KCC Transport Scheme Business Case Report

Maidstone Bridges Gyratory Bypass

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Document Control Sheet

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1 Introduction

1.1 SELEP Schemes – Transport Business Case Preparation

Amey has been commissioned by Kent County Council (KCC) to prepare a Transport Scheme Business Case (TBC), appropriate to the size and scope of each scheme, for each of the projects which have been allocated Local Growth Fund finance by the South East Local Enterprise Partnership (SELEP).

1.2 Purpose of Report

The overall purpose of this TBC report is to provide a 'proportionate' justification for the 2015/16 funding allocated to the *Maidstone Bridges Gyratory Bypass*. This is a predominantly highway scheme aiming to address the layout and function of the road network in Maidstone's town centre where the A229 and A20 corridors intersect on the banks of the River Medway.

The scope of the TBC is not aligned with any specific stage of the Department for Transport (DfT) 'Transport Business Cases' procedure. Rather, it is a 'lighter touch' report in the spirit of the DfT advice for' LEP Assurance Framework' (December 2014), which agrees with using 'proportionate appraisal' appropriate to the scope of a transport scheme.

The TBC report does, however, consider the five key strands of TBC content required by DfT and HM Treasury's The Green Book, namely strategic, economic, financial, commercial and management. It also brings in other strands where relevant, such as summary of predicted scheme outcomes and scheme operational case (including design).

This TBC report may need to stand as an interim submission, justifying SELEP allocation of 2015/16 LGF to the *Maidstone Bridges Gyratory Bypass*, but which will need to be supplemented by a further TBC submission in later financial years, as the content and delivery aspects of the scheme are resolved in greater detail.

The report broadly follows the 5-Case Model for Transport Business Case preparation, incorporating design and environmental issues as well as a summary of the overall risks in terms of project delivery and project funding approval. These risks include:

- The potential for the project to be called in for review by DfT or other bodies before it is delivered

- The potential for challenge from stakeholders which may jeopardise or delay the project
- The potential that a subsequent review of the project after implementation may identify issues relating to the delivery of overall outcomes (e.g. job creation or transport modal shift)

'Lighter Touch' Transport Business Case

DfT and SELEP have confirmed that a streamlined approach to presenting the TBC for the KCC schemes, earmarked for funding in 2015/16, is appropriate, if the scheme value is relatively small (i.e. <£8m cost). There is no definitive guidance as to the precise scope and content of this 'lighter touch' TBC, but for Maidstone Bridges Gyratory Bypass scheme, it is assumed to require a proportionate coverage of the key items from the three TBC stages, above, condensed into a hybrid report. The main considerations for the lighter touch TBC have been assumed to be as follows:

- Address, briefly, each of the five aspects common to all stages of the TBC, namely, the strategic, economic, financial, commercial and management, cases;
- Present a clear train of logical reasoning and correlated steps for how the scheme is justified;
- Provide qualitative evidence in support of the scheme, if it is not possible or good value to assemble quantitative evidence.

1.3 Structure of the Document

This report is structured in accordance with the Department for Transport's guidance on Transport Business Case, which was updated in January 2013. Following this Introduction, the remainder of the document is structured as follows:

- Chapter 2 - Project Outline;
- Chapter 3 - the Strategic Case;
- Chapter 4 - the Economic Case (including Value for Money Statement)
- Chapter 5 - the Financial Case;
- Chapter 6 - the Commercial Case;
- Chapter 7 - the Management Case;
- Chapter 8 - Conclusions and Recommendations.

2 Project Outline

2.1 Location of the Scheme

The Maidstone Bridges Gyratory is located in the centre of Maidstone where the A229 and A20 corridors intersect at the River Medway. The broad location and the more detailed nature of the gyratory are shown in **Figure 1**.

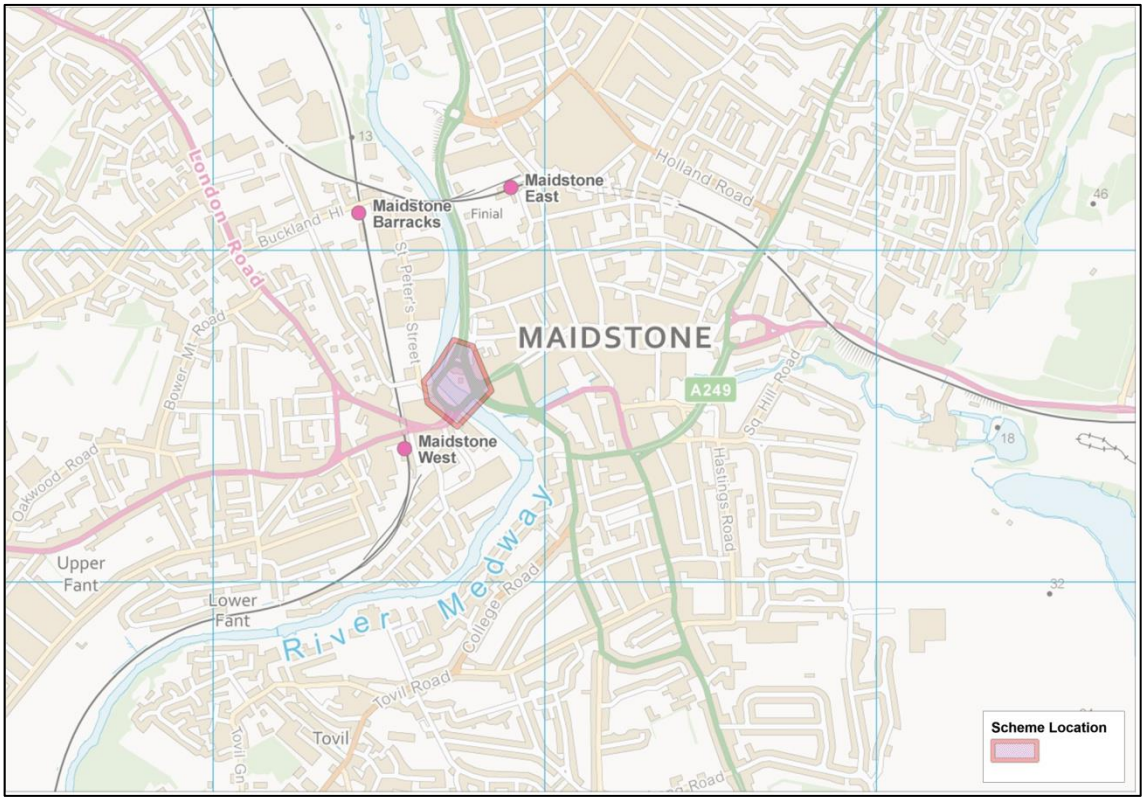


Figure 1 – Scheme Location

Maidstone is the county town of Kent with a population of approximately 107,000 in the urban area (2011 Census). This urban area is located in the north of Maidstone district close to the M20 motorway. The district also has a large southern 'hinterland' stretching into the Weald of Kent.

2.2 Current Conditions

Maidstone is located in central Kent which is generally a prosperous area within the county. The proposal is a localised transport scheme which is located within an urban setting in Maidstone town centre. The surrounding land use is mixed with significant retail to the west and north, as well as office and leisure uses nearby.

The gyratory system which traverses the River Medway via two bridges, acts as a key focal point for traffic within the town. Two key arterial routes within the town, in the form of the A229 and A20, converge at this point. These arterial routes provide the main north-south and east-west corridors through the town centre. As a result the gyratory also accommodates a significant number of bus services currently operating within the town.

Maidstone has important interactions with the neighbouring district Tonbridge & Malling to the west and the unitary authority of Medway to the north. 2011 census data for commuter journeys indicates that traffic using the gyratory includes through-traffic and cross-town traffic, including traffic heading for J6 of the M20. An indication of the level of out-commuting and in-commuting to/from the district is illustrated in Figure 2 below.

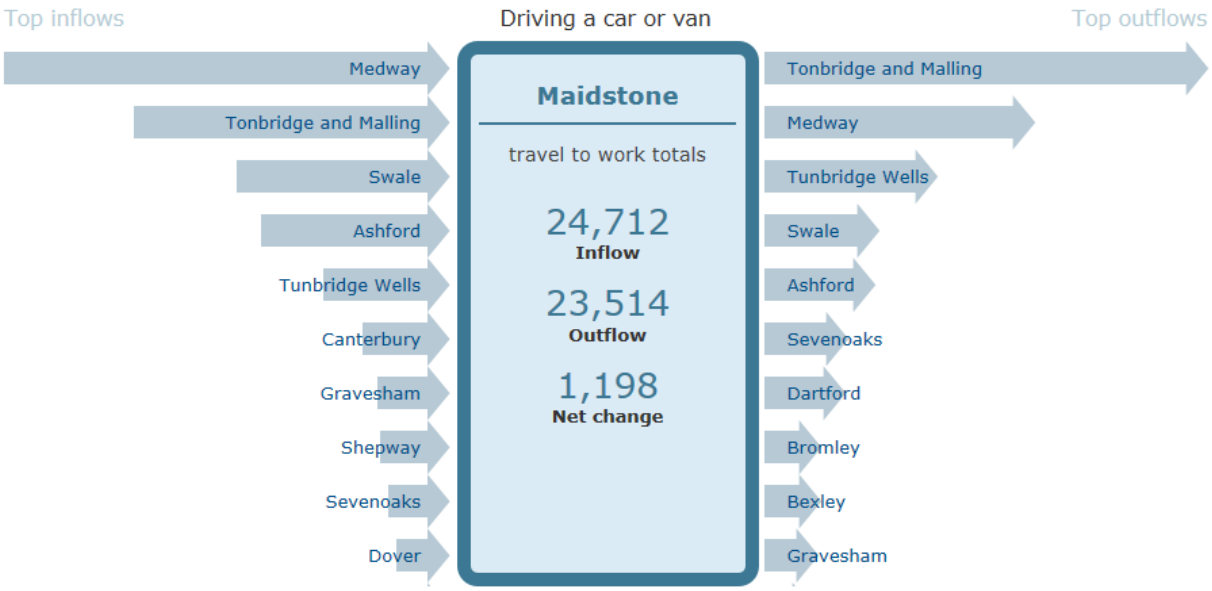


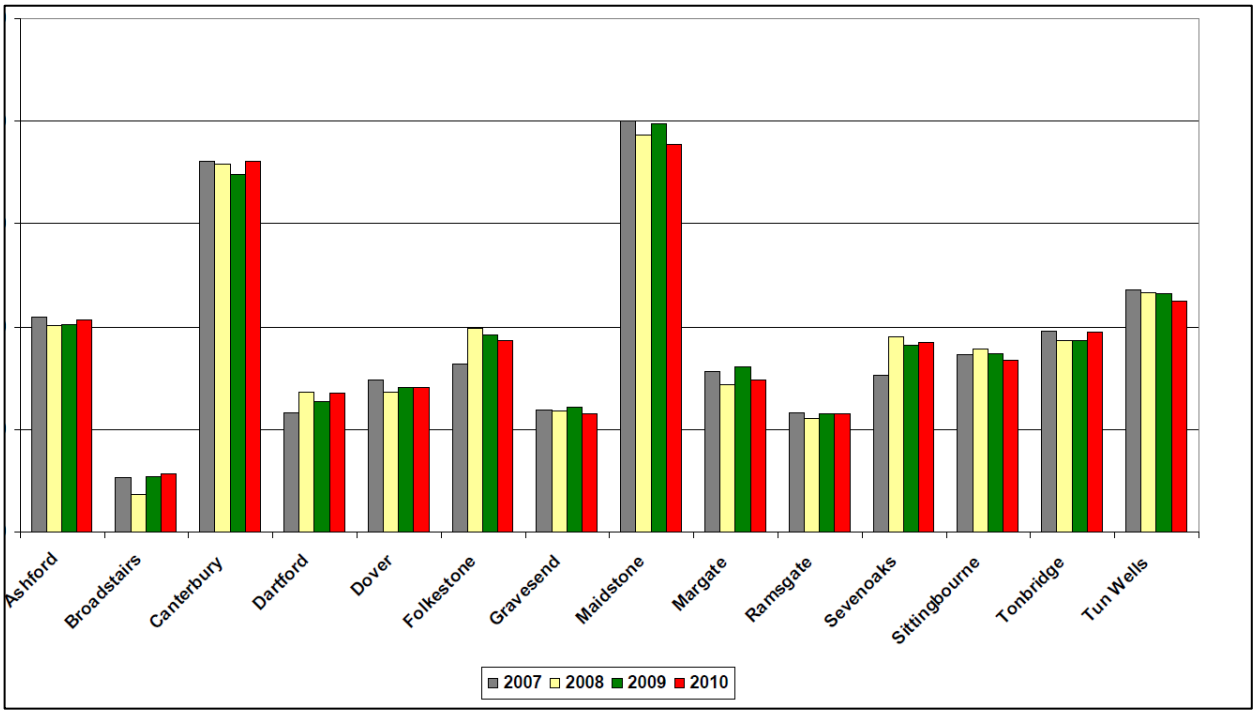
Figure 2 – Maidstone District Commuting Flows

The gyratory is currently heavily used with approximately 5500 vehicles per hour in the peak periods. This vehicular throughput consists of a variety of origin-destination movements and associated lane selection and changing.

The centre of Maidstone currently observes congestion and delay during peak highway periods and the gyratory is considered a key contributing factor to the current issues. The convergence of key arterial routes combined with the constrained nature of the gyratory due the presence and location of the river creates a 'pinch point' in the network and poor reliability in terms of journey times.

Maidstone is notably more trafficked than other Kent towns in terms of the inner cordon (broadly the town centre) as shown in Figure 3 below taken from the Kent Travel Report (2010).

Figure 3 – AM Peak (0700-1000) Inbound Traffic Flows



The Maidstone Bridges Gyratory is designated as an Air Quality Management Area (AQMA) caused by the significant levels of vehicular traffic and the stop-start nature of the traffic.

The current configuration of the gyratory means that northbound traffic on the A229 is forced to cross the river twice in order to continue their route. This causes increased delay at the gyratory as vehicles entering the junction on different approaches are held to allow this movement to take place. In addition it increases the distance and journey time for northbound journeys on the A229.

The gyratory system also acts as a severance pedestrians and cyclists. A subway system provides access below the gyratory system for pedestrians and cyclists, however, the system is prone to flooding during wet weather conditions and suffers from a poor perception of safety and security by potential users. As such it is seen as an unattractive route.

