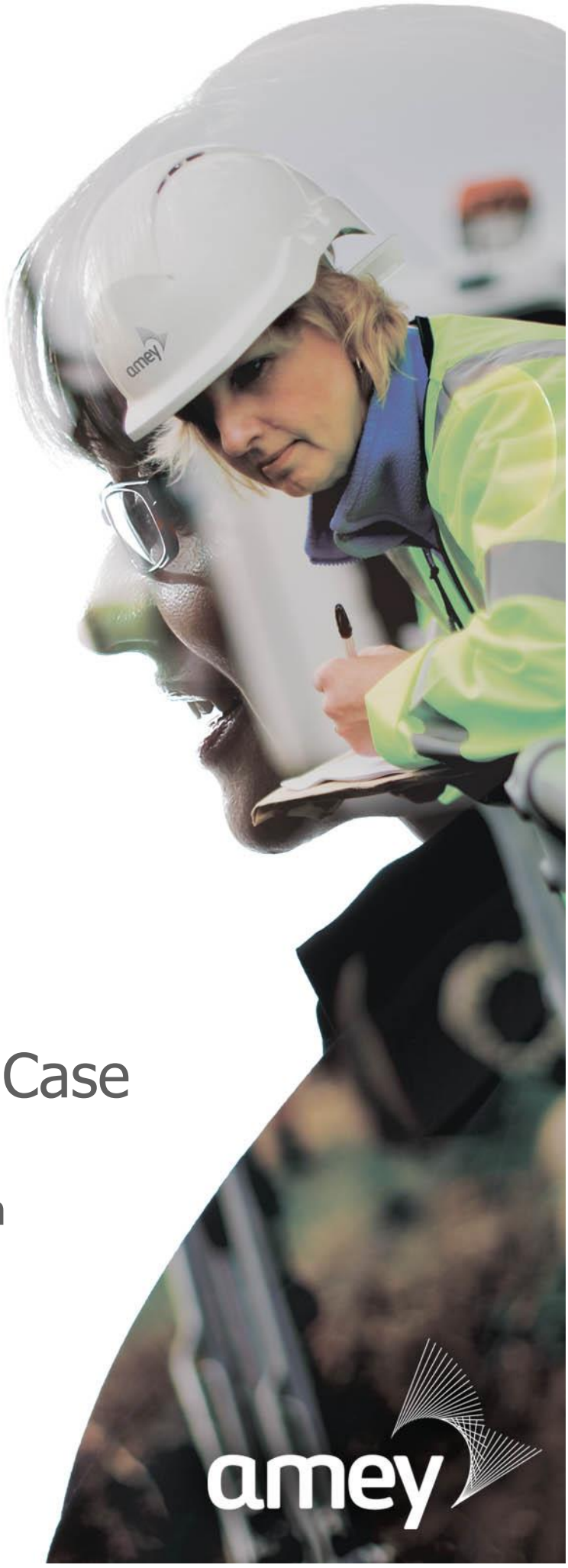

Transport Business Case Report

Kent Strategic Congestion Management Programme

CO04300262/024 Revision 00

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1 Introduction

1.1 Overview

1.1.1 Amey has been commissioned by KCC (Kent County Council) to develop proportionate business cases for various South East Local Enterprise Partnership (SELEP) schemes being promoted by Kent to be funded by the South East Growth deal as part of the Government's Local Growth Fund.

1.2 Kent Strategic Congestion Management Programme (KSCMP)

1.2.1 KCC is proposing to introduce a programme of congestion management initiatives by 2021. The initial aim of the programme is to enhance the effectiveness of the existing Highways Management Centre (HMC). This HMC is seen as an essential component which supports and strengthens the Council's 'Growth without Gridlock' transport strategy.

1.2.2 The enhancement of the HMC system in advance of major developments will ensure that the mechanisms and protocols exist to promote intelligent choice of travel options from initial occupation. Through a wide range of dissemination tools conveying real-time travel information, intelligent choice will be made available to the wider community – not just those occupying new development.

1.2.3 The secondary aim is to use data from the enhanced HMC to identify network 'hotspots' and invest in small scale (i.e. <£500k) network improvements to improve journey time reliability; air quality; safety; and bus punctuality.

1.2.4 Two such schemes which have already been identified and will be delivered from the fund in 2015/16 are:

- A229 Bluebell Hill approach and northbound off-slip towards the Taddington roundabout (M2 Junction 3); and
- A229/A274 Wheatsheaf Junction: Closure of Cranbourne Avenue.

1.2.5 The KSCMP scheme is a continuation of improvements being made by Kent County Council to maximise the efficiency of the local highway network as traffic levels increase in line with development. Without the investment required to both improve sustainable transport and to mitigate the existing and forecast levels of congestion in Kent, there is concern that the viability of the ambitious employment and residential development, required to fulfil the strategic economic growth objectives of the SELEP sub-region, will be hampered.

1.2.6 The implementation of the KSCMP scheme will make a significant contribution by enabling the creation of over 2,000 jobs and some 2,300 additional homes for the SELEP region within the six years period (2015-2021) covered by the SELEP Strategic Economic Plan and will help to provide a transport environment which makes it easier for businesses and employees to travel to, and for work. Even if only 10% of the planned housing relies on these improvements, a significant GVA could be attributed to these improvements (assumed GVA per head value of £18,994 based on ONS data for Kent).

1.2.7 The KSCMP will support the ambitious housing growth identified for Kent across the next six years. Over 165,000 jobs and over 128,000 new housing units are planned across the county.

1.3 Area Description

1.3.1 KCC and its 12 district councils administer most of the county (3352 km²), while the Medway Towns Council, a unitary authority and commonly called Medway Council, administers the more densely populated remainder (192 km²).Together they have around 300 town and parish councils.

1.3.2 Kent is a thriving multicultural county with the UK's only High Speed rail line, offering frequent services to a range of northern European destinations via the Channel Tunnel. It is home to the country's busiest and most successful ferry port at Dover, which has ambitious plans for expansion to meet growing demand for cross-Channel freight. And it has an emerging international airport at Manston with the capacity to cater for the increasing freight and passenger movements expected at South East airports over the next 30 years. Kent is a major employment centre with over 65,000 businesses providing over 650,000 jobs.

1.3.3 Kent is well connected by road, the A2 runs through Dartford (A207), Gravesend, Rochester, Canterbury and Dover; the A20 through Eltham, Wrotham, Maidstone, Charing, Ashford. Hythe, Folkestone and Dover; the A21 around Sevenoaks, Tonbridge, Tunbridge Wells and on to Hastings in East Sussex.

1.3.4 Kent also has more motorways by distance than any other county in the UK, totalling some 173km. The M2 from Medway to Faversham, and the M20 from Swanley to Folkestone. Part of the M25 runs through Kent, from Westerham to the Kent and Essex tunnel at Dartford. The M26 motorway provides a short link between the M25 at Sevenoaks and the M20 near Wrotham.

1.4 Socio-Economic Characteristics of Study Area

1.4.1 The 2011 census indicates that Kent has a population of around 1.49m. Various socio-economic characteristics have been identified in the county, including:

- Of residents aged 16 to 74, 76.1% (1.2m people) are economically active; 69.9% are economically inactive (compared to 69.6% across England/GB); whilst 3.9% of the workforce is unemployed (compared to 69.6% across England/GB);
- 43.9% of households show 'overcrowding' compared to just 9% across England and Wales;
- Kent's average household size is 2.4 people per household which compares equally with England/GB;
- A below average (8.2%) of Kent residents aged 16 and over hold no qualifications. An above average percentage (13.8%) hold Level 1 qualifications, with higher than average possession of higher levels. 2.9% of residents hold 'Other qualifications', reflecting the below average level of non-UK immigrants; and
- Around 20% of households do not own a car. Of those that do, single car ownership is more common in Kent (43%) than across the rest of the nation (42%).

1.5 Background to the KSCMP Business Case

1.5.1 The local growth white paper, published in October 2010, set out the roles that local enterprise partnerships can play depending on their local priorities. The Chancellor of the Exchequer announced the first 11 zones in the 2011 Budget. The government has now created 39 enterprise zones.

1.5.2 A new approach to funding local major transport schemes, that are to be constructed in England (outside London) during the 2015-2021 period, was established in response to Lord Heseltine's report 'No Stone Unturned'. At its heart is a powerful case for + decentralising economic powers from central government to local areas and leaders, as those best placed to understand and to address the opportunities and obstacles to growth in their own communities. The Government agreed with this.

