Transport Assessment Volume 1 – Executive Summary

Highsted Park, Land to the South and East of Sittingbourne, Kent

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Contents

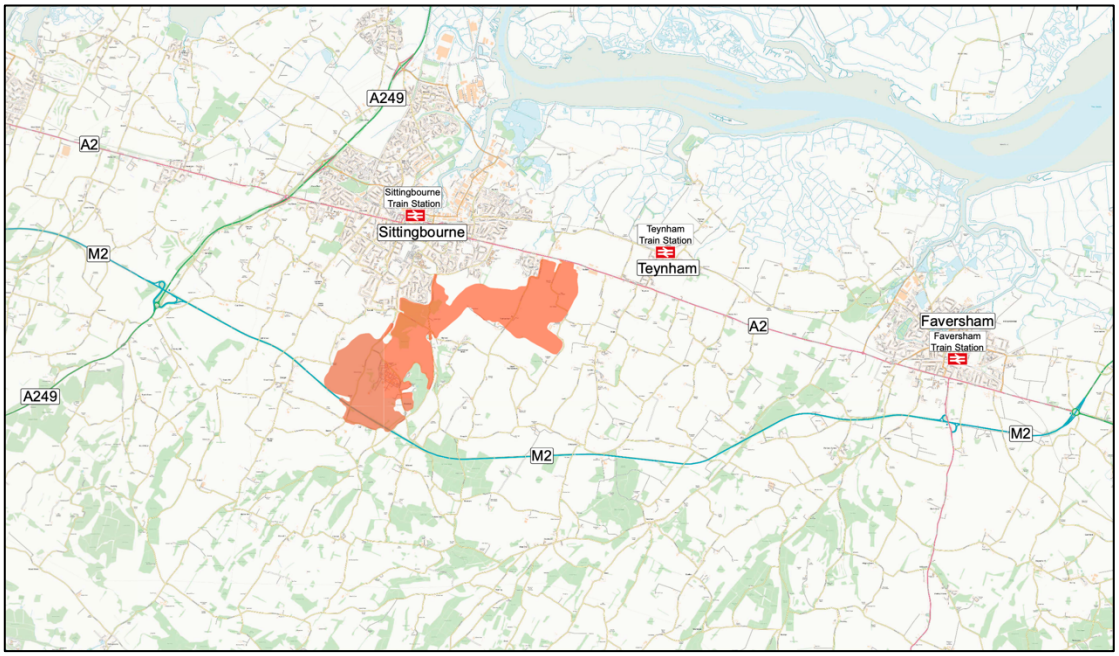
1 Introduction 3
1.1 Overview 3
1.2 TA Document Suite Structure 4
1.3 Report Purpose 5
2 Executive Summary 6
2.1 Local Policy Context 6
2.2 Existing Situation 8
2.3 The Proposed Development 10
2.4 Sustainable Transport Strategy 11
2.5 Highways Infrastructure 14
2.6 Traffic Impact Appraisal 19
2.7 Mitigation Proposals 24
2.8 Summary 25

1 Introduction

1.1 Overview

1.1.1 Charles and Associates Consulting Engineers Ltd (C&A) have been commissioned by Quinn Estates to provide highways and transport support with respect to a major mixed use development to the south east of Sittingbourne, known as Highsted Park: Land to the South and East of Sittingbourne, Kent; henceforth referred to as 'the Proposed Development'.

Figure 1.2.1: Site Location



1.1.2 The Proposed Development represents a mixed-use garden village style settlement comprising approximately 8,000 new homes, commercial, retail, education, leisure and community land uses. In addition, the proposals include the provision of key new pieces of strategic infrastructure consisting of a new, privately funded connection to the Strategic Road Network (SRN) to the south east of Sittingbourne (M2 J5a) and a new sustainable movement corridor (SMC); which incorporates a link road between the M2 and A2 forming a Sittingbourne Southern Relief Road (SSRR).

1.1.3 The application for the Proposed Development comes forward together with an associated and adjacent application which forms part of the overarching Highsted Park development. The adjacent application, known as Highsted Park: Land to the West of Teynham, Kent and henceforth referred to as 'Highsted Park: North', incorporates proposals for 1,250 new homes, commercial, retail, education, leisure and community land uses. In addition, the proposals include the delivery of the further strategic infrastructure in the form of the 'Bapchild Link' which will complete the existing Sittingbourne Northern Relief Road (SNRR).

1.1.4 It should be noted that it is assumed that both applications are interdependent and will only come forward together. As such the traffic impact assessment contained within the Transport Assessment (TA) for both sites are based upon the cumulative assessment of both sites and their associated infrastructure proposals in combination.

1.1.5 This document forms part of a suite of documents which together comprise the TA for the Proposed Development. However, given the scale of the development and the complexity of assessing its transport related impacts it was considered appropriate to structure the TA as a suite of stand-alone but related documents rather than one large report. An overview of the TA document suite structure is set out in the section below.

1.2 TA Document Suite Structure

1.2.1 The individual reports contained within the TA document suite are set out below. As stated above, each volume can be read as a stand-alone report but, as a whole, form the overarching TA for the proposed development.

1.2.2 The TA document suite volumes are:

1. **Executive Summary (report 16-023-R1000);**
2. Strategic Justification & Policy Context (report 16-023-R1001);
3. Site Context – Issues & Opportunities (report 16-023-R1002);
4. Development Proposals (report 16-023-R1003);
5. Sustainable Travel Strategy (report 16-023-R1004);
6. Highways Infrastructure Proposals (report 16-023-R1005);
7. Traffic Impact Appraisal (report 16-023-R1006); and
8. Mitigation Proposals (report 16-023-R1007).