At grade footways are provided across both bridges, however, connectivity to these is poor from the main approaches due to a lack of crossing facilities and the volume of traffic using the gyratory. There is also a shared footway/cycleway on the western side of St. Peters Bridge which links a riverside towpath to the north. The cycleway ends to the south of the bridge, however and there is no further connectivity for cyclists at this point.

2.3 Scheme Layout and Function

The proposed scheme consists of the provision of a direct northbound link on the A229 to the north of the river which has been designed to remove the need for the northbound traffic to circulate the gyratory. The full scheme layout is included in Appendix A of this report and an indicative scheme plan is shown in **Figure 4.**

The proposal provides a new northbound link between the A229 (S) and A229 (N), consisting of two 3.5 metre wide lanes. The proposed arrangement would require the provision of an additional set of traffic signal control where the new link merges with the existing A229 to the north of the gyratory to eliminate conflict between A229 northbound traffic and northbound traffic on St. Peters Bridge.

Furthermore the proposal incorporates minor alterations to kerblines and lane markings where the A229 exits the gyratory system to provide more coherent lane designations for drivers.

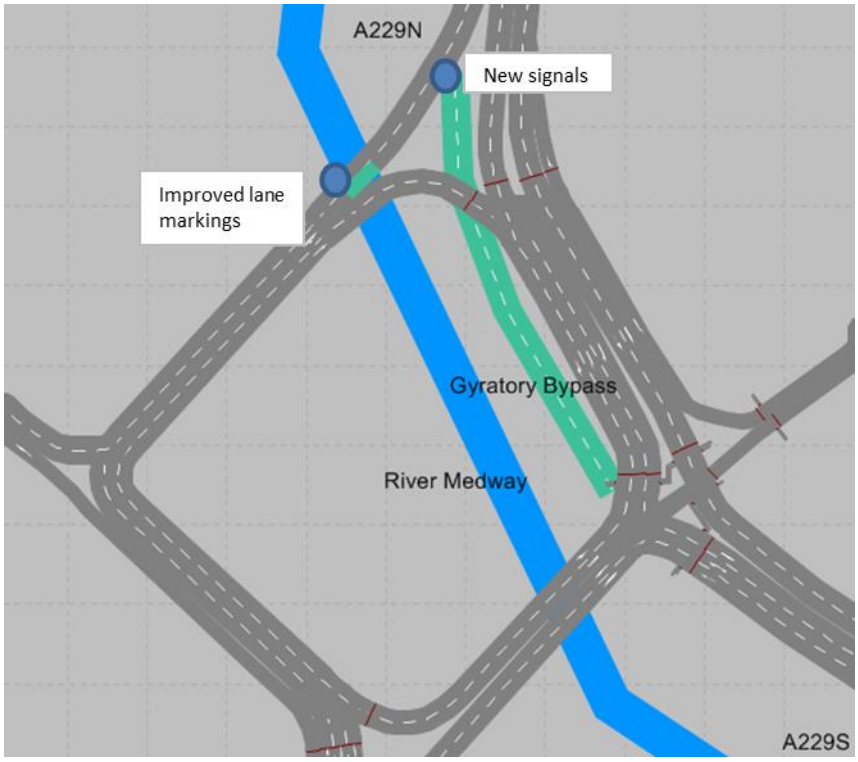


Figure 4 – Indicative scheme (Full scheme drawing given as Error! Reference source not found.**)**

The remaining approaches to the gyratory will remain as the existing arrangement; however, the operation of the traffic signals will be altered to optimise the operation of the gyratory.

A key design constraint for the scheme is the presence of an electricity sub-station located within the gyratory to the north of the river. The proposed new link runs adjacent to the sub-station and requires third party land take Maidstone Borough Council which has been discussed and agreed.

2.4 Category of Scheme Transport Business Case

With a projected expenditure of £5.7m, this scheme is categorised as 'small', according to criteria agreed between SELEP and DfT. The scheme is noted as a road project.

3 Strategic Case

3.1 Overview

This section sets out the 'case for change', by explaining the rationale for making investment and presenting evidence on the strategic policy fit of the proposed scheme. This section also sets out the scheme options under consideration.

The Strategic Case establishes the:

- Context for the business case, outlining the strategic aims and responsibilities of Kent County Council;
- Transport-related problems that have been identified, using evidence to justify intervention and examining the impact of not making the investment;
- Specific, Measurable, Achievable, Realistic and Time-bound (SMART) objectives that solve the problem, identified through alignment with Kent County Council's strategic aims and responsibilities;
- Measures for determining successful delivery of the objectives;
- Analysis of constraints and opportunities for investment; and
- Breakdown of interdependencies on which the successful delivery of the scheme depends.

3.2 Purpose of the Proposed Investment

The overall purpose of the investment is to unlock future housing and employment growth within Maidstone by creating greater capacity at the bridges gyratory which represents a strategically important location within the town's transport network. The gyratory is located at the point where the key north-south and east-west arterial routes through the town centre converge to cross the River Medway and currently suffers from congestion at peak times. The proposed scheme intends to both relieve current congestion and provide additional capacity at the gyratory which will enable future growth to occur.

3.3 Strategic Context

3.3.1 National Strategy: 'National Infrastructure Plan'

The Government has long-term objectives aimed at improving the economy, environment and society. These are the three tenets against which major transport infrastructure projects are assessed, and will continue to be assessed in future.

In its National Infrastructure Plan 2014, the Government presented its vision for the UK transport system:

- Transport infrastructure can play a vital role in driving economic growth by improving the links that help to move goods and people around and by supporting the balanced, dynamic and low-carbon economy that is essential for future prosperity;
- Local transport systems must enable suburban areas to grow. The transport network must support good value and rapid movement of goods around the country. The transport system must be efficient but also resilient and responsive to infrequent an unexpected pressures; and

Airports and ports are the gateways to international trade and the Government will work to improve the road and rail connectivity to major ports and airports.

3.3.2 National Strategy: 'Creating Growth, Cutting Carbon'

The White Paper 'Creating Growth, Cutting Carbon – Making Sustainable Local transport Happen' (January 2011) sets out central Governments vision for delivering a transport system which enables economic growth whilst also which also tackles climate change by reducing carbon emissions.

The strategy encourages decision making and identification of transport solutions at the local level. The paper sets out the vehicles for decentralising economic powers such as the Regional Growth Fund and the devolution of funding to local LEP's.

The Maidstone Bridges Gyratory scheme is in accord with this vision as it represents a locally identified scheme to resolve existing problems and has been provisionally allocated funding from the Local Growth Fund, via the SE LEP.

3.3.3 Regional Strategy: 'Growth Deal and Strategic Economic Plan'

Published in March 2014, the SELEP Strategic Economic Plan (SEP) sets out the investment strategy for the area. This document includes the SELEP bid for Local Growth Fund, the primary source of funding for this project.

A component element of this is the Kent and Medway Growth Deal which sets out plans for the public and private sectors intend to invest over £80 million each year for the next six years to unlock our potential through:

- Substantially increasing the delivery of housing and commercial developments;
- Delivering transport and broadband infrastructure to unlock growth;
- Backing business expansion through better access to finance and support; and
- Delivering the skills that the local economy needs.

The SEP involves delivering the biggest local transport programme in the country to realise the potential of the growth corridors and sites, transforming connectivity for businesses and residents, unlocking jobs and homes, and bringing substantial benefits to the UK economy.

Maidstone is the key urban area in one of Kent's four defined areas, namely **'Maidstone - the M20 Corridor'**, in the SEP as shown in Figure 5 below.

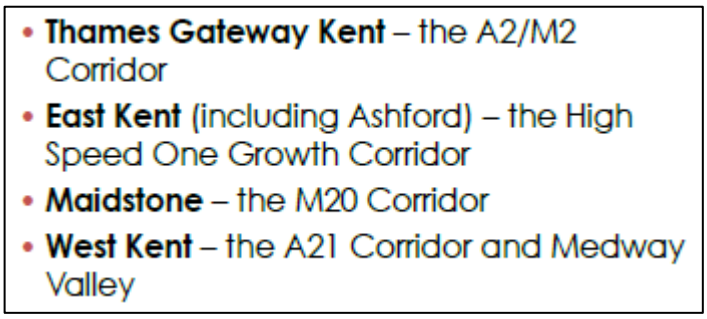


Figure 5 – Kent strategic areas

3.3.4 Regional Strategy: 'LEP Assurance Framework'

The latest Government guidance for SELEP ('LEP Assurance Framework', HMT, December 2014), sets out Government expectations for how transport investments, such as the *Maidstone Bridges Gyratory Bypass* scheme, should be justified with supporting evidence in a manner 'proportionate' to the scope of the scheme and the scale of funding required.

For smaller schemes, this sets out a 'light touch' approach geared towards the following:

- Value for Money – based on BCR and wider Economic Benefits.
- Environmental and Community Impact – Potential benefits and adverse impacts.
- Contribution to Objectives – LTP, SE LEP and SELTB Objectives.
- Deliverability – affordability. Practicality, key risks, stakeholder and public support

This Transport Business Case is designed to conform to this process.

3.3.5 Local Strategy

Maidstone is identified as a growth point in KCC's Local Transport Plan (2011-2016) and the subsequent delivery plan ('Growth without Gridlock'). 'Growth without Gridlock' highlights Maidstone's town centre and the approaching 'A' roads as congestion and air quality hotspots.

Maidstone Borough Council has aspirations to deliver approximately 18,000 houses between 2011 and 2031. This is growth of approximately 25%-30% on existing houses numbers of 64,000 in the 2011 census. There is also a jobs trajectory of approximately 14,000. The gyratory bypass was cited in the 'Maidstone Integrated Transport Strategy'.

3.4 The Case for Change

3.4.1 The Need for the Scheme

The key rationale for the Maidstone Bridges Gyratory scheme is its role in supporting the planned growth in housing and employment in Kent and the South East, helping ensure that this takes place in a sustainable manner. This is within the following context:

- Housing and employment growth (and resultant activities such as education and shopping) will generate additional trips in the area;
- Investment in the highway network is designed to cater for these additional trips, enabling the developments to take place.

Maidstone borough has significant growth aspirations, as set out in the emerging Local Plan, and a resilient transport network will be required to enable them. A large proportion of this anticipated growth is intended to be located within the urban area of Maidstone (as shown in Figure 6 below) and will result in a significant increase in demand on the local transport network, thereby exacerbating existing problems.

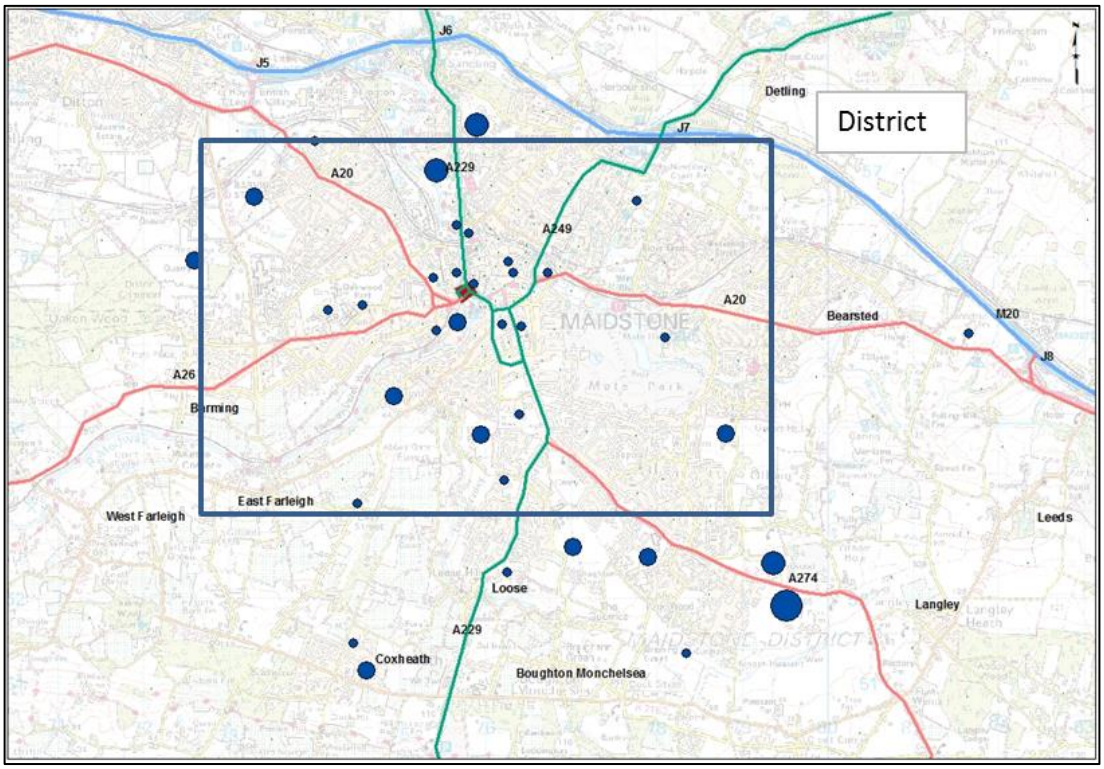


Figure 6 – Maidstone Local Plan Housing Sites

The gyratory represents a key strategic point in the local highway network as it is the location where the key north-south and east-west arterial routes within the town converge to cross the River Medway. As such the improvement of the operation of the gyratory system is considered critical to enabling the proposed growth in the borough. The number of jobs and houses anticipated to be enabled by the proposed scheme is set out in **Table 1** below.

Table 1 – New Homes and Jobs Targets

Target Numbers of New Homes and Jobs to be Enabled by the Scheme								
	2015/16	2016/17	2017/18	2018/19	2019/2020	2020/2025	Post 2025	**Total**
No. Jobs		250	250	250	250	500	500	**2,000**
No. Homes		400	400	400	400	1,725	1,725	**5,050**

3.4.2 Current Transport Problems

Traffic Congestion

There are junction delays at various points on the approaches and within to the gyratory. As mentioned this is partially attributed to some poor elements in the existing layout. This is shown as Figure 7.