1.5.3 On 18 March 2013 the government published its 'Response to the Heseltine review', accepting in full or in part 81 of Lord Heseltine's 89 recommendations. Each of the 39 local enterprise partnerships was invited to submit a Strategic Economic Plan (SEP) by 31 March 2014, outlining their local priorities to maximise growth.

1.5.4 In July 2014, the government negotiated a Growth Deal with all 39 Local Enterprise Partnerships (LEPs), which awarded a significant proportion of the £12 billion Local Growth Fund to LEPs.

1.5.5 The South East Local Enterprise Partnership (SELEP) brings together key leaders from business, local government, further and higher education in order to create the most enterprising economy in England through exploring opportunities for enterprise while addressing barriers to growth Covering Essex, Southend, Thurrock, Kent, Medway and East Sussex and are the largest strategic enterprise partnership outside of London.

1.5.6 SELEP has secured £442.2 million in funding from HM Government to boost economic growth - with a particular focus on transport schemes that will bring new jobs and homes until 2021. This includes £358.2 million for new growth schemes on top of £74 million already committed for large transport projects. The Deal will see at least £84.1 million invested in the SELEP area next year, supporting the delivery of up to 35,000 jobs and 18,000 new homes and over £100 million in private investment over the 6 year period. For Kent the funding allocation is £104 million which was won by the Kent & Medway Economic Partnership – the local arm of the SELEP.

1.6 Purpose of this Document

1.6.1 The purpose of this document is to provide evidence-based information to secure support from the Local Growth Fund for £4.8m through the South East Local Enterprise Partnership to progress the Kent Strategic Congestion Management Programme. Guidance for the preparation of Business Cases for Transport Schemes has been published by the Department for Transport (DfT). This is based on H.M. Treasury's advice on evidence-based decision making as set out in the Green Book and uses the best practice five case model approach.

1.6.2 This approach assesses whether schemes:

- are supported by a robust case for change that fits with wider public policy objectives – the 'strategic case';
- demonstrate value for money – the 'economic case';
- are commercially viable – the 'commercial case';
- are financially affordable – the 'financial case'; and
- are achievable – the 'management case'.

1.6.3 The evidence gathered as part of the business case preparation process has been prepared using the tools and guidance provided by the DfT notably WebTAG. This approach ensures that the evidence produced is robust and consistent.

1.6.4 For this particular programme it is proposed that a business case is submitted annually, relating only to those elements of the scheme due to go forward in the following year (i.e. this business case will deal only with those elements of the scheme to be implemented in 2015/16). This is because there are no definitive plans for which measures will be implemented, in which locations, beyond 2015/16 and this will only become apparent as hotspots are identified and mitigation feasibility work and prioritisation is undertaken.

1.7 Structure of the Document

1.7.1 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 provides a description of the scheme design;
- Chapter 3 states the Strategic Case;

- Chapter 4 presents the Economic Case including the Value for Money Statement
- Chapter 5 outlines the Financial Case;
- Chapter 6 details the Commercial Case; and
- Chapter 7 provides the Management Case.

2 KSCMP Detailed Scheme Description

2.1 Introduction

2.1.1 The HMC has been operating for a number of years using a number of systems. The existing infrastructure supporting the HMC operation is largely inefficient, rapidly becoming out-dated and some of the equipment is indeed no longer maintainable by the supplier. Parts of the communications network are not likely to be supported for much longer and other equipment would also be considered legacy and so the Council will be forced to re-provide this infrastructure and equipment in the near future, as it is essential for the smooth running of traffic flow in the County.

2.1.2 The ability to integrate different transport systems greatly increases their effectiveness by ensuring there is a rapid a reliable flow of information. Kent's existing HMC systems have been introduced incrementally over time, but integration has not occurred, making it more difficult to exchange information between organisations.

2.1.3 A more intelligent transport system will enable information to be collected, analysed and shared in order to help people to make more informed travel choices, improve journeys and helps to reduce the impact of transport on the environment. The identification of issues will only help in making drivers trips more reliable by using moving vehicle data to help identify and measure the impact of interventions on the road network.

2.1.4 Transport issues such as mobility, accessibility and congestion are acknowledged problems in many areas of Kent. New communications technologies offer real solutions to improving transport and information making travel in and around the Kent a more pleasant and safer experience for the people and its visitors.

2.2 The proposed Highways Management Centre Technology Refresh

2.2.1 The technology refresh of the HMC consists of a number of elements that will enable the improvements to be achieved. Each of the elements has been considered a separate stage in the work streams.

2.2.2 The stages of the development of the project can be considered as follows:

1. A full review of the existing systems and how they operate and are used by the operators.

   The review will identify where investment cab be applied to improve and update the existing systems. This will enable a more focussed analysis of where the investment will improve the current deficiencies. The current HMC covers the whole of the county with 2 operators who have to prioritise using their own experience. The new system will integrate the emerging congestion strategy and provide assistance to the operators in tackling the most urgent concerns first.

2. Determine what opportunities exist for the use of data from external providers including cost, usability and integration opportunities. This will include how the data could be linked to the strategic models that exist in Kent.

   This will provide a new database that will hold all of the transport data that is available from existing and new sources.

3. Investigate, identify and specify a new CCTV installation and GUI that will enable improved identification of incidents for the operators. This will include a review of existing technology and what opportunities exist to improve the existing systems.

   The specification and delivery of a new CCTV system that provides analytical software for the automated detection of incidents improving integration of systems.

4. Identify how automatic incident detection can be embedded in the existing systems so that the resource available is targeted at the most urgent problems. This would include assessment of the incident in relation to the Congestion Strategy to provide operators with assistance in responding quickly.

   Automated incident detection could provide an important tool for operators when assessing the impact of incidents. It would also provide a mechanism for analysing the operator's responses and identify improvements.

5. Develop a communication strategy on how the HMC communicates and through what mediums. This will be linked to the congestion strategy and provide a simple portal for communications to be targeted.

   The strategy will provide the Framework for delivering communication messaging that is the most efficient using the correct mediums.

6. Carry out a Kent wide review of VMS provision to identify gaps and generate a programme of sign installation.

   The new VMS will provide coverage to areas of Kent not currently served including Folkestone, Thanet, Ashford, Canterbury and Tunbridge Wells. This will enable drivers to receive messages at strategic junctions of the road network so that they can make journey choices.

7. Investigate how faults to the ITS contractor is provided to identify how fault reporting can be integrated into the HMC.

   The work will identify what opportunities exist for developing a new fault database to integrate into the existing systems.

8. Develop a comprehensive process for the reporting of roadwork's and how the impacts of these works can be mitigated across Kent. Identify if there is an opportunity to automate this process.

   The development of a new process will deliver a better managed road network by enabling early planning of the effects of roadworks in Kent.

2.2.3 Summary – The technology project for the HMC will enable better management of the road network and link with other projects and initiatives in the Single Growth funding stream. The Local Sustainable Fund includes work to encourage model shift and the technology changes will add to this work by providing more timely and accurate information. It will also deliver improved transport data that will enable informed decision making and future investment into the county's roads.

2.3 'Hotspot' Identification

2.3.1 In 2013, Kent produced its Congestion Strategy. This strategy set out how KCC plan to centre 'hotspot' mitigation measures on areas of poor journey time reliability, alongside other factors including environmental impacts on the road network using Multi-Criteria Analysis (MCA).

2.3.2 MCA is a technique (or collection of techniques) for assessing decisions where the impacts are not expressed in the same units. It involves assigning weights to criteria, and then scoring options in terms of how well they perform against those criteria. The weighted scores are then summed, and these sums can be used to rank options.

2.3.3 MCA techniques can be used to identify a single most preferred option, to rank options, to shortlist a limited number of options for subsequent detailed appraisal, or simply to distinguish acceptable from non-acceptable possibilities.

2.3.4 The following criteria are included in the KCC MCA scoring methodology:

- Traffic volume;
- Journey time reliability;
- Route capacity;
- Strategic importance of the location;
- User perception;
- Crash record ratio;
- Bus route hierarchy;
- Bus punctuality; and
- Air quality.