1.3 Report Purpose

1.3.1 This first volume of the TA document suite provides an executive summary of the assessment of transport impacts and considerations with respect to the proposed development. The report will draw upon the other volumes of the TA suite to provide an overarching summary of the assessment and to outline the key findings and conclusions.

1.3.2 This volume is more extensive than a typical executive summary, reflective of the scale of the reporting which it summarises. It is intended that the reader of this particular volume should be able to establish the overarching narrative of the Transport Assessment and key findings, without necessarily having recourse to read all of the considerably more detailed supporting volumes. Those intending to review the full Transport Assessment are encouraged to read this executive summary in the first instance and to use this a reference guide to relevant detail in the supporting volumes.

2 Executive Summary

2.1 Local Policy Context

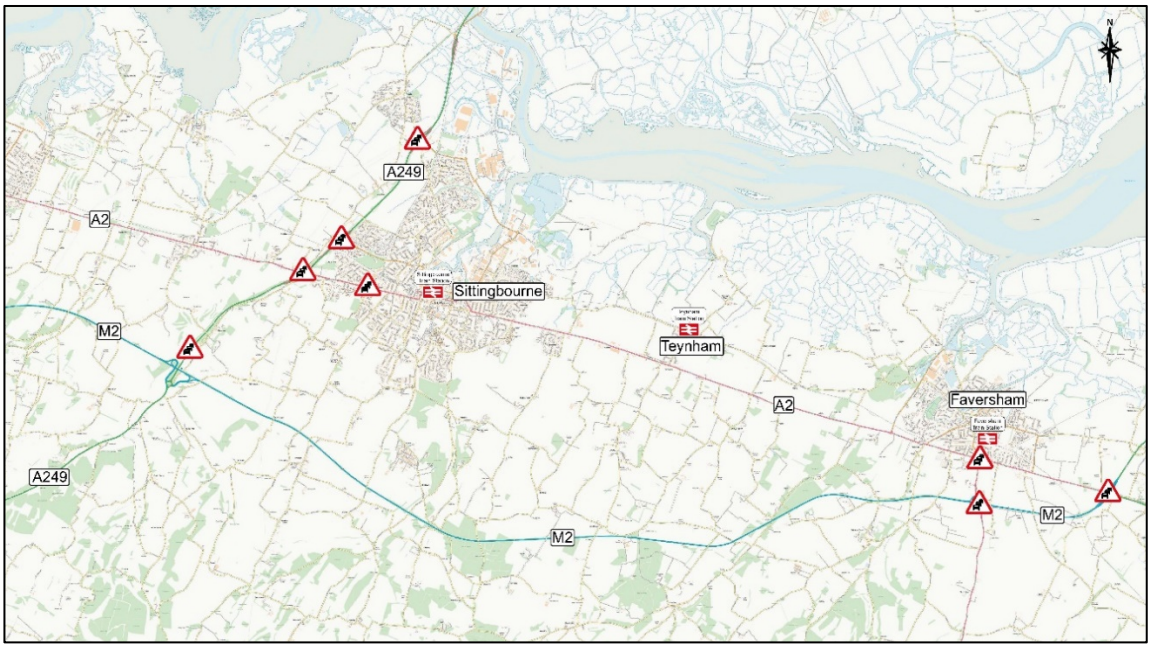
2.1.1 The Proposed Development considered in this Transport Assessment emerges in a unique planning context, which is detailed in Volume 2 of this TA, having previously been proactively promoted as a potential growth strategy within what was an emerging Garden Communities approach being adopted by Swale Borough Council (SBC). Despite the potential strategy including this site emerging as a favourable option, delivering transformational benefits to the district through infrastructure delivery, SBC changed the direction of it's growth strategy dismissing the Proposed Development early in the revised process with limited justification.

2.1.2 The on-going SBC Local Plan review process comes forward in the context of a challenging adopted Local Plan context; particularly in regard to transport issues. The adopted plan was challenged by the highway authorities due to a lack of demonstrable and effective transport strategy. This resulted in the Planning Inspector overseeing the examination of the plan to request an early review of the plan as it was considered the transport strategy only supported the first five years of the plan.

2.1.3 The concerns of the highway authorities at the adopted Plan making stage have manifested themselves in challenging site delivery. Highways England (HE) have maintained an approach of applying aggressive 'Grampian style' conditions on all development likely to impact the A249 corridor until at least the delivery of the anticipated M2 Junction 5 (Stockbury) improvements. KCC, as the local highway authority, were unable to support certain Local Plan sites, as allocated, due to insufficient provision of highway mitigation.

2.1.4 This challenging context is a reflection of sustained failure of Local Plan making in Swale to acknowledge and address the infrastructure constraints locally.

Figure 2.1: Existing Congestion Issues



2.1.5 The emerging Local Plan, which at the time of writing is being subject to Regulation 19 consultation, is considered by the applicant to continue this trend and despite extensive evidence to the contrary, has taken a direction of growth without the necessary infrastructure. The Council are seeking to progress a strategy based on unrealistic expectations of mode shift to sustainable modes, despite making little or no attempt to sequentially test which growth strategies might best support such an approach and without evidence to show that their strategy would be effective and deliverable.

2.1.6 Potentially even more critically, the Council are progressing strategy that assumes that others, namely Highways England, will solve major strategic highway concerns at for instance M2J7 at Brenley Corner. The Council incorrectly assume that because improvements at this junction have been identified for study within the RIS2 programme that it will be solved subsequently. This is incorrect as RIS is a programme for funding improvements to the strategic road network, not for facilitating local growth. Ironically, the problems and nature of operation at Brenley Corner are such an awareness that HE are looking to improve the SRN should be seen as a concern, not a comfort. It is likely that measures to improve the SRN would come at the conflicting expenses of local capacity, thus actually prejudicing rather than supporting growth.