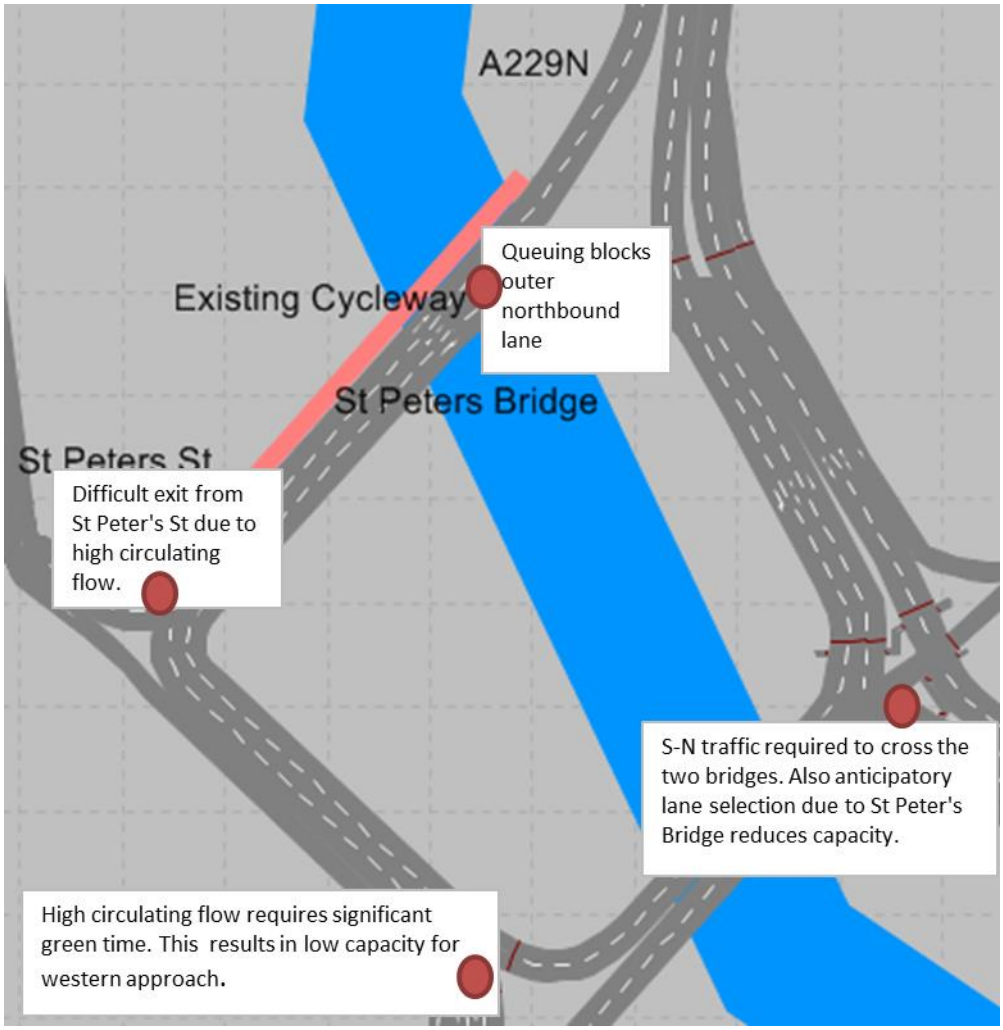


Figure 7 – Poor elements of existing layout

To quantify the current situation, LINSIG modelling was undertaken to provide a 'reference' and this was supported by use of TrafficMaster data to confirm the junction delays were realistic. The LINSIG data is shown in Figure 8 and Figure 9. In addition the TrafficMaster data shows evidence of variability in journey times. An example is shown in Figure 10.

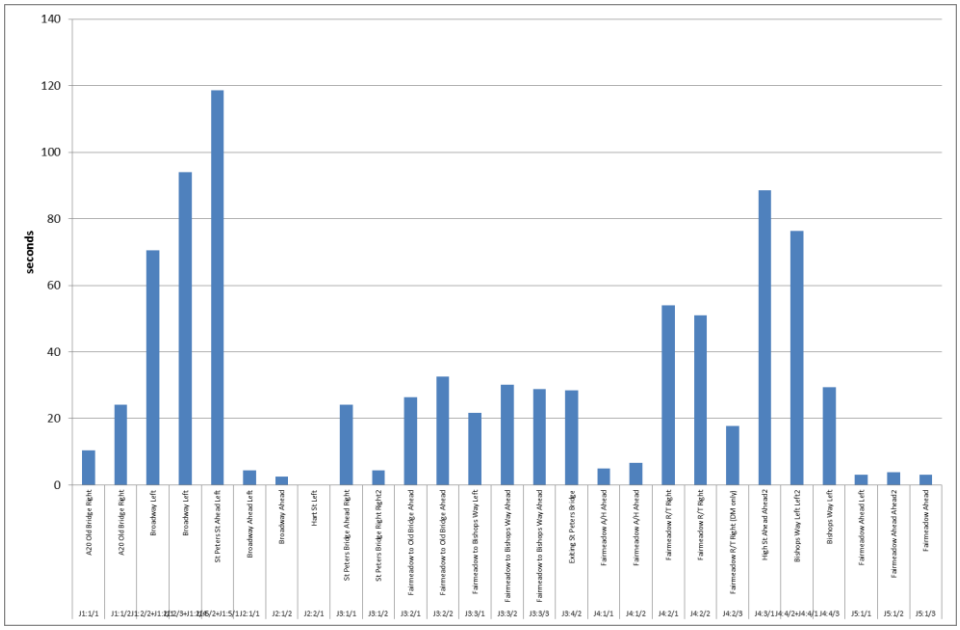


Figure 8 – LINSIG delays (AM)

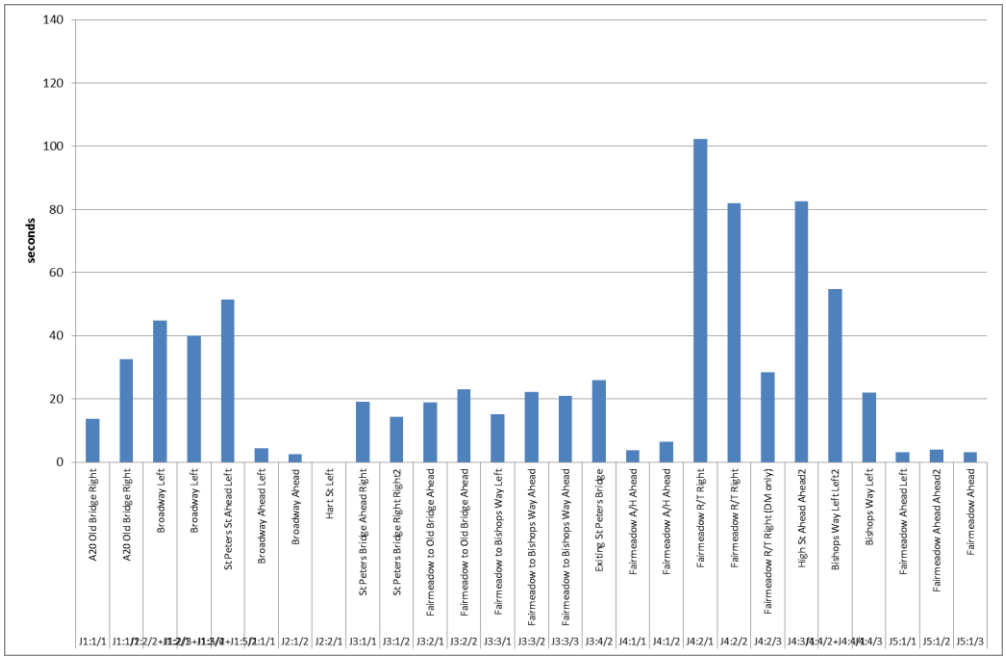


Figure 9 – LINSIG delays (PM)

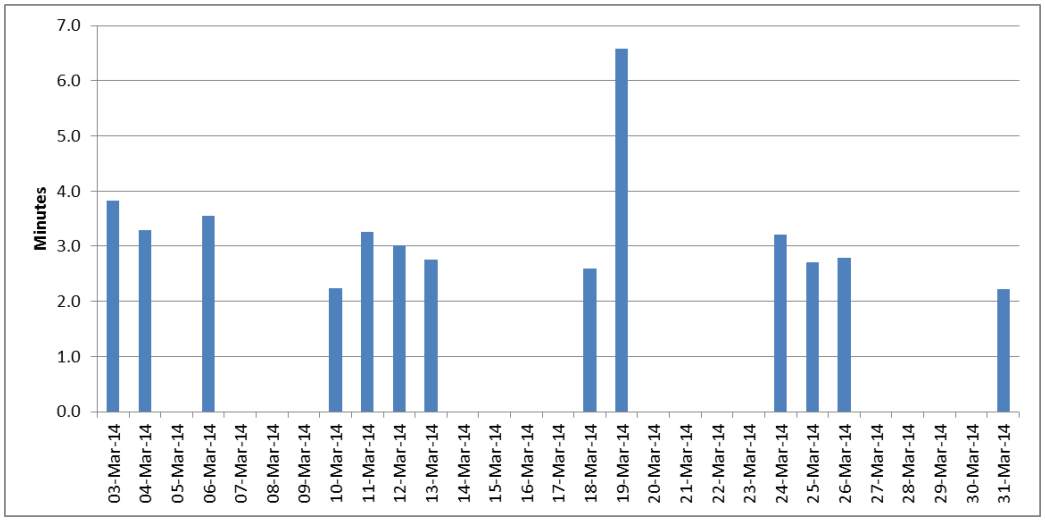


Figure 10 – Example of TrafficMaster data (A20W-A229S AM)

Air Quality

The area has been designated as an AQMA and forms part of the Draft Air Quality Action Plan 2010 for the borough. The latest available 'Kent and Medway Air Quality Monitoring Network - Monthly Report December 2013' shows that the Maidstone 'A229 Kerbside' monitoring site measured an annual mean Nitrogen Dioxide (NO_2) level of 48 μgm^{-3} in 2014 (to date of report publish) compared with the national objective of 40 μgm^{-3}.

3.4.3 Likely Impact of No Change

The emerging local plan presupposes the delivery of the gyratory bypass, and if it is not forthcoming the local plan quantum and the aspirations of Maidstone as a growth point will be brought into question.

The river severs the town with notable housing, retail, employment and education on both sides of the river across the urban area. This footprint constrains potential growth; particularly with the limited number of river crossings. The bridge gyratory is the key crossing; and the only one in the urban area. Therefore the convoluted and potentially unnecessary routing across the bridges is a constraint on the resilience of the network.

If direct Government funding (LGF) is not forthcoming; the transport strategy for the local plan is likely to become unsound; and a reduced quantum may be appropriate.

Table 2 summarises the current and future problems that the scheme is intended to solve.

Table 2 – Summary of Problems

Summary of Identified Problem Issues to be Resolved by the Scheme				
Strategic / Local Context & Primary / Secondary Problem		**Identified Problem Issue**	**Details of Problems (e.g. Type, Scale, Timeframe, Affected Groups and Impact Severity)**	
			Existing Problems	**Future Problems**
Strategic / Localised	Primary / Secondary			
Localised	Primary	Localised congestion within gyratory	Delays at Bishop's Way / Broadway / St Peter's St	Growth numbers will add to current delays
	Secondary	Poor elements of existing design	St Peter's Bridge has layout issues. St Peter's St is non-signalised.	
Strategic	Primary	Wider network rat-running		Rat-running to avoid gyratory increases
	Secondary			

3.5 Scheme Objectives and Scope

3.5.1 Objectives

Table 3 summarises the broad scheme objectives / identified problems and intended outcomes.

Table 3 – Summary of Objectives

Scheme Objective to be Achieved	Main benefits for Respective Stakeholders
Objective 1 Improve operation of gyratory	**Users** Improved journey time and reliability **Local Authorities,** Improved attractiveness of the area for inward investment and job creation Improved attractiveness of the area for housing **Developers and Employers** Ability to develop schemes without excessive planning conditions Ability to create employment and attract employees
Objective 2 Remove poor elements of existing layout	**Users** Improved journey quality, negating perception of poor layout.

Scheme Objective to be Achieved	Main benefits for Respective Stakeholders
Objective 3 Provide transport system which can deliver local plan	**SELEP** Allows Maidstone to deliver its aspiration as a growth point

3.5.2 Scope

Table 4 below summarises the scope of the project.

Table 4 – Summary of Project Scope

Items Within and Outside the Scope of the Scheme Project		
Item of Interest	**Details Within Scope of the Scheme**	**Details Outside Scope of the Scheme**
Functioning of gyratory system	Delays at approaches and within gyratory	Wider network operation
Local plan delivery	Proportion of delivery quantum	Balance of delivery quantum

There is minimal opportunity to reduce the scope of the scheme project, possibly only addressing some of the movements. However, this would be limited and at the expense of the local plan delivery.

3.6 Determining Success of the Scheme

Fulfilment of certain successful performance criteria, together with negotiating a number of essential hurdles to fund and deliver the scheme, can be regarded as 'Critical Success Factors' (CSF) for the *Maidstone Bridges Gyratory Bypass*, in accordance with HM Treasury's 'The Green Book' (July 2011).

3.6.1 Critical Success Factors

There are several 'Critical Success Factors' (CSF) that will determine if the *Maidstone Bridges Gyratory Bypass* can be introduced satisfactorily. These CSF are essentially a combination of performance, finance and delivery assurances, as suggested in HM Treasury's 'The Green Book' (2011) and which can be assessed qualitatively and broadly aligned under the five criteria of the 'Transport Business Cases' (DfT, January 2013).

The CSFs for the Maidstone Bridges Gyratory Bypass project have been selected and categorised as follows:

- **CSF1: Strategic Fit**
  - Will reduce congestion in critical area;
  - Will enable housing and employment development;
- **CSF 2: Prosperous and Sustainable Economy and Value for Money**
  - Will reduce cost of travel and increases journey reliability for scheme users;
  - Will maximise return on investment, striking a balance between the cost of delivery and the cost to the economy of non-delivery;
- **CSF 3: Affordable Finance**
  - Can be delivered within the likely capital funding available;
  - Can be afforded, in terms of financing revenue liabilities within current budgets;
- **CSF 4: Achievable Construction**
  - Can be delivered using current engineering and technological solutions;
  - Can be procured through accepted methods of commissioning;
- **CRF 5: Manageable Implementation and Operation**
  - Can be delivered within the timeframe of available funding;
  - Can be operated satisfactorily in accordance with its intended remit.

