge widening	Concept	Premature - Not at this stage	Yes – see Section 4
Fourth platform at Eastleigh Rail Station, to improve access to Southampton Airport Parkway Rail Station from areas to the east e.g. Hedge End	Concept	Premature – Not at this stage	No[5] (see footnote)
Area 2 – North of Bishopstoke/Fair Oak			
Allbrook Way to Winchester Road, new link road via Highbridge Road	Outline	Yes	Yes – see Sections 4-6
Winchester Road to Mortimers Lane, new link road	Outline	Premature – Not at this stage. Transport benefits largely captured by above link	No
Area 3 - South of Bishopstoke/Fair Oak			
Chickenhall Lane to Allington Lane, new link road	Outline	Yes	Yes – see Sections 4-6

[4] The benefits of this scheme have previously been assessed as part of the Transport for South Hampshire Transport Delivery Plan 2012-2026, which found that the site failed to cover operating costs and as such was assessed as likely to perform poorly.

[5] Additional platform capacity at Eastleigh is likely be needed to support regular reversing movements from Airport Parkway towards Hedge End etc. It may also be needed to support higher levels of service frequency more generally, especially to/from the Botley Line which can only be accessed via Platform 2/3 and where trains are required to wait at the platform prior to entering the single line through Eastleigh south yard. There is a strong sub-regional demand from various stakeholders for improved train service frequency and connectivity. A "transformational" level of improvement will likely exceed the current capability of Eastleigh station, hence a requirement may arise-likely post-2027 for additional platform capacity at Eastleigh. Delivery of the improvements is to be considered through the rail industry's investment planning process.

Location/Scheme Proposal	Design Status	Included in Strategic Modelling	Discussed in Report
Burnetts Lane / Bubb Lane Link Road, Horton Heath	Preliminary	Yes	No – developer led scheme
Burnetts Lane to Allington Lane link road, via Fir Tree Lane, Horton Heath	Preliminary	Yes	No – developer led scheme
Junction improvements along Bishopstoke Road / Fair Oak Road (x5 junctions)	Outline	Yes	Yes – see Sections 4-6
Link road parallel to M27, joining Tollbar Way to Allington Lane	Concept	Premature - Not at this stage	No
Area 4 - Hedge End/Botley/West End			
Botley Bypass	Feasibility	Yes	Yes – see Section 4-6
Sundays Hill Bypass	Preliminary / Detailed	Yes	No – developer led scheme
Botley Road bus only connection as a link between A27 and A3024, potentially opening to all vehicles	Concept	Premature - Not at this stage	No
M27 Junction 7 - Junction optimisation and bus priority measures	Concept	Premature - Not at this stage	No
Cycle link to connect Botley to Hedge End	Concept	Premature - Not at this stage	No – Land issues, long term scheme
Tollbar Way junction improvements, Hedge End Retail Park area.	Concept	Premature - Not at this stage	No
Hedge End Railway Station improvements	Concept	Premature - Not at this stage	Yes – see Section 7
Link roads between Whiteley and Botley Road to be delivered in connection with the North Whiteley Urban Extension	Preliminary	Yes	No – developer led scheme
Cycle link Hedge End-Eastleigh along railway corridor	Concept	Premature - Not at this stage	No – Significant cost/land issues, long term scheme
M27 Junction 6	Concept	No – Significant cost/land issues, lack of HE support	No
Area 5 - Hamble/Bursledon			
M27 Junction 8 - Junction optimisation (signalisation/ free flow left turn lanes) and bus priority measures.	Feasibility	Yes	No – HE led scheme

Location/Scheme Proposal	Design Status	Included in Strategic Modelling	Discussed in Report
A27/A3024 Windhover roundabout traffic capacity and pedestrian/cycle improvements	Feasibility	Yes	No – HE led scheme
A27 Windhover to Swanwick, corridor capacity improvements	Concept	Premature - Not at this stage	No
New Park and Ride in vicinity of Windhover roundabout for access to Southampton	Concept	Premature - Not at this stage, feasibility being investigated	No – HE/SCC led scheme
Hamble Railway Station hub improvements	Concept	Premature - Not at this stage	Yes – see Section 7
A3024 Bursledon Road (Windhover to Southampton) corridor bus improvements	Concept	Premature - Not at this stage	No – HE/SCC led scheme
Capacity improvements along A3025 Hamble Lane south of Windhover roundabout.	Concept	Yes	Yes – see Sections 4-6

4 Initial Scheme Options

4.1.1 A significant amount of new housing and employment development is likely to be required in Eastleigh Borough. Many of the identified potential sites are located away from existing sustainable transport infrastructure and services for other locational reasons. There is therefore a clear need to look at how the impact of this development could be mitigated in highways terms.

4.1.2 Following the sift of all the identified transport schemes there are several potentially major highway schemes which are either at an initial concept stage or at an early stage of development. These need further consideration as part of the overall assessment of transport mitigation options.

4.1.3 For each scheme an assessment is required to be made of several alignment options prior to determining whether the schemes are deliverable. Accordingly, feasibility design work has been undertaken to identify options for the following potential schemes that are summarised below, appraised in Chapters 5 and 6, and the location of which is shown in Figure 4.1:

- A new link road to the north of Bishopstoke between the B3354 Winchester Road and the B3335 Highbridge Road, including improvements to Highbridge Road, hereafter to be known as the **North Bishopstoke Bypass**;
- A new link road between the B3335 Allbrook Hill/Highbridge Road and the A335 Allbrook Way, hereafter to be known as the **Allbrook Hill Relief Road.** This link would form an integral part of the North Bishopstoke Bypass but there is also considered to be an existing need for the scheme and therefore it is discussed separately;
- A new link road to the south of Bishopstoke between Allington Lane and Chickenhall Lane or the B3037 Bishopstoke Road, hereafter to be known as the **South Bishopstoke Bypass**;
- Junction improvements along the B3037 Bishopstoke Road corridor, including at the A335 **Twyford Road/Romsey Road roundabout**, the **Chickenhall Lane roundabout**, and the **Riverside priority junction**;
- Improvements to the **Wide Lane bridge** over the railway, located to the south of Southampton Airport Parkway rail station;
- Junction and link improvements along the A3025 **Hamble Lane**, including at the Tesco access roundabout, the Jurd Way roundabout and the Portsmouth Road junction.

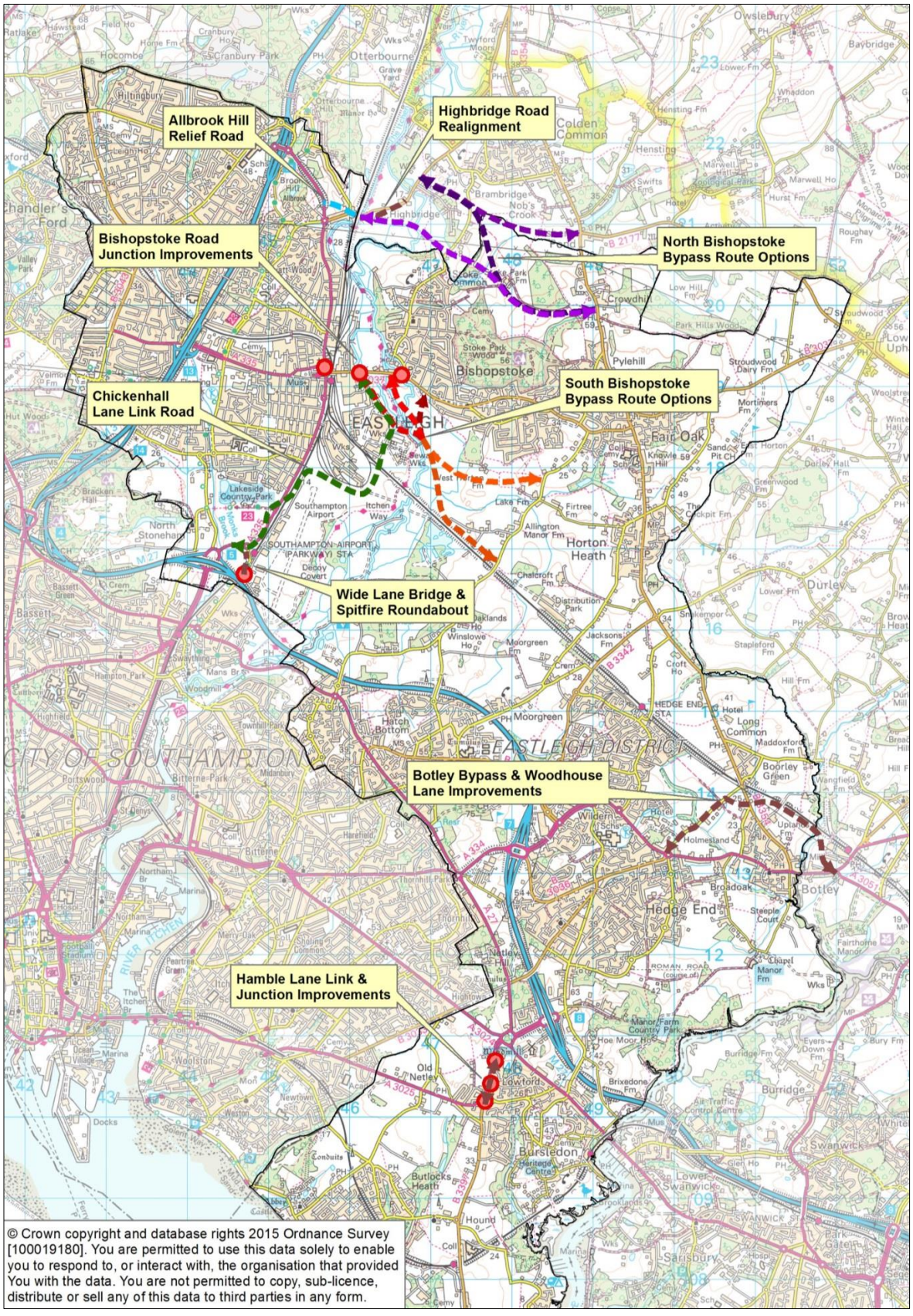
4.1.4 Further design work has been undertaken for the following scheme, in order to review previous feasibility design work, address a number of issues and take this scheme forward towards outline preliminary design:

- A new link road to the north of Botley between Woodhouse Lane and the A334 Station Hill/Mill Hill, including widening of Woodhouse Lane, hereafter to be known as the **Botley Bypass**.

4.1.5 A significant amount of design work has historically been undertaken for the following scheme and although no new design work has been necessary at this stage, it is considered pertinent to assess the high-level transport benefits:

- A new link road between the A335 Wide Lane (adjacent to Southampton Airport Parkway rail station) and Chickenhall Lane, including improvements to Chickenhall Lane, hereafter to be known as the **Chickenhall Lane Link Road**.

Figure 4.1 – Location of Schemes to be Assessed



4.2 North Bishopstoke Bypass / Allbrook Hill Relief Road

North Bishopstoke Bypass (NBB) / Highbridge Road Improvements

4.2.1 Three feasibility options have been developed for the alignment of the NBB, as well as five options for realigning a section of Highbridge Road immediately to the east of the rail bridge to the east of Allbrook Hill. These options have been developed based on initial plans provided to HCC by developers.

4.2.2 A fourth option for the route of the NBB was considered, which would have utilised the existing highway network to provide an improved standard of route between the B3354 Main Road and the B3335 Highbridge Road. This could have involved on-line widening of Church Lane/Brambridge at the southern edge of Colden Common, or alternatively a new road between the B3354/B2177 Portsmouth Road junction and Church Lane to the west of Colden Common. This option was discounted at this stage due mainly to the constraints imposed by existing properties on both sides of Church Lane and the more convoluted nature of the route when compared to the other options. However, it may be revisited in the future.

4.2.3 The realignment of the Highbridge Road carriageway is being proposed due to the sharp bends that are located on the existing route of Highbridge Road immediately to the east of the railway bridge. In the context of potentially increased traffic flows it is considered beneficial to bring this section of link up to current design standards. The broad alignments of the three options for the NBB are shown in Figure 4.2, while the broad alignments of the options for realigning Highbridge Road are shown in Figure 4.3.

Figure 4.2 – North Bishopstoke Bypass Route Options

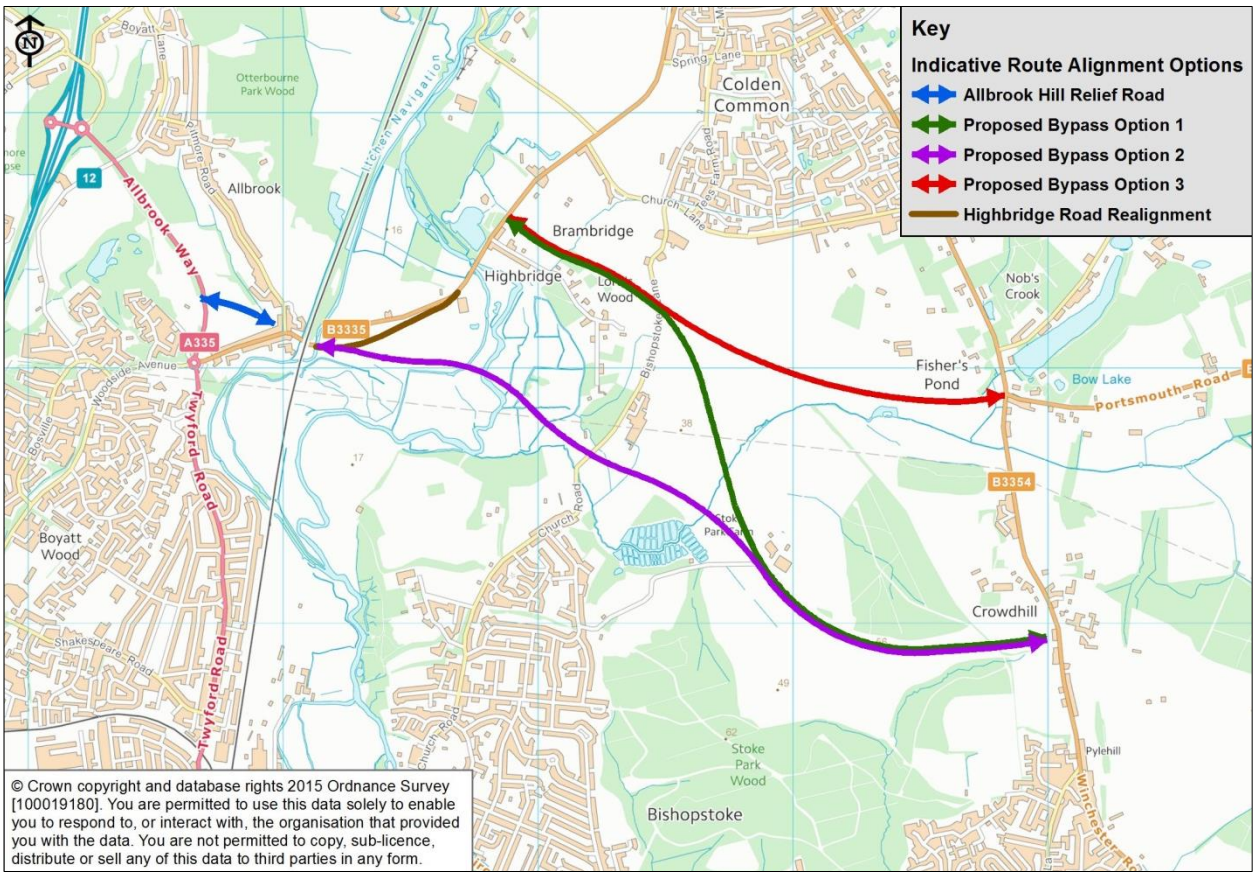
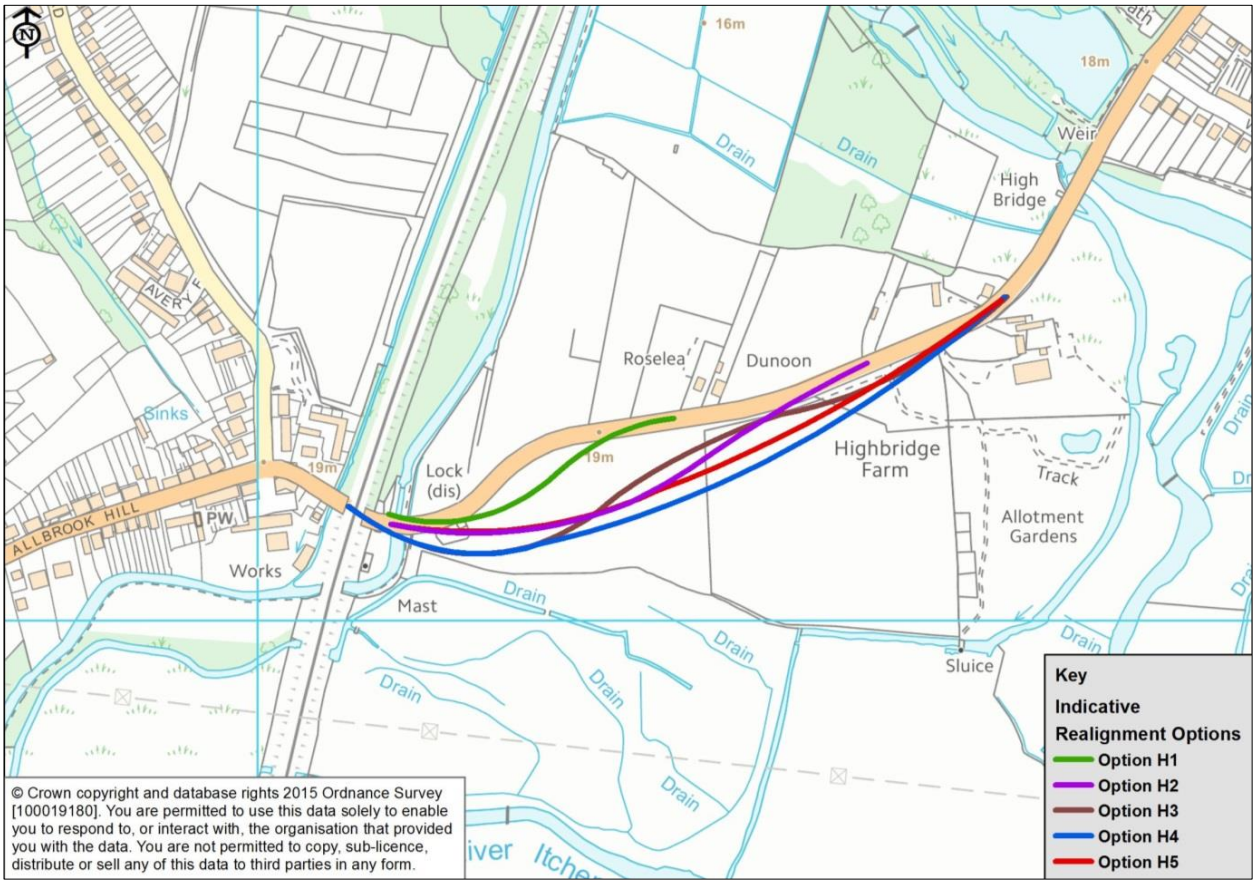


Figure 4.3 – Highbridge Road Improvement Options



4.2.4 The principal difference between the options for the NBB is as follows:

- Option 1 provides the provides the most direct route between Winchester Road and Highbridge Road for traffic seeking to access M3 Junction 11, that avoids the River Itchen flood plain (green);
- Option 2 provides the most direct route, but crosses the River Itchen flood plain (purple); and
- Option 3 provides the shortest amount of new road, avoids the River Itchen flood plain, but provides the least direct route (red).

4.2.5 The main differences between the options for the Highbridge Road realignment relate to the amount of land take required, the impact on the existing bridge over the River Itchen channel and the ability to 'smooth out' the road by providing bends of a higher radius. In this regard:

- Option H1 requires the least land, has no impact on the bridge, but involves bends of a relatively tight radius, albeit better than existing;
- Option H2 requires more land, has no impact on the bridge and significantly improves the bend radii;
- Option H3 further improves the bend radii on approach to the rail bridge, but requires a new bridge over the River Itchen channel;
- Option H4 also requires a new bridge and also provides the optimum alignment further east before the tie-in to Highbridge Road; and

- Option H5 is similar to Option H4 but does not require a new bridge and therefore has a slightly less favourable approach to the rail bridge.

4.2.6 It should be noted the above options for Highbridge Road relate solely to the section of carriageway immediately to the east of the railway bridge. Should the NBB scheme progress further, detailed consideration will need to be given to provision for pedestrians and cyclists on Highbridge Road, particularly under the railway bridge. The existing footway width under the bridge is sub-standard with limited scope for widening. It is currently envisaged that pedestrians and potentially cyclists could be diverted to use the existing underpass associated with the Itchen Way, located approximately 70m further south, but this link would also need to be improved.

Allbrook Hill Relief Road in Allbrook (AHRR)

4.2.7 Three options have been developed for the AHRR, which relate to its connection to the existing highway network at the south-eastern end of the new link road. Due to the topography of the area and the short length of the link, only one alignment option has been identified for the new carriageway that would connect to the A335 Allbrook Way. It is suggested that Allbrook Hill could become either one-way in a westerly direction or is closed off at its south-eastern end altogether in order to improve traffic flow and safety on this link, and encourage use of the new road. This would be subject to consultation with local residents and the imposition of a Traffic Regulation Order (TRO).

4.2.8 The road is shown indicatively in Figure 4.2 and the three different options for the southern tie-in are described as follows:

1. A five-arm roundabout to connect the AHRR to Highbridge Road, Pitmore Lane, Allbrook Hill and Osborne Mews;
2. Staggered priority junctions with the AHRR and Highbridge Road as the major arms and Pitmore Road and Osborne Mews as the minor arms. Allbrook Hill to connect to Osborne Mews as the minor arm of a new priority junction; and
3. A single priority junction with the AHRR and Highbridge Road as the major arms and Pitmore Road as the minor arm. No access to/from Allbrook Hill or Osborne Mews to the AHRR/Highbridge Road, with Allbrook Hill effectively becoming a cul-de-sac accessed from the west.

4.3 South Bishopstoke Bypass

4.3.1 The South Bishopstoke Bypass has been split into north-western and south-eastern sections, with three feasibility options being developed for the alignment of the north-western section and two options being developed for the south-eastern section. The split between the two sections is located to the east of the River Itchen, approximately level with the sewage works at the southern end of Chickenhall Lane. Henceforth the sections will be referred to as northern and southern.

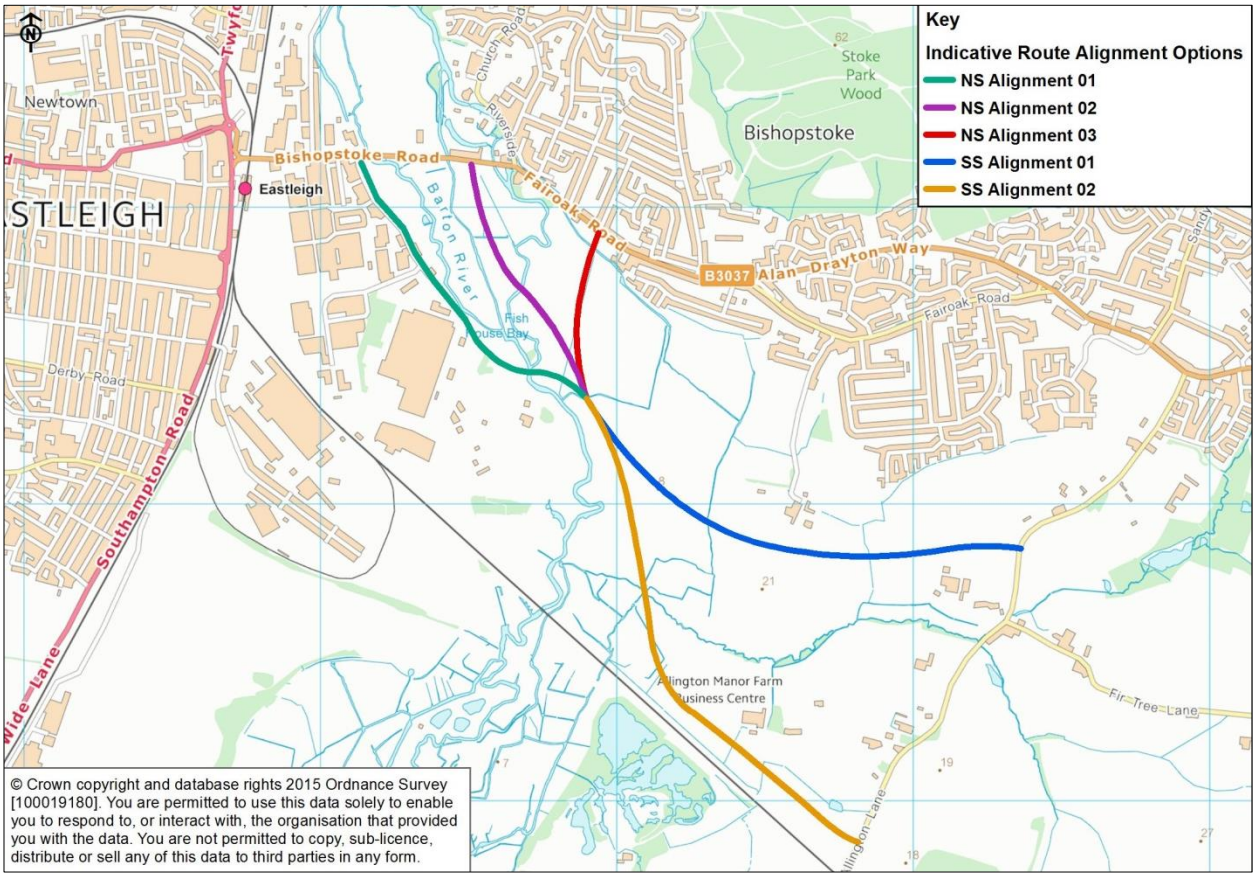
4.3.2 The broad alignments of the options for the northern and southern sections are shown in Figure 4.4. The principal difference between the options for the northern section (**NS**) are related to the location for crossing the River Itchen and associated channels and the connection point to the B3037 Bishopstoke Road, as follows:

- **Option NS1** crosses the main channel of the River Itchen at a location adjacent to the southern end of Chickenhall Lane and traffic would join Bishopstoke Road via Chickenhall Lane (green);
- **Option NS2** crosses a channel of the River Itchen further north than Option NS1 and connects to Bishopstoke Road to the east of the Recreation Ground and east of Riverside (purple); and
- **Option NS3** crosses a minor drain/tributary to the Itchen and connects to Bishopstoke Road in the vicinity of Sayers Road (brown).