2.1.7 The Local Plan is being consulted at Regulation 19 stage without any appropriate transport modelling evidence of the preferred scenario or the proposed transport strategy. That transport strategy was published in draft form and must be considered at best to be a generic work in progress. It lacks any genuine attempt to acknowledge the very real constraints on the Swale transport network; the historical failings to support sustainable growth and infrastructure delivery. The Strategy does not provide any platform for innovation and genuine change, however, it sets a lofty target of achieving a 20% reduction in single occupancy car use, yet proposes only generic, traditional and conventional measures which have never previously achieved these levels of change, particularly in Swale. Critically, there is nothing in the Strategy that is unique and supportive of the emerging growth strategy.

2.2 Existing Situation

2.2.1 In contrast to the emerging Local Plan and supporting Transport Strategy, the Highsted Park development is fully cognisant of the existing challenges facing Swale in delivering its growth agenda as recognised and signposted to in the current Bearing Fruits Local Plan. As highlighted in the previous Garden Communities assessment process, Highsted Park represents an opportunity to deliver transformational benefits and provide strategic infrastructure of regional significance. And such transformation is needed.

2.2.2 Swale, and Sittingbourne in particular, has the potential to be an inherently sustainable location for development. It benefits from a concise urban area, with strong retail and commercial centres, a healthy employment area and access to strategic rail services including High Speed from Sittingbourne Station. Further details of the existing context can be found in Volume 3 of this TA.

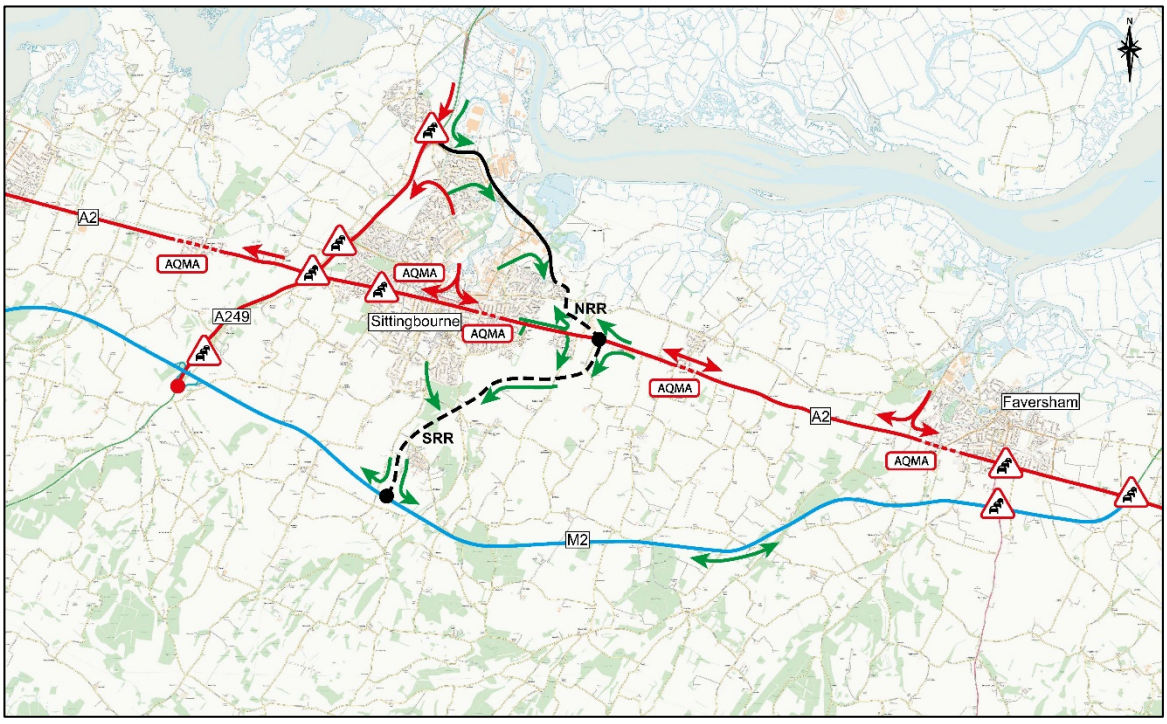
2.2.3 However, the area is blighted by traffic constraints and has been for some considerable time. Sittingbourne, the Isle of Sheppey and the surrounding areas in particular are notably constrained by access to the motorway network. These areas are afforded only one point of connection to the motorway network at junction 5 of the M2, via the A249 corridor to the west of Sittingbourne. This leads to a distinct draw of traffic through the central areas of Sittingbourne on the A2 corridor and focuses all traffic on specific routes to access the SRN. This leads to acute traffic congestion issues on the A2 and A249 corridors and notable air quality challenges.

2.2.4 More pressingly, this configuration has led to a car dominated environment. As is often the case; the majority of transport modes compete for space within the road network and the lack of available route alternatives and the need to maintain a functioning economy means that sustainable travel modes, such as public transport, cycling and walking is offered little or no prioritisation. Even a casual review of the Swale transport network, and in particular that of Sittingbourne, shows very limited evidence of measures to encourage non-car modes, as to have done so would have been at the expense of traffic capacity with the associated economic, social and political implications.

2.2.5 Nonetheless, with appropriate and effective infrastructure planning the location of the Proposed Development remains an ideal location for large scale sustainable development when considering transport and movement, particularly for a mixed-use scheme.

2.2.6 The Proposed Development is located such that it will complement the existing transport offering in Swale and Sittingbourne in particular, but will also make a transformational change through the delivery of much needed strategic infrastructure.