3.6.2 Successful Performance Criteria

Some of the critical success factors for the *Maidstone Bridges Gyratory Bypass* relate to the operational performance of the intervention.

For this scheme the key operational parts are successful integration into the UTMC, and a design which provides a better journey experience.

3.6.3 Measurement of Successful Scheme Performance

Monitoring is discussed in a later chapter.

3.7 Constraints and Dependencies

3.7.1 Scheme Constraints

The scheme is being furthered under the assumption that any departures from standards of lane widths are deliverable. Otherwise, scheme costs may escalate due to the presence a UKPN sub-station. As design progresses this constraint is increasingly not an issue.

In addition, the scheme needs to be accompanied with appropriate landscaping and needs to incorporate an additional signalised movement (St Peter's Bridge exit with new northbound lanes) into the design layout and current UTMC operations.

It should be appreciated that the basic conflict between the A229 and A20 will still exist. Therefore the important consideration is how to manage this most efficiently.

3.7.2 Scheme Dependencies

Whilst the scheme will operate as a stand-alone scheme, the scheme is envisaged as part of a collection of measures to improve the wider network. Additional sustainable transport objectives aim to 'lock-in' the benefits of the scheme by constraining the growth of the upstream approaches. Two such schemes are also being progressed in the funding from SELEP's Growth Deal, namely the 'Sustainable Access to Maidstone Employment Areas' (Shared Use Towpath) and the 'Maidstone Integrated transport Strategy'.

In addition, in terms of the wider network operations two junctions in Maidstone, Willington St / Ashford Road and the Wheat sheaf have been cited in the first tranche of another Growth Deal scheme - Kent Strategic Congestion Management Programme across Growth Areas.

There is also a current proposal to develop a strategic link to the south-east of the town (Leeds-Langley Relief Road). This is noted in 'Growth Without Gridlock' as shown in Figure 11. The catchment for that scheme is predominantly different. The two schemes are complementary rather than alternatives.

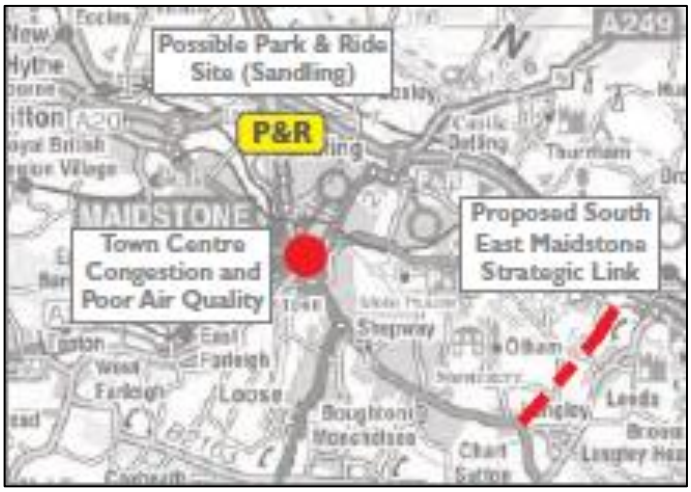


Figure 11 – Strategic link in South-East Maidstone

3.8 Stakeholders and Interests

Stakeholders are identified and a stakeholder-strategy introduced in a later chapter.

3.9 Required Powers and Consents

The proposed scheme is nearly all incorporated within the existing public highway boundary and KCC represent the local highway authority. A small strip of land adjacent to the clock tower and under the ownership of MBC is required. Negotiations have already taken place and MBC have agreed to transfer the required land to KCC to accommodate the scheme. As such the scheme is designated as permitted development and, therefore, all required powers and consents are in place.

4 Economic Case

4.1 General KCC Approach to Scheme Economic Case

4.1.1 General Overview of Approach to Economic Case

The economic case is one of five strands of evidence required to support the scheme transport business case. Kent County Council's general approach to the economic case has been determined by the need for it to be proportionate to the scale, scope and cost of the proposed scheme and the preparation time available. This approach is fully consistent with Department for Transport advice to scheme promoters (KCC) and adjudicators (SELEP). This advice recurs in the following DfT guidelines:

- Transport Analysis Guidance (WebTAG) (The Proportionate Update Process January 2014);
- Value For Money advice note, December 2013 (sections 1.4, 1.17, 5.3);
- The Transport Business Cases, January 2013 (Sections, 1.4, 2.7, 6.2);
- LEP Assurance Framework, December 2014 (Sections 5.6, 5.7, Annex A); and
- HM Treasury The Green Book, July 2011 (Appraisal and Evaluation in Central Government).

However, none of the above guidance specifies the parameters of what constitutes a proportionate approach to appraisal. Therefore, KCC has applied best judgement to decide how much rigour there should be in the scheme economic case.

4.1.2 Quantitative and Qualitative Economic Appraisal

In line with the proportionate approach, KCC has prepared partly quantitative and partly qualitative evidence to support the scheme economic case. Generally, for a scheme with relatively large cost (>£5m), the economic appraisal has been substantiated with quantified outcomes. Conversely for a scheme with relatively small cost (<£5m), mainly qualitative evidence has been assembled.

It has also been inappropriate to calculate monetised economic impacts for certain KCC schemes for which the LGF bid is not primarily aimed at achieving transport user benefits. Here, the main scheme objective has been, for example, to enable a more prosperous economy and community by improving public realm, or to save unnecessary future expense by maintaining existing transport assets more effectively.

4.1.3 Components of Economic Case

The economic case has initially considered all aspects of scheme performance and likely impacts, in line with the TAG criteria outlined in the Appraisal Summary Table (AST), broadly:

- Economic prosperity and efficiency –
  - User travel costs; congestion; reliability; regeneration and wider economy;
- Environment –
  - Noise; air quality; greenhouse gases; landscape; townscape; heritage; biodiversity; water;
- Social well-being –
  - Accidents; physical activity; journey quality; value for non-users; affordable travel; security; access to opportunities and door-to-door options; severance;
- Public accounts –
  - Cost to transport budget; indirect tax; value for money (VfM).

However, many of these aspects are insignificant, or not easily assessed, in the context of the KCC scheme in question. Therefore, the economic case has finally focussed on economic efficiency for transport users, decongestion, reliability, greenhouse gases (carbon), safety, capital cost and VfM, as the core aspects for appraisal.

4.1.4 Quantitative Evidence for Economic Case

Where the predicted economic outcomes from the scheme have been quantified and monetised, the appraisal method used in the economic case has largely followed the non-modelling approach identified in TAG. This is centred on a 2010, present value (PV), cost and benefit analysis, which weighs up the net economic savings to scheme users, against the net economic costs to public accounts, of the investment. Here, the net impacts are derived by subtracting the with-scheme outcomes from the without-scheme outcomes.

Generally, transport model outputs and economic appraisal software has not been used to assess the schemes, because of the disproportionate costs, resources and data inputs that would be entailed. This has precluded use of TUBA, COBALT, INCA, QUADRO and TfL Urban Design Toolkit.

The time period for the economic appraisal is matched to the context of the scheme, ranging from a 60-year horizon for a longer-term one-off investment, to a 1-year horizon for a shorter-term, staged or packaged investment. Intermediate appraisal terms have been used to suit the likely duration of a particular scheme's impacts.

In the quantified economic approach, manual calculations, or the TAG Marginal External Costs technique, have been used to assess the following scheme impacts: travel time and delay savings for transport users; vehicle kilometre and decongestion savings for society; journey time reliability improvements for users; accident savings for users; health benefits for active mode users; carbon emission savings for society; and the capital cost to public accounts of preparing and constructing the scheme.

Standard TAG economic appraisal summary tables have not largely been produced, owing to the limited scope of the KCC schemes and because neither the required breakdown of benefits, by user-type and journey-purpose, nor segmentation of costs by investment item, have been available. This has ruled out inclusion of Transport Economic Efficiency (TEE) and Public Accounts (PA) tables. However, a summary table for Analysis of Monetised Costs and Benefits (AMCB) has generally been included in the quantified economic case.

A recommended TAG and 'Green Book' method has been followed to convert monetised scheme economic costs and benefits from their year of occurrence to 2010 PV equivalents. In essence, this entailed the following steps:

Converting year-of-estimate capital costs to a 'base cost', by adjusting for real construction cost increase between estimate year and year of cost occurrence;

Converting base cost to 2010 prices, by adjusting for GDP deflation;

Discounting year-on-year costs and benefits to 2010 at 3.5% per annum; and

Adjusting 2010 PV costs and benefits from 'factor cost' to 'market prices', by allowing for indirect taxation (+19% increment).

Final summation of the scheme PV outcomes gives a quantified value for PV Benefit (PVB), PV Cost (PVC), Net Present Value PVB-PVC (NPV) and Benefit to Cost ratio PVB/PVC (BCR).

4.1.5 Qualitative Evidence for Economic Case

Where the potential economic outcomes from the scheme have been not been quantified and monetised, they have been assessed by aligning with a qualitative scale. This appraisal method for the economic case has largely followed the steps outlined in the DfT 'Value for Money' approach. The qualitative method is considered to be appropriate for schemes of modest cost and scope, which do not merit an elaborate, quantified economic case.

A sequence of six steps has been traced, to attribute a qualitative scale to the scheme's economic impacts, as follows:

- Define an initial BCR (for usually monetised impacts); and
- Work out an adjustment to the BCR (for sometimes monetised impacts);
  - Both against a 5-point scale (poor/low/medium/high/very high);
- Undertake a qualitative assessment (for rarely monetised impacts), against a 7-point scale (slight/moderate/large beneficial, neutral, slight/moderate/large adverse);
- Combine items above, to give initial an VfM, against a 4-point scale (low/medium/high/very high);
- Make a risk assessment, to derive a further adjustment to the initial VfM, using the 7-point scale; and
- Finalise the overall VfM, by adjusting the initial VfM for risk, using the 4-point scale.

Qualitative evidence used to support the economic case is based around applying an order of magnitude to a likely scheme outcome, rather than by calculating a precise, quantified, impact value.

4.2 Background

Achievement of the scheme objectives is intended to resolve the identified transport problems and result in the anticipated stakeholder benefits. Evidence is needed to determine if these predicted outcomes are attainable and so, therefore, they are considered in this appraisal of the scheme in the 'Economic Case'.

This appraisal is focused on predicting the scheme's performance against the selected success criteria.

A subsequent part of the Economic Case is to predict the scheme's ability to satisfy its Critical Success Factors which represent a combination of performance, funding and delivery expectations, in line with HM Treasury guidance. These CSFs are categorised according to Strategic Fit, Value for Money, Achievability, Affordability and Timescale, reflecting the 5-case TBC model. They enable the scheme and its options to be appraised and compared in order to identify the most effective solutions.

The following subsections describe the scheme options, their advantages and disadvantages and whether they have shown sufficient merit to take forward for more detailed economic appraisal. A summary of the options, mapped against the scheme objectives and CSFs is provided.

Following this, the approach towards more detailed economic appraisal is described, followed by the scheme option appraisal itself.

An Appraisal Summary Table, setting out the key issues relevant to this scheme is provided. Although some aspects of this (including the economic appraisal) have been explored in outline at this initial (2015/16 Transport Business Case) stage, other aspects will not be explored in detail until a later Transport Business Case stage, if necessary.

The *Maidstone Bridges Gyratory Bypass* is being assessed from LINSIG results of the junction delays of the gyratory system comparing the with and without scheme scenarios. These results are available for the AM and PM peaks. The method used was spreadsheet-based, undertaking a TUBA-like calculation for travel time savings, with vehicle-hours being created for with and without the scheme using LINSIG results (8.4Appendix D). The LINSIG Origin-Destination matrix was constructed from a commissioned ANPR survey (Thursday 27th June 2013). Further assumptions are given in Section 4.3

The LINSIG report is provided as Appendix C. KCC also have reporting on earlier VISSIM work.

An enhancement to the Maidstone Bridges Gyratory economic case has also been made, on the basis of saving 'Marginal External Costs' to society, by reducing vehicle kilometres travelled through the junction.

4.3 Appraisal Assumptions

With devolution of major scheme approval to Local Enterprise Partnerships, it is important that an approach to appraisal is used that gives regard to local priorities (especially in enabling investment, job creation and housing construction). This must be done with due regard to standard practice, which in transport terms means the use of WebTAG guidance. Discussions with the Department for Transport have indicated that a 'proportionate' approach to WebTAG should be used. Kent County Council has held discussions with the South East Local Enterprise Partnership, in the light of Government Guidance, on how the appraisal of devolved small major schemes should be handled ('Growth Deals Initial Guidance for Local Enterprise Partnerships', HM Government July 2013).

The following assumptions have been made during transport modelling and appraisal of the preferred scheme.

- Impacts from the appraisal of signal delay savings (LINSIG), for weekday AM and PM peak hours, have been weighted as two hour periods and annualised over 253 days. There is evidence for some inter-peak and Saturday benefits but these have been excluded.
- Traffic flows are assumed to be all cars. Value of time per vehicle and journey purpose proportions taken from WebTAG DataBook. To be conservative this value was not growthed over time.
- Estimate of 'with-scheme' signal timings (as given in LINSIG report)
- Downstream capacity assumed not to be a limiting factor.
- Effect of roadworks not included. Significant work will occur without disruption to traffic flows. KCC are aware of importance of minimising impact when the new section is tied-in to existing network. For future 'renewal' roadworks disruption can be reduced as the new section offers some flexibility in routing.
- Maintenance costs not included as broad network stays unchanged. Some advantages occur due to less traffic on bridges.
- No account has been taken for reassignment of traffic as a consequence of the scheme.
- No variable demand responses, particularly trip distribution have been included.