4.3.3 The principal difference between the options for the southern section (**SS**) relate to the connection point to Allington Lane as follows:

- **Option SS1** connects to the north of Fir Tree Lane and Lake Farm; (blue)and
- **Option SS2** connects just to the north of the railway line and south of Allington Manor School.(orange)

Figure 4.4 – South Bishopstoke Bypass Route Options



4.4 Bishopstoke Road Junction Improvements

4.4.1 The junction improvements options developed as part of this report have focused upon the section of the B3037 between the A335 at the western end and Riverside at the eastern end (i.e. Bishopstoke Road), as this is considered to be the most congested part of the corridor. Further towards the eastern end of the B3037 in Fair Oak, junction improvements are being proposed by others as part of committed and proposed development sites.

A335 Twyford Road / Romsey Road Roundabout

4.4.2 The existing five-arm roundabout and left-turn slip for traffic from Bishopstoke Road onto the A335 currently experiences significant peak period congestion on all approaches. During peak periods delays associated with the junction can cause severe congestion in Eastleigh town centre with queuing taking place along all the main approaches including Twyford Road, Romsey Road and Station Hill and also queuing in an easterly direction along the B3037 Bishopstoke Road towards Bishopstoke and Fair Oak. Any potential alterations to the junction are significantly constrained by the level differences between the Bishopstoke Road bridge over the railway line, the bridge itself, and the proximity of properties on the western side of the A335 Station Hill.

Three options have been developed to improve capacity at this junction, the location of which is shown in Figure 4.5 and the options can be summarised as follows:

- Option 1: a new three-arm roundabout would be provided at the junction of Bishopstoke Road with the A335 Station Hill/Southampton Road and a revised three-arm roundabout would be provided at the A335 Twyford Road/Romsey Road/Station Hill junction, with Coles Close diverted to exit onto Twyford Road further north;
- Option 2: a new three-arm signal junction would be provided between Bishopstoke Road and the A335 Station Hill/Southampton Road and a new four-arm signal junction would be provided at the A335 Twyford Road/Romsey Road/Station Hill/Coles Close junction; and
- Option 3: this forms a similar option to Option 1 but the new three-arm roundabout to the south would be enlarged to the west involving third party land in order to facilitate increased flare lengths on the west and south approaches. The northern roundabout would be revised back to a four-arm roundabout to incorporate Coles Close and the flare would be increased on the southern approach.

B3037Bishopstoke Road / Chickenhall Lane Roundabout

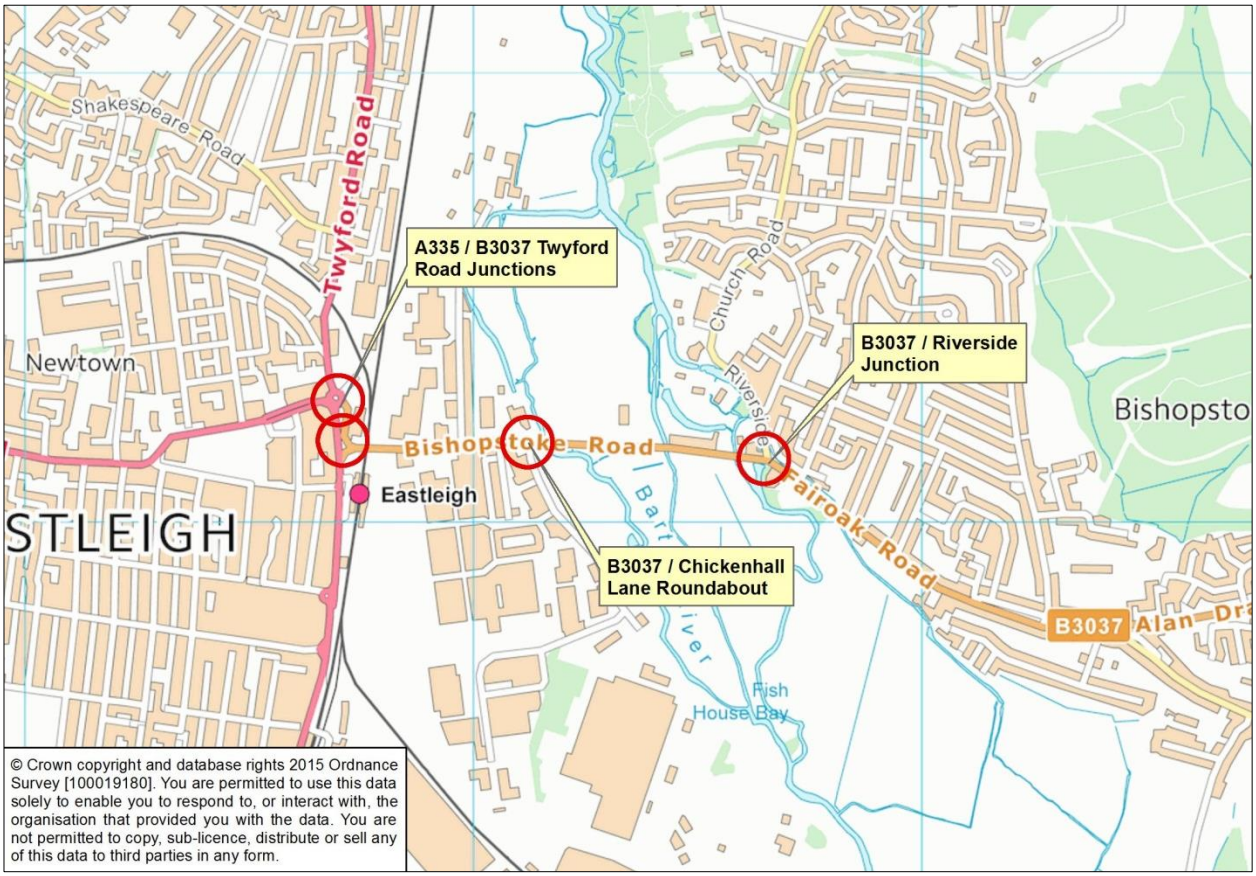
4.4.3 The existing four-arm mini-roundabout currently experiences significant peak period congestion, particularly in the morning peak when there is a high volume of westbound traffic on Bishopstoke Road accessing Eastleigh. This is ‘opposed’ by a significant volume of traffic turning right from Bishopstoke Road into Chickenhall Lane to access the industrial estate. During peak periods this can cause a lengthy westbound queue on Bishopstoke Road which extends back towards Bishopstoke and Fair Oak.

4.4.4 Alterations to the junction are constrained by the proximity of the Barton River to the east, the petrol filling station to the west and an office building (Collins House) to the north. Three options have been considered for this junction, including two that have been proposed previously and one new design. The location of the junction is shown in Figure 4.5 and the options can be summarised as follows:

- Option 1: A new large three-arm roundabout, proposed by consultants WSP, located to the east of the existing roundabout. The Collins House access would be retained at its existing location but would become left-in left-out only, with vehicles looking to exit westbound being required to perform a U-turn at the roundabout;

- Option 2: A new four-arm all-moves signal controlled junction in place of the existing mini-roundabout. This option was historically developed by HCC in 2007 as part of the Chickenhall Lane Link Road (CLLR) scheme; and
- Option 3: A new three-arm roundabout located just to the south-east of the existing roundabout, with a bypass lane provided for eastbound traffic on Bishopstoke Road and the access to Collins House moved to the west.

Figure 4.5 – Bishopstoke Road Junctions Location Plan



B3037Bishopstoke Road / Riverside Junction

4.4.5 The existing priority junction experiences significant peak period congestion, principally with regard to the difficulty for traffic to exit from Riverside onto Bishopstoke Road. The high traffic flows along Bishopstoke Road mean that there are relatively few gaps for traffic to exit into. Alterations to the junction are heavily constrained by the River Itchen channels, one of which is located immediately to the west of the junction and another is to the north-east. There is also a property on the north-west side of the junction.

4.4.6 Three options have been considered for this junction, including one that has been proposed previously and two new designs. The location of the junction is shown in Figure 4.5 and the three options are summarised below:

- Option 1: A new three-arm signalised junction, as previously proposed by consultants WSP;
- Option 2: A revised priority junction layout to incorporate a ghost island right-turn bay for traffic turning into Riverside; and

- Option 3: A revised priority junction with a non-standard layout on both Riverside and the right-turn from Bishopstoke Road. Separate lanes are provided for traffic routing to/from Riverside to/from the east and west.

4.5 Wide Lane bridge, south of Eastleigh

4.5.1 Wide Lane bridge is located to the east of M27 junction 5 and is on the main route between Southampton Airport and the former Ford site (soon to be redeveloped), and the M27 motorway. It would form a critical access for the proposed River Side development site, if access via an improved Mitchell Way were to be brought forward in advance of (or instead of) the Chickenhall Lane Link Road (CLLR).

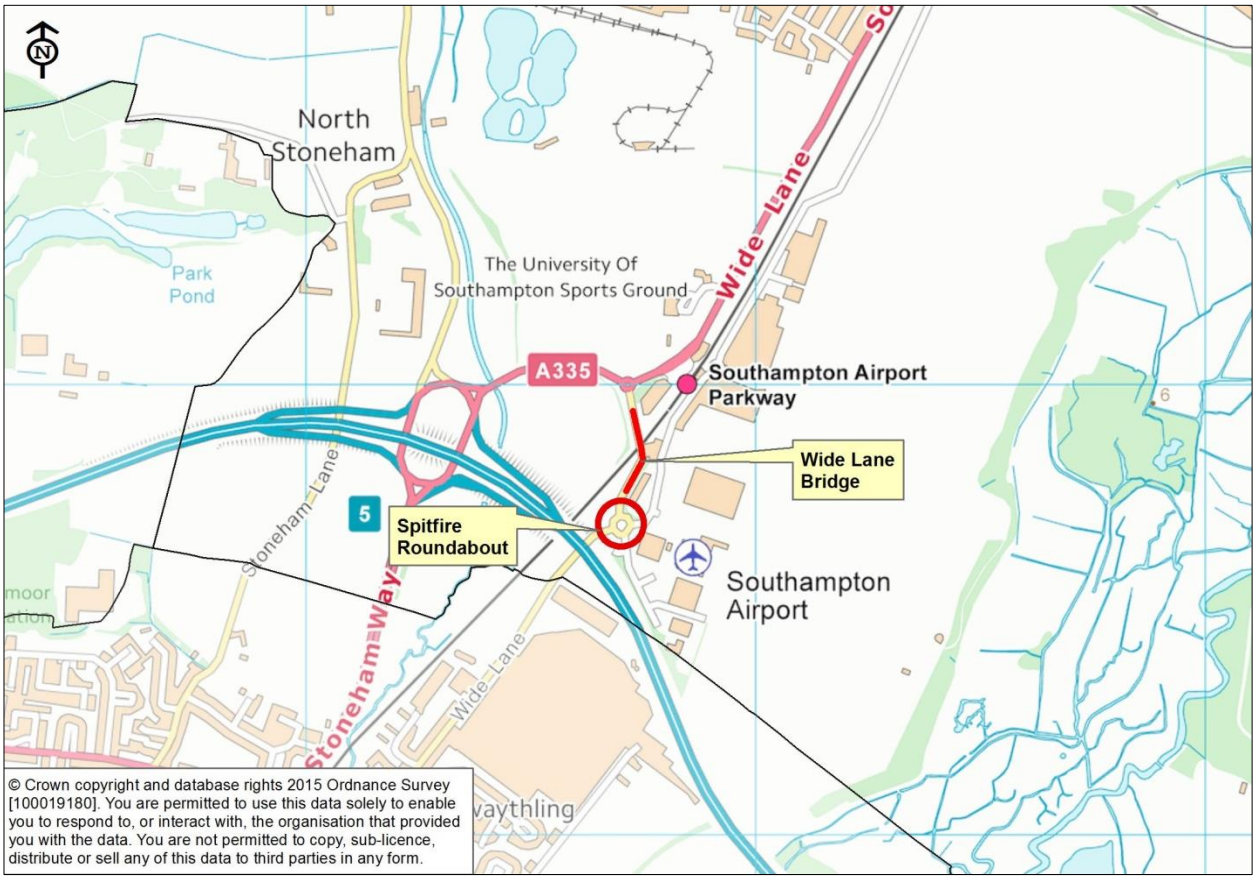
4.5.2 A roundabout with the A335 is located to the north-west of the bridge and provides access to the M27, while the 'Spitfire' roundabout is located to the south of the bridge and provides access to Southampton Airport via Mitchell Way and the former Ford site via Wide Lane. The bridge location is shown in Figure 4.6.

4.5.3 The existing bridge deck has a relatively narrow carriageway (circa 6.3m wide) and a 1.5m wide footway on the eastern side. The footway is also used by cyclists due to the presence of a shared use footway/cycleway on both sides of the bridge. There is a sharp bend on the eastern side of the bridge approach which significantly reduces forward visibility and furthermore forces HGVs to cross the centreline when negotiating the bend, in both directions. This means that HGVs cannot pass each other at the same time and can result in vehicles queueing back in both directions as well as creating road safety issues

4.5.4 Significant constraints are posed on improvements to the bridge by the presence of the railway line, by existing properties on the south-eastern side of the bridge and by the required gradients on approach to the bridge from the existing roundabouts on either side. Four options to improve/replace the bridge were initially considered initially, but the first option, which was to improve the existing bridge, was discounted as structural investigations revealed that the bridge cannot be widened. The three remaining options are summarised below:

- Option 1: Facilitate one-way movement northbound on a new bridge, with southbound traffic using the existing bridge;
- Option 2: Facilitate two-way movement on a new single carriageway bridge, with the existing bridge demolished; and
- Option 3: Similar to Option 2, but with the new bridge being provided as dual carriageway.

Figure 4.6 – Wide Lane Bridge Location Plan



4.6 Hamble Lane Improvements

4.6.1 The improvement options developed as part of this report have focused upon the section of the A3025 Hamble Lane between the Tesco store access at the northern end and the A3025 Portsmouth Road at the southern end. This is considered to be the most strategic part of the Hamble Lane corridor and one of the most congested sections as it experiences the highest traffic flows. Link improvements have been considered, as well as improvements to the three junctions along this section of the corridor.

4.6.2 It should be noted that the improvement schemes proposed for Hamble Lane, whilst giving due regard to the consented development sites in the area, have been developed with the aim of improving strategic access to the Hamble Peninsula and the City of Southampton. This is in the context of existing congestion problems, as well as to improve the resilience of the network to accommodate future traffic flow increases as a result of any potential new development in the area.

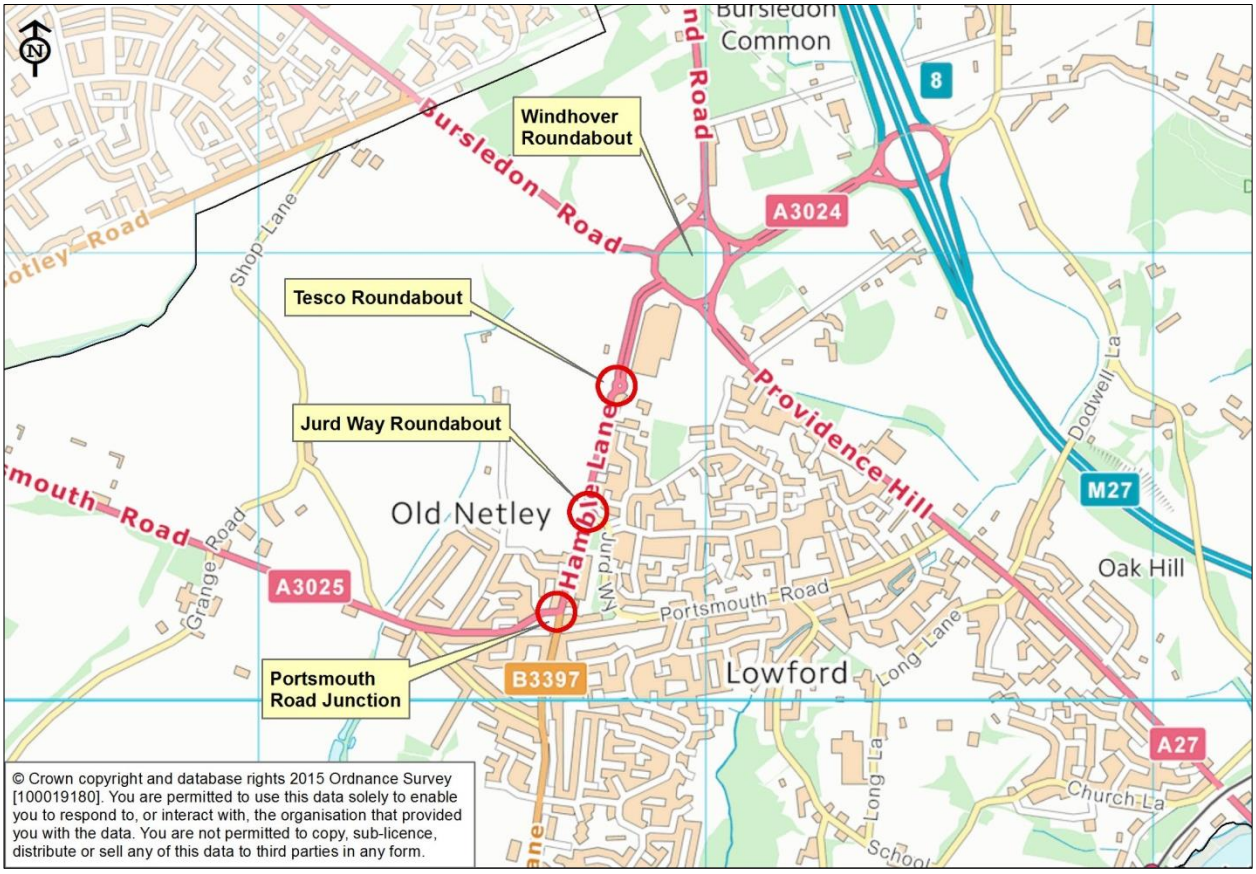
4.6.3 The whole Hamble Lane corridor experiences significant congestion, particularly during peak periods and the route forms the only major link for traffic travelling to and from Hamble from the north and east. The potential for improvements is significantly constrained by properties on the eastern side of the road for the whole section and also on the western side of the road near to the Portsmouth Road junction. In addition, a significant proportion of land on the western side of the road is the subject of outline planning permission for a residential development.

4.6.4 Improvements to the section of Hamble Lane between the Tesco junction and the Windhover roundabout could be included as part of a scheme being taken forward by

Highways England (HE) as part of their £100 million Southampton Eastern Access package, subject to discussions and agreement. The HE scheme is currently only at feasibility design stage, but includes improvements to signalise the Windhover and M27 Junction 8 roundabouts, as well as widening of the existing dual carriageway between the Windhover and Tesco roundabouts.

4.6.5 At this stage 'Do Minimum' and 'Do Maximum' improvements have been investigated; 'Do Minimum' junction improvements are constrained by the current highway boundary and are therefore likely to have less benefits, while 'Do Maximum' works provide a comparison of junction improvements that can be achieved if Hamble Lane was widened to form a dual carriageway between Portsmouth Road and the Tesco roundabout. The location of the junctions under consideration is shown in Figure 4.7.

Figure 4.7 – Hamble Lane Junctions Location Plan



Do Minimum

4.6.6 A summary of the 'Do Minimum' junction improvements is provided below:

- Tesco Junction: Provide a new signalised junction, with new staggered pedestrian crossings on the Tesco access and Hamble Lane north approaches. Short two lane flares are provided on the Tesco and Hamble Lane south arms, while the Lowford Clinic car park exit would be moved further east along the Tesco access road;
- Jurd Way Junction Option 1: Provide a new signalised junction layout and provide a new fourth arm to provide access to the development site to the west of the junction. Two lane flares are provided on all approaches and there are also new staggered pedestrian crossings on all approaches;

- Jurd Way Junction Option 2: Modify the current layout to enlarge the roundabout and provide a new fourth arm to provide access to the development site to the west of the junction. The roundabout has an indicative diameter of 60m but may not need to be as large as this; and
- Portsmouth Road Junction: Provide a new signalised junction layout and realign Portsmouth Road through the existing green space to incorporate the existing toucan crossing as part of the signals. Two-lane flares would be provided on the Hamble Lane north and Portsmouth Road arms and a staggered crossing would be provided on the Portsmouth Road arm.

Do Maximum

4.6.7 A summary of the 'Do Maximum' junction improvements is provided below:

- Tesco Junction Option 1: This option would provide a new signalised junction in a similar manner to the 'Do Minimum' proposals. However with the widening of Hamble Lane to the south of the junction that is associated with this 'Do Maximum' scenario, the Hamble Lane south approach and exit arms now have two continuous lanes and the angle of the Hamble Lane approaches has been altered as a result;
- Tesco Junction Option 2: The option involves providing a new roundabout with two lanes on the circulatory carriageway and an indicative diameter of 70m, although this may be larger than necessary. The two Hamble Lane arms have two lanes, while the Tesco arm has a two-lane flared approach. The delivery access to Tesco would be reconfigured and an exit provided directly onto the new roundabout. An indicative fourth arm to potential development land to the west of the junction has also been shown;
- Jurd Way Junction Option 1: This option would provide a new signalised junction in a similar manner to the 'Do Minimum' proposals, but with two continuous lanes on the Hamble Lane north and south approaches.
- Jurd Way Junction Option 2: This option would provide an enlarged roundabout in a similar manner to the 'Do Minimum' proposals, but with the addition of two lanes on the circulatory carriageway and two lanes on the Hamble Lane north and south approach and exit arms;
- Portsmouth Road Junction Option 1: This option would provide a new signalised junction in a similar manner to the 'Do Minimum' proposals and would involve the widening of Hamble Lane up to the Jurd Way junction to the north. Widening also allows a second flare lane to be provided on the Hamble Lane south approach; and
- Portsmouth Road Junction Option 2: This option is similar to above but would involve three lanes in total (rather than four) with one lane for northbound movements including a flare to the roundabout and two lanes southbound.

4.7 Botley Bypass

4.7.1 In contrast to the above schemes a significant amount of work has previously been undertaken on a potential Botley Bypass scheme by both HCC and others, and a route has been safeguarded since 1988. In 2013 EBC commissioned Waterman Consulting Engineers to undertake an engineering feasibility, costing and desk-top environmental study, in support of their Pre-Submission Local Plan 2011-2029. This study investigated several route options for the Bypass between Woodhouse Lane in Hedge End and the A334 Mill Hill/Station Hill east of Botley, as well as developing proposals for the widening of Woodhouse Lane itself.

4.7.2 The preferred route for the Bypass from the Waterman report was termed the 'Optimised Route 1C alignment' and had the following features:

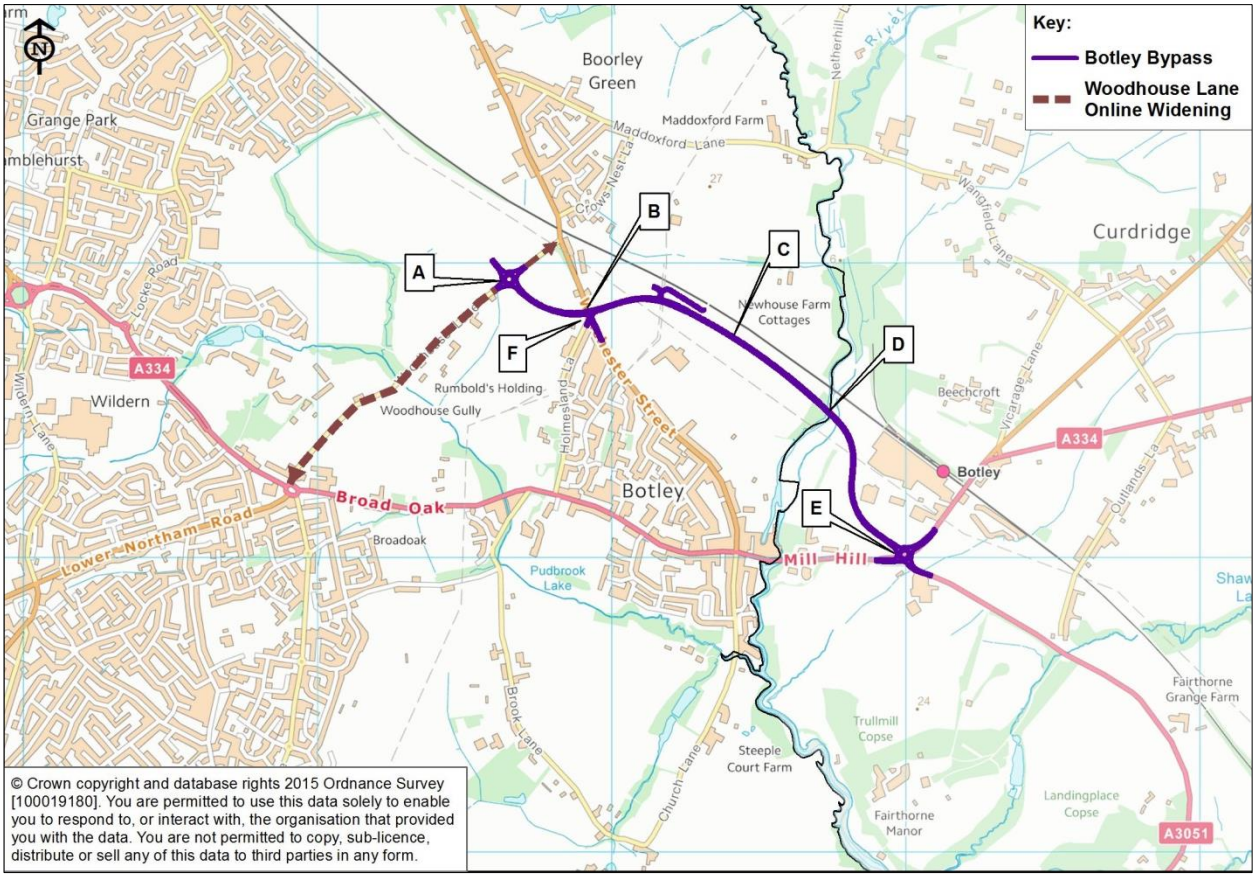
- A new three-arm roundabout on Woodhouse Lane in Hedge End located approximately 150m south of the junction with Winchester Street in Botley, with the Bypass forming the eastern arm;
- A 7.3m wide single carriageway bypass with shared use footway/cycleway on the southern/western side of the road;
- Between Woodhouse Lane and Winchester Street the Bypass routes in a broadly easterly direction across Winchester Street before turning south-east and running parallel to the railway line up to the River Hamble. The Bypass crosses Winchester Street approximately half-way between the junctions with Woodhouse Lane and Holmesland Lane;
- A staggered priority junction at the intersection with Winchester Street, with the Bypass forming the major arm. Winchester Street to the south of the Bypass is realigned to the east in order to form a perpendicular tie-in to the Bypass, while access to Winchester Street to the north would be restricted to an access road to circa five properties located on the eastern side of the road;
- Crossing the River Hamble via a bridge located approximately 80m south of the existing railway viaduct;
- A curved alignment routing around the industrial estate to tie in to the A334 adjacent to the existing junction with the A3051. A new four arm roundabout is proposed here, with the Bypass forming the north-western arm; and
- On-line widening of Woodhouse Lane to increase the carriageway width to 6.75m with localised further widening at bends and a 3m wide footway/cycleway on one side of the road.