Figure 2.2: Anticipated Infrastructure Highways Benefits



2.3 The Proposed Development

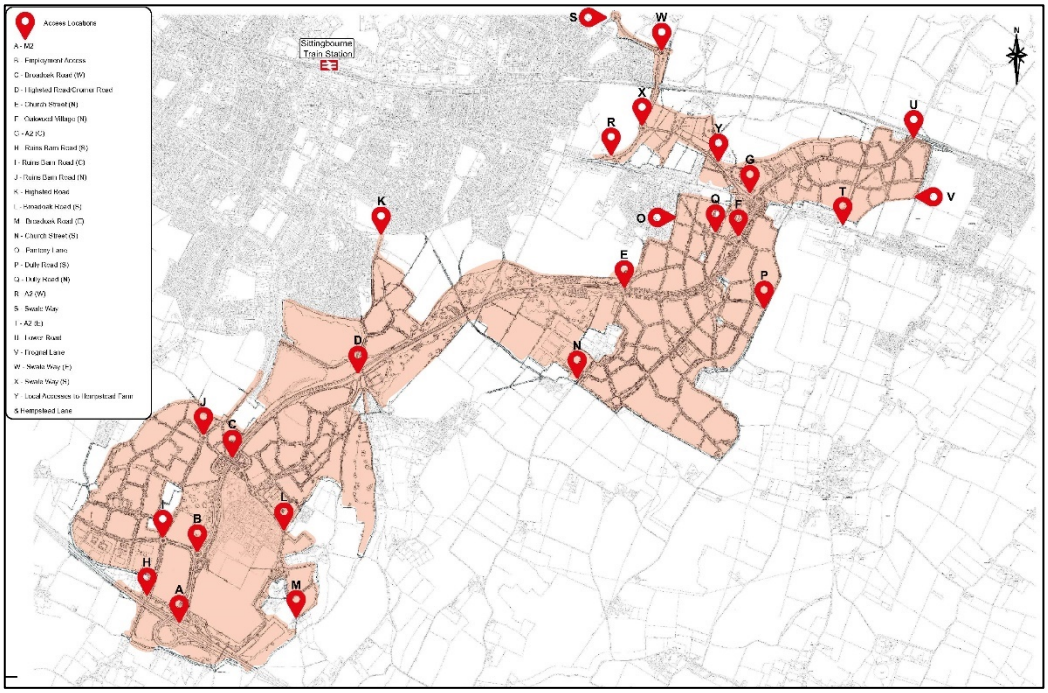
2.3.1 As noted earlier, the Proposed Development considered here is the larger of two planning applications being submitted concurrently, which together form an overall development referred to as Highsted Park. The overarching Highsted Park development comprises some 9,250 dwellings, commercial, education, retail and leisure land uses. The reasoning for the separation of applications is beyond the scope of this report, however, it is important to summarise how this manifests within this assessment.

2.3.2 This TA reviews the specific components of the Proposed Development independently and the detail is provided in Volume 4. However, for the purposes of transport impact on the local and wider network, this TA considers the cumulative implications of the entire Highsted Park development. This extends from the forecasting of the cumulative trip generation to the assessment of the cumulative impacts of the overall Highsted Park development on the local highway network.

2.3.3 This TA relating to the proposed development at Land to the South and East of Sittingbourne comprises of up to 8,000 residential dwellings; commercial land uses, education and other supporting uses including retail and leisure. Both in isolation and as part of the wider Highsted Park development this represents a major mixed use garden settlement. Included within the Proposed Development is a key piece of transport infrastructure. This is referred to as the Sustainable Movement Corridor and includes a long aspired to highway link between the M2 and the A2, creating a new point of connection to the strategic road network (SRN). However, the function of the corridor is considerably more than that of a relief road, despite the historical foundations in that function; as discussed further below.

2.3.4 The proposed development will have a comprehensive access strategy, integrating and enhancing the connectivity with the existing network as appropriate.

Figure 2.3: Overall Highsted Park Development Access Strategy



2.3.5 The overarching aim of the Proposed Development is to bring forward sustainable growth in Swale in a manner that is consistent with prevailing national policy and the fundamental objectives of emerging local policy with respect to sustainable transport. This TA demonstrates how this will be achieved.

2.4 Sustainable Transport Strategy

2.4.1 A fundamental aspect of the development proposals is the sustainable transport strategy (STS) which underpins them. The STS in Volume 5 of this TA sets out in detail how the Proposed Development will facilitate, support and encourage sustainable travel, not only as part of the Proposed Development but as part of a strategy to effect a wider change.

2.4.2 The STS takes some inspiration from the overarching objectives of SBC's own draft emerging Transport Strategy. Whilst the aims of SBC's strategy are appropriate and laudable, the strategy itself lacks any genuine understanding of the issues and opportunities that present themselves locally. The measures set out in that strategy are conventional and generic. They fail to respond to apparent issues within Swale and in doing so miss clear opportunities for genuine, transformational change through intervention and lack any innovation in solutions. It adopts a dogmatic position of opposing new road building, failing entirely to note that roads are the corridors by which most transport, sustainable or otherwise, need to utilise.

2.4.3 In marked contrast, the Proposed Development's STS sets out to achieve what SBC's fails to. It is cognisant of the real transport challenges in Swale and responds to these by providing genuine, measurable interventions that embrace and encourage innovation in transport solutions and technology. The strategy seeks out and finds unique opportunities within the Proposed Development to maximise the scope for a broad change in travel patterns. Importantly, the STS is aware of the scale of the proposed growth and the potential challenges this entails. The STS is structured and of a scope that it is anticipated to form a part of a wider Transport Strategy for the Borough to support an alternative growth strategy. It balances the desire for aspiration with the need for pragmatism and deliverability.

2.4.4 The STS looks to support and encourage sustainable travel innovation with the objective of putting Swale Borough Council at the forefront of the push for change in transport. The Applicant is partnering with pioneers in the field of autonomous transport innvotation, Aurrigo Driverless Technology, to explore how the Proposed Development can bring about a revolution in the provision of non-car travel solution. The proposals are aspirational, but grounded in reality. The infrastructure facilitates real world solutions today, such as guided electric buses, but paves the way for a transition through full use of alternative fuels; a reduction in the size but increase in frequency of services; and the development of automation.