- Distance has been ignored. By extension, this would exclude calculation of indirect tax revenues from fuel.
- The planning condition with regards to the northern bridge has been included in the Do-Minimum. This assumption removes the delay from St Peter's St to A229N.
- Opening year (2017) assumes same flows as base (2013)
- Forecast journey time savings are a growthed traffic flow combined with base year (2013) junction delay information. Further LINSIG modelling in the design stage will investigate operating efficiency to accommodate expected increase in demand. This growthing was taken up to 2031 based on local plan numbers.
- With the proposed scheme, Marginal External Cost savings, from a reduction in vehicle kilometres (vkm) through the gyratory, have been valued and monetised in accordance with WebTAG.
- These MEC impacts have been segmented into the following categories: congestion; infrastructure maintenance; accidents; air quality; noise; greenhouse gas; and indirect tax.
- The predicted saving in vehicle kilometres travelled through the gyratory would be gained by traffic from A229S to A229N, with the bypass scheme, when compared with no scheme and amounts to 0.166km saved per vehicle and a reduction in distance travelled of about 50%.
- Weekday vkm savings have been valued and monetised by time period for congestion impacts and by other urban 'A' road for all other impacts, then aggregated to annual level (x253 weekdays) and repeated over a 60-year appraisal period, before being discounted to 2010 present value.
- Optimism bias of 15% - high ('programme entry conditional approval' level allowing some safeguards against cost escalation)
- Appraisal period of 60 years.

4.4 Scheme Options Considered

Whilst the economic appraisal will be limited to the 'preferred' option this section gives an overview of the sifting of options.

Option 1: Do Nothing

Description

Current situation

Conclusion

Option 1: Not relevant for appraisal, as excludes committed interventions and growth. Confirms ' the case for change'.

Option 2: Do Minimum

Description

Background growth, excluding dependent development, applied to current network and other committed interventions.

Advantages

No need for scheme funding.

Disadvantages

Existing situation likely to worsen and dependent housing not delivered.

Conclusion

Option 2: Not carried forward, but used as 'baseline' for appraisal.

Option 3: Do Something (Low-cost options)

Description

Public transport and active modes interventions (Demand Management/Smarter choices)

Advantages

Possibility of lower cost and promotes the sustainability agenda.

Disadvantages

This would be insufficient for the highway network in this area. Such options would be part of 'locking-in' the benefits of a highway scheme. These interventions would be particularly helpful in ameliorating the upstream entries towards the gyratory, and improving the wider network performance. These schemes include the 'Sustainable Access to Maidstone Employment Areas' (Shared Use Towpath) and the 'Maidstone Integrated transport Strategy'.

Conclusion

Option 3: Rejected

Option 4: Do Something (Improved signalisation)

Description

To attempt to provide more capacity through changing the current signal timings.

Advantages

Removes the need for land-take.

Disadvantages

There is limited scope as this process is on-going in current operations. In addition this option does not remove the poor elements of the existing layout.

Conclusion

Option 4: Rejected

Option 5: Do Something (Gyratory bypass)

Description

Use of available land to provide additional northbound lanes to remove the need for S-N traffic to circulate the bypass via the two river bridges (operating to some extent like a 'hamburger junction').

Advantages

The option removes the inefficiencies within the system, and releases more traffic into the gyratory earlier to reduce upstream queuing. This releases some destinations and provides a level of benefit to buses reaching the town centre. Design improves both A20 and A229 corridors and separates traffic from A20 westbound movements earlier.

There is also an expectation that a planning condition which would remove a cycleway can be discharged.

Disadvantages

Some land-take is required and landscaping is required to mitigate the affected townscape. Loss of a pedestrian crossing point and design needs to account for this issue.

Conclusion

Option 5: Preferred Option

Option 6: Do Something (Gyratory bypass – bus link)

Discussion

Some consideration has been given to whether land-take could be given to sustainable modes in terms of dedicated bus road space. However buses would need to route via the town centre and such a scheme would provide little benefit.

There are some considerations as to removing the conflict of buses leaving the High St into the gyratory but that would be a future consideration.

Conclusion

Option 6: Rejected / Future considerations

Option 7: Do Something (Other highway designs)

Description

Whilst the gyratory bypass has been deemed the viable highway option, other options within the gyratory have been considered. Furthermore, the limitations of the gyratory bypass with regards to the upstream approaches of the wider network are also noted.

To this end an amalgamation of these considerations is presented here.

Other highway designs (1): An additional lane on the northern bridge with appropriate 'tie-in' to St Peters St and A229N. This would address some of the conflicts and poor layout but is limited and is at the expense of a segregated cycleway. The cycleway is shown in Figure 12. This consideration is included in a planning condition which KCC do not want to enforce.

Figure 12 – St Peter's Bridge

Other highway designs (2): Signalising exit from St Peter's St. This would only address one of the queuing points; and is also likely unviable as a functional design.

Other highway designs (3): A major scheme to remove traffic from the gyratory. This would be extremely high-cost as would probably involve construction of new river crossing. There is a consideration of a strategic link south of Maidstone (as previously mentioned in 3.7.2), but the catchment for that scheme is predominantly different. The two schemes are complementary rather than alternatives.

Other highway designs (4): Corridor improvements on upstream approaches. This would be a subsequent stage considering highway, public transport and active modes considerations.

Conclusion

Option 7: Rejected / Future considerations

Table 5 gives a summary of the above review of scheme options, in terms of the objectives and critical success factors for the scheme:

Table 5 - Summary of Scheme Option Assessment and Sifting

Reference to:	Option 1/2	Option 3	Option 4	Option 5	Option 6	Option 7
Description of Option:	**Do Nothing / Do Minimum**	**Low-cost options**	**Improved signalisation**	**Gyratory bypass**	**Bus road space**	**Other considerations**
Investment Objectives						
Improve operation of gyratory system	×	×	✓	✓	×	See narrative
Remove poor elements of existing layout	×	×	×	✓	×	
Provide transport system which can deliver local plan	×	×	×	✓	×	
Critical Success Factors						
1 Strategic Fit		✓	✓	✓	unknown	
2 Economic Prosperity/Value for Money		✓	unknown	✓	unknown	
3 Affordable Finance		✓	✓	✓	✓	
4 Achievable Construction		✓	n/a	✓	unknown	
5 Manageable Implementation/Operation		×	×	✓	unknown	
Summary	**Reference**	**Discounted**	**Discounted**	**Preferred**	**Discounted**	**Discounted**

4.5 Economic Case Content and Method

The appraisal criteria for the scheme and the overall approach used to assess these are as shown in **Table 6**.

Table 6 – Appraisal Criteria for Assessing Core Scheme Performance

Appraisal Criteria	Direct/ Indirect Impact Appraisal	Approach Used to Assess Core Scheme Performance Items
Journey time savings	Direct	LINSIG modelling to feed a spreadsheet 'TUBA-like' exercise
Improved layout and journey perception	Indirect	Qualitative
Wider Economic Impacts	Indirect	Ensuring viable transport strategy for emerging local plan

The Economic Case for this scheme is focused on:

- Assessing the direct, localised, economic efficiency and prosperity benefits of the scheme.
- Assessing the marginal external cost savings achievable by reducing vehicle kilometres travelled through the junction.
- Qualitatively appraising the wider scheme benefits, in terms of enabling planned developments and other major transport schemes in the area and complementary sustainable transport schemes.
- Offsetting the scheme benefits against the direct scheme capital costs, (i.e. construction costs, not accounting for the costs of any complementary investments).

As set out in the Strategic Case, this scheme will be important for supporting the development of jobs and housing in the local area. For the purposes of this scheme, the direct employment benefits (i.e. people employed in constructing the scheme) have not been calculated, although these may be assessed as part of the direct jobs generated by the LGF programme as a whole.

As previously highlighted, the economic appraisal has been undertaken against only two options:

- Do Minimum, reference case with the scheme not delivered; and
- Do Something, with delivery of the proposed scheme option.

4.6 Scheme Option Localised Performance

This section summarises the predicted performance of scheme options to understand the scheme layout's fitness for purpose.

Table 7 compares localised scheme performance against the do minimum. This is predominantly reported as vehicle hours which work as a proxy for journey time savings for this portion of routes. Practical Reserve Capacity from LINSIG is also noted, together with vehicle kilometres travelled through the gyratory from A229S to A229N.

Table 7 – Localised Scheme Performance Compared with Do Minimum Reference Case

Scenario	Key Performance Indicators	Unit	AM	PM
Do-Minimum (2013)	Performance indicators for Congestion Relief road schemes (LINSIG average delay information)	Veh-hrs	141	110
Do-Something (2013)			93	71
Do-Minimum (2013)	Performance indicators for Congestion Relief road schemes (LINSIG average delay information)	PRC	-11.3	-8.1
Do-Something (2013)			-5.3	6.3
Do-Minimum (2013)	Vehicle kilometres travelled by traffic from A229S to A229N	Vkm per week day	860	836
Do-Something (2013)			438	426

4.7 Preferred Scheme Option

The Gyratory Bypass has been selected as the preferred option, and a brief commentary highlights the reasons.

Operational – Addresses more of the conflicts and queuing locations than other designs. Provides benefits as a stand-alone scheme as downstream capacity not an issue. In addition it has an influence on both A20 and A229 corridors. It does not preclude further design considerations such as rerouting buses from High Street. In addition strengthens resilience of A229 northbound movement as removes unnecessary crossing of bridges, and separates traffic from A20 westbound movements earlier.

Cost – Avoids prohibitive costs of major schemes.

Environmental/Land-take – No significant impact on townscape.

Objectives – In conjunction with other measures can help deliver necessary infrastructure for delivering local plan. The scheme is also complementary to sustainable transport objectives.

4.8 Scheme Performance Risk and Outcome Sensitivity

The most significant performance risk is that the traffic released from the scheme is constrained downstream and therefore does not improve overall highway network performance.

This is intuitively dismissed as the key constraint is the crossing of the two corridors rather than further downstream constraints. In terms of the key movements being addressed by the scheme, from A229S, A20W and St Peters St, this seems broadly reasonable. Furthermore, some of the destinations are reached soon after leaving the gyratory and therefore there are no downstream considerations for this traffic.

It is noted that there are downstream limitations on A229S but this traffic is remaining largely unaffected by the scheme.

From a more quantified viewpoint the TrafficMaster data can be used to show that the exit points from the gyratory are not congested, and hence can be assumed to have spare capacity.

The functioning of the overall network is well-understood by KCC officers. Furthermore the localised scope of this scheme is accepted with the importance of delivering other complementary schemes to 'lock-in' the benefits being appreciated.

4.9 Appraisal Summary Table

A qualitative / quantitative assessment of predicted scheme performance against WebTAG appraisal criteria has been completed using an Appraisal Summary Table (AST) – this is attached as an Appendix B

For this highway scheme a quantitative measure has been calculated for travel time savings, with qualitative statements for other key items.

It is noted that highway schemes are often assessed with both travel time savings and accident benefits. However, for this scheme accident benefits have not been directly assessed for two reasons. Firstly, accident benefits normally come from a change of junction or link types which is not especially pertinent for this scheme. Secondly, the scheme is not being promoted as an accident reduction measure, noting that the accident rate in the area is relatively low. Accident locations are shown in Figure 13. This is three-year accident data reflecting 2 serious and 18 minor accidents. Analysis of this data will become part of the design process; and accident monitoring will be part of the post-opening evaluation.

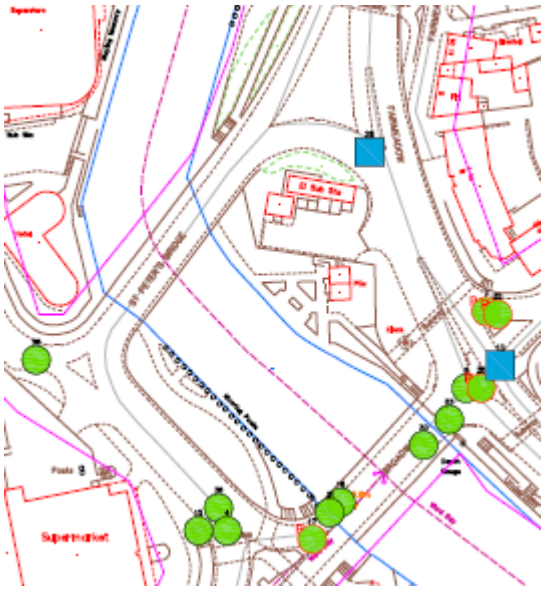


Figure 13 – Accident locations

4.10 Present Value Outcomes from Economic Appraisal

Table 8 below shows a summary of AMCB. This includes the PVC calculation, undertaken as follows:

Scheme cost (2015 prices) - KCC supplied

Risk and optimism bias adjusted cost (2015 prices excl. VAT)

Risk and optimism bias adjusted cost in 2010 prices

Discounted Risk and optimism bias adjusted cost in 2010 prices

Discounted Risk and optimism bias adjusted cost in 2010 market prices

Table 8 – Summary of Analysis of Monetised Costs and Benefits

Scheme Summary Analysis of Monetised Costs and Benefits (Present values and prices)	
Net Outcome for: **Do-Something Preferred Scheme minus Do Minimum**	**Present Values (£ 000s) 2010 prices**
User Present Value Benefit (PVB)	13,461
Capital Present Value Cost (PVC)	5,625
Scheme Net Present Value (NPV) = PVB - PVC	7,836
Scheme Initial Benefit to Cost Ratio (BCR) = PVB/PVC	2.4

4.11 Adjusted BCR / Value for Money Statement

An initial BCR was calculated as 2.4 based on the LINSIG results, marginal external cost savings and assumptions stated. As a highway scheme this is mainly journey-time savings based.

In terms of an adjusted BCR there are two key components, journey reliability and wider impacts.

There is some evidence of journey time reliability, and a small uplift to the PVB in this regard would be appropriate. The 5%, for slight impacts, suggestion in the DfT 'Value for Money Assessment: Advice Note for Local Transport Decision Makers' seems appropriate.

In addition, the delivery of the Maidstone Local Plan adds to the value for money.

The possibility of scheme cost escalation is noted as a 'slight adverse'.

4.12 Overall VfM Category

Overall Final VfM Category (including risk adjustment): **Medium/High**

5 Financial Case

5.1 Overview

The Financial Case for the *Maidstone Bridges Gyratory Bypass* gives an itemised breakdown of the expected project cost components and the time profile for the transport investment. It considers if these capital costs are affordable from public accounts at the times when the costs will arise. It also identifies where contributions of anticipated funding will be obtained, to meet the scheme costs and it assesses the breakdown of funds between available sources and by year and considers how secure these funds are likely to be. Finally, it reviews the risks associated with the scheme investment and examines possible mitigation.

5.2 Project Costs

This section considers the capital costs associated with the proposed scheme investment. The scheme is currently costed as £5.7 million.