4.7.3 Improvements to the Maypole roundabout (at the southern end of Woodhouse Lane where it meets the A334) have been proposed as part of the committed 'Land north-east of Boorley Green' development, which also include proposals to re-prioritise the Woodhouse Lane/Winchester Street junction in favour of Woodhouse Lane. Both of these improvements would support the Botley Bypass and the additional volume of traffic that would be likely to use Woodhouse Lane.

4.7.4 As part of this study the preferred alignment from the Waterman study has been reviewed with a view to identifying a preferred route from a Highway Authority perspective, updating the scheme cost estimate and undertaking further work on the bridge over the River Hamble, which was recommended in the Waterman report. The alignment of the western end of the Bypass was also re-visited with a view to reducing

the significant impact on statutory undertakers apparatus that was associated with where the Bypass crossed Winchester Street in that option.

Figure 4.8 – Botley Bypass – Current HCC Preferred Alignment



4.7.5 The revised HCC preferred alignment, which is currently a work in progress and therefore subject to change, is shown in the outline preliminary design drawing provided at Appendix A and indicatively in Figure 4.8 above. The concept of the HCC preferred alignment was identified in the Waterman report as the Option 2 alignment. A summary is provided below of the main changes from the Waterman preferred scheme, with reference made to the location of these changes on Figure 4.8:

A.) A change was made to the alignment at the western end of the route, with the Woodhouse Lane roundabout now located approximately 75m further south than previously and the Bypass now crossing Winchester Street just to the north of the junction with Holmesland Lane – these changes avoid impacting upon a significant amount of the statutory undertakers apparatus in the vicinity of Winchester Street with associated cost savings;

B.) No access will be provided to Winchester Street directly from the Bypass to the north. The section of Winchester Street to the north of the Bypass would become a cul-de-sac with a turning head provided. A ghost island priority junction provides access to Winchester Street to the south of the Bypass;

C.) The route alignment has been shifted slightly closer to the railway line;

D.) Further work has been carried out regarding the design requirements of the proposed bridge over the River Hamble;

E.) The proposed roundabout with the A334/A3051 has been shifted to the west in order to avoid third party land take and improve the bypass alignment on approach to the junction; and

F.) Detail has been provided on the drawing of indicative locations for landscape bunds in order to provide noise attenuation for adjacent properties.

4.8 Chickenhall Lane Link Road (CLLR)

4.8.1 The CLLR is a long-standing scheme which would serve the proposed Eastleigh River Side development sites and would provide a new connection between the A335 Wide Lane (north of M27 Junction 5) and Chickenhall Lane. The scheme would involve a new bridge over the A335 and Southampton-Eastleigh railway lines, as well as a new bridge over the Eastleigh-Hedge End railway line, and passes to the north of the Airport runway. However, there are significant issues with the delivery of this scheme related to high infrastructure costs and complex engineering.

4.8.2 The Issues and Options document published for the former draft South Hampshire Strategic Employment Zone Area Action Plan identified a route through the former railway works. However, this would have severed the rail sidings and loop which must now be retained. The alternative – the adopted Eastleigh Borough Local Plan Review 2001 – 2011 route, proposed a tunnel beneath the runway end-safety area. This scheme is extremely costly and therefore raises significant uncertainty about its deliverability. If this design is retained in the new Local Plan it is only likely to be as a long-term aspiration, hence alternative ways of accessing this site are currently being investigated (as per the Wide Lane Bridge improvements described in Section 5.4 of this report).

4.8.3 Despite the above, the CLLR remains a long held ambition for the community and in the most recent Borough Council Budget meeting the Council reaffirmed its longstanding commitment to the scheme in order ‘to reduce congestion and air pollution in and around Eastleigh town and Bishopstoke’.

4.8.4 No changes to the design of the CLLR are proposed as part of this study, but an assessment of scheme benefits has been undertaken as part of high-level transport modelling (see Section 6.3 of this report). The broad alignment of the scheme is shown in in Figure 4.1.

5 High Level Traffic Modelling

5.1 Introduction

5.1.1 This section presents the results of a high-level assessment of transport scheme impacts on the highway network using the Sub-Regional Transport Model (SRTM). At this stage the main focus is on assessing the potential impact of the highways schemes discussed in Chapter 4 of this report. This is considered to represent a robust assessment given that the type of walking, cycling and public transport infrastructure schemes that are discussed in Chapter 7 alone are likely to have a relatively minor impact in the short term on traffic flows across the wider strategic highway network, when set against the scale of new development being proposed in the borough.

5.2 Introduction to the Sub Regional Transport Model (SRTM)

5.2.1 The SRTM covers a wide geographic area including Southampton and Portsmouth and contains all motorways, primary routes, A-roads and B-roads, as well as many other minor roads. The SRTM has been developed in accordance with Department for Transport (DfT) recommendations and validated against DMRB guidelines. It is capable of forecasting changes in travel demand, road traffic, public transport patronage and active mode use over time, as a result of changing economic conditions, land-use policies and development, and transport improvements and interventions. Data from the SRTM can be used to form a robust evidence base for the progressing Eastleigh Local Plan.

5.2.2 The outputs from the SRTM model form the basis of assumptions for future year transport network conditions which are used to help identify appropriate transport mitigation measures. When forecasting future traffic flows, the SRTM takes account of several factors including regional traffic growth forecasts, planned development and planned transport schemes. The SRTM is comprised of a suite of linked computer models that all interact with the Main Demand Model. The SRTM has the following components:

- The Main Demand Model (MDM), which predicts the time of day, the destination choice and the mode choice for all journeys that are made;
- The Gateway Demand Model (GDM) which predicts the demand for travel from ports and airports;
- The Road Traffic Model (RTM) which determines the routes taken by vehicles throughout the road network, taking account of various factors including route distance, journey times and congestion;
- The Public Transport Model (PTM) which determines routes and services chosen by public transport passengers; and
- A Local Economic Impact Model (LEIM) which uses inputs including transport costs to forecast the quantum and location of households, population and jobs.

5.2.3 In order to estimate future baseline traffic growth, the SRTM uses data from a combination of sources including the Local Economic Impact Model (LEIM), the National Trip End Model (NTEM) and Trip End Model Presentation Programme (TEMPRO), the latter two are based on data produced by the DfT. For new developments, where little or no demand exists in the base year matrices, travel patterns are derived in absolute

terms and the trip ends are derived from the planning data associated with the new developments.

5.3 Methodology

5.3.1 Various different model scenarios have been tested in order to assess the impact of development (see Section 2.3) both independently and cumulatively. The impact has been tested alongside the implementation of different transport infrastructure improvement schemes in order to identify whether development can be mitigated in transport terms. It should be noted that at this stage tests which consider whether the identified transport schemes provide benefit in isolation from new development have not been undertaken. Indeed if different development sites come forward through the planning process then it may be the case that different types of transport improvements would provide more benefits than those identified in the current assessment.

5.3.2 At this early stage all modelling has been undertaken with a 2036 end date, as this date accords with the end of the EBC Local Plan period and therefore allows an assessment to be made of the full impact of all potential developments. However the SRTM is capable of producing forecast traffic flow estimates for 2014, 2019, 2026 and 2036.

5.3.3 Wider known strategic developments that have been included as part of the SRTM modelling include the Welborne new community and the North Whiteley urban extension, as well as sites contained in the Southampton City Centre Action Plan and the latest Local Plan sites identified by Winchester City Council.

5.3.4 SRTM model runs have been carried out for the following 2036 'Do Minimum' scenarios without any transport interventions, in order to provide a baseline situation against which to assess the impact of transport schemes:

- Do Minimum 1 (DM1) – Development sites with planning permission and all others whose transport impact has previously been assessed through work undertaken as part of the Submission 2011-2029 Local Plan; and
- Do Minimum 2 (DM2) – Development sites from the DM1 scenario plus potential additional development for housing required as part of the 2011-36 Plan.

5.3.5 In order to provide an initial overview of the effectiveness of identified transport interventions in conjunction with planned/potential development sites, the following 2036 'Do Something' SRTM scenarios have been carried out in order to enable different combinations to be compared:

- Do Something 1 (DS1) – Development sites from the DM1 scenario with associated and previously identified multi-modal transport interventions;
- Do Something 2a (DS2a) – Development sites from the DM2 scenario with all the transport interventions from the DS1 scenario plus the additional transport interventions presented in Chapters 4 and 5 of this report;
- Do Something 2b (DS2b) – As per scenario DS2a but without the North and South Bishopstoke Bypasses and with the addition of the Chickenhall Lane Link Road (CLLR);
- Do something 2c (DS2c) – As per Scenario DS2a but without the South Bishopstoke Bypass;

- Do Something 2d (DS2d) – As per Scenario DS2a but without the North Bishopstoke Bypass; and
- Do Something 2d (DS2e) – As per Scenario DS2a but without the Botley Bypass.

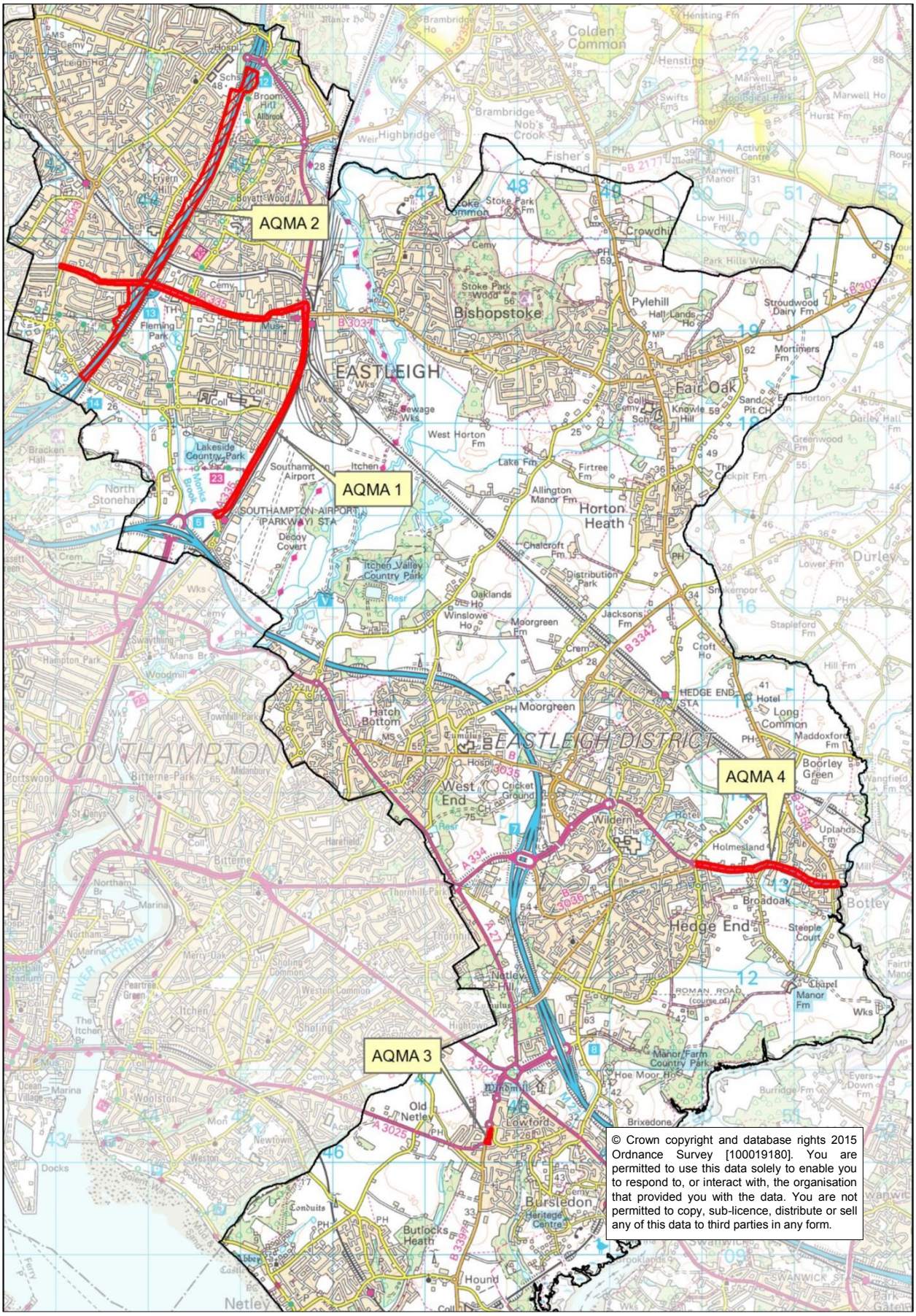
5.3.6 It should be noted that where a new road scheme has several possible options relating to its configuration, the initial model runs will include a generic scheme in order to gauge its overall effectiveness at a high level. Appraisal of specific options relating to certain interventions will then need to be undertaken as part of subsequent more detailed study work undertaken by developers in support of specific sites.

5.3.7 The development sites included in the DM1 scenario were drawn from those assessed in the SYSTRA Transport Assessment (TA) for the EBC Revised Pre-Submission Local Plan of January 2014, as well as other sites that have subsequently been granted planning permission. Likewise the transport interventions included in the DS1 scenario are those that are linked to the DM1 development sites and have therefore largely been drawn from Chapter 8 of the SYSTRA TA, as well as documents and drawings submitted in support of planning applications for the DM1 sites. For a full list of transport schemes included in the DS1 scenario, please see Appendix B.

5.3.8 The SRTM model outputs also provide air quality data for each scenario for each of the four Air Quality Management Areas (AQMA) within the Borough. This data will enable the air quality impact of the potential transport interventions to be assessed by EBC. The AQMAs are located as follows and as shown in Figure 5.1:

1. Along the A335 Leigh Road/Romsey Road/Southampton Road/Wide Lane corridor between Bournemouth Road and Southampton Airport Parkway;
2. Properties close to the M3 between junctions 12 and 14;
3. In the vicinity of the Hamble Lane / A3025 Portsmouth Road junction; and
4. Along the A334 through Botley, between the Woodhouse Lane and Winchester Street junctions.

Figure 5.1 – Map of Eastleigh AQMAs



5.4 Results

5.4.1 All model output files including flow difference plots, delay difference plots, and Volume/Capacity plots at key junctions, are provided in Appendix C.

North Bishopstoke Bypass (Including Allbrook Hill Relief Road)

How the scheme was modelled

5.4.2 The North Bishopstoke Bypass (NBB) was included in the SRTM with the following features:

- A new single carriageway link between the B3354 Winchester Road (at Crowdhill, north of Fair Oak) and the B3335 Highbridge Road (north of Wardle Road), with a 50mph speed limit;
- An indicative four-arm roundabout at the junction with Winchester Road at Crowdhill north of Fair Oak, with the NBB forming the western arm and a potential development site forming the eastern arm; and
- An indicative three-arm signal junction at the intersection with Highbridge Road, with the NBB as the south-eastern arm.

5.4.3 The Allbrook Hill Relief Road (AHRR) was included in the SRTM with the following features:

- A new single carriageway link between the B3354 Highbridge Road (at Pitmore Road) and the A335 Allbrook Way (circa 200m north of the Woodside Avenue junction), with a 40mph speed limit (AHRR);
- An indicative four-arm roundabout at the junction with Pitmore Lane/Allbrook Hill/Highbridge Road, with the AHRR forming the north-western arm; and
- An indicative three-arm roundabout at the junction with Allbrook Way, with the AHRR forming the south-eastern arm.

5.4.4 The NBB was included in the DS2a scenario and the DS2c scenario, with DS2c providing a better understanding of the impacts of the NBB in isolation from the South Bishopstoke Bypass (SBB).

Impact of the scheme on the local highway network

5.4.5 Modelling results from the DS2a scenario indicate that in conjunction with all other planned and potential transport schemes, in 2036 a significant volume of traffic would be expected to use the NBB in both the AM and PM peak hours, with up to 2,000 vehicles per hour using the road. Slightly lower volumes of traffic are forecast to use the AHRR, but flows are still at a significant level.

5.4.6 The modelling results for the DS2c scenario show that if the SBB is removed from the network, there is forecast to be a small increase in the volume of traffic using the NBB in both peak hours, but no notable change in traffic flow on the AHRR.

5.4.7 The model results for the DS2c scenario also enable the forecast impact of the NBB and the AHRR on the wider highway network to be viewed, when compared to the DM2 scenario. Flow difference plots indicate that traffic flows would be expected to reduce by a notable amount on the following links:

- Bishopstoke Road eastbound;
- Church Lane eastbound and westbound;
- B3335 Allbrook Hill eastbound and westbound;
- B3335 Highbridge Road (north of the NBB) eastbound and westbound;
- Bishopstoke Lane and Underwood Lane northbound;
- B3354 Winchester Road (north of the NBB) northbound; and
- A335 Allbrook Way (south of the AHRR) southbound.

5.4.8 The NBB is expected to increase traffic flows by a notable amount on the following links:

- B3335 Highbridge Road to the west of the new link;
- B3354 Winchester Road to the south of the new link;
- B3354 Main Road north of Church Lane,
- B3335 High Street/Coxs Hill; and
- B3354 Botley Road/Winchester Road.

5.4.9 Outputs from the modelling indicate that the existing links of Highbridge Road and the A335 Allbrook Way have the capacity to accommodate the forecast increase in traffic flow as a result of the NBB and AHRR.

Impact on junctions

5.4.10 The model outputs for the DS2a scenario indicate that there is forecast to be some congestion and delay at the NBB junctions with Highbridge Road and Bishopstoke Lane and at the junctions of the AHRR with Pitmore Lane / Highbridge Road, and with the A335 Allbrook Way.

5.4.11 The congestion/delay at the four junctions noted above is forecast to worsen in the DS2c scenario, due to the increased volume of traffic passing through these junctions when the SBB is removed from the network.

5.4.12 Junction 12 of the M27 is forecast to be approaching capacity on some approaches in the DM2 scenario and in the DS2c scenario the capacity is forecast to reduce slightly further on these approaches, although it does not exceed threshold levels.

Further work needed

5.4.13 The above results indicate that further consideration will need to be given to the layout of the proposed new junctions where the NBB meets Highbridge Road and Bishopstoke Lane and where the AHRR meets Highbridge Road/Pitmore Lane and the A335 Allbrook Way. Should these junction layouts be improved there is the potential for additional traffic to be attracted to use the NBB and AHRR due to the associated reduction in congestion and delay.

5.4.14 Capacity along the existing Highbridge Road and A335 Allbrook Way links would also need to be reassessed if more traffic were to be attracted to use the NBB and AHRR as a result of the junction modifications outlined above.

5.4.15 The results also indicate that in light of the forecast increase in traffic flows due to the NBB, further consideration would need to be given to the potential to improve traffic

flow along the B3354 Winchester Road/Botley Road through Fair Oak and Horton Heath, and possibly the B3354 Main Road through Colden Common and Twyford.

South Bishopstoke Bypass

How the scheme was modelled

5.4.16 The South Bishopstoke Bypass (SBB) was included in the SRTM with the following features:

- A new single carriageway link between Allington Lane (adjacent to Fir Tree Lane) and the southern end of Chickenhall Lane, with a 40mph speed limit;
- An indicative four-arm roundabout was included at the junction with Allington Lane, with the SBB forming the western arm;
- The new link transitions onto the southern end of the existing Chickenhall Lane with no junction; and
- The Chickenhall Lane/Bishopstoke Road junction was modified to include the HCC signalised junction scheme discussed as Option 2 in Section 5.3 of this report.

5.4.17 The SBB was included in the DS2a scenario and the DS2d scenario, with DS2d providing a better understanding of the impacts of the SBB in isolation from the NBB.

Impact of the scheme on the local highway network

5.4.18 Modelling results from the DS2a scenario indicate that in conjunction with all other planned and potential transport schemes, a significant volume of traffic would be expected to use the SBB in both the AM and PM peak hours, with up to 2,400 vehicles per hour using the road.

5.4.19 The modelling results for the DS2d scenario show that when the NBB is removed from the network there is a relatively small increase in traffic flow in the AM peak hour and a negligible increase in the PM peak hour.

5.4.20 The model results for the DS2d scenario also enable the forecast impact of the SBB on the wider network to be viewed, when compared to the DM2 scenario. Flow difference plots indicate that traffic flows would be expected to reduce by a notable amount on the following links:

- Bishopstoke/Fair Oak Road eastbound and westbound (between Chickenhall Lane and Fair Oak);
- Allington Lane southbound (to the north and south of the SBB);
- Allington Lane northbound (to the north of the SBB);
- A335 Leigh Road/Romsey Road eastbound;
- A335 Wide Lane northbound and southbound (between Eastleigh town centre and Wide Lane); and
- A27 Mansbridge Road eastbound and westbound (between Wide Lane and Allington Lane.

5.4.21 The SBB is expected to increase traffic flows by a notable amount along the following links:

- Allington Lane northbound (to the south of the SBB);
- The new link to be provided through the West of Horton Heath site eastbound and westbound;
- B3354 Botley Road/Winchester Road and B3342 Bubb Lane/Tollbar Way in both directions to the south of Horton Heath;
- A335 Leigh Road/Romsey Road westbound; and
- A335 Twyford Road northbound and southbound.

5.4.22 Initial indications are that there are no link capacity issues along Bishopstoke Road (between the SBB and the A335 Station Hill), although this short section is more affected by junction capacity. Furthermore the modelling does not indicate any capacity issues along the B3354 or B3342 to the south of Horton Heath as a result of the increased traffic flow associated with the SBB.

Impact on junctions

5.4.23 The outputs for the DS2a scenario also show that there is forecast to be some congestion and delay at the new junction between the SBB and Allington Lane, and at the Chickenhall Lane/Bishopstoke Road junction.

5.4.24 In the DS2d scenario the congestion and delay at the two junctions noted above is forecast to worsen in both the AM and PM peak hours, due to the increase in traffic flows passing through these junctions when the NBB is removed from the network.

Further work needed

5.4.25 The above results indicate that further consideration would need to be given to the layout of the proposed new junction where the SBB meets Allington Lane and also to the Bishopstoke Road/Chickenhall Lane junction. Should these junction layouts be improved, there is the potential for some additional traffic to be attracted to use the SBB due to the associated reduction in congestion and delay.

5.4.26 In light of the above, there may also be the need to further assess link capacity along the B3354 and B3342 in light of the potential increase in traffic flows, although the initial modelling indicates that there are not forecast to be any significant capacity issues at junctions along these links.

Bishopstoke Road Improvements

How the schemes were modelled

5.4.27 For the purposes of this initial SRTM modelling, the following junction layouts were included, as individual assessment of the proposed layouts indicated that they offered the best overall improvements in terms of junction performance only:

- The Twyford Road junction in Eastleigh was modified as per Option 3 described in Section 5.3 of this report;
- The Chickenhall Lane layout in Eastleigh was modified as per the Option 2 layout described in Section 5.3; and
- The Riverside junction in Bishopstoke was modified as per the Option 1 layout described in Section 5.3.

5.4.28 The Bishopstoke Road improvements were included in the DS1 scenario, as well as all the DS2 scenarios, as there is considered to be a need for improvements at these junctions due to both existing congestion and in the context of already committed / planned development. Any further development to be allocated as part of the emerging EBC Local Plan is likely to further exacerbate congestion along this corridor.

5.4.29 The network impact of improvements to these junctions can initially be viewed by comparing outputs from the DS1 scenario to the DM1 scenario.

5.4.30 It is however important to note that other improvements discussed in this report, such as the SBB, are likely to have a significant impact on traffic flows along the Bishopstoke Road corridor. Therefore any assessment of improvements at the three considered junctions will need to also be considered in the context of potential improvements on the wider highway network.

Impact of the schemes on the local highway network

5.4.31 Flow difference plots indicate that in conjunction, the above three improvements lead to the following:

- An increase in traffic flows westbound on Bishopstoke Road and a decrease in traffic flows eastbound. This is largely due to the changed priorities at the Chickenhall Lane junction due to the introduction of traffic signals which increase capacity for westbound traffic which previously had to give-way to eastbound traffic turning right into Chickenhall Lane;
- A small increase in the amount of traffic using the A335 Southampton Road overall and an increase in traffic using the A335 Station Hill;
- An increase in traffic using the A335 Romsey Road/Leigh Road westbound, but a decrease in traffic eastbound;
- An increase in traffic using the A335 Twyford Road in the AM peak period, but a decrease in the PM peak period;
- An increase in traffic using Blenheim Road and Derby Road; and
- In the AM peak there is an increase in the volume of traffic using Riverside in a southbound direction, due to the increase in capacity afforded by the traffic lights, where previously traffic had to give-way to vehicles on Bishopstoke Road.

5.4.32 It is not possible to say whether they above changes are solely attributable to the three junction improvements proposed, as there are other improvements at junctions on the wider network between these two scenarios that may have an impact.

5.4.33 As noted above the future operation of these junctions also needs to be considered in the context of major interventions, such as the SBB, which have the potential to significantly affect traffic flows along Bishopstoke Road / Fair Oak Road.