2.3.5 An example of a scoring table for Maidstone is included in Appendix A.

2.4 'Hotspot' Mitigation Measures

2.4.1 The 'hotspot' schemes which have already been identified and will be delivered from the fund in 2015/16 are discussed below.

A229 Bluebell Hill, Medway

2.4.2 The A229 is a primary route linking Chatham to the north, with Maidstone, Staplehurst, Cranbrook and Hawkhurst to the south. At Bluebell Hill, the A229 is a dual carriageway with a third northbound lane which acts as a crawler lane as well as increasing capacity on the steep uphill gradient. This section of the A229 links the M2 at junction 3 with the M20 at junction 6, and is part of a strategic motorway diversion route.

2.4.3 The northbound off-slip to the junction is relatively short (i.e. around 250m), and the roundabout is signalised with complex lane designation based on destination. Traffic flows on Bluebell Hill are heavy and at peak traffic periods, a significant queue forms in lane 1 of the northbound carriageway on the approach to the junction, whilst some traffic continues in lane 2 and cuts into the stream closer to the junction.

2.4.4 A collision history for this arm has been considered, and there have been collisions involving injury to vehicle occupants as a result of vehicles manoeuvring from lane 2 to lane 1 of A229 in congested traffic.

2.4.5 On the A229 southbound only two of the three lanes provided are being used, which is in part, due to the increase in lanes from 2-3 with the additional lane being provided on the off-side.

2.4.6 On the eastbound A229 to the M2 interchange only two of the three lanes were being utilised.

2.4.7 At the traffic lights for the M2 Interchange a large proportion of the traffic in lane 1 does not join the London bound M2 as directed, but goes straight on for the Dover bound M2.

2.4.8 The works consist of the following:

- The north side of the A229 roundabout be reconfigured so that the widening from 2 to 3 lanes is on the inside;
- The dedicated M2 slip road will remain as one lane for an additional 120m and will extend 10m north of the existing nosing;
- Approaching the M2 interchange the inside lane is to be marked LON ONLY with left turn arrow and is to be separated by a physical island at the traffic signals;
- A 'Tiger Tail' arrangement has been investigated

2.4.9 Plans showing the proposed measures can be found in Appendix B.

A229/A274 Wheatsheaf Junction, Maidstone

2.4.10 Traffic using the A229 and A274 routes suffers from excessive congestion caused by the current design/operation of the Wheatsheaf junction. This problem causes congestion and air pollution (second highest hotspot in Maidstone) in the South Ward and also leads to knock on effects in the High Street Ward.

2.4.11 Design work is being carried out on physical improvements (either widening of the A229 southbound approach to the signals or a change of layout to a roundabout). However, one interim measure to improve capacity for A-road traffic would be the reduction of traffic using the Cranbourne Avenue arm of the junction.

2.4.12 Plans showing the proposed measures can be found in Appendix C.

2.5 Complementary Measures

2.5.1 As proof of the commitment of KCC to make Kent a better, more accessible and more sustainable county; the KSCMP scheme is just part of a wide ranging set of schemes which have already been delivered, are under construction or are planned in Kent. All of these schemes have the aim of improving accessibility in Kent through providing a safe and reliable sustainable transport network whilst reducing congestion, and enabling economic growth through development and reducing costs of travel for businesses, workers and residents.

3 Strategic Case

3.1 Introduction

3.1.1 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.

3.1.2 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;
- Scheme scope, determining what the project will and will not deliver;
- Analysis of constraints and opportunities for investment on the KSCMP;
- Breakdown of interdependencies on which the successful delivery of the scheme depends;
- Details of main stakeholder(s); and
- Evaluation of the options considered.

3.2 Business Strategy

National Transport Priorities

3.2.1 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.

3.2.2 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.

3.2.3 These elements of the vision can be seen as being of direct relevance to the KSCMP scheme, which aims to improve journey time reliability; air quality; safety; bus punctuality; and enable growth of Kent.

Regional Transport Priorities

3.2.4 In March 2014, SELEP submitted their SEP. Within the six year period covered by the SEP (2015/16 to 2020/21) several considerable developments are planned within Kent, including:

- The Ebbsfleet Garden City (15,000 homes and 20,000 jobs);
- Paramount Park, Swanscombe Peninsula (27,000 jobs);
- Thames port (6,000 jobs);
- Lodge Hill (5,000 homes);
- Maidstone area housing (11,000 homes);
- Chilmington Green (6,000 homes and 1,000 jobs); and
- Kent Science Park (1,800 jobs).

3.2.5 The SEP document outlines the case for the necessary investment to infrastructure enterprise and employment that is required for the South East region's economy to continue its successful upward trajectory.

3.2.6 Through the Kent and Medway Growth Deal as part of the Strategic Economic Plan, 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.

3.2.7 The KSCMP scheme is named directly as one of the key county wide priorities for within the SELEP SEP.

Local Transport Priorities

3.2.8 Kent is South East England's fastest recovering region and has great potential for successful economic growth. In the last 20 years, Kent has seen 100,000 more people living in the county, housing stock increase by over 60,000 homes and 130,000 more cars on roads. This pace of change is set to accelerate further over the next 20 years with a projected 8 per cent population increase, accompanied by the presence of two of the UK's four Growth Areas in Thames Gateway and Ashford.

3.2.9 Local growth alone is predicted to result in 250,000 extra journeys on Kent's roads by 2026. Coupled with a forecast increase in international traffic this leads to tackling congestion being regarded as one of the main priorities for Kent. KCC's framework for regeneration "Unlocking Kent's Potential" defines what Kent should look like in 20 years' time and includes as 1 of its 5 priorities "delivering growth without transport gridlock" - by designing communities that will encourage walking, cycling, and healthy leisure activities. Based on this "Growth without gridlock: A transport delivery plan for Kent" establishes transport priorities for the next 20 to 30 years to support Kent's Environment Strategy target of reducing greenhouse gas emissions by 20% by 2020 and 80% by 2050.

3.2.10 Growth without Gridlock recognises that road transport is responsible for around 30% of Kent's greenhouse gas emissions and that the way forward is to provide low carbon transport options allied with better planning to reduce the need to travel, which in turn will support economic growth, housing growth and tackle climate change.

3.2.11 The Plan states that: "the private car will continue to remain the most popular and dominant form of transport for our residents and these expectations and demands increase pressure on our transport network, on our environment and on us as individuals. This reliance is also the reason why our road network is congested and in response our vision is to create a high quality integrated transport network which will create opportunities for real transport choice as well as enabling economic growth and regeneration". Some of the key transport challenges identified by the Plan are:

- Transferring existing and new car trips onto public transport, walking and cycling, especially for short journeys;
- Tackling congestion hotspots;
- Integrating rail services and improving connectivity between stations; and
- Providing sufficient transport infrastructure to mitigate the impact of the planned development including walking and cycling routes.

3.2.12 Kent's third "Local Transport Plan (LTP3), 2011-16" sets out KCC's Strategy and Implementation Plans for local transport investment in the short term. It proposes a new approach to prioritising investment in transport infrastructure in order to support housing and employment in Kent's Growth Areas and Growth Points, make Kent a safer and healthier county, improve access to jobs and services, especially in disadvantaged areas, and cut carbon emissions. Its planned measures are prioritised under five themes: Growth Without Gridlock, A Safer and Healthier County, Supporting Independence, Tackling a Changing Climate and Enjoying Life in Kent. Under each theme the Plan prioritises a range of sustainable transport initiatives, by area and by mode. Whilst some of these initiatives have already been put in place or are in progress, a number of them provide the basis for the proposals prioritised by the SE LEP for capital investment support, including all those for sustainable transport. These initiatives have also subsequently been aligned with the local area development and regeneration plan produced or in the process of being produced by the 12 District or Borough Councils in the County.

3.2.13 The KSCMP strongly fits with these local policies.

3.3 Problem Identified

3.3.1 The 'key issues' for Kent, as identified by the Kent LTP3 are:

- Transport congestion;
- Supporting economic growth;
- The need to improve access to jobs and services;
- The need for a resilient network;
- Importance as a UK gateway; and
- A safer and healthier county.

Transport Congestion

3.3.2 Kent's LTP3 identified a number of challenges for Kent. Key areas of concern are as follows:

- In a DfT study, 23% of adults said congestion was a problem most or all of the time on their general road journeys;
- In the South East, people travel further on average than in any other region, at over
- 8,300 miles per person per year;
- The region has a larger proportion of the UK's road traffic than any other, at 16%.
- Kent's dispersed settlement pattern makes the car the most suitable mode of transport.
- Kent's international traffic has an impact; and
- The housing growth planned for Kent could result in an extra 250,000 car journeys on the County's roads every day.