5.2.1 Breakdown and Time Profile of Project Costs

Table 9 shows the itemised breakdown of scheme capital costs (provided by Allen Dadswell Construction Consultants). The spending profile is split in line with the funding profile of 26% in 2015-16 and 74% in 2016-17. This reflects the nature of the scheme with the main construction and costs falling later in the programme.

A contingency/risk allowance of 25% has been applied to all elements of the Construction Cost for additional construction costs related to design refinement/development & associated construction risks.

Any consequences of inflation have been subsumed into risk, contingency and optimism bias. This seems reasonable for the short-term nature of the construction. 'Sunk costs' are also assumed to have been absorbed within normal operations of the 'transport planning / project delivery' teams as part of ongoing preparedness.

Table 9 – Scheme Capital Cost Breakdown and Profile

Main Works	General Civils		£	643,650.00
	Structures		£	78,150.00
Ancillary Works	Traffic Systems		£	231,640.00
	Enforcement / Monitoring Cameras		£	59,225.00
	Landscaping		£	25,000.00
		Sub Total	£	1,037,665.00
Allowances	Preliminaries @ 25%		£	259,416.25
		Sub Total	£	1,297,081.25
	Extended Working outside normal hours @ 25%		£	324,270.31
		Sub Total	£	1,621,351.56
	Contingency and Risk Allowance @ 25%		£	405,337.89
		TOTAL FOR CONTRACT WORKS	**£**	**2,026,689.45**
Statutory Undertaker Costs				
	UKPN		£	930,000.00
	BT Openreach		£	782,334.31
	SGN		£	490,475.00
	Virgin Media		£	84,365.00
		Sub Total	£	2,287,174.31
Allowances	Contingency and Risk Allowance @ 25%		£	571,793.58
		TOTAL FOR STATUTORY UNDERTAKERS WORKS	**£**	**2,858,967.89**
Surveys				
	Topographical		£	7,500.00
	Drainage		£	7,500.00

	Geotechnical		£	10,000.00
	Environmental		£	5,000.00
	Traffic Signal Duct		£	7,500.00
		Sub Total	£	37,500.00
Allowances	Contingency and Risk Allowance @ 25%		£	9,375.00
		TOTAL FOR SURVEYS	**£**	**46,875.00**
Fees				
	Design/Procurement		£	400,000.00
	Supervision		£	300,000.00
		Sub Total	£	700,000.00
Allowances	Contingency and Risk Allowance @ 10%		£	70,000.00
		TOTAL FOR FEES	**£**	**770,000.00**
Land & Compensation				
	Land Costs		£	-
	Land Fees		£	5,000.00
		Sub Total	£	5,000.00
Allowances	Contingency and Risk Allowance @ 10%		£	500.00
		TOTAL FOR LAND	**£**	**5,500.00**
		PROJECT TOTAL ESTIMATE	**£**	**5,708,032.34**

5.3 Project Funding

This section considers the capital funding requirements and commitments for the proposed scheme investment.

5.3.1 Sources of Funding

Table 10 shows the breakdown of anticipated funding contributions, by source and year.

Table 10 – Scheme Funding Sources and Profile of Contributions

Scheme Funding Sources and Profile of Contributions									
		Funding Contributions by year (£000)							
Funding Source	**Fund Details**	**2014/15**	**2015/16**	**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**All Years**
Gov. / SELEP (direct)	LGF –		1,000	3,600					4,600
Local Authority (external)	Kent County Council – Maidstone Borough Council – Overall –		500	600					1,100
All Funding Sources	**Total**		**1,500**	**4,200**					**5,700**

5.3.2 Security and Earliest Availability of Funds

Table 11 highlights the security and availability of funds.

Table 11 – Security and Availability of Scheme Funding Contributions

		Security of Funding Contribution (✓)		
Funding Source	**Fund Details**	**Low**	**Medium**	**High**
Gov. / SELEP (direct)	LGF –			✓
Local Authority (external)	Kent County Council – Maidstone Borough Council – Overall –			✓

5.4 Financial Risk Management Strategy

This section examines the risks associated with the costs and financial requirements of the Maidstone Bridges Gyratory Bypass. It considers the mitigation that may be needed to handle the identified risks, if they arise.

5.4.1 Risks to the Scheme Cost Estimate and Funding Strategy

Table 12 shows the financial risk assessment.

Table 12 – Scheme Financial Risk Assessment

Qualitative Financial Risk Assessment										
Scheme Financial Risk Item	**Likelihood of Risk Arising (✓)**			**Impact Severity (✓)**			**Predicted Effect on Scheme Delivery & Outcome (✓)**			**Suggested Mitigation**
	Low	**Medium**	**High**	**Slight**	**Moderate**	**Severe**	**Slight**	**Moderate**	**Severe**	
Unforeseen increase in scheme cost reduces the VfM (i.e. BCR nearer to 1.0 'low')		✓			✓			✓		Amend preferred scheme design content to reduce scheme cost and increase VfM / BCR
Earmarked / secured funds do not cover current scheme capital cost	✓					✓		✓		Lobby for additional funds from existing / new contributors. Consider reapportioning from other KCC schemes.
Majority of fund allocation is from a single source, not spread out		✓		✓				✓		Spread funding request across more contributors
Majority of fund allocation is from Government LGF, giving poor 'leverage'			✓	✓					✓	Seek additional private sector and local public sector fund contributions
Main funding award depends upon sound scheme transport business case, which is not currently achievable	✓			✓				✓		Assemble additional supporting evidence for the scheme and prepare a Transport Business Case to a standard sufficient to confirm funding award
Government policy change disables a planned funding source	✓					✓			✓	None available

6 Commercial Case

6.1 Overview

The Commercial Case for the *Maidstone Bridges Gyratory Bypass* provides evidence that the proposed investment can be procured, implemented and operated in a viable and sustainable way. The aim is to achieve best value during the process, by engaging with the commercial market.

6.2 Expected Outcomes from the Commercial Strategy

The outcomes which the commercial strategy must deliver are to:

- Confirm that procedures are available to procure the scheme successfully;
- Check that available / allocated capital funds will cover contractor and construction costs;
- Verify that risk allowance is sufficient;
- Ensure that arrangements have been made to handle cost overruns;

6.3 Scheme Procurement Strategy

Procurement Options

KCC have identified two procurement options for the delivery of their LEP funded schemes. The alternative options are:

Full OJEU tender

This option is required for schemes with an estimated value of over £4,322,012.

KCC will then need to opt for an 'open' tender, where anyone may submit a tender, or a 'restricted' tender, where a Pre-Qualification is used to whittle down the open market to a pre-determined number of tenderers. This process takes approximately one month and the first part is a 47 day minimum period for KCC to publish a contract notice on the OJEU website.

The minimum tender period is 6 weeks but could be longer for larger schemes. Once the tenders are received they must be assessed and a preferred supplier identified. There is a mandatory 10 day 'standstill' period, during which unsuccessful tenderers may challenge the intention to award to the preferred contractor.

Delivery through existing Amey Highways Term Maintenance Contract (HTMC)

This option is strictly not procurement as the HTMC is an existing contract. The HTMC is based on a Schedule of Rates agreed at the inception of the contract. The price for each individual scheme is determined by identifying the quantities of each required item into a Bill of Quantities. Amey may price 'star' items if no rate already exists for the required item. If the scope of a specific scheme is different from the item coverage within the HTMC contract a new rate can be negotiated.

Preferred Procurement Option

The preferred procurement route for the Maidstone Bridges Gyratory scheme is full OJEU tender. This option has been selected as the value of the scheme, £5.7m, is greater than the OJEU scheme value threshold.

6.4 Commercial Risk Assessment

Table 13 shows the commercial risk assessment

Table 13 – Scheme Commercial Risk Assessment

Qualitative Commercial Risk Assessment										
Scheme Commercial Risk Item	**Likelihood of Risk Arising (✓)**			**Impact Severity (✓)**			**Predicted Effect on Scheme Procurement, Delivery & Operation (✓)**			**Immediate Bearer of Risk and Suggested Mitigation**
	Low	**Medium**	**High**	**Slight**	**Moderate**	**Severe**	**Slight**	**Moderate**	**Severe**	
Scheme construction is delayed and costs increase, owing to unexpected engineering difficulties.		✓				✓		✓		Kent CC, as scheme promoter, bears the risk. Ensure that scheme development, design, procurement and construction procedures are sufficiently robust to minimise likelihood of construction difficulties.

7 Management Case

7.1 Overview

The Management Case outlines how the proposed scheme and its intended outcomes will be delivered successfully. It gives assurances that the scheme content, programme, resources, impacts, problems, affected groups and decision makers, will all be handled appropriately, to ensure that the scheme is ultimately successful. It also covers monitoring of the scheme.

7.2 Approach to Scheme Development and Delivery

Outline the approach that will be followed, to verify that the scheme can be successfully delivered, i.e. show that the management approach will:

- Confirm the problems and scheme issues that are being considered and the problem-handling strategies that are being applied, to assure that the scheme can be delivered satisfactorily;
- Justify the measurement scales and thresholds that will be used to assess problem issues and scheme performance outcomes;
- Verify that the proposed scheme design will be satisfactory and fit-for-purpose;
- Ensure that favourable scheme performance will be judged by robust appraisal against accepted criteria;
- Assure that suitable funding sources are available;
- Show that a procurement, construction and operation strategy is being developed;
- Check that project risks are identified, handled and mitigated effectively; and
- Confirm that appropriate evaluation techniques will be introduced, to measure the scheme's success, after implementation.

Although not fully defined at this stage, the project is likely to be managed in house by PRINCE2 trained and experienced Kent County Council staff, using a well-established governance structure, which has been successfully applied to deliver other transport improvement schemes.

7.3 Evidence of Previously Successful Scheme Management Strategy

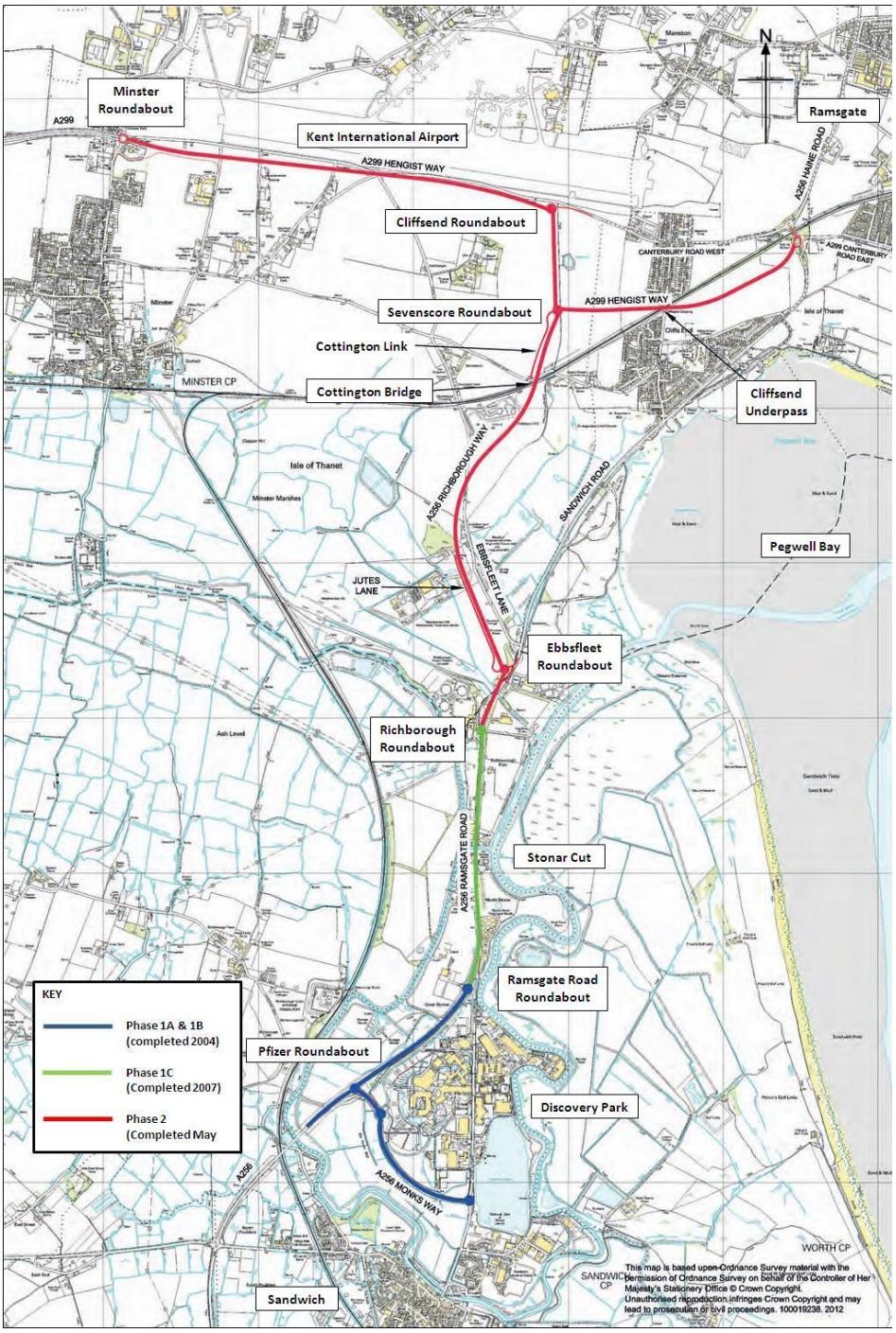
KCC have a successful track record of delivering major transport schemes within the county. The most recent of which were the East Kent Access Phase 2 (EKA2) and Sittingbourne Northern Relief Road schemes (SNRR).

The EKA2 scheme, completed in May 2012, was designed to support economic development, job creation and social regeneration, improving access with high quality connections between the urban centres, transport hubs and development sites in East Kent. The overall objectives of the scheme were to unlock the development potential of the area, attract inward investment and maximise job opportunities for local people. The extent of the scheme is shown in Figure 14 overleaf.

The scheme was successfully delivered within budget and ahead of programme through the adoption of a robust management approach similar to that set out above to deliver the Maidstone Bridges Gyratory Bypass scheme. The total value of the scheme was £87.0m of which £81.25m was funded by Central Government. The scheme was procured through a full OJEU tender process.

The intended scheme outcomes are currently being monitored but the intended benefits of the scheme are anticipated to be realised.