Impact on junctions

5.4.34 In terms of the impact on congestion and delay at the three junctions, at the **Twyford Road roundabout** in Eastleigh the following is forecast in the DS1 scenario:

- In the AM peak hour there is a notable increase in available capacity on the Twyford Road arm and corresponding reduction in delay;

- There is a decrease in available capacity on the Station Hill southbound arm, albeit this arm is still expected to operate satisfactorily and there is little change in forecast delay; and
- In the PM peak hour there is an increase in available capacity on the Twyford Road and Station Hill northbound arms and a corresponding reduction in delay.

5.4.35 At the **Chickenhall Lane junction** in Eastleigh the following is forecast in the DS1 scenario:

- In the AM peak hour there is a significant increase in available capacity on the Bishopstoke Road westbound arm, with a corresponding very significant reduction in delay;
- There is a reduction in available capacity on the Bishopstoke Road eastbound approach and a corresponding increase in delay, albeit the arm is still expected to operate satisfactorily;
- In the PM peak hour there are notable increases in available capacity on the Bishopstoke Road westbound and Chickenhall Lane arms, with a corresponding reduction in delay on Bishopstoke Road westbound, but an increase in delay on Chickenhall Lane. This increase in delay is explained by the introduction of the signals which increase overall delay to traffic on Chickenhall Lane, but provide it with guaranteed periods to exit onto Bishopstoke Road, thus increasing overall available capacity; and
- On Bishopstoke Road eastbound the same situation as in the AM peak hour is forecast to occur with the arm again still forecast to operate satisfactorily.

5.4.36 At the **Riverside junction** in Bishopstoke the following is forecast in the DS1 scenario:

- In the AM peak hour there is a notable increase in available capacity on both the Bishopstoke Road westbound and Riverside arms, with a corresponding reduction in delay on Riverside;
- The Bishopstoke Road eastbound arm is forecast to experience a small increase in delay, as previously traffic was not required to stop at any point and the signals introduce an element of delay; and
- In the PM peak hour there are no notable changes in capacity above/below critical threshold levels, but in terms of delay there are forecast to be small increases on all approaches, due to the introduction of the signals.

Further work needed

5.4.37 It is suggested that further detailed junction modelling is required to quantify the full impact of the proposed improvement options at an individual junction level, which will also ensure that the option that has been modelled in the SRTM is the preferred option. However, the results discussed above do indicate that the assessed options all go some way towards improving the overall situation at each of the three junctions.

Hamble Lane Improvements

How the schemes were modelled

5.4.38 The Hamble Lane improvements were split into two groups for inclusion in the SRTM modelling as follows:

- A version of the 'Do Minimum' improvements to the Portsmouth Road and Jurd Way junctions were included in the DS1 scenario, as improvements to these junctions are considered likely to come forward in the shorter term. This is due to there being existing congestion issues and committed/planned development sites in close proximity that are providing funding to improve the junctions; and
- A version of the 'Do Maximum' improvements was then included in all DS2 scenarios, as these improvements are likely to be longer term, albeit that a case could be mode for their implementation based on exiting congestion along the corridor.

5.4.39 The following junction and link changes were included in the DS1 scenario of the SRTM modelling:

- The Portsmouth Road junction was changed to a signalised junction as per that described in Section 5.5 of this report but with two southbound lanes to the north of the junction - one for ahead traffic and one for right-turning traffic; and
- The Jurd Way junction was included as a larger diameter four-arm roundabout, in order to facilitate access to the committed development site to the west of this junction.

5.4.40 The following junction and link changes were included in all the DS2 scenarios of the SRTM modelling:

- Hamble Lane was widened to two lanes in both directions between the Tesco and Jurd Way roundabouts; and
- The Tesco roundabout was revised to include a larger diameter roundabout with two lanes on both Hamble Lane approaches and a longer two-lane flare on the Tesco approach.

5.4.41 The only part of the 'Do Maximum' improvements that the SRTM modelling did not include was the inclusion of a second lane northbound between the Portsmouth Lane and Hamble Lane junctions, as four lanes between these two junctions is considered at this stage to be overly challenging to implement.

5.4.42 The impact of the improvements to the Portsmouth Road and Jurd Way junctions can be viewed by comparing the DS1 SRTM outputs to the DM1 outputs.

5.4.43 The impact of the improvements to Hamble Lane and to the Tesco roundabout can be viewed by comparing the DS2a SRTM outputs to the DM2 outputs. However, this is effectively comparing the impact of all four link and junction improvements to a scenario without any improvements, so it is not possible to fully isolate the impact of the 'Do Maximum' improvements from the 'Do Minimum' improvements', using the SRTM scenarios that have been undertaken thus far.

Impact of the schemes on the local highway network

5.4.44 Flow difference plots indicate that the impact of the 'Do Minimum' improvements that have been modelled on traffic flow across the wider network is relatively low level, with the following forecast:

- Modest increases in flow on Portsmouth Road, Jurd Way and Hamble Lane northbound to the north of Portsmouth Road; and
- A small decrease in flows on Hamble Lane to the south of Portsmouth Road. This is presumably due to the increase in delay for northbound traffic as a result of the new signals.

5.4.45 Flow difference plots show that the overall impact on the wider network of the 'Do Maximum' improvements that have been modelled is again relatively low level, with the following forecast:

- An increase in traffic using Portsmouth Road and Hamble Lane northbound to the north of Portsmouth Road; and
- A decrease in traffic using Hamble Lane to the south of the Portsmouth Road junction.

Impact on junctions

5.4.46 For the 'Do Minimum' improvements that have been modelled, model outputs show the following:

- There is a notable reduction in delay on the Portsmouth Road approach and a minor reduction in delay on the Hamble Lane northbound approach to the Jurd Way junction;
- There is an increase in delay on the Hamble Lane northbound and southbound approaches to the Portsmouth Road junction, due to the introduction of the signals; and
- Overall there is little change in delay or capacity at the Jurd Way junction as a result of the proposed options that have been modelled.

5.4.47 For the 'Do Maximum' improvements that have been modelled, model outputs show the following:

- As above there is forecast to be a decrease in delay on Portsmouth Road and Hamble Lane northbound at the Jurd Way junction; and
- There is an increase in delay on the two Hamble Lane approaches to the Portsmouth Road junction.

Further work needed

5.4.48 The above results indicate that further work is needed to fully understand the impact of the proposed improvement options on the Hamble Lane corridor. In particular additional model scenarios need to be undertaken to fully model the 'Do Minimum' improvement schemes and the 'Do Maximum' schemes in isolation from each other (and in line with the specific schemes proposed in this report), and compared to a baseline scenario. Individual junction modelling is also required to quantify the impact of the improvement schemes in isolation.

5.4.49 The further modelling could be undertaken using the SRTM, but a micro-simulation model of the Hamble Lane corridor would provide the best tool for assessing full impacts on traffic flows along the corridor, as it would enable the interaction between all junctions to be fully assessed, including the Windhover roundabout.

Botley Bypass

How the scheme was modelled

5.4.50 The Botley Bypass was included in the SRTM with the following features:

- A new single carriageway link between Woodhouse Lane (just south of the Winchester Street junction) and the A334 (at the A3051 junction), with a 40mph speed limit;
- An indicative large four-arm roundabout was included at the Woodhouse Lane junction with the Bypass forming the eastern arm and a potential development site access forming the western arm;
- An indicative large roundabout was included at the junction of the Bypass with the A334/A3051;
- A ghost island priority junction was included where the Bypass meets Winchester Street to provide access to the south only; and
- Woodhouse Lane was widened to 6.75m between the A334 and the Bypass.

5.4.51 The Botley Bypass was included in the DS2a scenario and a DS2e scenario was run which was identical to scenario DS2a except that the Botley Bypass was removed. Therefore a comparison between these two scenarios enables the impact of the Bypass to be quantified.

Impact of the scheme on the local highway network

5.4.52 Flow difference plots indicate that when the Bypass is added to the network a significant volume of traffic would be expected to use the Bypass in both the AM and PM peak hours, with up to 2,700 vehicles per hour using the road.

5.4.53 In terms of the impact on the wider network, the model outputs indicate the following:

- The Bypass would significantly reduce traffic flows through Botley village on the A334 and also on the B3354 Winchester Street;
- Between the A3051 and Winchester Street, flows on the A334 are forecast to reduce by up to 2,000 vehicles in both the AM and PM peak hours;
- Between Winchester Street and Woodhouse Lane, flows on the A334 are forecast to reduce by up to 1,400 vehicles in the AM and PM peak hours.
- Between the Bypass and the A334 flows on Winchester Street are forecast to reduce by up to 700 vehicles in the AM and PM peak hours.
- There is forecast to be a significant increase in traffic flows along Woodhouse Lane;
- There are notable increases in traffic flow along the A3051 (south of the A334) and along Winchester Road (north of Woodhouse Lane); and

- Small increases in traffic flow are forecast along Kings Copse Avenue (south of the A334) and along the A334 to the east of where the Bypass would connect.

Impact on junctions

5.4.54 The outputs also show that there is forecast to be a degree of congestion and delay on some approaches to the new junctions at either end of the Bypass and also at the Maypole roundabout where Woodhouse Lane meets the A334.

Further work needed

5.4.55 Further detailed modelling and assessment of the above noted junctions will need to be undertaken as the design for the Bypass progresses.

5.4.56 In light of the above modelling results it is considered that the transport justification for a Botley Bypass is now much stronger than has historically been the case. This is due to a number of factors but most pertinently the additional development envisaged to come forward in Eastleigh Borough over the next 10-20 years and the significant development at nearby North Whiteley in Winchester district. This development facilitates the connection of Whiteley Way through to the A3051 Botley Road at a point just south of where the Bypass would make its eastern connection to the A334, and further enhances the justification for the Bypass. Moreover the presence of an AQMA within Botley village centre (designated in 2011) provides added impetus to reduce traffic flows and thereby improve air quality in the village.

Chickenhall Lane Link Road (CLLR)

How were the schemes modelled

5.4.57 As mentioned in Section 5, a significant amount of design work has historically been undertaken on the CLLR, but as the SRTM model was not available when the scheme was developed it is considered pertinent to obtain an understanding of potential scheme benefits.

5.4.58 The CLLR was included in the SRTM model as a new link between the A335 Wide Lane and the southern end of Chickenhall Lane, as per the scheme drawings for the 'South Alignment', with a speed limit of 40mph. There were also associated upgrades to the A335 between M27 Junction 5 and the new link, and to Chickenhall Lane.

5.4.59 A separate SRTM scenario was run (DS2b) which included the CLLR but not the NBB or SBB. A comparison of the DS2b scenario with the DM2 scenario enables some of the impacts of the CLLR to be viewed, although it should be noted that there are other new schemes on the network in the DS2b scenario (compared to the DM2 scenario) in addition to the CLLR, such as the three junction improvements described above along Bishopstoke Road. Although it should also be noted that improvements to the Bishopstoke Road / Chickenhall Lane junction (similar to Option 2 in Section 4.3) were an integral part of the CLLR scheme.

Impact of the Scheme on the local highway network

5.4.60 Flow difference plots indicate that when the CLLR is added to the network a significant amount of traffic would be expected to use the road in both the AM and PM peak hours, with up to 2,250 vehicles per hour using the road.

5.4.61 In terms of impact on the wider network the model outputs indicate the following notable changes in traffic flows would be expected:

- The CLLR would significantly reduce traffic on the A335 Southampton Road/Station Hill between the CLLR and Eastleigh town centre;
- An increase on the A335 Wide Lane between M27 Junction 5 and the CLLR;
- An overall decrease on Stoneham Lane between Chestnut Avenue and M27 Junction 5;
- A decrease in eastbound traffic on Chestnut Avenue to the west of Stoneham Lane, but an increase in westbound traffic;
- An increase on Chestnut Avenue to the east of Stoneham Lane;
- An increase in northbound flow on Passfield Avenue, eastbound flow on Derby Road, northbound flow on Nutbeem Road, and eastbound flow on Blenheim Road;
- A decrease in southbound flow on Passfield Avenue, westbound flow on Derby Road, southbound flow on Nutbeem Road and westbound flow on Blenheim Road;
- An increase on the A335 Twyford Road north of Eastleigh town centre;
- An increase on the B3037 Bishopstoke Road between Eastleigh town centre and Chickenhall Lane; and
- An increase on the B3037 Bishopstoke Road/Fair Oak Road to the east of Chickenhall Lane.

Impact on Junctions

5.4.62 The model outputs show that there is forecast to be congestion and delay at the modified junction between Wide Lane and the A335 Wide Lane and at the new junction between the CLLR and the A335 Wide Lane. There is also forecast to be a small degree of additional congestion at M27 Junction 5 due to the increased traffic attracted to use the CLLR and congestion at the Wide Lane/Mitchell Way roundabout, although this congestion is also forecast without the CLLR. There is also forecast to be an increase in delay along the B3037 Bishopstoke Road/Fair Oak Road due to the additional traffic forecast to use this link as a result of the CLLR.

Further Work Needed

5.4.63 Further detailed modelling and assessment of the above noted junctions would need to be undertaken should the design for the CLLR progress further, as well as an assessment of link and junction capacity along roads that are highlighted above as being likely to experience an increase in traffic flow.

Summary

5.4.64 The initial modelling work indicates that the identified highway schemes all have potential to improve congestion along existing links with beneficial impacts for existing residents, as well as helping to offset the impact of new development envisaged to come forward within Eastleigh Borough over the next 10-20 years.

5.4.65 Further analysis and testing of the model outputs, as well as refinement of some elements of the schemes, will be required prior to progressing the schemes further.

6 Option Assessment Tables

6.1.1 This section presents a high-level appraisal of the different scheme options presented in the previous chapter, when considered from a number of perspectives including:

- Design Issues;
- Traffic Impacts;
- Environmental Impacts;
- Land Requirements; and
- Scheme Costs.

6.1.2 Each option for each scheme has been appraised from the above perspectives and given a score based on a Red Amber Green (RAG) scale. For example significant departures from design standards and/or serious environmental impact would receive a 'Red' score for those categories, while traffic flow benefits and/or low environmental impacts would receive a 'Green' score for those categories.

6.1.3 It should be noted that there is no defined methodology for scoring each of the categories, but rather it is based on an initial high-level assessment of the relative merits of the different options in comparison with each other, based on the information that is available at this early stage.

6.1.4 The detailed option appraisal tables with the full description of all criteria are provided in Appendix D, while a summary is provided below of the RAG results for each scheme.

6.2 North Bishopstoke Bypass

New Bypass Link – See Table D1 in Appendix D

Table 6.1 - North Bishopstoke Bypass RAG Appraisal Results

Assessment Criteria	Scheme Option		
	Option 1 (Blue)	Option 2 (Green)	Option 3 (Red)
Design Issues			
Horizontal Alignment			
Vertical Alignment			
Structures			
Junctions			
Design standards			
Other constraints			
High Level Traffic Impacts			
Existing benefits			
Future benefits			
Safety			
High Level Environmental Impacts			

Impacts upon designated sites			
Water and drainage			
Noise and Air Quality			
Ecology			
Landscape			
Land Requirements			
Land impacts			
High-Level Scheme Costs			
Costs excluding land etc.			

Highbridge Road Improvements – See Table D2 in Appendix D

Table 6.2 – Highbridge Road Improvements RAG Appraisal Results

Assessment Criteria	Scheme Option				
	Option H1	Option H2	Option H3	Option H4	Option H5
Design Issues					
Horizontal Alignment					
Vertical Alignment					
Structures					
Design standards					
Other constraints					
High Level Traffic Impacts					
Existing benefits					
Future benefits					
Safety					
High Level Environmental Impacts					
Impacts upon designated sites					
Water and drainage					
Noise and Air Quality					
Ecology					
Landscape					
Land Requirements					
Land impacts					
High-Level Scheme Costs					
Costs excluding land etc.					

Allbrook Hill Relief Road – See Table D3 in Appendix D

Table 6.3 – Allbrook Hill Relief Road RAG Appraisal Results

Assessment Criteria	Scheme Option		
	Option 1	Option 2	Option 3
Design Issues			
Horizontal Alignment			
Vertical Alignment			
Structures			
Design standards			
Other constraints			
High Level Traffic Impacts			
Existing benefits			
Future benefits			
Safety			
High Level Environmental Impacts			
Impacts upon designated sites			
Water and drainage			
Noise and Air Quality			
Ecology			
Landscape			
Land Requirements			
Land impacts			
High-Level Scheme Costs			
Costs excluding land etc.			

6.3 South Bishopstoke Bypass

Northern Section – See Table D4 in Appendix D

Table 6.4 – South Bishopstoke Bypass North Section RAG Appraisal Results

Assessment Criteria	Scheme Option		
	Option 1	Option 2	Option 3
Design Issues			
Horizontal Alignment			
Vertical Alignment			
Structures			
Design standards			
Other constraints			
High Level Traffic Impacts			
Existing benefits			

Future benefits			
Safety			
High Level Environmental Impacts			
Impacts upon designated sites			
Water and drainage			
Noise and Air Quality			
Ecology			
Landscape			
Land Requirements			
Land impacts			
High-Level Scheme Costs			
Costs excluding land etc.			

Southern Section – See Table D5 in Appendix D

Table 6.5 – South Bishopstoke Bypass South Section RAG Appraisal Results

Assessment Criteria	Scheme Option	
	Option 1	Option 2
Design Issues		
Horizontal Alignment		
Vertical Alignment		
Structures		
Design standards		
Other constraints		
High Level Traffic Impacts		
Existing benefits		
Future benefits		
Safety		
High Level Environmental Impacts		
Impacts upon designated sites		
Water and drainage		
Noise and Air Quality		
Ecology		
Landscape		
Land Requirements		
Land impacts		
High-Level Scheme Costs		
Costs excluding land etc.		

6.4 Bishopstoke Road Improvements

Twyford Rd Roundabout – See Table D6 in Appendix D

Table 6.6 – Twyford Road Roundabout RAG Appraisal Results

Assessment Criteria	Scheme Option		
	Option 1	Option 2	Option 3
Design Issues			
Horizontal Alignment			
Vertical Alignment			
Structures			
Design standards			
Other constraints			
High Level Traffic Impacts			
Existing benefits			
Future benefits			
Safety			
High Level Environmental Impacts			
Impacts upon designated sites			
Water and drainage			
Noise and Air Quality			
Ecology			
Landscape			
Land Requirements			
Land impacts			
High-Level Scheme Costs			
Costs excluding land etc.			

Chickenhall Lane Junction – See Table D7 in Appendix D

Table 6.7 – Chickenhall Lane Roundabout RAG Appraisal Results

Assessment Criteria	Scheme Option		
	Option 1	Option 2	Option 3
Design Issues			
Horizontal Alignment			
Vertical Alignment			
Structures			
Design standards			
Other constraints			
High Level Traffic Impacts			
Existing benefits			

Future benefits			
Safety			
High Level Environmental Impacts			
Impacts upon designated sites			
Water and drainage			
Noise and Air Quality			
Ecology			
Landscape			
Land Requirements			
Land impacts			
High-Level Scheme Costs			
Costs excluding land etc.			

Riverside Junction – See Table D8 in Appendix D

Table 6.8 – Riverside Junction RAG Appraisal Results

Assessment Criteria	Scheme Option		
	Option 1	Option 2	Option 3
Design Issues			
Horizontal Alignment			
Vertical Alignment			
Structures			
Design standards			
Other constraints			
High Level Traffic Impacts			
Existing benefits			
Future benefits			
Safety			
High Level Environmental Impacts			
Impacts upon designated sites			
Water and drainage			
Noise and Air Quality			
Ecology			
Landscape			
Land Requirements			
Land impacts			
High-Level Scheme Costs			
Costs excluding land etc.			

6.5 Wide Lane Bridge

See Table D9 in Appendix D

Table 6.9 – Wide Lane Bridge RAG Appraisal Results

Assessment Criteria	Scheme Option		
	Option 1	Option 2	Option 3
Design Issues			
Horizontal Alignment			
Vertical Alignment			
Structures			
Junctions			
Design standards			
Other constraints			
High Level Traffic Impacts			
Existing benefits			
Future benefits			
Safety			
High Level Environmental Impacts			
Impacts upon designated sites			
Water and drainage			
Noise and Air Quality			
Ecology			
Landscape			
Land Requirements			
Land impacts			
High-Level Scheme Costs			
Costs excluding land etc.			

6.6 Hamble Lane Improvements

Do Minimum Scheme – See Table D10 in Appendix D

Table 6.10 – Hamble Lane Do Minimum Improvements RAG Appraisal Results

Assessment Criteria	Scheme Option			
	Tesco	Jurd Way Option 1	Jurd Way Option 2	Portsmouth Road
Design Issues				
Horizontal Alignment				
Vertical Alignment				
Structures				
Design standards				

Other constraints				
High Level Traffic Impacts				
Existing benefits				
Future benefits				
Safety				
High Level Environmental Impacts				
Impacts upon designated sites				
Water and drainage				
Noise and Air Quality				
Ecology				
Landscape				
Land Requirements				
Land impacts				
High-Level Scheme Costs				
Costs excluding land etc.				

Do Maximum Scheme – See Tables D11a, D11b and D11c in Appendix D

Table 6.11 – Hamble Lane Do Maximum Improvements RAG Appraisal Results (Tesco Access)

Assessment Criteria	Scheme Option - Tesco	
	Option 1 - Signals	Option 2 - Roundabout
Design Issues		
Horizontal Alignment		
Vertical Alignment		
Structures		
Design standards		
Other constraints		
High Level Traffic Impacts		
Existing benefits		
Future benefits		
Safety		
High Level Environmental Impacts		
Impacts upon designated sites		
Water and drainage		
Noise and Air Quality		
Ecology		
Landscape		
Land Requirements		
Land impacts		

High-Level Scheme Costs		
Costs excluding land etc.		

Table 6.12 – Hamble Lane Do Maximum Improvements RAG Appraisal Results (Jurd Way)

Assessment Criteria	Scheme Option (Jurd Way)	
	Option 1 - Signals	Option 2 - Roundabout
Design Issues		
Horizontal Alignment		
Vertical Alignment		
Structures		
Design standards		
Other constraints		
High Level Traffic Impacts		
Existing benefits		
Future benefits		
Safety		
High Level Environmental Impacts		
Impacts upon designated sites		
Water and drainage		
Noise and Air Quality		
Ecology		
Landscape		
Land Requirements		
Land impacts		
High-Level Scheme Costs		
Costs excluding land etc.		

Table 6.13 – Hamble Lane Do Maximum Improvements RAG Appraisal Results (Portsmouth Road)

Assessment Criteria	Scheme Option (P'mouth Road)	
	Option 1 – Signals & 4 Lanes	Option 2 – Signals & 3 Lanes
Design Issues		
Horizontal Alignment		
Vertical Alignment		
Structures		
Design standards		

Other constraints		
High Level Traffic Impacts		
Existing benefits		
Future benefits		
Safety		
High Level Environmental Impacts		
Impacts upon designated sites		
Water and drainage		
Noise and Air Quality		
Ecology		
Landscape		
Land Requirements		
Land impacts		
High-Level Scheme Costs		
Costs excluding land etc.		

6.7 Botley Bypass

See Table D12 in Appendix D

Table 6.14 – Botley Bypass RAG Appraisal Results

Assessment Criteria	Scheme Option		
	Waterman 1C	Atkins 2	HCC
Design Issues			
Horizontal Alignment			
Vertical Alignment			
Structures			
Design standards			
Other constraints			
High Level Traffic Impacts			
Existing benefits			
Future benefits			
Safety			
High Level Environmental Impacts			
Impacts upon designated sites			
Water and drainage			
Noise and Air Quality			
Ecology			
Landscape			
Land Requirements			
Land impacts			

High-Level Scheme Costs			
Costs excluding land etc.			

7 Sustainable Transport Improvements

7.1 Introduction

7.1.1 This part of the study focuses on the type of sustainable transport infrastructure that would be required to support and promote sustainable travel patterns within Eastleigh Borough.

7.1.2 There were three main parts to the process as follows:

- Firstly the connectivity from the potential development areas to the existing network of footways and cycle routes and how to facilitate access to existing bus routes and rail stations was considered.
- Secondly the 2011 Census data (MSOA - Middle Level Super Output Area's) for journeys to work was used to look across the Borough to help identify likely 'travel-to-work' characteristics for the potential development areas. This has been used to suggest what elements of sustainable infrastructure each potential area could financially contribute towards or provide in it is entirety, to ensure a choice of travel modes from each area and minimise the number of car trips.
- Thirdly an initial draft list has been produced of sustainable transport infrastructure which the potential development areas could fund. These would help to ensure the provision/enhancement of sustainable transport links from the potential sites to main centres, in order to improve travel choices, enhance points of interchange and increase the ability to use different modes of non-car based travel. This is discussed in Section 7.3 below and shown indicatively on the plan provided at Appendix E.

7.2 Current Travel to Work Patterns – 2011 Census

7.2.1 Currently, Eastleigh town has the most sustainable travel patterns with typically less than 70% of journeys to work made by car. Other forms of transport include: an average of 18% walk; 4% travel by rail; 3 % travel by bus; 3% cycle; and 2% use other modes (e.g. motor cycle / ferry). Note that there are three MSOAs that make up 'Eastleigh town' (central, northern and south/west). The key factors behind this are:

1. A high proportion of walking and, to a lesser extent, cycling trips for local journeys;
2. A railway station with good service frequencies to other employment centres, particularly Southampton and Portsmouth; and
3. High quality bus services to and from the town to other employment locations.

7.2.2 Within other areas of the Borough commuting patterns are generally local with most journeys elsewhere within the Borough to work or to neighbouring districts for work purposes[6]. Eastleigh itself is a significant destination for employment. There is a distinct north – south pull for commuters; north to Winchester and south to Southampton. The

[6] The number of people commuting more than two hours a day has risen by 72% in the past decade. A report by the Trades Union Congress (TUC) said more than three million UK employees now had long commutes. It said the increase was because of people being "priced out" of living in areas near their workplaces. The largest increase in long commutes was in the South East, South West and East Midlands of England and in Wales.

areas of West End, Hamble, Netley and Bursledon, which are all in the southern part of the Borough, have the greatest pull to Southampton.