Supporting Economic Growth

3.3.3 Sustainable economic growth and regeneration is reliant on comprehensive and resilient transport networks. These networks are essential to increasing business efficiency by generating time savings and improved reliability for business travellers, freight and logistics operations. They support clusters of economic activity, expand labour market catchments, and facilitate business-to-business interactions.

3.3.4 Kent's economy is not as prosperous as other parts of the South East, with a Gross Domestic Product (GDP) per head of population (£18,994) well below the regional average (£25,843), and a relatively high unemployment rates in some areas (e.g. Thanet has the highest unemployment rate in the county at 5.2%, (the National average is 3.0%)) . These problems are particularly acute in areas of East Kent and around the coastal fringe, which until recently have suffered from relatively poor road and rail links.

3.3.5 In order to achieve the scale of economic growth necessary to support sustainable development in the County's Growth Areas and the regeneration of its coastal towns, it is vital that business and retail sites are well connected to reliable and integrated multi-modal transport networks.

Improving Access to Jobs and Services

3.3.6 Relative disadvantage is the capacity to participate in or have access to the forms of employment, occupation, education, recreation, family and social activities which are enjoyed by the majority of the population. Poverty exists all over Kent and is not confined to specific areas. Nevertheless, it is most strongly associated with the County's coastal areas. There are significant pockets of disadvantage in the Kent Thameside boroughs of Dartford and Gravesham, as well as the East Kent coastal towns, interspersed with some localised areas of high affluence.

The Need for a resilient Network

3.3.7 A resilient network is one that can withstand and respond to disruption and incidents. This can be in reaction to a sudden event such as an accident or structural failure, long term changes due to climate change, or gradual deterioration of the network due to a lack of maintenance. There was a National Indicator (NI 168) which measures the percentage of principal roads (motorways and trunk roads) where maintenance should be considered. For 2009-10, 6% of Kent's principal roads qualified, against the national average of 6%.

UK Gateway

3.3.8 The Port of Dover is Europe's busiest Roll-on Roll-off (Ro-Ro) ferry port for both freight and passenger traffic. Over the past two decades, the number of road haulage vehicles using the Port has more than doubled to over 2.3 million units. With 2.9 million tourist vehicles also passing through Dover each year and as the UK's second busiest cruise port, this equates to almost 14 million passengers per annum.

3.3.9 Both the Port of Dover and the Government have forecast substantial growth in Ro-Ro freight traffic of up to 85% between 2005 and 2030.

A Safer Healthier County

3.3.10 Key areas of concern are as follows:

- Some 23.4% of Kent's residents are obese, which is higher than the national average, and 31% of the County's children are overweight;
- The South East mean temperature rose by between 1.4 and 1.8°C in the period 1961 to 2006;
- Kent has the largest total carbon emissions of any County, with 11,879 kilotonnes of CO_2;
- Many of Kent's roadside air quality sites failed to meet the annual mean NO_2 objective; and
- There are significant health inequalities within Kent.

3.4 Impact of Not Changing

3.4.1 Notwithstanding the present economic climate, substantial housing and employment growth is planned for Kent and the south east. The County contains two of the country's four Growth Areas at Thames Gateway Kent and Ashford and two Growth Points at Dover and Maidstone. The South East Plan included a target to provide over 128,000 new homes and over 165,000 jobs in Kent by 2026 and the County Council estimates that, if delivered, this growth could result in an extra 250,000 car journeys on Kent's roads every day. The KSCMP is therefore essential to support these new jobs and houses without causing the transport network to grind to a halt. Specific do nothing outcomes will include:

- The constraints of the existing transport conditions will act as an inhibitor to growth with private sector investment attracted to other areas with better accessibility;

- The resilience of the network will not to be able to respond to disruption and incidents will weaken without the scheme;
- The significant pockets of disadvantage in Kent will worsen;
- Kent's reputation as the UK's front door may be damaged without effective highway management; and
- The ongoing Air Quality issues will be exacerbated without the mitigation afforded by the scheme.

3.5 Internal Drivers for Change

3.5.1 A key delivery strand of 21st Century Kent—Unlocking Kent's Potential, "Growth Without Gridlock" outlines how economic growth and regeneration can be delivered in a sustainable way and what infrastructure is needed to deliver an integrated transport network which is fit for purpose in the 21st Century. If Kent is to accommodate this growth, its transport network must be well managed and have sufficient capacity and resilience to provide for efficient and reliable journeys.

3.6 External Drivers for Change

3.6.1 Journey reliability is fundamentally the primary driver and the planned growth of housing and jobs across the South East supports the assertion that the existing problems are likely to worsen in the future.

3.7 Objectives

3.7.1 The scheme objectives have been defined to address directly the problems discussed earlier in this chapter. They align closely with the business strategies for the scheme promoters, SELEP and for Central Government – most obviously in terms of the Government's broad goals for transport.

3.7.2 The desired outcomes from each objective have been considered and are shown in Table 1.

Table 1: Objectives and Desired Outcomes

Objective	**Desired Outcome**
Alleviate congestion by allowing better flow of traffic	Improve car journey times

Objective	Desired Outcome
Supporting economic development in Kent	Improve journey reliability
To promote accessibility to jobs and services for all	Increase PT modal split Improve PT journey times
Provide a resilient network that is able to respond to disruption and incidents	The ability of the transport system to function during adverse conditions and quickly recover to acceptable levels of service after an event.
Improve air quality	Reduce carbon and dioxide emissions

3.8 Measures for success

3.8.1 Successful delivery against the scheme objectives will be monitored as part of the post construction monitoring and evaluation, details of which are discussed in Chapter 7 (the Management Case) of this report.

3.8.2 A programme of monitoring will be put in place prior to construction, then again at one-year and five-year post construction. It is envisaged that monitoring will include before and after conditions in relation to:

- Average daily traffic by peak/non-peak periods;
- Average AM and PM journey times on key routes;
- Day to Day travel time variability;
- Flows to capacity;
- Average annual CO2 emissions;
- Average annual NO2 and particulate emissions;
- Annual average daily and peak hour passenger boardings;
- Bus travel time by peak period; and
- Mode share (%).

3.9 Scope

3.9.1 A detailed scheme description outlining the scope of the KSCMP scheme is provided in Chapter 2.

3.10 Constraints

3.10.1 The HMC technology refresh itself will be largely devoid of conventional civil engineering works and associated issues. Nevertheless the implications of siting more significant equipment (i.e. such as large VMS on fast roads) are possible and locations would need to be assessed from a practical engineering point of view and from the viewpoint of environmental intrusion. It is also unknown if there will be any land take implications, however it is deemed unlikely as considerable flexibility would be available in the siting of most on-street devices in order to avoid public utilities and any other constraints.

3.10.2 For the hotspot mitigation schemes it is expected that the Scheme Prioritisation process will ensure that the individual schemes will be simple to deliver with minimal constraints.

3.11 Inter-dependencies

3.11.1 There are internal and external factors upon which the successful delivery of the KSCMP is dependent. The proposed scheme conforms to priorities set by the national, regional and local policy environments. Successful delivery will require continued alignment with policy priorities and subsequent political support.

3.11.2 A list of risks has been prepared as part of the management case (Chapter 7). The delivery of the KSCMP is dependent on these risks either not arising or being sufficiently mitigated so that scheme delivery remains unaffected.

3.11.3 For the purposes of this section of the business case, therefore, it is sufficient to summarise the key areas of risk / dependency.

3.11.4 The key inter-dependencies can be summarised under the headings of project delivery and project funding, namely:

<u>Project Delivery</u>

- Concurrency with multiple suppliers;
- Teething problems with operations;

- Competent staff;
- Any land acquisition / CPO procedures taking longer than allowed;
- Unforeseen Statutory Services;
- Unexpected difficulties during construction; and
- Increased environmental requirements.

Project Funding

- Changes / uncertainty over funding streams;
- Project overspend; and
- Political changes of direction.

3.12 Stakeholders

3.12.1 Consultation with the community, members, and local representatives is a vital part of a schemes development. If undertaken successfully and inclusively, consultation can ensure the success of a project and enables great certainty of delivery to both time and budget.