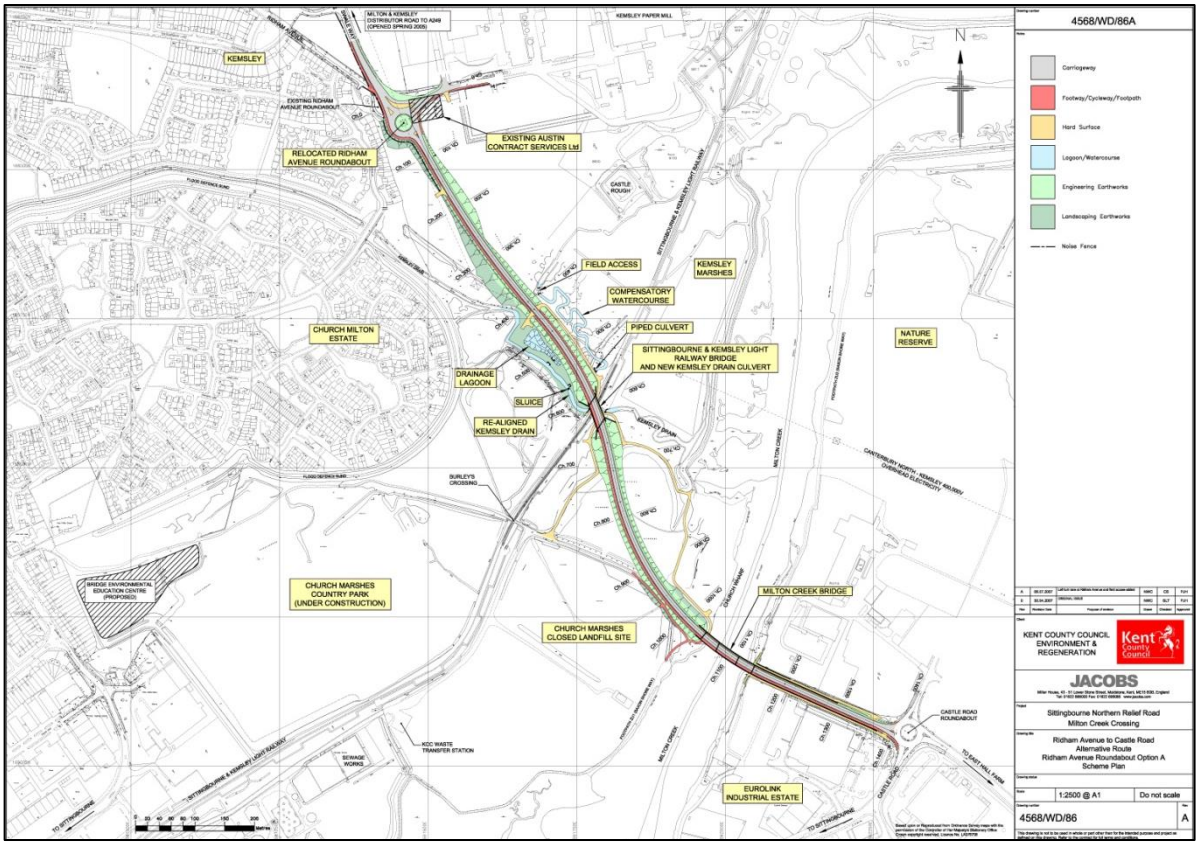
Figure 14 – EKA2 Scheme Layout



The SNRR scheme, completed in December 2011, was designed to remove the severance caused by Milton Creek and give direct access to the A249 trunk road for existing and new development areas, thereby relieving Sittingbourne town centre.

The delivered scheme is shown in Figure 15 below:

Figure 15 – SNRR Scheme Layout



The project is an excellent example of multi agencies working towards a common aim. The scheme was funded by the Homes & Communities Agency in its Thames Gateway (Kent) regeneration role, by the Department of Transport in its support of local major schemes and by private sector S106 contributions. The scheme was delivered under budget and to programme. The scheme was procured through a full OJEU tender process.

Both the EKA2 and SNRR schemes have since been awarded regional Institute of Civil Engineers (ICE) Excellence Awards.

<u>Lessons Learnt</u>

- Engage with the market place so they fully understand the schemes and our needs - we regularly meet contractors to discuss our forward programme. CECA - Civil Engineering Contractors Association visit KCC once a year to share experience/views.
- Tailor contracts to scheme specific circumstances i.e. one size does not fit all.
- Have a Quality component to Tenders - this also weeds out unrealistic low price tenders.

- Embrace Contractor's Quality commitments as contractual obligations.
- Have D&B on elements if appropriate - nearly always structures - because this is where tenderers will often always give an alternative tender to gain the commercial edge i.e. why incur fee designing when you end up with an alternative contractor's design.
- Have a separate specialist Cost Consultant to manage the commercial aspects rather than lumping in with a Site Supervisor/Project Manager role - even though Project manager is the formal decision maker under the NEC.
- Include high risk, programme impact activities such as archaeology into main contract i.e. risk transfer or rather risk placed where best managed.
- Actively manage utilities in advance of contract.
- Make every effort to know exactly where/how deep utilities are - their records are poor.
- Devote resources to Value Engineering but know when to stop before it has a negative impact on the contract/programme.
- Don't have variable price - we did but were lucky that impact was within budget - but it does risk considerable outturn cost uncertainty.

Try and give maximum time for mobilisation ideal is a December award, Jan & Feb to mobilise and that then allows a prompt spring start to maximise good weather at start of job which is particularly weather dependent.

7.4 Key Project Work Stages and Tasks

The key stages identified are:

Initial scheme design / Outline Business Case

Feasibility work

Land Acquisition – under local authority control

Consultation

Committee Approval

Detailed design / Full Business Case

Acquisition of statutory powers – under local authority control

Procurement

Environmental surveys

Start/end of construction

Monitoring

7.5 Project delivery and Approvals Programme

Figure 16 shows a Gantt chart of the project delivery programme.

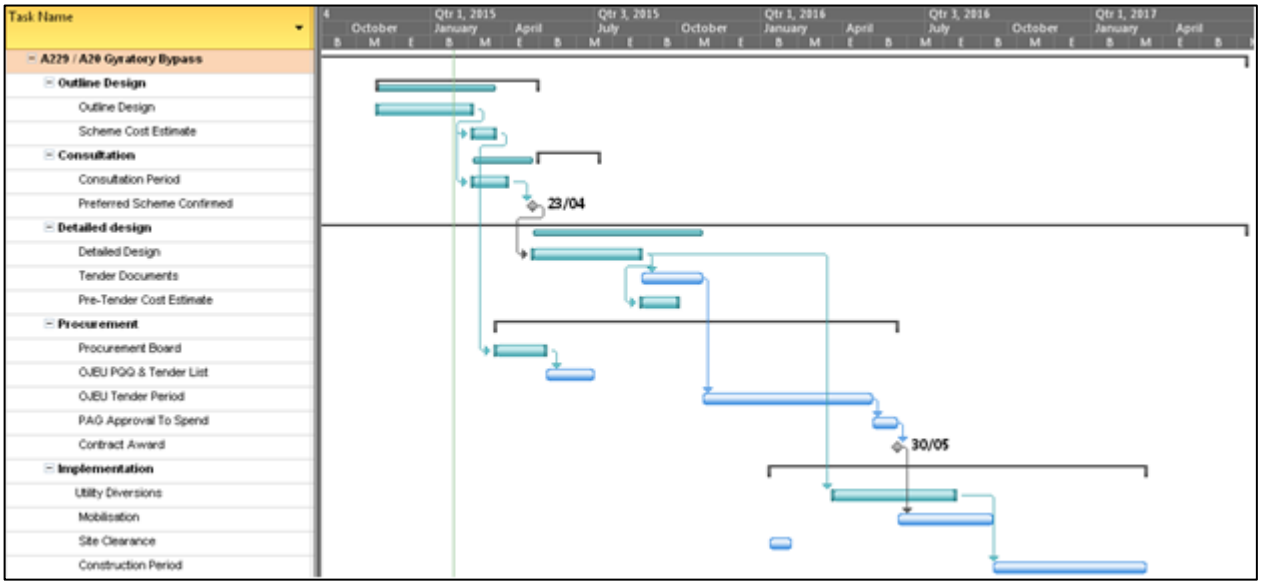


Figure 16 – Gantt chart

Tasks noted as milestones are to undertake a consultation to confirm the preferred scheme by 23/04/15; and to complete the procurement and award contract by 30/05/16

7.6 Project Governance, Roles and Responsibilities

KCC have set up a clear and robust structure to provide accountability and an effectual decision making process for the management of the LEP funded schemes. Each scheme will have a designated project manager (Russell Boorman for Maidstone Bridges Gyratory) who will be an appropriately trained and experienced member of KCC staff.

Figure 17 provides an outline of the overall governance structure implemented to manage the delivery of each scheme.

Figure 17 – KCC Project Governance Structure

KCC LEP Meeting Governance Diagram

Bid / Design / Construction	High level Agenda	Frequency	Attendees	Format	Scope	Agenda Items	Key Deliverables/Feedback	Templates
Sponsoring Group	Bid Design Construction	Monthly - Can be called in emergency if required	**Chair: TR** BC/JB/MG Supported by IPM attendees as required	Face to face meeting, rotating venue	To discuss programme (i.e. high level progress/preview next steps and discuss and resolve issues.	LEP programme (high level) progress to date Programme Financial reporting Next steps Issues/Risk/Change Actions	Minutes of Meeting Action/Decision Log Output distributed to MG	Agenda Minutes Decision list
Escalation Report	Decisions Needed	Monthly	MG/JW	Report	To record outstanding actions/issues that require a decision made by the board		Action list ready for the Steering Group	Action List
Programme Board Meeting	Bid Design Construction	Monthly	**Chair: MG** MG/FQ/KCC Promoters/KCC PMs/ AQ or RC/Amey TE's SW&IC/JW	Face to face meeting, rotating venue	To discuss progress/preview next steps and discuss and resolve issues	LEP programme progress to date Project financial reporting Next steps Issues/Risk/Change Actions	Minutes of Meeting Action List Output distributed to all attendees	Agenda Minutes
Highlight Report	Identify key points for Programme Meeting	Monthly	JW/MG	Face to face meeting/report	JW to collate and streamline all reports highlighting areas of interest for the programme meeting. To be fed back to MG by report/meeting		Highlight report for MG to use for Programme Meeting. Highlight report shared with PR attendees.	Highlight Report
Steering Group Meeting	Progress Update	Monthly/Fortnightly as required	**Chair: KCC PMs** All input staff - KCC Bidding/KCC Promoters/KCC PMs/Amey Design/TMC/JW	Face to face meeting	Individual meetings per project (including each stage of the LEP process to discuss progress in detail).	LEP project progress to date/MS Programme Project financial reporting Issues/Risk/Change Actions	MS Programme Update Progress update in template for each project	Progress Report

List of Initials:

BC	Barbara Cooper
JB	John Burr
TR	Tim Read
MG	Mary Gillett
FQ	Fayyaz Qadir
AQ	Andrew Quilter
CM	Chris Morris
RC	Richard Cowling
SW	Steve Whittaker
IC	Ian Cook
JW	Joanne Whittaker

A detailed breakdown of the meetings (along with the attendees, scope and output of each) which make up the established governance process is set out below.

Project Steering Group (PSG) Meetings

PSG meetings are held fortnightly to discuss individual progress on each scheme and are chaired by KCC Project Managers (PMs). Attendees include representatives from each stage of the LEP scheme (i.e. KCC Bid Team, KCC sponsor, KCC PMs, Amey design team and construction manager). Progress is discussed in technical detail raising any issues or concerns for all to action. A progress report, minutes of meeting and an update on programme dates are provided ahead of the Programme Board (PB) meeting for collation and production of the Highlight Report.

Highlight Report

The Progress Reports sent by the KCC PMs comprise of the following updates; general progress, project finances, issues, risks and governance meeting dates. The Highlight Report identifies any areas of concern or where decisions are required by the PB meeting or higher to the KCC LEP Programme Manager. An agreed version of the Highlight Report is issued to the PB meeting attendees during the meeting.

Programme Board (PB) Meeting

The PB meeting is held monthly and is chaired by the KCC LEP Programme Manager. Attendees include representatives from all three stages of the schemes (i.e. KCC LEP Management, KCC LEP Bidding, KCC Sponsors, KCC PMs, Amey Account Manager, Amey Technical Advisors, Amey Construction representatives). This meeting discusses project progress to date, drilling into detail if there is an issue or action (as identified in the PSG meeting), financial progress, next steps and actions. Outputs of this meeting are the Highlight Report and the minutes of meeting.

Escalation Report

A list of actions and decisions that the PB meeting was unable to resolve is prepared ready for the Sponsoring Group (SG) meeting to discuss and ultimately resolve.

Programme Board (PB) Meeting

The PB meeting is held monthly and is chaired by the KCC LEP Programme Manager. Attendees include representatives from all three stages of the schemes (i.e. KCC LEP Management, KCC LEP Bidding, KCC Sponsors, KCC PMs, Amey Account Manager, Amey Technical Advisors, Amey Construction representatives). This meeting discusses project progress to date, drilling into detail if there is an issue or action (as identified in the PSG meeting), financial progress, next steps and actions. Outputs of this meeting are the Highlight Report and the minutes of meeting.

Escalation Report

A list of actions and decisions that the PB meeting was unable to resolve is prepared ready for the Sponsoring Group (SG) meeting to discuss and ultimately resolve.

Sponsoring Group (SG) Meeting

The SG is held monthly and will be chaired by Tim Read (KCC Head of Transportation). Attendees are Barbara Cooper (Corporate Director), John Burr (Director of Highways, Transportation and Waste), Tim Read and Mary Gillett (KCC Major Projects Planning Manager). This meeting discusses high-level programme progress to date, financial progress, next steps and closes out any actions from the escalation report. Output is sent to Mary Gillett for distribution. Technical advisors are invited if necessary to expand upon an issue. All actions from the start of this meeting cycle are to be closed out by the SG when they meet (i.e. no actions roll over to subsequent meetings).

7.7 Availability and Suitability of Resources

The scheme is intended to be delivered using a collaborative approach between KCC staff and their appointed support organisation Amey. KCC have identified appropriately trained and experienced staff that will be the responsible for the delivery of the scheme. The identified staff fulfilling the Project Sponsor and Project Manager roles for the scheme have been ring-fenced to support the scheme throughout its duration and will have more junior staff available to support them.