7.2.3 In addition, there are subtle differences in travel to work patterns over the Borough depending on a variety of factors. These include: access to a car and availability of parking; distance from a railway station and frequency of services; existing levels of congestion; provision of sustainable infrastructure; proximity to frequent bus service/s, and other social/demographic factors.

7.2.4 Eastleigh as a Borough has a high proportion of residents walking to work, which is highest in Eastleigh town central area at up to 18%. The lowest percentage of walking occurs in the Hedge End area and northern Botley. Walking as a mode is available to the majority; it is used for many shorter journeys or at the start/finish of a longer journey. There is a need to ensure that provision for walking is well sign-posted, safe, and direct, providing permeability to encourage walking for journeys typically under 1 mile. Walking can be promoted through appropriate, permeable and legible design of new developments and street / highways infrastructure. It also highlights the need for high density residential development in close proximity to employment and other key services and facilities to ensure the need to travel is reduced.

7.2.5 Eastleigh town has a high level of residents using the train to get to work; 11% in Eastleigh town central area and 6.2% in Eastleigh town northern area use the train to get to work. It can be demonstrated that in locations where rail services are frequent and of a high quality, they are well used and can attract a significant share of modal journeys.

7.2.6 Those travelling from Eastleigh Railway Station travel north (in the largest numbers) to destinations such as Winchester, Basingstoke and London, and also travel south towards Southampton. There is also a pull eastwards to Portsmouth and Fareham. For example journeys from Eastleigh town centre to Winchester have a 22.7% rail modal share with 2 trains per hour and journeys to Southampton have a 16.6% rail modal share with 2/3 trains per hour. Where the frequency drops to hourly, the modal share drops notably. For example for journeys from Netley to Southampton rail only has a 4.2% modal share.

7.2.7 It is not therefore surprising that existing destinations in the east of the Borough such as Fair Oak that are not served by a frequent train or within a walkable distance of a rail station, have the highest dependency on the car.

7.2.8 Where there are existing designated routes to railway stations and facilities for bike storage at railway stations, onward journeys by rail tend to be higher. Wide Lane for example experiences the highest cycle usage in the Borough[7], with Southampton Airport Parkway Station providing for 160 cycles at the station.

7.3 Potential Development Related Infrastructure

7.3.1 This section provides some suggestions of potential sustainable transport infrastructure that could be linked to some of the areas that have been identified as having the potential to accommodate additional development during the next EBC Local Plan period to 2036. Each area is discussed in turn, starting in the north of the Borough.

[7] Based on data collected for the EBC Eastleigh Cycle Strategy Review

Land in the vicinity of Allbrook Way, north of Eastleigh (Western Part of Study Area 2 of Figure 2.4)

7.3.2 Census data from the existing Boyatt Wood area suggests that potential commuters are likely to be car reliant, with a strong pull towards Eastleigh and Winchester and latterly Southampton as their key work destinations. The proximity of this potential development area to M3 Junction 12 is likely to underpin existing travel habits and suggests similar travel patterns to those which exist in the Boyatt Wood area. Walking to work and bus use are likely to be favoured in this locality over using the train. However, Eastleigh Railway Station is directly accessible to the south via Twyford Road and this route could be improved for cyclists, as could getting from the potential development area to the A335 for both pedestrians and cyclists.

7.3.3 Based on the likely main trip destinations, development could potentially provide support for the following:

1. Contributions should be sought towards connecting the development sites to the strategic cycle route along Boyatt Lane linking to Otterbourne Hill (north) and Leigh Road (south);
2. Provision should be made for pedestrian links to Otterbourne Road for bus services to Winchester and Southampton; including improvements to bus stop(s) and shelter(s) in the vicinity of the site;
3. Pedestrian links should be provided from the potential site to the A335 Twyford Road (southwards) and along the A335 Allbrook Way (northwards);
4. Consideration should be given to the provision of a cycle link southwards towards the Twyford Road roundabout along the A335; and
5. Contributions should be sought towards the completion of the Twyford Road to Eastleigh Railway Station off-road pedestrian/cycle route (behind Lidls).

Land north of Bishopstoke & Fair Oak (central part of Study Area 2 on Figure 2.4)

7.3.4 Analysis of Census data for this area identified that commuters typically use their cars for 80-85% of journeys to work. There is a frequent bus service (Bluestar 2) using the Bishopstoke/Fair Oak Road, however, it frequently experiences journey time delays due to the heavy congestion along this corridor. Therefore for any significant shift away from the car to take place for journeys to work, any improvements to the highway should not be detrimental to buses and their associated journey times into Eastleigh town.

7.3.5 Potential development sites in the north should provide strong links southwards to Bishopstoke/Fair Oak Road for both pedestrians and cyclists. This will provide opportunities to access Eastleigh town centre for employment, shopping and higher educational purposes, as well as access to the railway station.

7.3.6 Based on the likely main trip destinations, development could potentially provide support for the following:

1. The completion of the off road cycle route along Bishopstoke/Fair Oak Road corridor;
2. A potential 4th Platform at Eastleigh Railway Station which is required to accommodate increased train frequency particularly for the Eastleigh - Botley - Fareham Line, and other services;

3. Improvements for pedestrians and cyclists from Chickenhall Lane to Station Road in Eastleigh. The current highway layout does not encourage increased usage by sustainable modes;
4. Further cycle storage at Eastleigh Railway Station needed to accommodate additional cyclists and to encourage the use of rail from potential development areas for onwards journeys; and
5. Ensuring that any new or improved highway infrastructure along the Bishopstoke/Fair Oak Road corridor is cycle proofed and enables direct and convenient pedestrian movement/access.

Land north-east of Fair Oak (eastern part of Study Area 2 on Figure 2.4)

7.3.7 Commuting by car in in this area is the highest in the Borough - 86% of journeys to work starting in this area are by car. Most journeys are heading into Eastleigh town, followed by a north/south split between Winchester and Southampton. These three destinations account for 74% of all journeys to work.

7.3.8 Based on the likely main trip destinations, development could potentially provide support for the following:

1. Contributions towards improvements to the highway infrastructure including cycle proofing of the main highway junctions along the B3037 Bishopstoke Road/Fair Oak Road and the B3354 Winchester Road/Botley Road. This will encourage commuters to use the bus or cycle into Eastleigh and will provide links with Eastleigh Railway Station; and
2. Contributions towards improving the provision for cyclists all along the B3354 Botley Road/Winchester Road south towards Hedge End.

Land south of Bishopstoke – north of Botley rail line (southern parts of Study Area 3 on Figure 2.4)

7.3.9 Census data identifies that commuters in this area typically use their car for 80% of journeys to work. Therefore to have any shift away from the car for journeys to work, the location must provide strong links southwards to Bishopstoke/Fair Oak Road, as this can offer opportunities to access Eastleigh town centre for shopping and higher educational purposes and for employment and access to the Railway Station.

7.3.10 Based on the likely main trip destinations, development could potentially provide support for the following:

1. The completion of off the road cycle route along the B3037 Bishopstoke/Fair Oak Road corridor;
2. The potential development of a rail halt/station on the Fareham-Botley-Eastleigh line accessed via a road link connecting to Allington Lane; and
3. Alternatively improving access to the south-east to Hedge End Railway Station; improvements to the existing station footbridge and the provision of further cycle storage. It should be noted that currently journey times between Botley/ Hedge End and Southampton City Centre by rail are slow compared to the car, currently limiting the role rail can play for these potential local commuter trips.

Land east of Hedge End (Study Area 4 on Figure 2.4)

7.3.11 There is a high propensity to drive to work in the Hedge End area which is currently also observed in the surroundings areas. The main work destinations are Eastleigh, equating to over 50%; and Southampton equating to 25%. Few residents in this area use the bus and most use the car. Rail use is low, accounting only for 2.5% of all work journeys, despite the railway station in Hedge End. Journeys from Hedge End to Southampton City Centre by rail are slow compared to the car; currently limiting the role rail can play for these local commuter trips.

7.3.12 Based on the likely main trip destinations, development could potentially provide support for the following:

1. Contributions towards a potential strategic cycle route along Kings Copse Avenue/Heath House Lane to link Botley to Hedge End and Bursledon, and to leisure routes in Manor Farm Country Park;
2. Improved access north-west towards Hedge End Railway Station including the provision of a link from the B3354 Winchester Road, and improvements to the existing footbridge to make it Disability Discrimination Act (DDA) compliant, as well as additional cycle storage at the station;
3. Contributions towards improving the provision for cyclists and pedestrians along Woodhouse Lane, which would be required in the context of the nearby potential development sites;
4. Potential contributions towards the cost of securing and implementing Park and Ride in the vicinity of the M27 Junction 8 in order to reduce the need to travel by car into Southampton; and
5. Contributions towards the potential opening up of Botley Road as a bus and cycle link between the A27 and the A3024.

Land within Hamble Peninsula (southern parts of Study Area 5 on Figure 2.4)

7.3.13 The main commuting destinations which are predicted to be likely from the potential new sites within the Hamble Peninsula are Eastleigh town and Southampton, representing a fairly equal split. The car will remain the most popular mode for journeys into Southampton, but usage is lower than in other areas. Walking is higher and cycle usage over 4%. Despite the close proximity of rail stations at Hamble and Netley, rail usage is low, accounting only for 3.5% of all work journeys. The frequency of journeys from Hamble/Netley to Southampton city centre by rail is low, which can be attributed to relatively slow journey times which are currently limiting the role rail can play for these potential local commuter trips.

7.3.14 Based on the likely main trip destinations, development could potentially provide support for the following:

1. The provision of additional car parking (around 50 spaces) at Hamble Railway Station;
2. The provision of improved footway/cycleway links to Hamble Railway Station from Hamble Lane (west side);
3. Improvements to the provision of cycle storage at Hamble Railway Station;

4. Improved facilities for cyclists on the A3025 Portsmouth Road, Hound Way and Abbey Hill leading to the existing route into Southampton via Weston/Woolston;
5. Improvements to train frequencies in order to reduce journey times to Fareham/Portsmouth and to Southampton; and
6. Contributions towards the costs of securing and implementing Park and Ride in the vicinity of M27 junction 8 in order to reduce need to travel by car into Southampton.

8 Where Next

8.1.1 The next steps to be taken leading to production of the full study report are as follows:

- To await the outcomes of the EBC Local Plan consultation process on Issues and Options document;
- Following the receipt of feedback and stakeholder views received as part of the public consultation, any necessary refinements will be made to potential mitigation measures and preferred options will be identified; ;
- A final report will be produced in Spring 2016 which will include details of the preferred options to be progressed, with routes identified for potential safeguarding through the Plan process. The report will include a view on the overall benefits of the schemes in transport terms and whether they are likely to be viable; and
- In the interim, the traffic modelling for scheme options will be completed, including the junction modelling for the Bishopstoke Road and A3025 Hamble Lane corridors, and microsimulation modelling for the Hamble Lane improvements.

Appendices

Appendix A Botley Bypass – Outline Preliminary Design Drawing (Working Draft)

Appendix B SRTM Modelling – List of Transport Schemes Included in Study

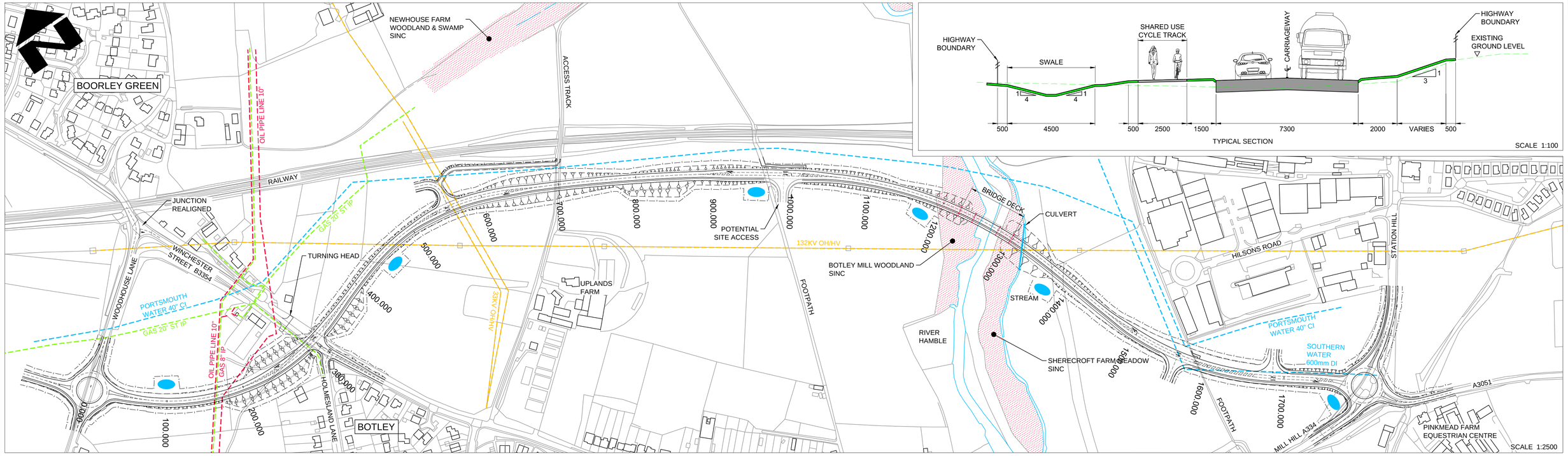
Appendix C SRTM Modelling – Model Output Files

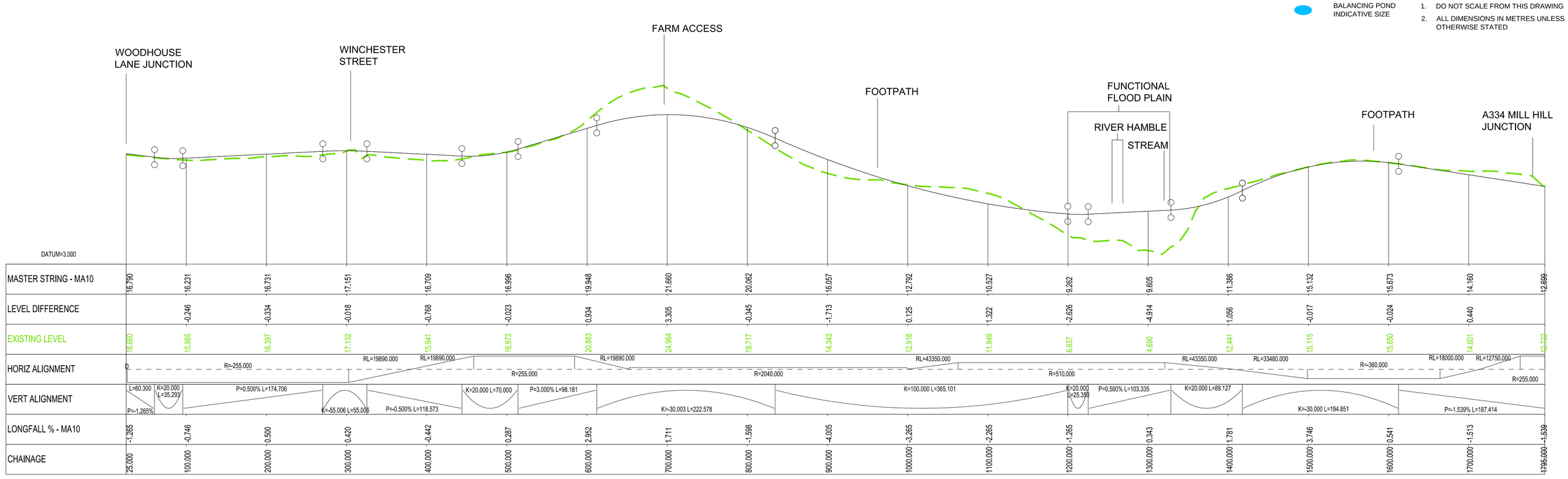
Appendix D Transport Mitigation Option Appraisal Tables

Appendix E Sustainable Transport Network: Suggested Potential Development-Related Improvements

Appendix A Botley Bypass – Outline Preliminary Design Drawing (Working Draft)

Hampshire
County Council





KEY

BALANCING POND INDICATIVE SIZE

NOTES

1. DO NOT SCALE FROM THIS DRAWING
2. ALL DIMENSIONS IN METRES UNLESS OTHERWISE STATED

SCALE 1:2500 HORIZONTAL
1:250 VERTICAL

DRAFT

REV	AMENDMENTS	DATE	CAD	CHKD	APPD

CLIENT

HAMPSHIRE COUNTY COUNCIL
ECONOMY, TRANSPORT AND ENVIRONMENT DEPARTMENT
STRATEGIC TRANSPORT

CONSULTANT

Hampshire County Council Engineering Consultancy

STUART JARVIS BSc DipTP FCIHT MRTPI: DIRECTOR OF ECONOMY, TRANSPORT & ENVIRONMENT

DESIGNER	CAD	CHECKED	APPROVED
RW	DF	LW LW	CM CM

SCHEME: EASTLEIGH STRATEGIC TRANSPORT STUDY
JOB No.

DRAWING TITLE: BOTLEY BYPASS PLAN AND PROFILE DESIGN 08
HCC CAD PLOT: 18/12/2015 14:32:06

SCALE @ A1	DATE	SHEET NUMBER	DRAWING NUMBER	REV
1:2500	03.12.2015	1 OF 1	EC/RJ567621/03/006	

HCC CAD FILE: K:\Engi\Roads\Schemes\RJ567621.01 - Eastleigh Strategic Study\AutoCAD\General\03 - Botley Bypass\EC_RJ567621-03-006 PLAN & PROFILES.dwg

Appendix B SRTM Modelling – List of Transport Schemes Included In Study

Hampshire
County Council

			1	2	3	4	5	6	7	8
SRTM Module Status	Scheme	Additional Detail	Forecast Baseline	Forecast Baseline + New Sites	Forecast Baseline with Mitigation	Forecast Baseline + New Sites with All Mitigation	Forecast Baseline + New Sites with Various Mitigation			
							with full CLLR	NBB Only	SBB Only	No Botley Bypass
			DM1	DM2	DS1	DS2a	DS2b	DS2c	DS2d	DS2e
SRTM Run Code			tbc	tbc	tbc	tbc	tbc	tbc	tbc	tbc
Model Yrs			2036	2036	2036	2036	2036	2036	2036	2036
Land Use	SRTM Reference Case		x	x	x	x	x	x	x	x
	2029 Local Plan TA sites + Other New Consented Sites		x	x	x	x	x	x	x	x
	Potential new (Eastleigh) sites			x		x	x	x	x	x
	Southampton City Centre Action Plan (SCCAP)		x	x	x	x	x	x	x	x
	North Whiteley		x	x	x	x	x	x	x	x
	Welborne		x	x	x	x	x	x	x	x
Highway	SRTM Reference Case Schemes		x	x	x	x	x	x	x	x
	North Whiteley supporting infrastructure (Whiteley Wy Extension)		x	x	x	x	x	x	x	x
	Welborne supporting infrastructure:									
	M27 J10	Provide west facing slips to create an all movement junction	x	x	x	x	x	x	x	x
	Internal Welborne network		x	x	x	x	x	x	x	x
	Fareham Mitigation (HCC Schemes)	No improvements at Delme Rbt	x	x	x	x	x	x	x	x
	2029 Local Plan TA transport schemes:									
	Chestnut Avenue/ Stoneham Lane Rndbt				x	x	x	x	x	x
	Chestnut Avenue/ Passfield Avenue Rndbt				x	x	x	x	x	x
	Maypole Rndbt				x	x	x	x	x	x
	Chestnut Avenue/ Southampton Road (A335)				x	x	x	x	x	x
	Allington Lane/ Fair Oak Rd				x	x	x	x	x	x
	Fair Oak Road/ Sandy Lane	Signal timing optimisation only			x	x	x	x	x	x
	Botley Road/ Eastleigh Road				x	x	x	x	x	x
	Botley Road/ Burnetts Lane	Signal timing optimisation only			x	x	x	x	x	x
	Sundays Hill Bypass/ Dodwell Lane Rndbt				x	x	x	x	x	x
	Botley Bypass/ Botley Road (A3051)/ Station Hill Rndbt	Botley Bypass scenarios only			x	x	x	x	x	
	Woodhouse Lane/ Winchester Road				x	x	x	x	x	x
	St Johns Road/ West End Road (A27)	Only in scenarios with Botley Road link				x	x	x	x	x
	Burnetts Lane Link/ Bubb Lane Rbt				x	x	x	x	x	x
	Burnetts Lane / Bubb Lane Link Road				x	x	x	x	x	x
	Sundays Hill Bypass				x	x	x	x	x	x
	St Johns Road Link Road				x	x	x	x	x	x
	Woodhouse Lane improvements	Botley Bypass scenarios only			x	x	x	x	x	
	Tollbar Way/ Botley Road				x	x	x	x	x	x
	Leigh Road/ Passfield Avenue				x	x	x	x	x	x
	Burnetts Lane Link / Burnetts Lane Rbt				x	x	x	x	x	x
	Winchester Road / Mortimers Lane				x	x	x	x	x	x
	Tollbar Way / Maunsell Way				x	x	x	x	x	x
	Botley Bypass					x	x	x	x	
	North Bishopstoke Bypass (NBB):									
	Bypass Alignment 2a					x		x		x
	Allbrook Hill Relief Road					x		x		x
	South Bishopstoke Bypass (SBB)					x			x	x
	Bishopstoke Road improvements:									
	Twyford Road/ Romsey Road/ Station Hill Rndbt				x	x	x	x	x	x
	Chickenhall Lane/ Bishopstoke Road Rndbt				x	x	x	x	x	x
	Bishopstoke Road/ Riverside				x	x	x	x	x	x
	Hamble Lane Improvements									
		Hamble Lane widening				x	x	x	x	x
		Tesco Roundabout improvements				x	x	x	x	x
		Jurd Way roundabout Improvements			x	x	x	x	x	x
		Portsmouth Road junction improvements			x	x	x	x	x	x
	Chickenhall Lane Link Road (CLLR)						x			
	Mitchell Way/Chickenhall Lane extensions (access to Riverside)					x		x	x	x
	Highways England Road Investment Strategy schemes:									
	M27 J5	Replace low bridge (Swaythling Arch) to reduce diversion trips via J5.	x	x	x	x	x	x	x	x
	M27 J8	Signalisation of J8	x	x	x	x	x	x	x	x
		Signalisation at Windhover Roundabout	x	x	x	x	x	x	x	x
		Widen from 1 to 2 lanes Northam Road (A3024) Rail Bridge	x	x	x	x	x	x	x	x
		Capacity Improvemvents at junctions on A3024 Bursledon Road to Southampton	x	x	x	x	x	x	x	x
	M3 J9	Provide free-flow links between A34 and M3 and vice-versa	x	x	x	x	x	x	x	x
	M3 J11-10	Additional (4th) lane provided between J11-10 (Northbound only)	x	x	x	x	x	x	x	x
	M3 J14-12	Additional (4th) lane provided between J14-12. (Northbound only)	x	x	x	x	x	x	x	x
	M271 Redbridge Roundabout	Hamburger arrangment between M271 and A33 east	x	x	x	x	x	x	x	x
PT	Reference Case Schemes		x	x	x	x	x	x	x	x
	2029 Local Plan TA PT schemes				x	x	x	x	x	x

Appendix C SRTM Modelling – Model Output Files

Appendix available separately – online only. See www.eastleigh.gov.uk/lp36.

Hampshire
County Council

Appendix D Transport Mitigation Option Appraisal Tables

Hampshire
County Council

TABLE D1 – NORTH BISHOPSTOKE BYPASS

ASSESSMENT CRITERIA	NORTH BISHOPSTOKE BYPASS - SCHEME OPTIONS					
	Option 1	RAG	Option 2	RAG	Option 3	RAG
DESIGN ISSUES						
Horizontal Alignment	Provision of approx. 3km of new 7.3m wide carriageway from Highbridge Road (North of Wardle Road to Winchester Rd at Crowdhill. Design Speed 50mph. Minimum radius 720m, to standard.		Provision of approx. 3.2km of new 7.3m wide carriageway from Highbridge Road (east of railway bridge) to Winchester Road at Crowdhill. Design Speed 50mph. Minimum radius 510m, to standard.		Provision of approx. 2.1km of new 7.3m wide carriageway from Highbridge Road (North of Wardle Road) to Winchester Road at Fishers Pond. Design Speed 50mph. Minimum radius 720m, to standard.	
Vertical Alignment	5% maximum gradient, to standard.		5% maximum gradient, to standard.		5% maximum gradient, to standard.	
Structures	Structures may be required to cross two small tributaries of the River Itchen. It is likely that these will be 3m x 2m box culverts.		This is a much more damaging option than option 1 as it involves two bridges over the River Itchen and the crossing of one tributary,. Structures will be required across the floodplain and it is likely that 4 no. 3m x 2m box culvert will be required (although other options than culverts will be considered to help prevent habitat fragmentation.)		Three minor tributaries of the Itchen are crossed by this option - Bow Lake and the Colden Common stream. Structures may be required.	
Junctions	Signal controlled junction on Highbridge Road, priority junction with the southern part of Bishopstoke Lane (no access north), roundabout at Stoke Park Farm to connect to new development, roundabout on Winchester Road. Additional priority junctions for new development as required.		Signal controlled junction on Highbridge Road, priority junctions with Bishopstoke Lane, roundabout at Stoke Park Farm to connect to new development, roundabout on Winchester Road. Additional priority junctions for new development as required.		Signal controlled junction on Highbridge Road, roundabout connecting to the southern part of Bishopstoke Lane (no access north), and the new development road, signal controlled junction on Winchester Road.	
Design standards	No departures identified at this stage		No departures identified at this stage		No departures identified at this stage	

ASSESSMENT CRITERIA	NORTH BISHOPSTOKE BYPASS - SCHEME OPTIONS					
	Option 1	RAG	Option 2	RAG	Option 3	RAG
Other constraints	Minimal private services within greenfield section, diversionary stats works required at tie in points. Full impact upon stats not yet known		Minimal private services within greenfield section, diversionary stats works required at tie in points. Full impact upon stats not yet known		Minimal private services within greenfield section, diversionary stats works required at tie in points. Full impact upon stats not yet known	
TRAFFIC IMPACTS						
Existing benefits	Has the potential to provide some relief to existing roads in the wider area, including Bishopstoke Road and the B3354 Winchester Road through Colden Common/Twyford, by reassigning traffic routing to/from the M3 via Junction 11. Severance of Bishopstoke Lane may be an issue.		Has the potential to provide some relief to existing roads in the wider area, including Bishopstoke Road and the B3354 Winchester Road through Colden Common/Twyford, by reassigning traffic routing to/from the M3. Severance of Bishopstoke Lane may be an issue.		Has the potential to provide some relief to existing roads in the wider area, including Bishopstoke Road and the B3354 Winchester Road through Colden Common/Twyford, by reassigning traffic routing to/from the M3. Likely to be less attractive to this traffic than other options due to greater journey length required. Severance of Bishopstoke Lane may be an issue.	
Future benefits	As above. Has potential to free up network capacity in order to accommodate traffic associated with potential new development sites.		As above. Has potential to free up network capacity in order to accommodate traffic associated with potential new development sites.		As above. Has potential to free up network capacity in order to accommodate traffic associated with potential new development sites. As above likely to be less attractive to traffic accessing the M3 via Junction 11 due to the more circuitous route involved.	
Safety	Potential to reduce the number of accidents on existing roads.		Potential to reduce the number of accidents on existing roads		Potential to reduce the number of accidents on existing roads.	
ENVIRONMENTAL IMPACTS						
Impacts upon designated sites	No direct impact on River Itchen SAC, SSSI or SINCs in the area but indirect impact on the SAC as Colden Common stream is a tributary of the Itchen and otters may use the stream		Crosses River Itchen SAC and SSSI. and one of it's tributaries		No direct impact on River Itchen SAC, SSSI or SINCs in the area.	