Figure 2.4 – Initial Guided Busway

Figure 2.5 – Electrification and Automation

Figure 2.6 – Last Mile Autonomous (Aurrigo Auto-Pod)

2.4.5 The STS sets out a comprehensive range of innovative development specific measures to encourage walking and cycling as primary modes. The masterplan is designed from the ground up to support walking neighbourhoods and to encourage walking and cycling through a strong 'green grid' of routes.

2.4.6 Opportunities to innovate have not be missed here either. The development will look to roll out cutting edge facilities to encourage cycling, such as the use of smart bike and scooter parking that omits the need for a cyclist to carry their own locks.

Figure 2.7 – 'Bikeep' Smart Bike and Scooter Parking Docks

2.4.7 Integral to the delivery of the STS will be a development wide Community Travel Plan, guiding and supporting the delivery of land use specific Travel Plans. The Applicant is exploring opportunities with research organisations in to how the scale and innovative nature of the Proposed Development's Travel Plan can be used to enhance the benefits of travel planning more widely.

2.4.8 Fundamentally the STS aims to use the Proposed Development as a catalyst for wider change.

2.5 Highways Infrastructure

2.5.1 This spirit of pragmatism is most evident in the Proposed Development's approach to highway infrastructure, details of which are set out in Volume 6 of this TA. As noted above and in contrast to SBC, the Proposed Development does not idealistically reject road building as part of an improved transport network. Rather, the Proposed Development embraces the opportunities that appropriately planned and designed highway infrastructure must take in the process of effectively planning for strategic growth.

2.5.2 Whilst the foundations of the proposals for a new road between the M2 and the incomplete Sittingbourne Northern Relief Road (Swale Way) lie in the historic proposals for the Sittingbourne Southern Relief Road, the Proposed Development has actively evolved these proposals to ensure that they match the aspirations for a sustainable travel future; the need to deal with local air quality challenges and the importance of addressing the climate emergency. This is evident in the design changes and the shift towards the proposals being a Sustainable Movement Corridor.

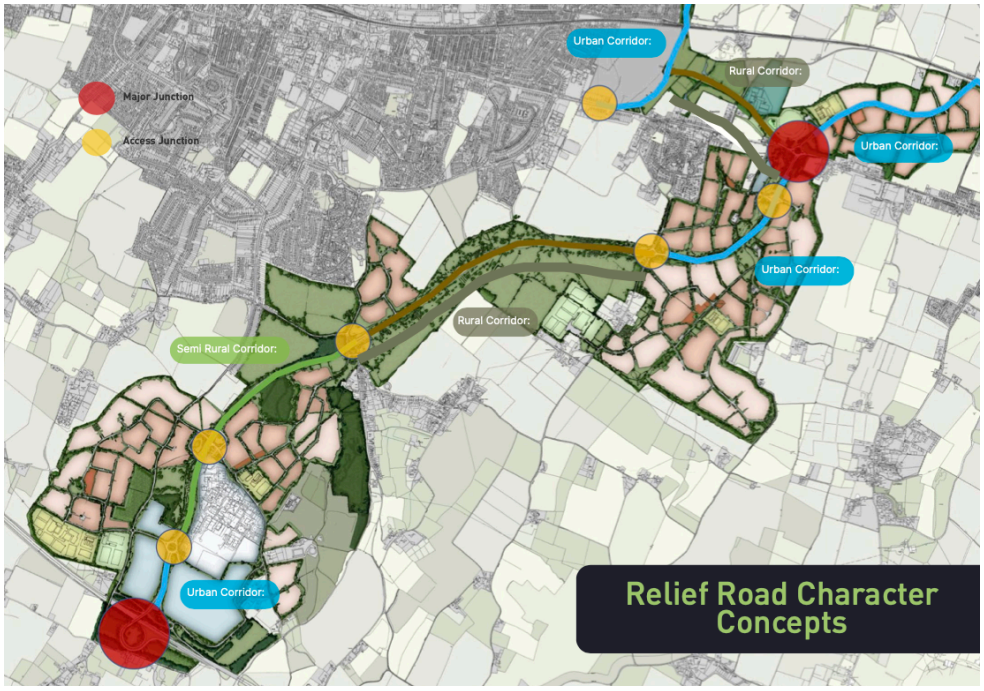
2.5.3 The highways infrastructure proposals have also responded proactively to the masterplanning and design objectives. These are most evident in the evolution of the design through an independent design panel review process, which introduced the variable character to the highway infrastructure. Whilst ostensibly a design response, these changes reinforce the multi-modal nature of the proposals, maximise permeability through the development and beyond and result in a net positive with respect to the promotion of non-car modes.

2.5.4 One of the more apparent examples of this is the change in the scale and nature of the carriageway. Earlier iterations of the design focused on the delivery of a dual carriageway alignment from the M2 through to the A2. This was initially envisaged to be the appropriate solution to provide the necessary highway capacity. Iterative transport modelling, using Swale's own strategic transport model, identified the scope to rationalise the capacity of this route and the potential and iterative benefits of reallocating more of the corridor to sustainable modes of travel and forming the concept of the Sustainable Movement Corridor (SMC). Through this effective and iterative process of traffic modelling, it has been possible to ensure that this has not come at the expense of the originally intended functionality of the route.