Furthermore, the Project Sponsor and Project Manager will utilise appropriate staff from two existing contracts with Amey. Design and technical services support will be provided through the Technical and Environmental Services Contract (TESC) which is active until at least 2018. Amey have a dedicated multi-discipline team located in Maidstone to support the LGF funded schemes. KCC will also utilise dedicated Amey resource through the existing HTMC contract to undertake the construction of the scheme and also to provide early contractor involvement (ECI), where appropriate, to the design process to ensure best value.

7.8 Communication and Stakeholder Management Strategy

Figure 18 shows the engagement approach to be used for various different stakeholders and interest groups. As mentioned consultation is a key milestone in the programme. Maidstone Borough Council have provided their offices for public meetings. The first meetings are due in March 2015 and more detail is given as Error! Reference source not found**..**

Figure 18 – Stakeholder Management Plan

Itemise Stakeholders to be Handled in Accordance with Interest / Influence Matrix	
To be Passively Monitored:	**To be Actively Engaged and Managed:** **UKPN** **Baltic Wharf (developer with planning condition)** **Maidstone Borough Council** **SELEP / DfT**
To be Passively Conciliated: **Local population**	**To be Actively Informed:** **Local businesses** **Environmental Agency** **Bus Operators**

High … **Stakeholder Influence** … **Low**

Low … **Stakeholder Interest** … **High**

7.9 Contract Management

Outline how the scheme developer, implementer and operator contracts will be successfully managed, to provide best value, quality assurance and timely delivery.

7.10 Project Risk Management and Contingency Plan

7.10.1 Risk Management Strategy

Project risk is managed as an on-going process as part of the scheme governance structure, as set out in section 7.6 of this report. A scheme risk register is maintained and updated at each of the two-weekly Project Steering Group meetings. Responsibility for the risk register being maintained is held by the KCC PM and is reported as part of the monthly Progress Reports.

Any high residual impact risks are then identified on the highlight report for discussion at the Programme Board (PB) meeting. Required mitigation measures are discussed and agreed at the PB meeting and actioned by the KCC PM as appropriate.

An example scheme risk register is shown in Figure 19 below:

Figure 19 – Project Delivery Programme

Table 14 shows a summary of the project risk assessment. This includes aspects from all elements of the business case, and also adds 'operational' and 'scheme performance' elements. A fuller version is given as Error! Reference source not found..

Table 14 – Project Risk Assessment

Project Risk Management Strategy						
Risk Category	**Risk Description**	**Likelihood of Risk Arising (Score 1-5)**	**Severity of Impact (Score 1-5)**	**Risk Score = Likelihood x Impact Severity**	**Proposed Risk Mitigation and Contingency Action**	**Estimated Mitigation and Contingency Cost (£)**
Scheme Transport Business Case Approval for DfT-defined 'larger' scheme (>£5m)	SELEP / DfT requires more quantified evidence for Economic Case Value for Money, rather than qualitative assessment	2	4	8	Assemble as much available evidence of scheme VfM before submitting Jan 2015 'lighter touch' TBC draft.	£5.0k
Project cost – narrow lane option rejected	More extensive work around UKPN premises	1	5	5	On-going safety audits to confirm design appropriate	£1.0m
Project cost – Other	Issues with statutory, design, procurement or environmental surveys.	2	4	8	Address at early stage (use risk register)	
Funding	Not forthcoming	1	5	5	Ongoing discussions with funding bodies, MBC and SELEP	
Operational	Poor integration into existing UTMC.	1	4	4		
Scheme performance	Downstream capacity erodes benefits	2	3	6		
Overall						
Key to Risk-Likelihood and Impact-Severity Scoring Categories: Very Low 1.0; Low 2.0; Moderate 3.0; High 4.0; Very High 5.0;						

7.11 Project Assurance

A signed letter by KCC's Section 151 officer providing appropriate project assurances is contained as **Appendix G**.

7.12 Scheme Monitoring

KCC are committed to monitoring, evaluating and reporting the scheme post-opening.

The current data for travel times, TrafficMaster, through the network can be repeated post-opening. This assumes that DfT remain their commitment to supply this data as part of monitoring National Indicator 167. As an alternative KCC can utilise their ANPR data and its historic database HUDAS. If required KCC could also undertake 'moving observer' surveys.

In addition pre-opening data for Accidents and Air Quality is available and can also be repeated post-opening.

A congestion relief scheme would also want to compare traffic flows so that the changes in delay are put into context. A repeat of the ANPR survey should be programmed.

Table 15 shows the scheme monitoring.

The acceptability will be judged on the predictions supporting the economic case and on delivering the scheme objectives. The expected improvements in junction operation are shown in Figure 20 and Figure 21.

Table 15 – Scheme Monitoring, Evaluation and Benefits Realisation Plan

Expected Benefit	Measure	Owner	Outcome/impacts	Review timescale	Review Method
Travel-time improvement	Journey-time	KCC		One and five year post-opening	Traffic Master Data/HUDAS
New housing	Completions	MBC	Delivery of local plan		On-going Housing monitoring
Accidents	KSI	KCC			On-going Accident Monitoring

Air Quality	Nitrogen Dioxide	MBC			On-going measurements
n/a	Traffic Flows	KCC		One and five year post-opening	Repeat ANPR survey

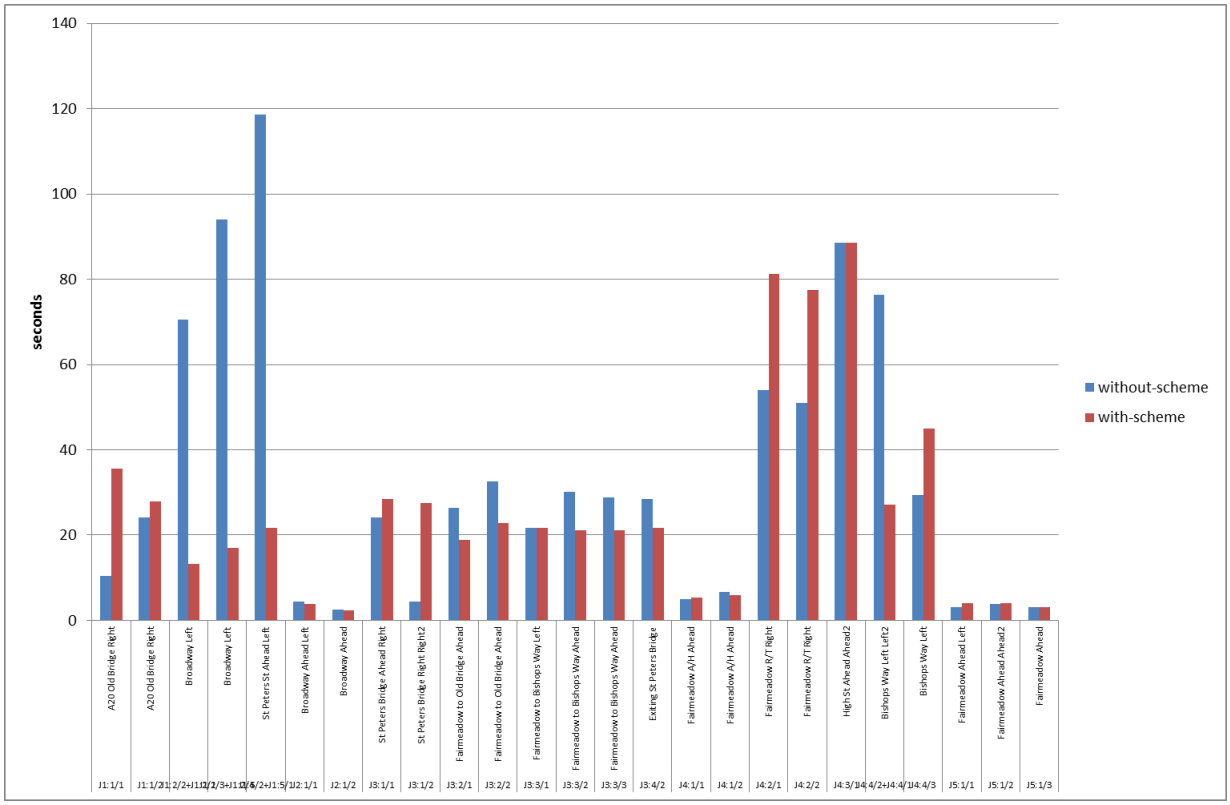


Figure 20 – Expected benefits (AM)

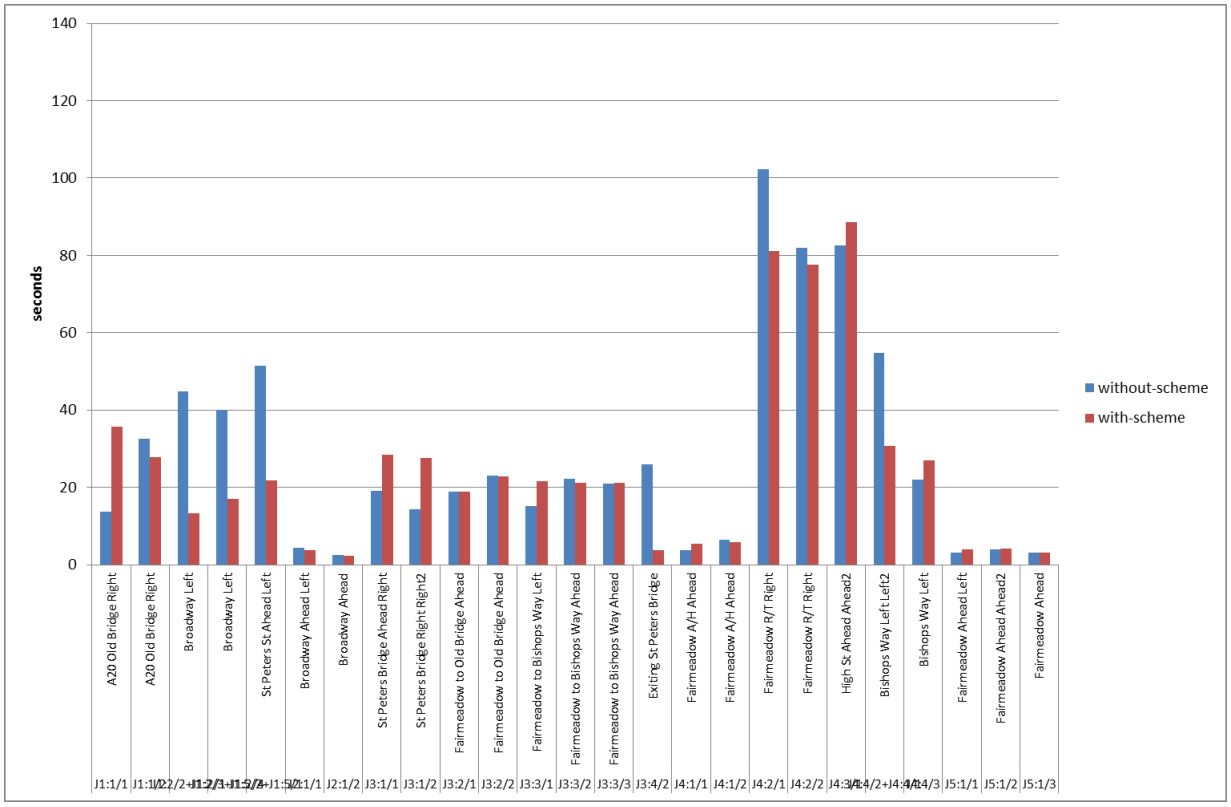


Figure 21 – Expected benefits (PM)

8 Conclusions and Recommendations

8.1 Conclusions

The scheme provides an affordable and deliverable scheme that can overcome the existing problem of congestion in the gyratory system, and assist in providing a sufficient network to deliver the Maidstone Local Plan.

In addition the existing elements of poor layout can be addressed; notably removing the convoluted and unnecessary route across the two bridges for A229 northbound traffic. This will add to the resilience of the network.

The scheme is worthwhile from a 'value for money' standpoint.

8.2 Recommended Next Steps

The development and delivery of the scheme should be approved and should proceed.

8.3 Value for Money Statement

The 'value for money' statement in this report suggests a 'high' value for money. This should be revisited if scheme costs escalate.

8.4 Funding Recommendation

The £4.6m funding requirement from SELEP should be released to KCC. This is understood to be £1.0m for the 2015/16 funding year and £3.6m for 2016/17.

Appendix A Proposed Scheme Layout

Appendix B Appraisal Summary Table

Appendix C LINSIG Results

Appendix D Vehicle hours

Data for vehicle hours for 2013 traffic flow situation. Savings only calculated for large flows. Those shown account for 90% of traffic. This data underpins the vehicle hours in **Table 7**

AM flows

		Destination					
		St Peters	A229N	High St	A229S	A20	
Origin		A	B	C	D	E	Tot.
St Peters	A	0	169	12	49	60	290
A229N	B	123	0	86	936	786	1931
High St	C	3	1	0	0	74	78
A229S	D	251	873	14	0	728	1866
A20	E	60	706	112	766	0	1644
	Tot.	437	1749	224	1751	1648	5809

PM flows

		Destination					
		St Peters	A229N	High St	A229S	A20	
Origin		A	B	C	D	E	Tot.
St Peters	A	0	154	2	72	29	257
A229N	B	178	0	38	1008	740	1964
High St	C	4	0	0	0	63	67
A229S	D	176	907	10	0	797	1890
A20	E	97	607	63	721	0	1488
	Tot.	455	1668	113	1801	1629	5666

AM savings

		Destination					
		St Peters	A229N	High St	A229S	A20	
Origin		A	B	C	D	E	Tot.
St Peters	A		0		93		
A229N	B	-34			9	-17	
High St	C						
A229S	D	20	11			32	
A20	E	89	71		86		
	Tot.						

PM savings

		Destination					
		St Peters	A229N	High St	A229S	A20	
Origin		A	B	C	D	E	Tot.
St Peters	A		0		20		
A229N	B	32			2	47	
High St	C						
A229S	D	20	40			29	
A20	E	20	26		10		
	Tot.						

Appendix E Communications Strategy

Appendix F Risk Register

Appendix G Section 151 Officer Letter