3.12.2 A formal consultation process in line with KCCs own strategy is currently being undertaken with the following being consulted:

- County Councillors;
- District Councillors;
- Town or Parish Councils;
- Director of Operations, Kent Ambulance NHS Trust;
- Chief Fire Officer, Kent Fire Service;
- Kent Police, Road Policing Unit;
- Arriva South East;
- Stagecoach in East Kent;
- Kent County Council, Passenger Services;
- Kent County Council, County Transport Unit;
- Residents bordering/affected by the proposals;
- Business bordering/affected by the proposals;

- Landowners bordering/affected by the proposals; and
- Schools, colleges, care homes bordering/affected by the proposals.

3.13 Options

3.13.1 Three funding options have been identified, namely:

- Do nothing - Without investment the journey times that occur will continue. Buses will suffer from delays and varying journeys and congestion will only increase;
- Reduced investment - Provide a small amount of funding to tackle priority areas; and
- Maximum investment - Provide additional funding to bring about improvements across all of the growth areas.

3.13.2 The preferred option identified by KCC is the Maximum Investment option which will facilitate growth across the county and not just to limited areas. Investment will improve efficiency and reliability of journeys and influence modal choice.

4 Economic Case

4.1 Introduction

4.1.1 This chapter sets out the Economic Case for the KSCMP scheme, including the methodologies and evidence base used to quantify the impacts of the package; and the process for monetising these impacts to compare against their costs. Ultimately, the Economic Case determines if the proposed scheme is a viable investment, whose strengths outweigh its weaknesses and which provides good value for money.

4.1.2 The predicted scheme appraisal focuses on those aspects of scheme performance that are relevant to the nature of the intervention. However, we do acknowledge the strands of assessment that are required under various relevant pieces of statutory guidance (e.g. DfT WebTAG, VfM Assessment; and HM Treasury 'Green Book' etc.).

4.1.3 This economic case relates only to the elements of the scheme due to go forward in 2015/2016. This is because there are no definitive plans for which measures will be implemented, in which locations, beyond 2015/16 and this will only become apparent as hotspots are identified and mitigation feasibility work and prioritisation is undertaken.

4.2 Proportionality Assessment

4.2.1 HM Treasury's Green Book states that all new proposals should be subject to comprehensive but proportionate assessment, wherever it is practicable, so as best to promote public interest.

4.2.2 Table 2 below discusses TAG Appraisal Summary Table (AST) impacts and outlines the key proportionality assumptions made through the development of the KSCMP package of measures and the appraisal process. The assumption table provides supplementary and supporting information to the proportionality assessment.

Table 2: Proportionality Assumptions

Impact	Sub Impact	Comment
Economy	Business users and transport providers	Journey time benefits have been assessed using desktop research and appraised using a spreadsheet model. The model makes use of WebTAG values and methods (TAG Unit A1.3)

Impact	Sub Impact	Comment
	Reliability impact on business users	WebTAG Unit A1.3 provides guidance for monetisation of changes in journey time reliability for dual carriageway, motorway and urban road users. However, it is not deemed proportionate to undertake a full assessment. Instead, reliability benefits will be estimated by applying an uplift of to time savings to provide an indicative measure of reliability benefits.
	Regeneration	Positive regeneration impacts are anticipated across Kent; however, it is not judged appropriate to complete the assessment for such a low cost scheme (TAG Unit A2.2), which is likely to have very diffused regeneration benefits. A qualitative score has been applied using professional judgement.
	Wider impacts	Positive wider impacts would be expected to accrue with the introduction of the KSCMP, but the impacts are expected to be dispersed rather than in measurable concentrations in a few locations. A qualitative score has been applied using professional judgement.
Environmental	Noise	The proposed scheme is expected to result in minimal impact in terms of noise and vibration therefore; a quantitative assessment has not been carried out (TAG Unit A3). A qualitative score has been applied using professional judgement.

Impact	Sub Impact	Comment
	Air quality and Greenhouse gases	There is considerable evidence from integrated ITS projects around the world that a benefit to local air quality is achieved. Levels of reduction of hydrocarbon, carbon monoxide and nitrous oxides of 3.5% to 5% at peak periods repeatedly arise as a bi-product of integrated ITS. The use of Car Park VMS has also been found in a number of studies to reduce the unnecessary circulation of traffic in town/city centres. A qualitative score has been applied using professional judgement.
	Landscape	Negligible change in landscape value is likely to occur, due to loss of existing grass verges where VMS, CCTV, and infrastructure installations have taken place. Such impacts are not, therefore, assessed in detail. A qualitative score has been applied using professional judgement.
	Townscape	The overall impact of the scheme is likely to be negative as a result of the increase to traffic control and monitoring equipment with the greatest impact caused by the installation of VMS signs. Nevertheless, certain components of the scheme may help to reduce traffic intrusion in sensitive townscapes. A qualitative score has been applied using professional judgement.

Impact	Sub Impact	Comment
	Historic environment	The overall impact of the scheme is likely to be negative based on the possibility that some of the signs may not fit with the form of historic townscape/landscape. However, some aspects of the scheme may again help to reduce traffic intrusion into historic environments. A qualitative score has been applied using professional judgement.
	Biodiversity	Ecological impacts are unlikely with the introduction of any of the component parts of the KSCMP. However, works affecting the soft estate could potentially impact on protected species and habitats where vegetation clearance is required or where works are within or close to a sensitive site. A qualitative score has been applied using professional judgement.
	Water environment	Proposed installation of traffic control measures or hotspot mitigation schemes are unlikely to significantly affect the water environment. A qualitative score has been applied using professional judgement.
Social	Commuting and other users	Journey time benefits have been assessed using desktop research and appraised using a spreadsheet model. The model makes use of WebTAG values and methods (TAG Unit A1.3)

Impact	Sub Impact	Comment
	Reliability impact on Commuting and Other users	WebTAG Unit A1.3 provides guidance for monetisation of changes in journey time reliability for dual carriageway, motorway and urban road users. However, it is not deemed proportionate to undertake a full assessment. Instead, reliability benefits will be estimated by applying an uplift of to time savings to provide an indicative measure of reliability benefits.
	Physical activity	The proposed scheme is expected to result in minimal impact in terms of physical activity therefore; a quantitative assessment has not been carried out (TAG Unit A4.1). Due to the low cost of the scheme it is not deemed appropriate to undertake a full assessment (i.e. completing TAG worksheets). Instead, a qualitative score has been applied using professional judgement.
	Journey quality	Generally, pedestrians and cyclists will be relatively unaffected by the scheme, however VMS will reduce frustration and uncertainty for vehicular users. Due to the low cost of the scheme and the diffused locations of the improvements, it is not deemed appropriate to undertake a full assessment (i.e. completing TAG worksheets). Instead, a qualitative score has been applied using professional judgement.

Impact	Sub Impact	Comment
	Accidents	VMS will be used to display local and national road safety message. It is also proven to reduce the likelihood of secondary crashes following an accident/incident. However, due to the low cost of the scheme and the sporadic locations of the interventions, it is not deemed appropriate to undertake a full assessment (i.e. completing TAG worksheets). Instead, a qualitative score has been applied using professional judgement.
	Security	With the implementation of additional CCTV across the network monitoring security will be improved. Due to the low cost of the scheme and the sparing distribution of impacts, it is not deemed appropriate to undertake a full assessment (i.e. completing TAG worksheets). Instead, a qualitative score has been applied using professional judgement.
	Access to services	Minor improvements in access to a number of services are expected including retail, education, leisure and health facilities. Due to the low cost of the scheme and its dispersed impacts, it is not deemed appropriate to undertake a full assessment (i.e. completing TAG worksheets). Instead, a qualitative score has been applied using professional judgement.

Impact	Sub Impact	Comment
	Affordability	There is not expected to be any impact on personal affordability with the scheme. Due to the low cost and small impact of the scheme it is not deemed appropriate to undertake a full assessment (i.e. completing TAG worksheets). Instead, a qualitative score has been applied using professional judgement.
	Severance	There is not expected to be any change in severance resulting from the scheme. Due to the low cost and small impact of the scheme it is not deemed appropriate to undertake a full assessment (i.e. completing TAG worksheets). Instead, a qualitative score has been applied using professional judgement.
	Option and non-use values	The scheme being appraised does not include any measures that will substantially change the availability of transport services within the study area. A qualitative score has been applied in line with TAG Unit A4.1.