2.5.5 A further and apparent example of the design iteration would be the proposed junction between the SMC and Broadoak Road, in the vicinity of the existing Kent Science Park entrance. This junction was originally envisaged to be a large at-grade roundabout solution. Whilst typically the transition from dual to single carriageway might have prompted the retention of this junction form, with a possible reduction in size; instead the opportunity was taken to innovate the junction form to the betterment of the overall masterplan vision. The development and landscape masterplanning process, along with the design panel review process, identified a potential deficit in east-west connectivity at this point. From this, and with interrogation of the site topography, the opportunity for a 'green bridge' was identified. To respond to this the highway design evolved to a compact grade separated solution that could provide both the necessary highway capacity, integration with the existing KSP access and facilitate a wide, pedestrian, cycle and landscape focused green bridge.

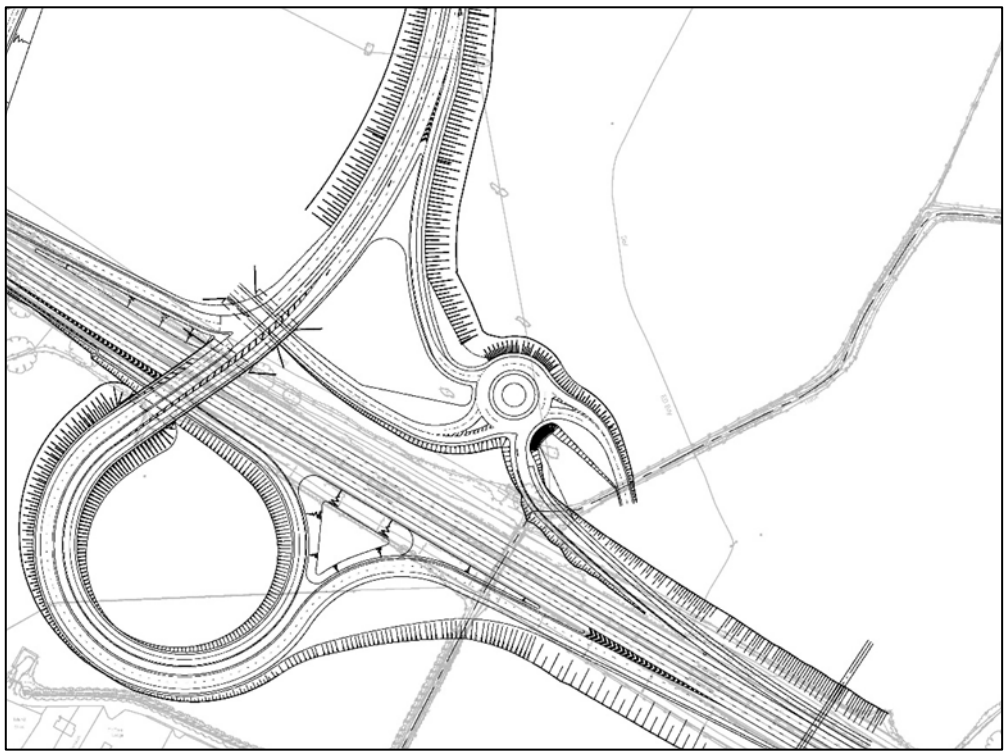
Figure 2.8: Green Bridge

Figure 2.9 – Infrastructure Character Concepts



2.5.6 Notwithstanding the above, and echoing the approach taken within the STS, the design of the highway infrastructure has remained pragmatic and deliverable. This means taking a realistic approach to the application of appropriate design standards. The need to integrate with the motorway and the proposed M2 J5a invokes a requirement for strict adherence to the standards set out in Design Manual for Roads and Bridges and the concept designs included within the Proposed Development avoid any departures from standard.

Figure 2.10 – Proposed M2J5a



2.5.7 The same approach has been generally adopted throughout the design of the infrastructure, albeit some of the more appropriate concepts within the Kent Design Guide and Manual for Streets have been adopted where appropriate elsewhere.

2.5.8 Although the infrastructure design and the accesses are not put forward for determination as part of this current outline application, the designs have been advanced to a level commensurate with a Stage 1 Road Safety Audit level. Given the significance and scale of the proposals, such levels of detail were necessary to appropriately test the concepts for suitable assessment within the wider Environmental Statement and in order to demonstrate deliverability of the concepts. Likewise, the TA suite includes reporting on the design approach and principles within Volume 6 in order to allow interrogation of the rationale and to fully justify the concept schemes. Following a favourable outcome of the outline application, the highways infrastructure will subject to an earlier reserved matters application and subsequent detailed design to allow very early delivery in the development programme.

2.6 Traffic Impact Appraisal

2.6.1 Whilst it is appropriate that considerable focus is placed on how sustainable travel can be supported and encouraged, in order to minimise impact from development, a fundamental part of a transport assessment remains the exercise of forecasting and analysing the potential impact from the Proposed Development. In this regard, this TA has adopted a comprehensive and robust approach, appropriate for the nature and scale of the development.

2.6.2 As noted earlier, for this part of the assessment the cumulative impact of the overall Highsted Park development, including the Proposed Development and that of Highsted Park: North, has been assessed.

2.6.3 This process can be broadly broken down to three main stages. Firstly, it is necessary to forecast the demand that will be generated by the development. Secondly, the resultant demand should be assigned to the transport network appropriately. Finally, the impact should be assessed through the use of appropriate tools. This process is detailed in Volume 7 of this TA, with summaries of each stage provided in the main body of the report and detailed technical reports as appendices to that volume.

2.6.4 Conventionally, the forecasting of demand for development can adopt a simplified and robust approach of looking at the gross traffic generation of the proposed land uses. For modest mixed-use developments, it may be appropriate to continue to adopt this approach, however, for a development of this scale the opportunity for internalisation is considerable. In fact, the fundamental ethos of a garden settlement is to seek to achieve a self-sustaining community. Applying gross trip generation assumption for each land use would therefore be entirely unrealistically robust and lead to extensive double counting, for example counting residential trips to school from the housing and school trips arriving at the school.