ASSESSMENT CRITERIA	NORTH BISHOPSTOKE BYPASS - SCHEME OPTIONS					
	Option 1	RAG	Option 2	RAG	Option 3	RAG
Water and drainage	Crosses approx. 50m of Flood Zone 3 north-west of Stoke Park Farm. All options are likely to have an impact on drainage and hydrology.		Crosses approx. 1.2km of Flood Zone 3 from Highbridge Road. All options are likely to have an impact on drainage and hydrology.		Meets Flood Zone 3 at junction with Winchester Road. All options are likely to have an impact on drainage and hydrology..	
Noise and Air Quality	Increases noise to rear of properties on Wardle Road/Lord's Wood, and properties on Bishopstoke Lane. Noise bunds / acoustic barriers can be installed along sections of the Bypass as identified by noise calculations. Air quality will need to be considered as it is planned to build over and within 200m of the River Itchen SAC. Increase in emissions could have an impact on the Southern Damselfly populations. Construction in-channel noise will need to be considered due to the disturbance to the migratory and resident fish for which the SAC is designated.		Minimal noise impact. Noise bunds / acoustic barriers can be installed along sections of the Bypass as identified by noise calculations. Air quality will need to be considered as it is planned to build over and within 200m of the River Itchen SAC. Increase in emissions could have an impact on the Southern Damselfly populations. Construction in-channel noise will need to be considered due to the disturbance to the migratory and resident fish for which the SAC is designated.		Increases noise to rear of properties on Wardle Road/Lord's Wood, and properties on Bishopstoke Lane. Noise bunds / acoustic barriers can be installed along sections of the Bypass as identified by noise calculations. Air quality will need to be considered as it is planned to build over and within 200m of the River Itchen SAC. Increase in emissions could have an impact on the Southern Damselfly populations. Construction in-channel noise will need to be considered due to the disturbance to the migratory and resident fish for which the SAC is designated.	
Ecology	Yet to be determined but likely to be some significant impacts as majority of land is currently undeveloped. Need to consider routes for water vole and otter and access for fish.		Yet to be determined but likely to be some significant impacts as majority of land is currently undeveloped. In addition the number of new river crossings is likely to impact on river ecology. Need to consider routes for water vole and otter and access for fish.		Yet to be determined but likely to be some significant impacts as majority of land is currently undeveloped.	

ASSESSMENT CRITERIA	NORTH BISHOPSTOKE BYPASS - SCHEME OPTIONS					
	Option 1	RAG	Option 2	RAG	Option 3	RAG
Landscape	Passes within 100/150m of Hill Farmhouse and Woodcroft Lodge, on Bishopstoke Lane, grade II listed buildings. Joins Winchester Road opposite Fielders Farm Meadows SINC, and the Park Pale at Marwell Scheduled Monument.		Joins Winchester Road opposite Fielders Farm Meadows SINC, and the Park Pale at Marwell Scheduled Monument		Passes within 100/150m of Hill Farmhouse and Woodcroft Lodge, on Bishopstoke Lane, grade II listed buildings.	
LAND						
Land impacts	Approx. 9 Ha of farmland required, more than half of which is earmarked for development.		Approx. 10 Ha of farmland required, more than half of which is earmarked for development.		Approx. 6 Ha of farmland required.	
SCHEME COSTS						
High level costs excl. land etc.	£22m		£32m		£15.5m	

TABLE D2 – NORTH BISHOPSTOKE BYPASS: HIGHBRIDGE ROAD SECTION

ASSESSMENT CRITERIA	NORTH BISHOPSTOKE BYPASS – HIGHBRIDGE ROAD SECTION SCHEME OPTIONS									
	H1	RAG	H2	RAG	H3	RAG	H4	RAG	H5	RAG
DESIGN ISSUES										
Horizontal Alignment	Approx. 250m of new 7.3m carriageway. Proposed due to the sharp bends that are located on the existing route of Highbridge Road immediately to the east of the rail bridge. Eases left-hand and right-hand bends heading east from river crossing. Minimum radius 180m. 30mph speed limit needs extending.		Approx. 450m of new 7.3m carriageway. Proposed due to the sharp bends that are located on the existing route of Highbridge Road immediately to the east of the rail bridge. Takes out sharp reverse curves heading east from railway bridge, but maintains some reverse curvature. Minimum radius 360m.		Approx. 650m new 7.3m carriageway, plus a new river bridge. Proposed due to the sharp bends that are located on the existing route of Highbridge Road immediately to the east of the rail bridge. Takes out sharp reverse curves heading east from railway bridge, but maintains some reverse curvature. Minimum radius 180m. 30mph speed limit needs extending.		Approx. 650m new 7.3m carriageway plus new river bridge. Proposed due to the sharp bends that are located on the existing route of Highbridge Road immediately to the east of the rail bridge. Takes out sharp reverse curves heading east from railway bridge and removes later reverse curves. Minimum radius 180m. 30mph speed limit needs extending.		Approx. 600m new 7.3m carriageway. Proposed due to the sharp bends that are located on the existing route of Highbridge Road immediately to the east of the rail bridge. Takes out sharp reverse curves heading east from river crossing and removes later reverse curves. Minimum radius 360m.	
Vertical Alignment	No issues.		No issues.		No issues.		No issues.		No issues.	
Structures	None.		None.		New river bridge.		New river bridge.		None.	

ASSESSMENT CRITERIA	NORTH BISHOPSTOKE BYPASS – HIGHBRIDGE ROAD SECTION SCHEME OPTIONS									
	H1	RAG	H2	RAG	H3	RAG	H4	RAG	H5	RAG
Design standards	Will improve existing departures. No new departures identified at this stage.		Will improve existing departures. No new departures identified at this stage.		Will improve existing departures. No new departures identified at this stage.		Will improve existing departures. No new departures identified at this stage.		Will improve existing departures. No new departures identified at this stage.	
Other constraints	Minimal private services within greenfield section, diversionary stats works required at tie in points. Full impact upon stats not yet known.		Minimal private services within greenfield section, diversionary stats works required at tie in points. Full impact upon stats not yet known.		Minimal private services within greenfield section, diversionary stats works required at tie in points. Full impact upon stats not yet known.		Minimal private services within greenfield section, diversionary stats works required at tie in points. Full impact upon stats not yet known.		Minimal private services within greenfield section, diversionary stats works required at tie in points. Full impact upon stats not yet known.	
TRAFFIC IMPACTS										
Existing benefits	Little impact. Link capacity slightly increased due potential for higher traffic speeds than existing.		Existing road outside Roselea and Dunoon will become a cul-de-sac providing a quieter environment. Short diversion for traffic depending on location of access. Link capacity increased due potential for higher traffic speeds than existing.		Existing road outside Roselea, Dunoon and Highbridge Farm (north) will become a cul-de-sac. Short diversion for traffic depending on location of access. Link capacity increased due potential for higher traffic speeds than existing.		Existing road outside Roselea, Dunoon and Highbridge Farm (north) will become a cul-de-sac. Short diversion for traffic depending on location of access. Link capacity increased due potential for higher traffic speeds than existing.		Existing road outside Roselea, Dunoon and Highbridge farm (north) will become a cul-de-sac. Short diversion for traffic depending on location of access. Link capacity increased due potential for higher traffic speeds than existing.	

ASSESSMENT CRITERIA	NORTH BISHOPSTOKE BYPASS – HIGHBRIDGE ROAD SECTION SCHEME OPTIONS									
	H1	RAG	H2	RAG	H3	RAG	H4	RAG	H5	RAG
Future benefits	As above. Will increase resilience of the road to any future increases in traffic associated with new developments.		As above. Will increase resilience of the road to any future increases in traffic associated with new developments.		As above. Will increase resilience of the road to any future increases in traffic associated with new developments.		As above. Will increase resilience of the road to any future increases in traffic associated with new developments.		As above. Will increase resilience of the road to any future increases in traffic associated with new developments.	
Safety	May reduce accident risk to immediate east of railway bridge		Reduces accident risk to east of railway bridge.		Reduces accident risk to east of railway bridge.		Reduces accident risks immediately to east of railway bridge, and outside Highbridge Farm.		Reduces accident risks immediately to east of railway bridge, and outside Highbridge Farm.	
ENVIRONMENTAL IMPACTS										
Impacts upon designated sites	No direct impact, has the least impact of the options on the River Itchen SAC and SSSI.		No direct impact, on the River Itchen SAC and SSSI.		Impact associated with structure at western end on River Itchen SAC and SSSI.		Impact associated with structure at western end on River Itchen SAC and SSSI.		No direct impact, on the River Itchen SAC and SSSI.	

ASSESSMENT CRITERIA	NORTH BISHOPSTOKE BYPASS – HIGHBRIDGE ROAD SECTION SCHEME OPTIONS									
	H1	RAG	H2	RAG	H3	RAG	H4	RAG	H5	RAG
Water and drainage	New road completely in Zone 3 flood plain, but least impacts of all options. Crosses the lower Itchen a major tributary of the Itchen which lays very close to the Itchen in many places. Water Quality onto the floodplain and into the rivers and tributaries will need to be assessed.		New road completely in Flood Zone 3. Crosses the lower Itchen a major tributary of the Itchen which lays very close to the Itchen in many places. Water Quality onto the floodplain and into the rivers and tributaries will need to be assessed.		New road completely in Flood Zone 3, has most impact of all options. Crosses the lower Itchen a major tributary of the Itchen which lays very close to the Itchen in many places. Water Quality onto the floodplain and into the rivers and tributaries will need to be assessed.		New road completely in Flood Zone 3, has most impact of all options. Crosses the lower Itchen a major tributary of the Itchen which lays very close to the Itchen in many places. Water Quality onto the floodplain and into the rivers and tributaries will need to be assessed.		New road completely in Flood Zone 3, has most impact of all options. Crosses the lower Itchen a major tributary of the Itchen which lays very close to the Itchen in many places. Water Quality onto the floodplain and into the rivers and tributaries will need to be assessed.	
Noise and Air Quality	No Noise impacts		Reduces traffic noise to Roselea and Dunoon, two residential properties on the north side of Highbridge Road.		Reduces traffic noise to Roselea and Dunoon, two residential properties on the north side of Highbridge Road. Brings road slightly closer to Highbridge Farm. Noise and air quality issues will need to be considered in relation to fish and in channel noise and Southern Damselfly		Reduces traffic noise to Roselea and Dunoon, two residential properties on the north side of Highbridge Road. Brings road slightly closer to Highbridge Farm. Noise and air quality issues will need to be considered in relation to fish and in channel noise and Southern Damselfly		Reduces traffic noise to Roselea and Dunoon, two residential properties on the north side of Highbridge Road. Brings road slightly closer to Highbridge Farm.	

ASSESSMENT CRITERIA	NORTH BISHOPSTOKE BYPASS – HIGHBRIDGE ROAD SECTION SCHEME OPTIONS									
	H1	RAG	H2	RAG	H3	RAG	H4	RAG	H5	RAG
Ecology	Road passes through land which is currently undeveloped so some issues are likely but have not yet been identified.		Road passes through land which is currently undeveloped so some issues are likely but have not yet been identified.		Road passes through land which is currently undeveloped so some issues are likely but have not yet been identified.		Road passes through land which is currently undeveloped so some issues are likely but have not yet been identified.		Road passes through land which is currently undeveloped so some issues are likely but have not yet been identified.	
Landscape	No impact on listed buildings. Lowest impact on existing landscape due to short route length.		No impact on listed buildings.		Moves traffic away from The Chapel House, little impact on Highbridge Farmhouse.		Moves traffic away from The Chapel House, little impact on Highbridge Farmhouse. Highest impact on existing landscape due to route length.		Moves traffic away from The Chapel House, little impact on Highbridge Farmhouse.	
LAND										
Land impacts	Approx. 0.5 ha farmland required		Approx. 1.1 ha farmland required		Approx. 1.8 ha farmland required		Approx. 1.8 ha farmland required		Approx. 1.8 ha farmland required	
SCHEME COSTS										
Excl. land etc.	£2m		£3m		£6m		£6m		£4.5m	

TABLE D3 – NORTH BISHOPSTOKE BYPASS: ALLBROOK HILL SECTION

ASSESSMENT CRITERIA	NORTH BISHOPSTOKE BYPASS – ALLBROOK HILL RELEIF ROAD SCHEME OPTIONS					
	1A	RAG	1B	RAG	1C	RAG
DESIGN ISSUES						
Horizontal Alignment	Link road connecting Pitmore Rd / Highbridge Rd roundabout to Allbrook Way. Five-arm roundabout provided at bottom of hill connecting the new link Road, Pitmore Road, Highbridge Road, Osborne Mews and Allbrook Hill. Some widening of carriageway required for approaches to roundabout.		Link road connecting Pitmore Rd / Highbridge Rd roundabout to Allbrook Way. The Relief Road and Highbridge Road become continuous, with staggered priority junctions provided for Pitmore Road and Osborne Mews. Allbrook Hill connects to Osborne Mews. Widened carriageway to provide for the two, staggered priority junctions. Includes optional dedicated left turn lane for N/B traffic on A335 Allbrook Way.		Link road connecting Pitmore Rd / Highbridge Rd roundabout to Allbrook Way. The Relief Road and Highbridge Road become continuous. A priority junction is provided with Pitmore Road. No access from Allbrook Hill or Osborne Mews to the Relief Road. Widened carriageway to provide single priority junction. Includes optional dedicated left turn lane for N/B traffic on A335 Allbrook Way.	
Vertical Alignment	Challenging throughout length steep gradient up towards Allbrook Way. All three options have a gradient of 10% over the central section.		Challenging throughout length steep gradient up towards Allbrook Way. All three options have a gradient of 10% over the central section.		Challenging throughout length steep gradient up towards Allbrook Way. All three options have a gradient of 10% over the central section.	
Structures	None.		None.		None.	
Design standards	A gradient of 8% is a Departures from Standard (TD9/93 para 4.2). A design speed greater than 30mph will require additional vertical alignment DfS Detailed design may show that a small five arm roundabout may not meet junction design criteria.		A gradient of 8% is a Departures from Standard (TD9/93 para 4.2). A design speed greater than 30mph will require additional vertical alignment DfS		A gradient of 8% is a Departures from Standard (TD9/93 para 4.2). A design speed greater than 30mph will require additional vertical alignment DfS	
Other constraints	Diversionary works required at tie-ins to existing network. Minimal private services within greenfield section.		Diversionary works required at tie-ins to existing network. Minimal private services within greenfield section.		Diversionary works required at tie-ins to existing network. Minimal private services within greenfield section.	

ASSESSMENT CRITERIA	NORTH BISHOPSTOKE BYPASS – ALLBROOK HILL RELEIF ROAD SCHEME OPTIONS					
	1A	RAG	1B	RAG	1C	RAG
TRAFFIC IMPACTS						
Existing benefits	Has the potential to provide significant relief to Allbrook Hill which is currently narrow and relatively high traffic flows coupled with parked cars cause congestion and safety issues. Slightly longer route for traffic routing eastbound on Highbridge Road than existing, but likely to be offset by more reliable journey time.		Has the potential to provide significant relief to Allbrook Hill which is currently narrow and relatively high traffic flows coupled with parked cars cause congestion and safety issues. Slightly longer route for traffic routing eastbound on Highbridge Road than existing, but likely to be offset by more reliable journey time.		Has the potential to provide significant relief to Allbrook Hill which is currently narrow and relatively high traffic flows coupled with parked cars cause congestion and safety issues. Allbrook Hill would become a cul-de-sac providing a much quieter environment. Short diversion for traffic wanting to head east from Allbrook Hill. Slightly longer route than existing for through traffic on Highbridge Road, but likely to be offset by more reliable journey times.	
Future benefits	As above. Has potential to accommodate traffic associated with existing and potential future development sites.		As above. Has potential to accommodate traffic associated with existing and potential future development sites.		As above. Has potential to accommodate traffic associated with existing and potential future development sites.	
Safety	Five-arm roundabouts are considered to be high risk for accidents, particularly for such a small ICD.		The staggers are left to right, which is not the preferred way round. The junctions are at the bottom of a steep hill.		Reduces the number of potential conflicts by having just a single junction on the new road.	
ENVIRONMENTAL IMPACTS						
Impacts upon designated sites	No direct impact on designated sites.		No direct impact on designated sites.		No direct impact on designated sites.	

ASSESSMENT CRITERIA	NORTH BISHOPSTOKE BYPASS – ALLBROOK HILL RELEIF ROAD SCHEME OPTIONS					
	1A	RAG	1B	RAG	1C	RAG
Water and drainage	Positive drainage system required, using oversized pipes for storage of additional flow to restrict outfall into existing watercourses including potentially three treatment trains and naturalized suds wherever possible. Rigorous drainage is required for all development in EBC draining into the Itchen or its tributaries as the strategic HRA has identified an in-combination impact.		Positive drainage system required, using oversized pipes for storage of additional flow to restrict outfall into existing watercourses including potentially three treatment trains and naturalized suds wherever possible. Rigorous drainage is required for all development in EBC draining into the Itchen or its tributaries as the strategic HRA has identified an in-combination impact.		Positive drainage system required, using oversized pipes for storage of additional flow to restrict outfall into existing watercourses including potentially three treatment trains and naturalized suds wherever possible. Rigorous drainage is required for all development in EBC draining into the Itchen or its tributaries as the strategic HRA has identified an in-combination impact.	
Noise and Air Quality	Will bring traffic noise to the rear of the properties on the north side of Allbrook Hill and the west side of Pitmore Road. Frontages of the properties on Allbrook Hill will benefit from some reduction in traffic noise. Noise bunds / acoustic barriers can be installed along sections of the Relief Road as identified by noise calculations. Could impact upon air quality within the River Itchen SAC if less than 200m away.		Will bring traffic noise to the rear of the properties on the north side of Allbrook Hill and the west side of Pitmore Road. Frontages of the properties on Allbrook Hill will benefit from some reduction in traffic noise. Noise bunds / acoustic barriers can be installed along sections of the Relief Road as identified by noise calculations. Could impact upon air quality within the River Itchen SAC if less than 200m away.		Will bring traffic noise to the rear of the properties on the north side of Allbrook Hill and the west side of Pitmore Road. Properties on Allbrook Hill will benefit from removal of through traffic, and subsequent reduction traffic noise. Noise bunds / acoustic barriers can be installed along sections of the Relief Road as identified by noise calculations. Could impact upon air quality within the River Itchen SAC if less than 200m away.	
Ecology	Road passes through land which is currently undeveloped so some issues are likely but have not yet been identified.		Road passes through land which is currently undeveloped so some issues are likely but have not yet been identified.		Road passes through land which is currently undeveloped so some issues are likely but have not yet been identified.	
Landscape	Road would be located predominantly in cutting, meaning landscape impacts would be minimised. Minimal impacts on Allbrook Farmhouse, a Grade II listed building.		Road would be located predominantly in cutting, meaning landscape impacts would be minimised. Widened road impacts on Allbrook Farmhouse, a Grade II listed building.		Road would be located predominantly in cutting, meaning landscape impacts would be minimised. Widened road impacts on Allbrook Farmhouse, a Grade II listed building.	

ASSESSMENT CRITERIA	NORTH BISHOPSTOKE BYPASS – ALLBROOK HILL RELEIF ROAD SCHEME OPTIONS					
	1A	RAG	1B	RAG	1C	RAG
LAND						
Land impacts	Third party land required on both sides of Pitmore Road, but less than the other two options.		Third party land required on both sides of Pitmore Road.		Third party land required on both sides of Pitmore Road.	
SCHEME COSTS						
Excl. land costs	£5m		£5.5m		£5.5m	

TABLE D4 – SOUTH BISHOPSTOKE BYPASS: NORTHERN SECTION

ASSESSMENT CRITERIA	SOUTH BISHOPSTOKE BYPASS – NORTHERN SECTION SCHEME OPTION					
	Alignment 01	RAG	Alignment 02	RAG	Alignment 03	RAG
DESIGN ISSUES						
Horizontal Alignment	Approx. 0.5km of new road with a 40mph design speed with bend radii that are fully compliant to standards. One bend on either side of bridge over River Itchen.		Approx. 0.9km of new road with a 40mph design speed with bends fully compliant to standards. Predominantly straight alignment.		Approx. 0.6km of new road with a 40mph design speed with bends fully compliant to standards. Continuous curve alignment, albeit with a large radius.	
Vertical Alignment	An embankment will be required on the eastern approach to the proposed bridge. It will also require cut and fill in the area where it ties into Chicken Hall Lane with a retaining wall.		The proposed road level is slightly higher than the current ground levels. Embankments will be required where it crossing the River Itchen. Likely to have less earthworks than alignment 01.		This alignment will require fill along is length and small embankments where it crosses the stream.	
Structures	New bridge required, potentially three spans with embankment on the eastern approach. Retaining wall will be required at the tie in with Chicken Hall Lane given its proximity to the River Itchen. The bank alongside the Itchen or tributaries will need to be preserved for otter movement. Therefor spans will need to accommodate this. The bridge over the Itchen would need to be single span with no in channel works.		New single bridge with shorter span than NS Alignment 01. It will require embankments on either side. The bank alongside the Itchen or tributaries will need to be preserved for otter movement. Therefor spans will need to accommodate this.		New bridge with a span of probably less than 10m. It will require embankments on either side but to a lesser extent than NS alignments 01 and 02. The bank alongside the Itchen or tributaries will need to be preserved for otter movement. Therefor spans will need to accommodate this.	
Design standards	Compliant to DMRB		Compliant to DMRB		Compliant to DMRB If NS 01 and south section 03 are chosen the required horizontal curvature may not be compliant	
Other constraints	No new signalised junction proposed		New signalised junction proposed		New signalised junction proposed	

ASSESSMENT CRITERIA	SOUTH BISHOPSTOKE BYPASS – NORTHERN SECTION SCHEME OPTION					
	Alignment 01	RAG	Alignment 02	RAG	Alignment 03	RAG
TRAFFIC IMPACTS						
Existing benefits	In conjunction with the southern section has the potential to provide significant relief to the majority of Bishopstoke Road/Fair Oak Road, although will still lead traffic to a major congestion point at the western end of Bishopstoke Road. Traffic could exit Chickenhall Lane at the same time as traffic turning in, providing the most efficient junction operation.		In conjunction with the southern section has the potential to provide significant relief to a large proportion of Bishopstoke Road/Fair Oak Road, although will still lead traffic to a major congestion point at the western end of Bishopstoke Road.		In conjunction with the southern section has the potential to provide relief to a section of Bishopstoke Road/Fair Oak Road, albeit not the most congested section and will still lead traffic to a major congestion point at the western end of Bishopstoke Road.	
Future benefits	In conjunction with the southern section has the potential to mitigate the impact of traffic associated with possible development sites located to the south of Bishopstoke/Fair Oak. Does not provide any potential for new roads to tie into given the environmentally sensitive nature of the area in proximity of the river.		In conjunction with the southern section has the potential to mitigate the impact of traffic associated with possible development sites located to the south of Bishopstoke/Fair Oak. Potentially roads could tie into this alignment from the east and west of the proposed River Itchen crossing. However, this may be contentious given the SSSI designation of this area		In conjunction with the southern section has the potential to mitigate the impact of traffic associated with possible development sites located to the south of Bishopstoke/Fair Oak. There is scope for new roads to tie into this alignment from the east.	
Safety	Potential to reduce the number of accidents on existing roads. Compliant to standards therefore no significant safety issues anticipated.		Potential to reduce the number of accidents on existing roads. Compliant to standards therefore no significant safety issues anticipated.		Potential to reduce the number of accidents on existing roads. Compliant to standards therefore no significant safety issues anticipated.	
ENVIRONMENTAL IMPACTS						

ASSESSMENT CRITERIA	SOUTH BISHOPSTOKE BYPASS – NORTHERN SECTION SCHEME OPTION					
	Alignment 01	RAG	Alignment 02	RAG	Alignment 03	RAG
Impacts upon designated sites	Passes through at the River Itchen SAC. Passes through at the River Itchen SSSI. Crosses the lower Itchen twice impacts on this important tributary will need to be considered within the HRA.		Passes through at the River Itchen SAC. Passes through the area south of Bishopstoke Road. Crosses the lower Itchen twice impacts on this important tributary will need to be considered within the HRA. This option also crosses the Marshy Grasslands Bishopstoke SINC. As it is designated for wetland this site may loose ecological interest.		Does not pass through SAC. Does not pass through SSSI. Crosses the lower Itchen twice impacts on this important tributary will need to be considered within the HRA.	
Water and drainage	Passes through a large area of the floodplain, flood zone 3. Passes through the area classified as low risk. Pipe culverts through the embankment may be required.		Passes through a large area of the floodplain, flood zone 3. Passes through the area classified as low risk. Not identified at this stage.		Passes through a large area of the floodplain, flood zone 3. Passes through the area classified as low risk. Not identified at this stage. EA preferred as it runs through least area of flood plain thereby requiring less compensatory water storage	
Noise and Air Quality	No notable impact in noise terms. Potential negative air quality (pollution) impact on SSSI and SAC. There will be impact due to noise in channel if works are to be done within the river channel as migratory fish could suffer. A road within the SAC is likely to cause air quality impacts and could lead to impacts on the Southern Damselfly.		No notable impact in noise terms. Potential negative air quality (pollution) impact on SAC. There will be impact due to noise in channel if works are to be done within the river channel as migratory fish could suffer. A road within the SAC is likely to cause air quality impacts and could lead to impacts on the Southern Damselfly.		Passes closer to existing properties on the southern side of the B3037 with consequent potential noise and air quality impacts. There will be impact due to noise in channel if works are to be done within the river channel as migratory fish could suffer. A road within the SAC is likely to cause air quality impacts and could lead to impacts on the Southern Damselfly.	