4.3 Options Appraised

4.3.1 The evolution of the KSCMP scheme was presented as part of the Strategic Case in Section 3. The option included in the business is the result of identifying an option that will facilitate growth across the county and not just to limited areas. Investment will improve efficiency and reliability of journeys and influence modal choice.

4.3.2 The final schemes included in this business case, therefore, are:

- The 'Do nothing' - Without the KSCMP; and
- 'The Do something' - which appraises the impact of the KSCMP scheme on top of the 'Do-nothing'.

4.4 Value for Money Method

4.4.1 To assess Value for Money (VfM), the assessment has started by summing the monetised impacts to establish an initial Benefit Cost Ratio (BCR) which provides an estimate of how the costs of a scheme relate to the value of monetised benefits that the scheme creates.

4.4.2 The initial BCR has been assessed within a WebTAG compliant framework drawing on the following:

- Benefits appraisal – a proportionate assessment of monetised economic benefits, in accordance with WebTAG and local VfM advice, namely:
  - Business users and providers travel time and vehicle operating cost impacts;
  - Commuting and other users travel time and vehicle operating cost; and
- Cost to the broad transport budget.

4.4.3 This initial BCR has then been adjusted to account for impacts which have not been monetised, namely:

- Economy;
  - Reliability impact on business, commuter and other users;
  - Regeneration;
  - Wider impacts;
- Environment;
  - Noise;
  - Air quality;
  - Greenhouse gases;
  - Landscape;
- Social;
  - Physical activity;
  - Journey quality;
  - Accidents;
  - Reliability; and

- Option and non-use values.

4.4.4 Once the impacts that can be expressed in monetary terms have been calculated the remaining non-monetised impacts of the KSCMP have been captured qualitatively, namely:

- Environment;
  - Townscape;
  - Biodiversity;
  - Water environment;
- Social;
  - Access to services;
  - Affordability; and
  - Severance.

4.4.5 Finally, a Value for Money statement has been produced which considers all of the above.

4.5 Initial BCR

Assessment of Economic Impacts

4.5.1 It is inherently difficult to establish a BCR value for a systems based HMC project due to the problems in quantifying the effect of individual components of the scheme. Nevertheless an attempt has been made to assess the possible order of magnitude of the proposed scheme using desktop research and appraised using a spreadsheet model. The model makes use of WebTAG values and methods (TAG Unit A1.3).

4.5.2 The modelling approach adopts a 4-stage methodology (outlined in Figure 1) comprising DfT volume and speed data at a corridor level and LINSIG modelling outputs from 'hotspot' mitigation tests which feed into the spreadsheet model which in turn have been used to calculate journey time and operating cost savings.

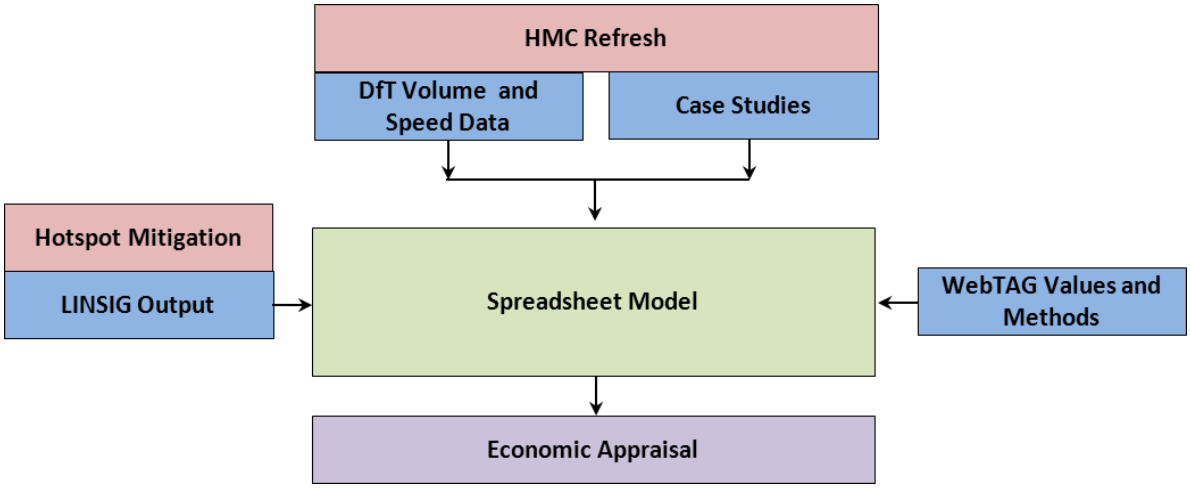

Figure 1: Modelling Approach

4.5.3 The DfT volume and speed data itself has been used to determine the existing demand and journey information (i.e. flow, time and speed). The reductions in journey time identified from desktop research of similar schemes (i.e. reductions in travel time of 3.5%) have been used to amend the existing journey times in the spreadsheet model which has determined the resulting travel time benefits.

4.5.4 There is no assignment simulation iteration invoked in the model.

Journey Time Costs

4.5.5 The assessment has been performed over AM and PM peak periods, covering weekdays. Benefits and costs have been annualised over a 6 year appraisal period (i.e. 2015-2021).

4.5.6 The results of this assessment indicate that road users will experience time saving benefits of £1.71m (2010 prices and values).

Investment Costs

4.5.7 Section 5 (the financial case) sets out the costs of implementation of the scheme (£840k) for 2015/16 including risk and inflation. In addition, an uplift of 10% for optimism bias has been applied in line with WebTAG unit A1.2 for a scheme of this type and at this stage. The resulting scheme cost in market prices (i.e. inclusive of indirect taxation) for economic appraisal is £0.84m (2010 prices and values)

Initial BCR

4.5.8 The costs and benefits outlined above show that the Initial BCR of the scheme, based on standard monetised values, is 2.04. This represents the benefits for the core elements of the scheme, and is considered medium to high value for money according to Department for Transport guidance.

4.6 Adjusted BCR

Impacts on the Economy

Reliability Impact on Business Users

4.6.1 WebTAG Unit A1.3 provides guidance for monetisation of changes in journey time reliability for dual carriageway, motorway and urban road users. However it is not deemed proportionate to undertake a full assessment. Instead, reliability benefits have been estimated by applying an uplift of 10% of time savings to provide an indicative measure of reliability benefits to reflect the likely **moderate** impacts.

Regeneration

4.6.2 Positive regeneration impacts are anticipated across Kent; however, it is not judged appropriate to complete the assessment for such a low cost scheme (TAG Unit A2.2), which is likely to have very diffused regeneration benefits. A qualitative impact score of **neutral** has been applied using professional judgement.

Wider Impacts

4.6.3 Positive wider impacts would be expected to accrue with the introduction of the KSCMP, but the impacts are expected to be dispersed rather than in measurable concentrations in a few locations. A qualitative impact score of **slightly beneficial** has been applied using professional judgement.

Impacts on the Environment

Noise

4.6.4 The proposed scheme is expected to result in minimal impact in terms of noise and vibration therefore; a quantitative assessment has not been carried out (TAG Unit A3). A qualitative impact score of **neutral** has been applied using professional judgement.

Air quality and Greenhouse gases

4.6.5 There is considerable evidence from integrated ITS projects around the world that a benefit to local air quality is achieved. Levels of reduction of hydrocarbon, carbon monoxide and nitrous oxides of 3.5% to 5% at peak periods repeatedly arise as a bi-product of integrated ITS.

4.6.6 The use of Car Park VMS has also been found in a number of studies to reduce the unnecessary circulation of traffic in town/city centres.

4.6.7 For these reasons a qualitative impact score of **slightly beneficial** has been applied using professional judgement.

Landscape

4.6.8 Negligible change in landscape value is likely to occur, due to loss of existing grass verges where VMS, CCTV, and infrastructure installations have taken place. Such impacts are not, therefore, assessed in detail. A qualitative impact score of **neutral** has been applied using professional judgement.

Social Impacts

Reliability Impact on Commuter and Other Users

4.6.9 WebTAG Unit A1.3 provides guidance for monetisation of changes in journey time reliability for dual carriageway, motorway and urban road users. However it is not deemed proportionate to undertake a full assessment. Instead, reliability benefits have been estimated by applying an uplift of 10% of time savings to provide an indicative measure of reliability benefits to reflect the likely **moderate** impacts.