2.6.5 Whilst there may be a temptation to retain 'robustness' as a positive, this approach is problematic. Not only does it lead to wholly unrealistic forecasts of demand, but this subsequently encourages transport infrastructure design solutions that are disproportionate to the demand. When considering highway solutions, this will lead to design of highway infrastructure that unnecessarily provides for car use that in turn will likely encourage more such use. A clear example of this would be the proposed on site strategic infrastructure. An approach to forecasting demand using gross land use trip generation would likely inappropriately indicate the need for a dual carriageway, to the detriment of many other masterplanning and design imperatives.

2.6.6 Scale is critically relevant here. Such overly robust approaches may be manageable on smaller schemes, but are evidently inappropriate for a development of this scale. A very relevant example of the challenges of unrealistic robustness can be found in SBC and KCC's own earlier work on modelling the emerging Local Plan. A decision was made early in the process to be robust and adopt gross headline trip rates for development assumptions in the forecast modelling. This gave rise to such unrealistic outputs as to essentially render the results unfit for the intended purpose and led to SBC and KCC adopting, at least in trip rate terms, a considerably more pragmatic approach thereafter.

2.6.7 To address this, the forecasting of demand has applied a detailed and comprehensive approach which is discussed in Volume 7 of the TA or more comprehensively in the associated technical note. These adopted assumptions and methodology were discussed and agreed with KCC as local highway authority and shared with Highways England pursuant to a similar agreement earlier in the pre-application process. The complex demand forecasting spreadsheet model starts with conventional assumptions of trip generation using the industry standard TRICS survey database, thus remaining grounded in accepted approaches. It thereafter undertakes a journey purpose specific exercise in identifying combined movements and discounting accordingly. The model goes on to make assumptions regarding the scope for internalisation of demand and appropriate assumptions on mode of travel. Whilst seeking to avoid being unrealistically robust, the forecasting nonetheless remains pragmatic and errs towards robustness. For instance, assumptions of general mode split towards non-car modes are based upon historical data of comparable areas around Sittingbourne.

2.6.8 Having established the forecast demand from the development, this needed to be assigned to the network for further appraisal. Noting the scale of the development and significant influence of the proposed infrastructure, it was identified early on that a strategic traffic model would be necessary and appropriate. The applicant and their team engaged early with SBC, KCC and HE on these requirements and were instrumental in the development of a new strategic traffic model for Swale borough, developed under joint instruction by the applicant, SBC, and Kent County Council for the express purposes of both assessing large scale strategic development, such as that proposed here, and the emerging Local Plan. The Swale Transport Model (STM), a highway assignment model in the SATURN modelling software, resulted from this collaborative exercise and is being used by Swale in the assessment of their emerging local, albeit at the time of writing and despite the Local Plan having been subject to Regulation 19 consultation, no modelling evidence of the preferred strategy has been published.

2.6.9 The base STM was assessed with reference to the Department for Transport's (DfT's) prevailing transport appraisal guidance WebTAG and found to be a robust and reliable modelling tool on which to base future trip forecasting and the was validated to the satisfaction of the commissioning bodies and Highways England.

2.6.10 In keeping with the basis for this application, the forecast modelling assumes for the reference case a growth strategy that continues in line with the adopted Bearing Fruits Local Plan, extrapolated to 2037 and with assumptions of increased growth commensurate with the current objectively assessed need (OAN) for housing. In contrast, the development scenario model presents an alternative pattern of growth focused on the Proposed Development as part of the wider Highsted Park development. However, the development scenario assumes that Highsted Park would absorb only approximately 6,000 units of the OAN up to 2037, leaving just under 3,000 units worth of growth elsewhere in the borough on the same basis as the reference case. For completeness however, the full cumulative Highsted Park development of 9,250 dwellings plus all of the other land uses is added back into the development scenario in 2037.

2.6.11 Whilst in practice it is likely the Proposed Development will take longer to be delivered, assuming full development in 2037 is a robust approach to adopt and assesses the total impact of the development without extending the modelling period further. It is understood that SBC have advanced their modelling to an appropriate horizon year for the emerging Local Plan of 2038. Whilst this differs from that modelling here, the practical difference between a 2037 and 2038 model year is very limited and the 2037 modelling reported in this TA can be considered a reasonable proxy for 2038 and for the development scenario, a robust one given the assumptions on development build-out.

2.6.12 It is important to note that despite the foundational principles of the Proposed Development being to support and encourage sustainable travel modes within the development, the forecasting exercise has adopted comparably conservative assumptions of mode shift. Even more importantly, a key objective of the proposals is to effect a wider change to more sustainable modes through transformational infrastructure delivery, unachievable without the Proposed Development. Despite this, the assessment of traffic impact has not sought to forecast or take advantage of this change. The wider travel patterns beyond the development itself have been retained in parity for both the reference case and development scenarios. The relative performance of these two scenarios therefore does not account for these significant positive aspects of the Proposed Development and in this regard can be considered very much robust. Whilst in due course such forecasting may be appropriate – the approach adopted here was considered appropriate particularly with consideration to highway and access design.

2.6.13 The forecast development demand was input to the STM in order to allow it to assigned to the network. The principal outcomes from this are a series of forecast traffic movements on the network and a set of overall network wide performance parameters. The latter can be reviewed as very generalised indication of future network operation and a comparison between the reference case and with development scenarios can be made. This is summarised in Chapter 5 of Vol. 7 of the TA but can summarised as follows:

- Unsurprisingly, given the considerably higher development growth assumptions in the development scenario, the overall travel demand (in passenger car units) increases as does the total travel distance; however,
- The overall travel time (in pcu hours) is lower in the development scenario than the reference case;
- The average speed of travel across the network is higher in the development scenario than the reference case; and
- There is reduction in queueing of 7% and 20% in the AM and PM peak hours between the development scenario and the reference case.