ASSESSMENT CRITERIA	SOUTH BISHOPSTOKE BYPASS – NORTHERN SECTION SCHEME OPTION					
	Alignment 01	RAG	Alignment 02	RAG	Alignment 03	RAG
Ecology	Potential impact on River Itchen species due to new bridge. Likely to be other impacts as route passes through land that is predominantly undeveloped, but these are yet to be determined.		Potential impact on River Itchen species due to new bridge. Likely to be other impacts as route passes through land that is predominantly undeveloped, but these are yet to be determined.		Likely to be preferred by NE as doesn't run through SSSI or SAC. Likely to be impacts as route passes through land that is predominantly undeveloped, but these are yet to be determined. Ecologically this would be the preferred option as it does not impact directly on the SAC though does cross the Lower Itchen.	
Landscape	Passes through hedgerows and meadows.		Passes through hedgerows and meadows.		Passes through hedgerows.	
LAND						
Land impacts	Third Party Land Required		Third Party Land Required		Third Party Land Required	
SCHEME COSTS						
	£9.5m		£12.5m		£9.5m	

TABLE D5 – SOUTH BISHOPSTOKE BYPASS: SOUTHERN SECTION

ASSESSMENT CRITERIA	SOUTH BISHOPSTOKE BYPASS – SOUTHERN SECTION SCHEME OPTION			
	Alignment 01	RAG	Alignment 02	RAG
DESIGN ISSUES				
Horizontal Alignment	Approx. 1.7km of 7.3m wide single carriageway with 3.5m footways connecting Allington Lane (north) to a point east of Chickenhall Lane. All bend radii are within design standards and the route is predominantly straight with one long large radius bend.		Approx. 1.9km of 7.3m wide single carriageway with 3.5m footways connecting Allington Lane (south) to a point east of Chickenhall Lane. All bend radii are within design standards and the route is predominantly straight with only one significant bend.	
Vertical Alignment	Mostly follows natural topography of the land but will require some fill in the vicinity of the West Horton Farm buildings.		While it follows the natural topography, it will require fill along most of the alignment.	
Structures	No bridges are required for this alignment; however culverts will be required to cross existing drainage water courses.		No bridges are required for this alignment; however culverts will be required to cross existing drainage water courses. Fill is likely to have an impact on the hydrology of the river. As this option runs contiguous with the Itchen for much of its length it is imperative that hydrology is considered.	
Design standards	Compliant with DMRB		Compliant to DMRB	
Other constraints	New junction required at Allington Lane, likely to need to be a reasonable size to accommodate traffic flows.		New junction required at Allington Lane, likely to need to be a reasonable size to accommodate traffic flows.	
TRAFFIC IMPACTS				
Existing benefits	In combination with the north section alignment which will provide a connection through to Bishopstoke Road this route will provide positive transport benefits enabling traffic to avoid delays along the Fair Oak Road / Bishopstoke Road corridor but will inevitably still lead traffic to a major congestion point at the western end of Bishopstoke Rd.		In combination with the north section alignment which will provide a connection through to Bishopstoke Road this route will provide positive transport benefits enabling traffic to avoid delays along the Fair Oak Road / Bishopstoke Road corridor but will inevitably still lead traffic to a major congestion point at the western end of Bishopstoke Rd.	

ASSESSMENT CRITERIA	SOUTH BISHOPSTOKE BYPASS – SOUTHERN SECTION SCHEME OPTION			
	Alignment 01	RAG	Alignment 02	RAG
Future benefits	In combination with the northern section has the potential to mitigate the impact of traffic associated with possible development sites located to the south of Bishopstoke/Fair Oak, as well as a committed site to the west of Horton Heath. Has the potential to connect to Fir Tree Lane and/or a realigned Fir Tree Lane and therefore provide a continuous new link towards the B3342/B3354. Should this alignment be the designated spine road for the development of land included in the study area, the location offers the potential for junctions to be added from both the north and southern sides.		In combination with the northern section has the potential to mitigate the impact of traffic associated with possible development sites located to the south of Bishopstoke/Fair Oak, as well as a committed site to the west of Horton Heath. Should this alignment be the designated spine road for the development of the land included in the study area, there will be very limited opportunity to link in from the south as the railway line is a constraint	
Safety	Would remove traffic from a large part of a corridor with a relatively high accident record.		Would remove traffic from a large part of a corridor with a relatively high accident record.	
ENVIRONMENTAL IMPACTS				
Impacts upon designated sites	Does not pass through a SAC. Does not pass through a SSSI.		Passes through the whole River Itchen SAC within the study area. Passes through the SSSI within the study area. This option could be extremely damaging with much of the road length within the SAC contiguous with the Itchen.	
Water and drainage	West of West Horton Farm passes through flood zone 3. May require culverts over two areas designated as drains. Passes through two locations where the likelihood is classified as low.		Passes through a large area of the flood plain, flood zones 2 and 3. May require culverts over two or three areas designated as drains Passes through a large area where the likelihood is classified predominantly high to medium Fill is likely to have an impact on the hydrology of the river. As this option runs contiguous with the Itchen for much of its length it is imperative that hydrology is considered.	

ASSESSMENT CRITERIA	SOUTH BISHOPSTOKE BYPASS – SOUTHERN SECTION SCHEME OPTION			
	Alignment 01	RAG	Alignment 02	RAG
Noise and Air Quality	Passes relatively near to existing properties in Bishopstoke/Fair Oak to the south of the B3037, with consequent potential noise and air quality impacts. Passes close to the Itriver system at the Chickenhall Lane roundabout and the Riverside junctions. Air quality will need to be considered.		Potential negative air quality (pollution) impact on SSSI and SAC.	
Ecology	Likely to be some impacts as route passes through land that is predominantly undeveloped, but these are yet to be determined.		Likely ecological impact on SSSI and SAC. Likely to be other impacts as route passes through land that is predominantly undeveloped, but these are yet to be determined.	
Landscape	Passes through hedgerows		Passes through hedgerows, and avoids mature trees	
LAND				
Land impacts	Third party land required		Third party land required	
SCHEME COSTS				
Link road	£11m		£14m	
Link road + Allington Lane jct	£13.5m		£16.5m	

TABLE D6 – BISHOPSTOKE ROAD CORRIDOR: TWYFORD ROAD JUNCTION

ASSESSMENT CRITERIA	BISHOPSTOKE ROAD / TWYFORD ROAD JUNCTION - SCHEME OPTION					
	Option 1	RAG	Option 2	RAG	Option 3	RAG
DESIGN ISSUES						
Horizontal Alignment	Three arm roundabout Bishopstoke Road/Station Hill/Southampton Road; three arm roundabout Station Hill/Romsey Road/Twyford Road. Coles Close diverted to Twyford Road. Single lane only approach on Bishopstoke Road.		Three arm signal controlled junction Bishopstoke Road/Station Hill/Southampton Road; four arm roundabout Station Hill/Romsey Road/Twyford Road/Coles Close. Very short two lane approach on Bishopstoke Road.		Three arm signal controlled junction Bishopstoke Road/Station Hill/Southampton Road; four arm roundabout Station Hill/Romsey Road/Twyford Road/Coles Close. Very short two lane approach on Bishopstoke Road.	
Vertical Alignment	Steep downhill approach to roundabout after crossing railway.		Steep downhill approach to signals after crossing railway.		Steep uphill approaches to roundabout on Southampton Road and Station Hill.	
Structures	None.		Small retaining wall required.		Demolition of existing buildings and retaining wall required.	
Design standards	No departures from standard identified at this stage.		No departures from standard identified at this stage.		No departures from standard identified at this stage.	
Other constraints	Number of existing services		Number of existing services		Number of existing services	
TRAFFIC IMPACTS						
Existing benefits	Alleviates existing congestion at the northern roundabout, but still results in significant delay on Bishopstoke Road and Southampton Road at the southern roundabout.		Alleviates existing congestion at the northern junction, but still results in significant delay on Bishopstoke Road and Southampton Road at the southern junction.		Alleviates existing congestion at the northern roundabout, but still results in some delay on Bishopstoke Road at the southern roundabout.	
Future benefits	As above		As above		As above, but potentially creates some capacity to accommodate future development related traffic.	

ASSESSMENT CRITERIA	BISHOPSTOKE ROAD / TWYFORD ROAD JUNCTION - SCHEME OPTION					
	Option 1	RAG	Option 2	RAG	Option 3	RAG
Safety	Lack of significant deflection on some approaches to roundabout (as per existing junction). Steep downhill gradient on Bishopstoke Road approach may raise safety issues.		Steep downhill gradient on Bishopstoke Road approach may raise safety issues.		Lack of significant deflection on some approaches to roundabout (as per existing junction). Steep uphill gradient on Station Hill and Southampton Road approaches may raise safety issues.	
ENVIRONMENTAL IMPACTS						
Impacts upon designated sites	No issues.		No issues.		No issues.	
Water and drainage	No issues, connects to existing system.		No issues, connects to existing system.		No issues, connects to existing system.	
Noise and Air Quality	No changes over existing relatively high levels anticipated		No changes over existing relatively high levels anticipated		No changes over existing relatively high levels anticipated	
Ecology	No significant impacts anticipated.		No significant impacts anticipated.		No significant impacts anticipated.	
Landscape	No impact on Eastleigh Railway Station or the Church of the Resurrection grade II listed building on the corner of Romney Road/Twyford Road.		Minor impact on Eastleigh Railway Station, a grade II listed building. No impact on the Church of the Resurrection grade II listed building on the corner of Romney Road/Twyford Road.		No impact on Eastleigh Railway Station or the Church of the Resurrection grade II listed building on the corner of Romney Road/Twyford Road. Requires third party land on the western side of Station Hill.	
LAND						
Land impacts	Re-routes Coles Close through third party land.		Requires small amount of land from Network Rail, and re-routes Coles Close through third party land.		Requires third party land on the western side of Station Hill. Re-routes Coles Close through third party land.	
SCHEME COSTS						
Excluding land costs	£1.2m		£1.6m		£1.5m (plus potentially high land costs)	

TABLE D7 – BISHOPSTOKE ROAD CORRIDOR: CHICKENHALL LANE JUNCTION

ASSESSMENT CRITERIA	BISHOPSTOKE ROAD / CHICKENHALL LANE JUNCTION – SCHEME OPTION					
	WSP LARGE ROUNDABOUT	RAG	MOTT GIFFORD SIGNALS	RAG	HCC SMALL ROUNDABOUT	RAG
DESIGN ISSUES						
Horizontal Alignment	Large roundabout requiring additional new bridge over the Barton River. Provides two-lane entries and exits for Bishopstoke Road.		Signal controlled junction with two lane approaches for Bishopstoke Road. Existing bridge would need widening/replacing.		Single lane entry/exits only.	
Vertical Alignment	No issues.		No issues.		No issues.	
Structures	New bridge over Barton River. Traffic management during construction made easier as traffic can be diverted to new bridge whilst other improvements made. As connected into River Itchen SAC construction and hydrological impacts such as noise and water quality are likely to need to be assessed as part of the HRA.		Existing bridge over Barton River widened. As connected into River Itchen SAC construction and hydrological impacts such as noise and water quality are likely to need to be assessed as part of the HRA.		Existing bridge over Barton River widened. As connected into River Itchen SAC construction and hydrological impacts such as noise and water quality are likely to need to be assessed as part of the HRA.	
Design standards	No departures from standard identified at this stage, although exit merge lengths appear very short.		No departures from standard identified at this stage.		No departures from standard identified at this stage.	
Other constraints	Number of existing services		Number of existing services		Number of existing services	
TRAFFIC IMPACTS						
Existing benefits	Significant benefits for traffic on Bishopstoke Road westbound to alleviate existing queueing, with no apparent issues on other arms.		Significant benefits for traffic on Bishopstoke Road westbound to alleviate existing queueing. Increase in delay on other arms in comparison to existing, but still likely to operate within capacity for current traffic flows.		Significant benefits for traffic on Bishopstoke Road eastbound due to bypass lane, but no impact on significant queueing on Bishopstoke Road westbound.	

ASSESSMENT CRITERIA	BISHOPSTOKE ROAD / CHICKENHALL LANE JUNCTION – SCHEME OPTION					
	WSP LARGE ROUNDABOUT	RAG	MOTT GIFFORD SIGNALS	RAG	HCC SMALL ROUNDABOUT	RAG
Future benefits	As above and likely to free up capacity in order to accommodate future development traffic.		As above, but likely to have limited potential to accommodate significant future increases in traffic flow without further modifications to junction.		As above, but likely to have limited potential to accommodate significant future increases in traffic flow without further modifications to junction.	
Safety	Short merge lengths on Bishopstoke Road exit arms likely to raise safety issues.		No significant issues anticipated at this stage.		No significant issues anticipated at this stage.	
ENVIRONMENTAL IMPACTS						
Impacts upon designated sites	Impacts most on River Itchen SAC and SSSI.		Minor impact on River Itchen SAC and SSSI.		Minimal impacts on River Itchen SAC and SSSI.	
Water and drainage	Encroaches into Flood Zones 2 and 3. Details of drainage likely to be required for the HRA.		Encroaches into Flood Zones 2 and 3. Details of drainage likely to be required for the HRA.		Encroaches into Flood Zones 2 and 3. Details of drainage likely to be required for the HRA.	
Noise and Air Quality	No changes over existing relatively high levels anticipated		No changes over existing relatively high levels anticipated		No changes over existing relatively high levels anticipated	
Ecology	Likely to be issues associated with new bridge required over the Barton River.		Likely to be issues associated with widened bridge required over the Barton River.		Likely to be issues associated with widened bridge required over the Barton River.	
Landscape	Significant impact on fields to south-east of existing junction.		Some impact on fields to south-east of existing junction.		Some impact on fields to south-east of existing junction.	
LAND						
Land impacts	Land required both sides of the Barton River. Impact on playing fields.		Land required both sides of the Barton River. Impact on playing fields.		Land required only to the west of the Barton River. Impact on playing fields.	
SCHEME COSTS						
Relative costs excluding land costs etc	Requires new bridge so highest cost		Less expensive than option 1 but more expensive than option 3		£1.9m	

TABLE D8 – BISHOPSTOKE ROAD CORRIDOR: RIVERSIDE JUNCTION

ASSESSMENT CRITERIA	BISHOPSTOKE ROAD / RIVERSIDE JUNCTION - SCHEME OPTION					
	WSP SIGNALISED JUNCTION	RAG	HCC SIMPLE PRIORITY JUNCTION	RAG	HCC EXPANDED PRIORITY JUNCTION	RAG
DESIGN ISSUES						
Horizontal Alignment	Signalised junction providing separate, ghost island lane for right turning traffic off Fair Oak Road. Two lane approach from Riverside, with additional bus stop marking.		Priority junction providing separate, ghost island lane for right turning traffic off Fair Oak Road. Two lane approach from Riverside, with additional bus stop marking.		Priority Junction with non-standard layout. Not liked by road safety team.	
Vertical Alignment	No issues.		No issues.		No issues.	
Structures	None.		None.		None.	
Design standards	No departures from standard identified at this stage.		No departures from standard identified at this stage.		Priority Junction with non-standard layout. Not preferred by road safety team.	
Other constraints	Number of existing services		Number of existing services		Number of existing services	
TRAFFIC IMPACTS						
Existing benefits	Will delay Bishopstoke Road / Fair Oak Road traffic more than the existing layout, but provides significant benefit to Riverside traffic.		Little impact to traffic on Bishopstoke Road although better provision for traffic turning right into Riverside. No benefits to Riverside traffic and minor negative impact.		Little impact to traffic on Bishopstoke Road although better provision for traffic turning right into Riverside. No benefits to Riverside traffic and minor negative impact.	
Future benefits	As above. Limited potential to accommodate future increases in development traffic on Bishopstoke Road without further alterations to junction.		As above. Potential to accommodate future increases in traffic flow on Bishopstoke Road but no benefits to Riverside.		As above. Potential to accommodate future increases in traffic flow on Bishopstoke Road.	
Safety	No significant issues anticipated at this stage.		No significant issues anticipated at this stage.		Least preferred by road safety team due to unusual layout.	

ASSESSMENT CRITERIA	BISHOPSTOKE ROAD / RIVERSIDE JUNCTION - SCHEME OPTION					
	WSP SIGNALISED JUNCTION	RAG	HCC SIMPLE PRIORITY JUNCTION	RAG	HCC EXPANDED PRIORITY JUNCTION	RAG
ENVIRONMENTAL IMPACTS						
Impacts upon designated sites	Minimal impact on River Itchen SAC and SSSI. If ecology includes the SAC then any impact will be significant.		Minimal impact on River Itchen SAC and SSSI. If ecology includes the SAC then any impact will be significant.		Slight impact on River Itchen SAC and SSSI. If ecology includes the SAC then any impact will be significant.	
Water and drainage	Area in Flood Zone 3. Information likely to be required for a HRA.		Area in Flood Zone 3. Information likely to be required for a HRA.		Larger area in Flood Zone 3. Information likely to be required for a HRA.	
Noise and Air Quality	No changes over existing relatively high levels anticipated		No changes over existing relatively high levels anticipated		No changes over existing relatively high levels anticipated	
Ecology	No significant impacts anticipated at this stage.		No significant impacts anticipated at this stage.		No significant impacts anticipated at this stage.	
Landscape	No significant impacts anticipated at this stage.		No significant impacts anticipated at this stage.		No significant impacts anticipated at this stage.	
LAND						
Land impacts	Small amount of additional land required to the south. Minor impact on north-east corner (highway land).		Small amount of additional land required to the south. Minor impact on north-east corner (highway land).		Larger amount of land required to the south, and reduces landscape area to the north-east (highway land).	
SCHEME COSTS						
Excluding Land costs etc.	More expensive than option 2 as signals equipment is required.		£0.4m		Slightly more expensive than Option 2 as additional land required.	

TABLE D9 – WIDE LANE BRIDGE IMPROVEMENTS

ASSESSMENT CRITERIA	WIDE LANE BRIDGE – SCHEME OPTIONS					
	Option 1 New one way northbound bridge	RAG	Option 2 New two way bridge	RAG	Option 3 New dual carriageway bridge	RAG
DESIGN ISSUES						
Horizontal Alignment	Existing bridge retained for southbound traffic. New structure to accommodate northbound traffic. 40mph design speed 3.65m wide single lane Footway /cycleway on western side. Requires a relaxation on horizontal radius.		Removal of existing bridge and construction of new structure west of existing. 40mph design speed 3.65m wide lanes x2 3.5m shared use footway /cycleway on eastern side and 2m footway on western side. Requires a relaxation on horizontal radius.		Removal of existing bridge and construction of new structure west of existing. 40mph design speed 3.65m wide lanes x4 3.5m shared use footway /cycleway on eastern side and 2m footway on western side. No relaxation required.	
Vertical Alignment	Requires a departure from standard for sag and gradient. 5.1m headroom requirements by NR have resulted in steeper vertical alignment than DMRB standard.		Requires a departure from standard for sag and gradient. 5.1m headroom requirements by NR have resulted in steeper vertical alignment than DMRB standard.		Requires a departure from standard for sag and gradient. 5.1m headroom requirements by NR have resulted in steeper vertical alignment than DMRB standard.	
Structures	New skewed bridge west of existing –construction of new abutments and bridge superstructure. Longer span. Headroom of 5.1m applied for NR clearance requirements.. 3m high retaining wall		New skewed bridge west of existing. Wider and longer structure than option 1 Headroom of 5.1m applied for NR clearance 3m high retaining wall		New skewed bridge west of existing. Wider and longer structure than options 2 and 3. Headroom of 5.1m applied for NR clearance 3m high retaining wall	
Junctions	Tying into existing junctions / limited change		Tying into existing junctions / limited change		Tying into existing junctions which will be modified / enlarged to provide increased capacity.	
Design standards	Requires a departure from standard for sag and gradient.		Requires a departure from standard for sag and gradient.		Requires a departure from standard for sag and gradient.	

ASSESSMENT CRITERIA	WIDE LANE BRIDGE – SCHEME OPTIONS					
	Option 1 New one way northbound bridge	**RAG**	**Option 2 New two way bridge**	**RAG**	**Option 3 New dual carriageway bridge**	**RAG**
Other constraints	No diversion required for traffic during works.		Would need to close existing bridge during construction, resulting in a long diversion.		Would need to close existing bridge during construction, resulting in a long diversion.	
TRAFFIC IMPACTS						
Existing benefits	Would provide no capacity benefits and would assist in keeping traffic moving by removing the constraint on the current bridge whereby traffic need to give way.		Would provide limited capacity benefits and would remove constraint on bridge and help to improve the critical access route to Southampton Airport and Ford site.		Would provide capacity benefits and would remove constraint on bridge and help to improve the critical access route to Southampton Airport and Ford site.	
Future benefits	Would provide no capacity benefits but would assist in keeping traffic moving by removing the constraint on the current bridge whereby traffic needs to give way. However any improvements to the bridge are constrained by blocking back and junction capacity further downstream.		Would provide limited capacity benefits for development related forecast additional traffic but would remove constraint on bridge and help to improve the critical access route to Southampton Airport and Ford site Improvements to bridge are constrained by blocking back and junction capacity further downstream.		Would provide important capacity benefits for development related forecast additional traffic (Riverside etc) and would remove constraint on bridge and help to improve the critical access route to Southampton Airport and Ford site Improvements to bridge are constrained by blocking back and junction capacity further downstream	
Safety	Would reduce conflict on bend on bridge and hence improve safety for passing vehicles		Would reduce conflict on bend on bridge and hence improve safety for passing vehicles		Would reduce conflict on bend on bridge and hence improve safety for passing vehicles	
ENVIRONMENTAL IMPACTS						

ASSESSMENT CRITERIA	WIDE LANE BRIDGE – SCHEME OPTIONS					
	Option 1 New one way northbound bridge	**RAG**	**Option 2 New two way bridge**	**RAG**	**Option 3 New dual carriageway bridge**	**RAG**
Impacts upon designated sites	Close to Monks Brook (a tributary of the River Itchen SAC/SSSI) which already runs adjacent to a number of developments. Construction impacts will need to be considered.		Close to Monks Brook (a tributary of the River Itchen SAC/SSSI) which already runs adjacent to a number of developments. Construction impacts will need to be considered.		Close to Monks Brook (a tributary of the River Itchen SAC/SSSI) which already runs adjacent to a number of developments. Construction impacts will need to be considered.	
Water and drainage	No issues identified at this stage.		No issues identified at this stage.		No issues identified at this stage.	
Noise and Air Quality	It is anticipated that there would be no change to noise and air quality.		It is anticipated that there would be no change to noise and air quality.		It is anticipated that there would be no change to noise and air quality.	
Ecology	No issues anticipated at this stage, but impact upon Monks Brook needs to be investigated.		No issues anticipated at this stage, but impact upon Monks Brook needs to be investigated.		No issues anticipated at this stage, but impact upon Monks Brook needs to be investigated.	
Landscape	Limited visual impact of additional structure		Limited visual impact of additional structure		Limited visual impact of additional structure	
LAND						
Land impacts	Railway Possessions Orders required. Small piece of land required from Southampton University on northern side and land on southern side from owner of private car-park for bridge abutments.		Railway possession Orders required greater than option 2. Will require more land to be purchased from Southampton University and owner of private car-park on southern side of bridge.		Railway possession Orders required 80-100% greater than option 2 and 3. Will require a significantly wider bridge than options 2 and 3, likely twice as wide as option 3. Requires the most third party land, not only for bridge but also widening at roundabouts.	
SCHEME COSTS						
Land costs and stat's diversions etc. not included.	£25m		£26.5m		£47m	

TABLE D10 – HAMBLE LANE JUNCTION IMPROVEMENTS: DO MINIMUM SCHEME

ASSESSMENT CRITERIA	HAMBLE LANE IMPROVEMENTS - DO MINIMUM SCHEME OPTION							
	Tesco (Signals)	RAG	Jurd Way Option 1 (Signals)	RAG	Jurd Way Option 2 (Roundabout)	RAG	Portsmouth Road (Signals)	RAG
DESIGN ISSUES								
Horizontal Alignment	Corrected alignment between Hamble Lane north approach and south exit by widening footway on north approach. Western kerb-line cut back to align south approach with north exit. Short two-lane flares on Hamble Lane south and Tesco arms.		Kerb-lines realigned to remove deflection on eastern side of Hamble Lane and both sides of Jurd Way. Western side of Hamble Lane widened to facilitate two-lane flares on north and south approaches. Provision of staggered crossings on all approaches.		Existing roundabout modified to provide fourth arm to west and increase diameter. Two lane flares on all approaches.		Portsmouth Road realigned through existing green to incorporate existing toucan crossing over Hamble Lane to the south of the junction. Two lane flares on the Hamble Lane north and Portsmouth Road arms. New staggered pedestrian crossing on Portsmouth Road.	
Vertical Alignment	As per existing alignment		As per existing alignment		As per existing alignment		As per existing alignment	
Structures	None required		None required		None required		None required	
Design standards	No departures identified		No departures identified		No departures identified		No departures identified	
Other constraints	Relocation of Lowford Clinic car park exit to a point further east along Tesco access road.		Need to provide a new access into committed development site to the west of junction. Properties on eastern side of Hamble Lane.		Need to provide a new access into committed development site to the west of junction. Properties on eastern side of Hamble Lane.		Telegraph poles on western side o Hamble Lane and Gas Governor on southern side of green. Existing properties on both sides of Hamble Lane.	