Physical Activity

4.6.10 The proposed scheme is expected to result in minimal impact in terms of physical activity therefore; a quantitative assessment has not been carried out (TAG Unit A4.1). Due to the low cost of the scheme it is not deemed appropriate to undertake a full assessment (i.e. completing TAG worksheets). A qualitative impact score of **neutral** has been applied using professional judgement.

Journey Quality

4.6.11 Generally, pedestrians and cyclists will be relatively unaffected by the scheme, however VMS will reduce frustration and uncertainty for vehicular users. Due to the low cost of the scheme and the diffused locations of the improvements, it is not deemed appropriate to undertake a full assessment (i.e. completing TAG worksheets). Instead, a qualitative impact score of **neutral** has been applied using professional judgement.

Accidents

4.6.12 VMS will be used to display local and national road safety message. It is also proven to reduce the likelihood of secondary crashes following an accident/incident. However, due to the low cost of the scheme and the sporadic locations of the interventions, it is not deemed appropriate to undertake a full assessment (i.e. completing TAG worksheets). Instead, a qualitative impact score of **slightly beneficial** has been applied using professional judgement.

Option and Non-use Values

4.6.13 The scheme being appraised does not include any measures that will substantially change the availability of transport services within the study area. A qualitative impact score of **neutral** has been applied in line with TAG Unit A4.1.

BCR Adjustment

4.6.14 Other than for reliability impacts the findings of the assessments are not considered to be significant enough to warrant any increase or decrease in the initial BCR.

4.6.15 As outlined previously, the impact of reliability benefits have been estimated by applying an uplift of 10% of time savings to provide an indicative measure of reliability benefits. The results of this adjustment is to increase time saving benefits to £1.88m (2010 prices and values) and the BCR to 2.24 representing high value for money.

4.7 Qualitative Impacts

Impacts on the Environment

Townscape

4.7.1 The overall impact of the scheme is likely to be negative as a result of the increase to traffic control and monitoring equipment with the greatest impact caused by the installation of VMS signs. Nevertheless, certain components of the scheme may help to reduce traffic intrusion in sensitive townscapes. A qualitative score of **slight adverse** has been applied using professional judgement.

Historic Environment

4.7.2 The overall impact of the scheme is likely to be negative based on the possibility that some of the signs may not fit with the form of historic townscape/landscape. However, some aspects of the scheme may again help to reduce traffic intrusion into historic environments. A qualitative score of **slight adverse** has been applied using professional judgement.

Biodiversity

4.7.3 Ecological impacts are unlikely with the introduction of any of the component parts of the KSCMP. A qualitative score of **neutral** has been applied using professional judgement.

Water Environment

4.7.4 Proposed installation of traffic control measures or hotspot mitigation schemes are unlikely to significantly affect the water environment. A qualitative score of **neutral** has been applied using professional judgement.

Social Impacts

Security

4.7.5 With the implementation of additional CCTV across the network monitoring security will be improved. Due to the low cost of the scheme and the sparing distribution of impacts, it is not deemed appropriate to undertake a full assessment (i.e. completing TAG worksheets). Instead, a qualitative score of **slightly beneficial** has been applied using professional judgement.

Access to Services

4.7.6 Minor improvements in access to a number of services are expected including retail, education, leisure and health facilities. Due to the low cost of the scheme and its dispersed impacts, it is not deemed appropriate to undertake a full assessment (i.e. completing TAG worksheets). Instead, a qualitative score of **slightly beneficial** has been applied using professional judgement.

Affordability

4.7.7 There is not expected to be any impact on personal affordability with the scheme. Due to the low cost and small impact of the scheme it is not deemed appropriate to undertake a full assessment (i.e. completing TAG worksheets). Instead, a qualitative score of **neutral** has been applied using professional judgement.

Severance

4.7.8 There is not expected to be any change in severance resulting from the scheme. Due to the low cost and small impact of the scheme it is not deemed appropriate to undertake a full assessment (i.e. completing TAG worksheets). Instead, a qualitative score of **neutral** has been applied using professional judgement.

Overall Qualitative Impact

4.7.9 The findings of the qualitative assessments are not considered to be significant enough to warrant any increase or decrease to the adjusted BCR category of High.

4.8 Appraisal Summary Table

The quantitative and qualitative assessments of impacts made above have been input to the Appraisal Summary Table (AST) provided overleaf.

Table 3: Appraisal Summary Table

Impacts		Summary of key impacts	Assessment		
			Quantitative	Qualitative	Monetary £(NPV)
Economy	Business users & transport providers	Journey time benefits have been assessed using case study impacts and appraised using a spreadsheet model. The model makes use of WebTAG values and methods (TAG Unit A1.3)	User benefits and operating cost savings at 2010 prices.	N/A	£0.54m
	Reliability impact on Business users	WebTAG Unit A1.3 provides guidance for monetisation of changes in journey time reliability for dual carriageway, motorway and urban road users. However, it is not deemed proportionate to undertake a full assessment. Instead, reliability benefits will be estimated by applying an uplift of to time savings to provide an indicative measure of reliability benefits.	Reliability benefits have been estimated by applying an uplift of 10% of time savings to provide an indicative measure of reliability benefits to reflect the likely moderate impacts.	Moderate	£0.05m
	Regeneration	Positive regeneration impacts are anticipated across Kent; however, it is not judged appropriate to complete the assessment for such a low cost scheme (TAG Unit A2.2), which is likely to have very diffused regeneration benefits. A qualitative score has been applied using professional judgement.	N/A	Neutral	N/A
Environmental	Noise	The proposed scheme is expected to result in minimal impact in terms of noise and vibration therefore; a quantitative assessment has not been carried out (TAG Unit A3). A qualitative score has been applied using professional judgement.		Slightly beneficial	
	Air Quality	Air quality benefits have been assessed using case study evidence and scored qualitatively.		Slightly beneficial	
	Greenhouse gases	Greenhouse gases have been assessed using case study evidence and scored qualitatively.		Slightly beneficial	
	Landscape	Negligible change in landscape value is likely to occur, due to loss of existing grass verges where VMS, CCTV, and infrastructure installations have taken place. Such impacts are not, therefore, assessed in detail. A qualitative score has been applied using professional judgement.		Neutral	
	Townscape	The overall impact of the scheme is likely to be negative as a result of the increase to traffic control and monitoring equipment with the greatest impact caused by the installation of VMS signs. Nevertheless, certain components of the scheme may help to reduce traffic intrusion in sensitive townscapes. A qualitative score has been applied using professional judgement.		Slightly adverse	
	Historic Environment	The overall impact of the scheme is likely to be negative based on the possibility that some of the signs may not fit with the form of historic townscape/landscape. However, some aspects of the scheme may again help to reduce traffic intrusion into historic environments. A qualitative score has been applied using professional judgement.		Slightly adverse	
	Biodiversity	Ecological impacts are unlikely with the introduction of any of the component parts of the KSCMP. Ecological impacts are unlikely with the introduction of	N/A	Slightly adverse	N/A