2.6.14 These results are reached despite the development scenario including a considerably higher level of housing growth.

2.6.15 The more relevant outputs from the modelling with respect to the application, however, are the forecast traffic flows, including turning movements at junctions within the network. These have been used to undertake the next stage of traffic assessment.

2.6.16 In the first instance and as is appropriate, the outputs from the STM were used to assess the proposed junction designs as part of the proposed infrastructure. Whilst this TA presents the assessment of the final scheme design, in practice the designs had been informed by considerable earlier, iterative assessment using modelling outcomes. It was therefore to be expected that the proposed junctions are forecast to operate effectively in the forecast scenario.

2.6.17 Secondly, the outputs from the strategic model were used to identify areas on the network where the net implications of the development, assessed relative to the reference case forecast model, were a reduction in movements. Unsurprisingly given the influence of the proposed infrastructure, considerable areas of central Sittingbourne along with the A2 and A249 corridors see such a reduction. In these cases it was evident that the proposed infrastructure itself was appropriate to mitigate the impact of the development, in many of these cases with an apparent net positive benefit.

2.6.18 Of particular note were the relative reductions in movement through the AQMAs and the reductions in traffic on a number of the rural lanes.

2.6.19 Finally, the data was used to identify a broad range of junctions across the wider network to be subject to assessment using localised junction modelling. These were generally where the STM outputs identified higher movements in the development scenario when compared to the reference case. Such increases were not unexpected and could be attributed either to the specific impact from trip generating activities on the site or more apparently, the significant influence of the proposed infrastructure. For example, the modelling forecasting very significant increases in traffic movements along the entirety of the exiting Northern Relief Road (Swale Way), as the new combined infrastructure from the Highsted Park development draws traffic on to a route otherwise significantly underutilised due to its incomplete nature.

2.6.20 Some 18 junctions were taken forward for assessment in this context, in addition to the 18 separate junction components that form a part of the infrastructure. The former junctions were assessed using appropriate industry standard modelling tools. The results identified a number of junctions requiring further consideration for mitigation and enhancement.

2.6.21 In specific response to a scoping request from Highways England, an appropriate extent of the SRN has been assessed with respect to the relative impact on the merges and diverges at relevant junctions and these have been found to not be specifically impacted by the development proposals.

2.7 Mitigation Proposals.

2.7.1 Evidently the significant infrastructure proposals included within the Proposed Development and the wider Highsted Park development represent key mitigation for the development's impact, deriving considerable net benefits as detailed through this TA.

2.7.2 However as noted, some parts of the network will nonetheless be negatively impacted and would operate less effectively in the development scenario than in the reference case. In such cases mitigation is appropriate and is therefore proposed at three junctions along Swale Way and two junctions on Woodstock Road.

2.7.3 The junctions at Swale Way, which include those with Barge Way, Ridham Ave and Bingham Road were largely able to cope with the high increases in volumes drawn to the corridor by the new infrastructure, but each required some refinement to respond to the forecast pattern of traffic movements.

2.7.4 Movement on the southern section of Woodstock Road is forecast to see relative increases, as traffic that would have routed on rural lanes or through the town centre from Sittingbourne now seeks access to the new infrastructure and proposed M2J5a.

2.7.5 At the junction with Cromer Road and Tunstall Road, increases on Woodstock Road were met with reductions on the side roads. Nonetheless, movements from those side roads proved challenging under priority control. Therefore, signalisation has been proposed to allow the reduced but necessary local access from the side roads to get out on to Woodstock Road. Such a signaliased solution had previously been deemed unviable due to the prevalence of movement on the side road, particularly the rural 'rat-running' via Tunstall Road.

2.7.6 A more modest improvement to the existing roundabout at the junction with Bell Road and Core Ct Road is proposed as the traffic remains well balanced, with comparably high flows on the side approach (east and west) meaning a roundabout solution remains optimal compared to a traffic signal-controlled arrangement.

2.7.7 In addition to the above, a number of further enhancements have been proposed to accommodate anticipated changes in travel patterns including a widening and ped/cycle improvement scheme for Ruins Barn Road, south of Cromer Road.

2.8 Summary

2.8.1 This executive summary provides a more concise review of the very extensive assessment work presented over the seven other volumes of the Transport Assessment.

2.8.2 Whilst the Proposed Development comes forward in a rather unique local policy context and is promoted as a considerably superior alternative growth strategy than that currently proposed by SBC, it remains appropriate for the scheme to be assessed against appropriate criteria.

2.8.3 Fundamentally, the proposal is for sustainable development with respect to transport and this is demonstrated by the extensive measures proposed to support and encourage sustainable travel. Moreover, the Proposed Development will bring transformational change to the transport network across the district and represents a genuinely deliverable and innovative scheme, that sets high aspirations for positive change underpinned by demonstrably effective measures to achieve those objectives. In this regard the Proposed Development embraces the fundamental tenets of chapter 2 of the NPPF when considering sustainable travel. Furthermore, the development is consistent with principles of promoting sustainable travel set out in chapter 9 of the NPPF. It achieves consistency with the policies within that chapter not only with respect to decision making, but through its promotion of an effective and deliverable alternative sustainable transport strategy it also accords with the plan-making requirements with respect to sustainable travel.

2.8.4 Critically, the Proposed Development responds to the actual challenges and opportunities of growth in Swale borough and represents a considerably more effective and appropriate strategy for growth that doesn't simply continue the trend of failure to appropriately plan for infrastructure; as demonstrated by the most recently adopted Local Plan.

2.8.5 Through a robust traffic impact assessment process, the impact of the Proposed Development has been tested and, with appropriate mitigation, gives rise to a scenario where there would be no unacceptable impact on highway safety or a residual cumulative impact on the road network that would be severe. To the contrary, overall the impact of the development is forecast to be net positive relative to the reference case.