ASSESSMENT CRITERIA	HAMBLE LANE IMPROVEMENTS – DO MINIMUM SCHEME OPTION							
	Tesco (Signals)	RAG	Jurd Way Option 1 (Signals)	RAG	Jurd Way Option 2 (Roundabout)	RAG	Portsmouth Road (Signals)	RAG
TRAFFIC IMPACTS								
Existing benefits	Potentially some benefits to traffic on the Tesco arm due to guaranteed opportunities to exit, but increased delay likely on Hamble Lane due to introduction of signals. Initial modelling indicates south and east approaches would be over capacity in PM peak, with north and south approaches close to capacity in AM peak.		Potentially some benefits to traffic on the Jurd Way arm due to guaranteed opportunities to exit, but increased delay likely on Hamble Lane due to introduction of signals. Initial modelling indicates north and east approaches and Hamble Lane south right-turn would be over capacity in AM and PM peak periods.		Initial modelling indicates both Hamble Lane approaches would be over capacity in the AM and PM peak periods, which is likely to be similar to the existing situation.		Potentially some benefits to Portsmouth Road and Hamble Lane right-turn, due to guaranteed opportunities to turn. Initial modelling indicates that the Hamble Lane north and Portsmouth Road arms would be over or close to capacity in both the AM and PM peak periods.	
Future benefits	As above. Unlikely to be able to accommodate future additional development traffic on Hamble Lane without further alterations		As above. No capacity to accommodate future additional development traffic on Hamble Lane without further alterations to the layout.		As above. No capacity to accommodate future additional development traffic on Hamble Lane without further alterations to the layout.		As above. No capacity to accommodate future additional development traffic on Hamble Lane without further alterations to the layout.	
Safety	No issues identified at this stage.		No issues identified at this stage.		No issues identified at this stage.		No issues identified at this stage.	
ENVIRONMENTAL IMPACTS								
Impacts upon designated sites	None identified		None identified		None identified		None identified	
Water and drainage	None likely over and above any existing		None likely over and above any existing		None identified at this stage		None identified at this stage	

ASSESSMENT CRITERIA	HAMBLE LANE IMPROVEMENTS – DO MINIMUM SCHEME OPTION							
	Tesco (Signals)	RAG	Jurd Way Option 1 (Signals)	RAG	Jurd Way Option 2 (Roundabout)	RAG	Portsmouth Road (Signals)	RAG
Noise and Air Quality	Potential for increased queueing traffic due to introduction of signals, but this would need to be measured against the existing situation.		Potential for increased queueing traffic due to introduction of signals, but this would need to be measured against the existing situation.		No issues identified over and above any existing.		Potential for increased queueing traffic due to introduction of signals, but this would need to be measured against the existing situation.	
Ecology	No issues identified at this stage		No issues identified at this stage		No issues identified at this stage, but needs further work due to land take from currently undeveloped land.		No issues identified at this stage, but needs further work due to land take from currently undeveloped land.	
Landscape	Realignment of central reservation on northern approach would result in a small loss of landscaping, but land gained on eastern side of road.		Loss of some green space to west of junction, but this is part of a development site. Potential for local green space on either side of the Jurd Way approach as a result of the realignment of kerb lines.		Loss of some undeveloped land to the west of the junction, which is part of a committed development site.		Loss of some undeveloped land in the green space to the south of the existing junction, however this could be mitigated by creating a new green space on the northern side of Portsmouth Road.	
LAND								
Land impacts	Small reduction of overall junction footprint compared to existing		Some third party land take to west of junction (part of development site), some land freed up on both sides of Jurd Way approach. Overall considered neutral.		Significant third party land take to the west of the junction to accommodate larger roundabout.		Some land required to the south of Portsmouth Road, but land freed up to the north and improvements are within existing highway land.	
SCHEME COSTS								

ASSESSMENT CRITERIA	HAMBLE LANE IMPROVEMENTS – DO MINIMUM SCHEME OPTION							
	Tesco (Signals)	RAG	Jurd Way Option 1 (Signals)	RAG	Jurd Way Option 2 (Roundabout)	RAG	Portsmouth Road (Signals)	RAG
Excl. utility diversions, land costs & design costs	£1.3m		£2.5m		£2.8m		£1.6m	

TABLE D11A – HAMBLE LANE JUNCTION IMPROVEMENTS: DO MAXIMUM SCHEME (TESCO JUNCTION)

ASSESSMENT CRITERIA	TESCO JUNCTION – DO MAXIMUM SCHEME OPTION			
	Option 1 - Signals	RAG	Option 2 - Roundabout	RAG
DESIGN ISSUES				
Horizontal Alignment	Hamble Lane northbound entry and southbound exit arms are now two continuous lanes and all three approaches tie in at an angle as a result. Kerb line on eastern side of the junction built out to facilitate smooth transition southbound.		Hamble Lane realigned to north of junction to accommodate large diameter roundabout. Tesco delivery access reconfigured with separate access from a dedicated lane and new exit directly onto the roundabout.	
Vertical Alignment	As per existing alignment		As per existing alignment	
Structures	None required.		None required.	
Design standards	No departures identified		No departures identified	
Other constraints	Access to Lowford Clinic requires relocating further east along Tesco access road.		Access to Lowford Clinic requires relocating further east along Tesco access road.	
TRAFFIC IMPACTS				
Existing benefits	Initial modelling suggests that all arms would be within capacity in the AM peak, and in the PM peak the Hamble Lane South and Tesco arms would be approaching capacity.		Initial modelling suggests that all arms would be operating within theoretical capacity in the AM and PM peak periods.	
Future benefits	As above. Some potential to accommodate future development traffic, particularly in the AM peak period.		As above. Potential to accommodate future development traffic in both peak periods.	
Safety	No issues identified at this stage.		No issues identified at this stage.	
ENVIRONMENTAL IMPACTS				
Impacts upon designated sites	None identified.		None identified.	
Water and drainage	No issues identified at this stage		No issues identified at this stage	
Noise and Air Quality	No significant issues identified at this stage. Potential for increased queueing traffic due to introduction of signals, but this would need to be measured against the existing situation.		No issues identified at this stage	

ASSESSMENT CRITERIA	TESCO JUNCTION – DO MAXIMUM SCHEME OPTION			
	Option 1 - Signals	RAG	Option 2 - Roundabout	RAG
Ecology	No issues identified at this stage, but needs further work due to land take from currently undeveloped land.		No issues identified at this stage, but needs further work due to land take from currently undeveloped land.	
Landscape	Loss of undeveloped land to the west of the junction, partly mitigated by creation of additional space for landscaping on eastern side of junction.		Loss of significant amount of undeveloped land to the west of the junction.	
LAND				
Land impacts	Some third party land required on western side of junction.		Significant third party land required on the western side of the junction, which forms part of a potential development site.	
SCHEME COSTS				
Excl. utility diversions, land costs & design costs	£3.4m		£4.9m	

TABLE D11B – HAMBLE LANE JUNCTION IMPROVEMENTS: DO MAXIMUM SCHEME (JURD WAY JUNCTION)

ASSESSMENT CRITERIA	JURD WAY JUNCTION – DO MAXIMUM SCHEME OPTION			
	Option 1 - Signals	RAG	Option 2 - Roundabout	RAG
DESIGN ISSUES				
Horizontal Alignment	As per Do Minimum Option 1, but with the creation of continuous two-lane entries and exits on both Hamble Lane approaches, with a dedicated lane for right-turning traffic.		A larger diameter roundabout compared to Do Minimum Option 2, which approximately doubles the size of the junction in order to provide two lanes on the circulatory carriageway and accommodate the dual carriageway on Hamble Lane.	
Vertical Alignment	As per existing alignment		As per existing alignment	
Structures	None required		None required	
Design standards	No departures identified		No departures identified	
Other constraints	Need to provide a new access into committed development site to the west of the junction. Properties on eastern side of Hamble Lane.		Need to provide a new access into committed development site to the west of the junction. Properties on eastern side of Hamble Lane.	
TRAFFIC IMPACTS				
Existing benefits	Initial modelling indicates that in the AM peak hour Hamble Lane north, Jurd Way and Hamble Lane south right-turn would be over capacity, with the two Hamble Lane arms also over capacity in the PM peak hour.		Initial modelling suggests that all arms would be operating within theoretical capacity in the AM and PM peak periods.	
Future benefits	As above. No scope to accommodate future development traffic flows on Hamble Lane. A third flare land would be needed on one or both of the Hamble Lane approaches in order to make use of the two lane exits and increase capacity.		As above. Potential to accommodate future development traffic in both peak periods.	
Safety	No issues identified at this stage.		No issues identified at this stage.	
ENVIRONMENTAL IMPACTS				
Impacts upon designated sites	None identified.		None identified.	

ASSESSMENT CRITERIA	JURD WAY JUNCTION – DO MAXIMUM SCHEME OPTION			
	Option 1 - Signals	RAG	Option 2 - Roundabout	RAG
Water and drainage	No significant issues identified at this stage. Potential for increased queueing traffic due to introduction of signals, but this would need to be measured against the existing situation.		No issues identified at this stage	
Noise and Air Quality	No significant issues identified at this stage. Potential for increased queueing traffic due to introduction of signals, but this would need to be measured against the existing situation.		No issues identified at this stage	
Ecology	No issues identified at this stage, but needs further work due to land take from currently undeveloped land.		No issues identified at this stage, but needs further work due to land take from currently undeveloped land.	
Landscape	Loss of undeveloped land to the west of the junction, partly mitigated by creation of additional space for landscaping on eastern side of junction.		Loss of significant amount of undeveloped land to the west of the junction.	
LAND				
Land impacts	Third party land required on western side of junction, which is within a committed development site.		Third party land required on western side of junction, which is within a committed development site.	
SCHEME COSTS				
Excl. utility diversions, land costs & design costs	£5m		£4.7m	

TABLE D11C – HAMBLE LANE JUNCTION IMPROVEMENTS: DO MAXIMUM SCHEME (PORTSMOUTH ROAD JUNCTION)

ASSESSMENT CRITERIA	PORTSMOUTH ROAD JUNCTION – DO MAXIMUM SCHEME OPTION			
	Option 1 – Signals + 4 Lanes & Widening	RAG	Option 2 – Signals + 3 Lanes & Widening	RAG
DESIGN ISSUES				
Horizontal Alignment	As per Do Minimum option but with widening to create two continuous lanes northbound and southbound to the north of the junction. Facilitates the provision of a second flare lane on the Hamble Lane south approach, maximising junction capacity.		As per Do Minimum option but with widening to create two continuous lanes southbound with one lane northbound (to the north of the junction). Right-turn from Portsmouth Road and left-turn from Hamble Lane south banned to maximise junction capacity.	
Vertical Alignment	As per existing alignment		As per existing alignment	
Structures	None required.		None required.	
Design standards	No departure identified.		No departure identified.	
Other constraints	Existing properties on both sides of Hamble Lane. Telegraph poles on western side o Hamble Lane and Gas Governor on southern side of green.		Existing properties on both sides of Hamble Lane. Telegraph poles on western side o Hamble Lane and Gas Governor on southern side of green.	
TRAFFIC IMPACTS				
Existing benefits	Initial modelling indicates that all arms of the junction would operate within capacity in the AM and PM peak hours.		Initial modelling indicates that all arms of the junction would be close to capacity in the AM and PM peak hours.	
Future benefits	As above. Some scope to accommodate additional traffic associated with future development sites.		As above. Limited scope to accommodate additional traffic associated with future development sites.	
Safety	No issues identified at this stage.		No issues identified at this stage.	
ENVIRONMENTAL IMPACTS				
Impacts upon designated sites	None identified		None identified	
Water and drainage	No issues identified at this stage.		No issues identified at this stage.	

ASSESSMENT CRITERIA	PORTSMOUTH ROAD JUNCTION – DO MAXIMUM SCHEME OPTION			
	Option 1 – Signals + 4 Lanes & Widening	RAG	Option 2 – Signals + 3 Lanes & Widening	RAG
Noise and Air Quality	Potential for increased queueing traffic due to introduction of signals, but this would need to be measured against the existing situation. Junction located in an EBC AQMA.		Potential for increased queueing traffic due to introduction of signals, but this would need to be measured against the existing situation. Junction located in an EBC AQMA.	
Ecology	No issues identified at this stage, but needs further work due to land take from land currently undeveloped.		No issues identified at this stage, but needs further work due to land take from land currently undeveloped.	
Landscape	Loss of some undeveloped land in the green space to the south of the existing junction, however this could be mitigated by creating a new green space on the northern side of Portsmouth Road. Loss of trees south of the Jurd Way junction.		Loss of some undeveloped land in the green space to the south of the existing junction, however this could be mitigated by creating a new green space on the northern side of Portsmouth Road.	
LAND				
Land impacts	Third party land required. Some land required to the south of Portsmouth Road (highway land), but land freed up to the north to compensate.		Third party land required. Some land required to the south of Portsmouth Road (highway land), but land freed up to the north to compensate.	
SCHEME COSTS				
Excl. utility diversions, land costs & design costs	£3m		£2.2m	

TABLE D12 – BOTLEY BYPASS

ASSESSMENT CRITERIA	BOTLEY BYPASS - SCHEME OPTION					
	Waterman's Option 1C	RAG	Atkins' Option 2	RAG	HCC Option	RAG
DESIGN ISSUES						
Horizontal Alignment	Circa 1.7km of new 7.3m wide single carriageway road, plus circa 1.2km of online widening to Woodhouse Lane to 6.75m and circa 0.1km of new carriageway to realign Winchester Street to the south of the Bypass. Roundabout provided on Woodhouse Lane provides access to Bypass for Woodhouse Lane (N&S) and Winchester Street (N) traffic. This can be modified to cater for development access. Priority junction on bypass provided for properties on Winchester Street service road (N) only. Priority junction on bypass provided for Winchester Street (S). Staggered junction on bypass, left, then right, increases possible vehicle conflicts and increases accident risk.		Circa 1.8km of new 7.3m wide single carriageway road, plus circa 1.2km of online widening to Woodhouse Lane to 6.75m and circa 0.25km of new carriageway to realign Winchester Street to the north and south of the Bypass. Roundabout provided on Woodhouse Lane provides access to Bypass for Woodhouse Lane (N&S), Development, and Winchester Street (N) traffic. Roundabout on bypass provided for Winchester Street (N). Presumably link is provided for Winchester Street service road from diverted Winchester Street. Priority junction on bypass provided for Winchester Street (S). Maximum number of possible vehicle conflicts increases accident risk.		Circa 1.8km of new 7.3m wide single carriageway road, plus circa 1.2km of online widening of Woodhouse Lane to 7.3m. No realignment of Winchester Street required. Roundabout provided on Woodhouse Lane provides access to Bypass for Woodhouse Lane (N&S), Development, and Winchester Street (N) traffic. The through route for north - south traffic will be via Winchester Street and Woodhouse Road - the forward visibility is limited at this junction. No direct access to bypass for Winchester Street service road. Priority junction on bypass provided for Winchester Street (S). Minimum number of possible vehicle conflicts minimises accident risk.	
Vertical Alignment	Climbing lane to be considered for central section of bypass, running parallel to railway.		Climbing lane to be considered for central section of bypass, running parallel to railway.		Climbing lane to be considered for central section of bypass, running parallel to railway.	
Structures	Long bridge to span River Hamble, and parallel stream.		Long bridge to span River Hamble, and parallel stream.		Shorter bridge over River Hamble, and separate culvert for parallel stream.	
Design standards	40 mph design speed. 1 and 2 step Relaxations as permitted by TD9/93.		40 mph design speed. 1 and 2 step Relaxations as permitted by TD9/93.		40 mph design speed. 1 and 2 step Relaxations as permitted by TD9/93.	

ASSESSMENT CRITERIA	BOTLEY BYPASS - SCHEME OPTION					
	Waterman's Option 1C	RAG	Atkins' Option 2	RAG	HCC Option	RAG
Other constraints	New works cross: - 12"" oil pipeline - 8"" IP gas main - 10"" oil pipeline - 40"" water main - 20"" IP gas main - 600mm water main		New works cross: - 12"" oil pipeline - 8"" IP gas main - 10"" oil pipeline - 600mm water main		New works cross: - 12"" oil pipeline - 8"" IP gas main - 10"" oil pipeline - 600mm water main	
TRAFFIC IMPACTS						
Existing benefits	Provides significant congestion relief in Botley village by enabling through traffic to Bypass the A334 Mill Hill and the B3354 Winchester Street.		Provides significant congestion relief in Botley village by enabling through traffic to Bypass the A334 Mill Hill and the B3354 Winchester Street. Additional roundabout junction on Bypass compared to other options, which has potential to introduces extra delay.		Provides significant congestion relief in Botley village by enabling through traffic to Bypass the A334 Mill Hill and the B3354 Winchester Street.	
Future benefits	As above. Has potential to accommodate traffic associated with existing planned developments and potential new development sites.		As above. Has potential to accommodate traffic associated with existing planned developments and potential new development sites.		As above. Has potential to accommodate traffic associated with existing planned developments and potential new development sites.	
Safety	No issues identified at this stage.		No issues identified at this stage.		No issues identified at this stage. Winchester Street south of the Bypass may need realigning to the east due to the proximity of the junction with Holmesland Lane.	

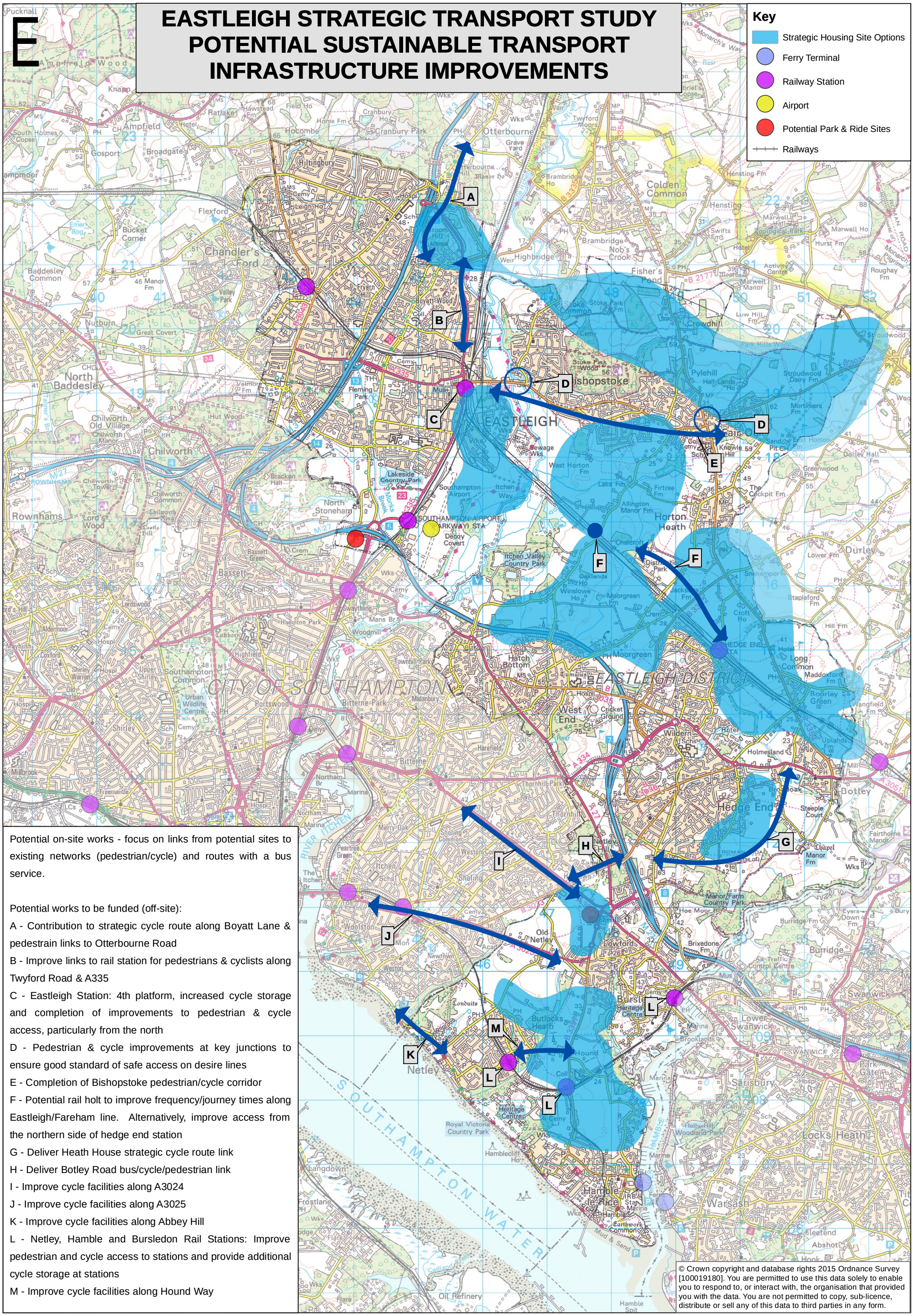
ASSESSMENT CRITERIA	BOTLEY BYPASS - SCHEME OPTION					
	Waterman's Option 1C	RAG	Atkins' Option 2	RAG	HCC Option	RAG
ENVIRONMENTAL IMPACTS						
Impacts upon designated sites	The River Hamble is not designated at the proposed crossing point. The designated site starts circa 900m downstream of the proposed bridge location (with SAC, SSSI and SPA designations). The route crosses the Botley Mill Woodland and Sherecroft Farm Meadow SINCs on the west and east sides of the River Hamble respectively. Reduces traffic impact on The Old Gate House, a former toll house, but separates it further from its original use. Woodhouse gully will also need to be crossed - this waterway runs directly into the Hamble.		The River Hamble is not designated at the proposed crossing point. The designated site starts circa 900m downstream of the proposed bridge location (with SAC, SSSI and SPA designations). The route crosses the Botley Mill Woodland and Sherecroft Farm Meadow SINCs on the west and east sides of the River Hamble respectively. Tight bend required around The Old Gate House, a former toll house. Woodhouse gully will also need to be crossed - this waterway runs directly into the Hamble.		The River Hamble is not designated at the proposed crossing point. The designated site starts circa 900m downstream of the proposed bridge location (with SAC, SSSI and SPA designations). The route crosses the Botley Mill Woodland and Sherecroft Farm Meadow SINCs on the west and east sides of the River Hamble respectively. Reduces traffic impact on The Old Gate House, a former toll house. Woodhouse gully will also need to be crossed - this waterway runs directly into the Hamble.	
Water and drainage	The route crosses the River Hamble flood plain. Woodhouse Gully a tributary also impacted.		The route crosses the River Hamble flood plain. Woodhouse Gully a tributary also impacted.		The route crosses the River Hamble flood plain. Woodhouse Gully a tributary also impacted.	
Noise and Air Quality	Will increase noise to properties at north end of Winchester Street. Noise bunds / acoustic barriers can be installed along sections of the Bypass as identified by noise calculations. Air quality within the Hamble corridor may need to be considered.		Will increase noise to properties at north end of Winchester Street. Noise bunds / acoustic barriers can be installed along sections of the Bypass as identified by noise calculations. Air quality within the Hamble corridor may need to be considered.		Has less noise impact on properties at north end of Winchester Street. Noise bunds / acoustic barriers can be installed along sections of the Bypass as identified by noise calculations. Air quality within the Hamble corridor may need to be considered.	

Ecology	Issues yet to be determined. Likely to be some impacts as route passes through land that is predominantly undeveloped and the bridge over the River Hamble could potentially impact river ecology. For ecological reasons a wide span structure over water courses would be preferred.		Issues yet to be determined. Likely to be some impacts as route passes through land that is predominantly undeveloped and the bridge over the River Hamble could potentially impact river ecology. For ecological reasons a wide span structure over water courses would be preferred.		Issues yet to be determined. Likely to be some impacts as route passes through land that is predominantly undeveloped and the bridge over the River Hamble could potentially impact river ecology. For ecological reasons a wide span structure over water courses would be preferred.	
Landscape	Some sections of the road will be in cutting with others on embankments. Landscape bunds will be provided to screen the road from existing and potential future properties where required.		Some sections of the road will be in cutting with others on embankments. Landscape bunds will be provided to screen the road from existing and potential future properties where required.		Some sections of the road will be in cutting with others on embankments. Landscape bunds will be provided to screen the road from existing and potential future properties where required.	
LAND						
Land impacts	Requires land to the east of Winchester Street outside HCC land ownership/control, which means less impact on the development site. Probably has the least amount of land take of the three.		Wholly within HCC owned/controlled land. However requires most land of the three as it has a new link for Winchester Street.		Wholly within HCC owned/controlled land. Probably has least impact on development site.	
SCHEME COSTS						
	Some additional carriageway works to provide new staggered junction, however has shorter bypass route. £18m – 2013 estimate		The most expensive as it requires more new carriageway, an extra roundabout and a large bridge to cross the River Hamble and stream.		Similar cost to the Waterman option because although it is a longer route the previous cost risks have been refined. £22-24m	

Appendix E Sustainable Transport Network: Suggested Potential Development-Related Improvements

Hampshire
County Council

EASTLEIGH STRATEGIC TRANSPORT STUDY
POTENTIAL SUSTAINABLE TRANSPORT INFRASTRUCTURE IMPROVEMENTS



Potential on-site works - focus on links from potential sites to existing networks (pedestrian/cycle) and routes with a bus service.

Potential works to be funded (off-site):

A - Contribution to strategic cycle route along Boyatt Lane & pedestrain links to Otterbourne Road

B - Improve links to rail station for pedestrians & cyclists along Twyford Road & A335

C - Eastleigh Station: 4th platform, increased cycle storage and completion of improvements to pedestrian & cycle access, particularly from the north

D - Pedestrian & cycle improvements at key junctions to ensure good standard of safe access on desire lines

E - Completion of Bishopstoke pedestrian/cycle corridor

F - Potential rail holt to improve frequency/journey times along Eastleigh/Fareham line. Alternatively, improve access from the northern side of hedge end station

G - Deliver Heath House strategic cycle route link

H - Deliver Botley Road bus/cycle/pedestrian link

I - Improve cycle facilities along A3024

J - Improve cycle facilities along A3025

K - Improve cycle facilities along Abbey Hill

L - Netley, Hamble and Bursledon Rail Stations: Improve pedestrian and cycle access to stations and provide additional cycle storage at stations

M - Improve cycle facilities along Hound Way

Hampshire
County Council