Impacts		Summary of key impacts	Assessment		
			Quantitative	Qualitative	Monetary £(NPV)
		any of the component parts of the KSCMP. However, works affecting the soft estate could potentially impact on protected species and habitats where vegetation clearance is required or where works are within or close to a sensitive site. A qualitative score has been applied using professional judgement.			
	Water Environment	Proposed installation of traffic control measures or hotspot mitigation schemes are unlikely to significantly affect the water environment. A qualitative score has been applied using professional judgement.		Neutral	
Social	Commuting and Other users	Journey time benefits have been assessed using case study impacts and appraised using a spreadsheet model. The model makes use of WebTAG values and methods (TAG Unit A1.3)	User benefits and operating cost savings at 2010 prices.	N/A	£1.17m
	Reliability impact on Commuting and Other users	WebTAG Unit A1.3 provides guidance for monetisation of changes in journey time reliability for dual carriageway, motorway and urban road users. However, it is not deemed proportionate to undertake a full assessment. Instead, reliability benefits will be estimated by applying an uplift of to time savings to provide an indicative measure of reliability benefits.	Reliability benefits have been estimated by applying an uplift of 10% of time savings to provide an indicative measure of reliability benefits to reflect the likely moderate impacts.	Moderate	£0.12m
	Physical activity	The proposed scheme is expected to result in minimal impact in terms of physical activity therefore; a quantitative assessment has not been carried out (TAG Unit A4.1). Due to the low cost of the scheme it is not deemed appropriate to undertake a full assessment (i.e. completing TAG worksheets). Instead, a qualitative score has been applied using professional judgement.	N/A	Neutral	N/A
	Journey quality	Generally, pedestrians and cyclists will be relatively unaffected by the scheme, however VMS will reduce frustration and uncertainty for vehicular users. Due to the low cost of the scheme and the diffused locations of the improvements, it is not deemed appropriate to undertake a full assessment (i.e. completing TAG worksheets). Instead, a qualitative score has been applied using professional judgement.		Neutral	
	Accidents	4.6.12 VMS will be used to display local and national road safety message. It is also proven to reduce the likelihood of secondary crashes following an accident/incident. However, due to the low cost of the scheme and the sporadic locations of the interventions, it is not deemed appropriate to undertake a full assessment (i.e. completing TAG worksheets). Instead, a qualitative impact score has been applied using professional judgement.		Slightly beneficial	
	Security	With the implementation of additional CCTV across the network monitoring security will be improved. Due to the low cost of the scheme and the sparing distribution of impacts, it is not deemed appropriate to undertake a full assessment (i.e. completing TAG worksheets). Instead, a qualitative score has been applied using professional judgement.		Slightly beneficial	

Impacts		Summary of key impacts	Assessment		
			Quantitative	Qualitative	Monetary £(NPV)
	Access to services	Minor improvements in access to a number of services are expected including retail, education, leisure and health facilities. Due to the low cost of the scheme and its dispersed impacts, it is not deemed appropriate to undertake a full assessment (i.e. completing TAG worksheets). Instead, a qualitative score has been applied using professional judgement.	N/A	Slightly beneficial	N/A
	Affordability	There is not expected to be any impact on personal affordability with the scheme. Due to the low cost and small impact of the scheme it is not deemed appropriate to undertake a full assessment (i.e. completing TAG worksheets). Instead, a qualitative score has been applied using professional judgement.		Neutral	
	Severance	There is not expected to be any change in severance resulting from the scheme. Due to the low cost and small impact of the scheme it is not deemed appropriate to undertake a full assessment (i.e. completing TAG worksheets). Instead, a qualitative score has been applied using professional judgement.		Neutral	
	Option and non-use values	The scheme being appraised does not include any measures that will substantially change the availability of transport services within the study area. A qualitative score has been applied in line with TAG Unit A4.1.		Neutral	
Public Accounts	Cost to Broad Transport Budget	N/A	Scheme cost at 2010 prices including risk, inflation and optimism bias.	N/A	£0.93m
	Indirect Tax Revenues	N/A	N/A	N/A	N/A

4.9 Value for Money Statement

4.9.1 The VfM has been prepared in accordance with the DfT's "Value for money assessment: advice note for local transport decision makers". The overall qualitative outcome is High, on a 4-point scale. This VfM is based on the quantified initial BCR for the scheme of 2.04 (i.e. High), with further adjustments for non-quantified BCR components, qualitative outcomes and risks / sensitivities.

5 Financial Case

5.1 Introduction

5.1.1 This chapter presents The Financial Case for the KSCMP scheme. It concentrates on the affordability of the proposal, its funding arrangements and technical accounting issues. The total outturn costs and expenditure profile are presented, along with an assessment of the impact of the proposed deal on the Department's budgets and accounts.

5.1.2 Capital costs have been calculated for the do-something scheme situation, only, because there are not expected to be any alternative construction costs that would be incurred in the do-nothing only and not in the do-something.

5.2 Capital Cost Components at 2014 Prices

5.2.1 The capital required to fund the project is £4.8m for the period 2015-2021. However, only spend for 2015/2016 is known in detail at this stage. Table 4 shows the various items of scheme capital cost as estimated in 2014 prices.

Table 4: Components of Investment Cost (2015/16)

Cost Category	**£**
HMC technology refresh - database development	106,000
HMC technology refresh – CCTV	132,000
HMC technology refresh – variable message signs	265,000
A229 Bluebell Hill	106,000
A229/A274 Wheatsheaf Junction	44,000
Forward scheme identification and design for 2016/17	88,000
Total Base Cost 2014 prices	**741,000**

5.3 Inflation

5.3.1 Table 5 provides a base cost estimate of the investment which incorporates real cost increases. General inflation is forecast to be 1% between 2014 and 2015, while construction costs are forecast to increase by 4.1% for the same period[1]. Therefore the base investment costs, including real cost increases have been calculated by:

- In 2015 - £741,000 x (1.041/1.010)^1 = £763,746.

Table 5: Base Scheme Costs (2014 prices)

Cost Category	**£**
HMC technology refresh - database development	109,254
HMC technology refresh - CCTV	136,052
HMC technology refresh - variable message signs	273,134
A229 Bluebell Hill	109,254
A229/A274 Wheatsheaf Junction	45,351
Forward scheme identification and design for 2016/17	90,701
Total Base Cost 2014 prices	**763,746**

5.4 Risk Budget

5.4.1 A 10% risk contingency has been applied in line with best practice for work of this nature. The projects likely risk profile will be considered further as part of the Quantified Risk Assessment (QRA) as the design elements progress further.

[1] Sweett Tender price Update United Kingdom Q2 2014

5.5 Optimism Bias

5.5.1 Optimism Bias adjustments are designed to deal with the 'systematic tendency of project appraisers to be overly optimistic' with regard to a project's 'costs, benefits and duration'. To reflect the current status of scheme designs and costs, an Optimism Bias uplift of 15% has been applied to scheme costs as part of the Economic Case, therefore ensuring that the economic appraisal is robust.

5.5.2 Optimism Bias adjustments are not intended for use in estimating actual scheme outturn costs for funding requests and are therefore not included in the costs.

5.6 Final Scheme Costs

5.6.1 Table 6 below shows the final scheme costs for the 2015/16 funding bid, including risk and inflation but excluding optimism bias and indirect taxation.

Table 6: Summary of Final Scheme Costs (2014 prices)

Cost Type	Cost (£)
Scheme Cost	741,000
Inflation	22,746
Risk Allowance	76,375
Total	**840,121**

5.7 Spend Profile

5.7.1 An estimated outturn spend profile for the KSCMP is shown in Table 7, split by financial year.

Table 7: Outturn Spend Profile

Estimated Spend	£m						
	Total	15-16	16-17	17-18	18-19	19-20	20-21
Total Costs	4.800	0.840	0.792	0.792	0.792	0.792	0.792

5.8 Whole Life Costs

5.8.1 It is likely that there will be on-going revenue implications for future maintenance (as is the case with most schemes), which will be added to the general highway asset and funded as required. To date these cost implications have not been quantified.

5.9 Funding Assumptions

5.9.1 The total project cost is estimated at £4.8 million which will be fully LEP funded and has been provisionally granted dependent on the business case.

5.10 Accounting Implications

5.10.1 The following implications on public accounts are expected:

- LEP funding of £4.8m is requested; and
- Maintenance Costs (yet to be determined).

6 Commercial Case

6.1 Introduction

6.1.1 The commercial case provides evidence on the commercial viability of the scheme and the procurement strategy that will be used. It sets out the financial implication of the proposed procurement strategy and presents evidence on risk allocation and transfer, contract timetables and implementation timescale as well as details of the capability and skills of the team delivering the project.

6.1.2 The outcomes which the procurement strategy must deliver are to:

- Achieve cost certainty, or certainty that the scheme can be delivered within the available funding constraints;
- Minimise further preparation costs with respect to scheme design by ensuring best value, and appropriate quality;
- Obtain contractor experience and input to the construction programme to ensure the implementation programme is robust and achievable; and
- Obtain contractor input to risk management and appraisals, including mitigation measures, to capitalise at an early stage on opportunities to reduce construction risk and improve out-turn certainty thereby reducing risks to a level that is As Low As Reasonably Practicable.

6.2 Procurement Options

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

Full OJEU tender

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

6.2.3 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.

6.2.4 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)

6.2.5 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.

6.3 Procurement Strategy

6.3.1 The preferred procurement route for the KSCMP scheme is through Amey HTMC.

6.3.2 This option has been selected as the value of the scheme is less than the OJEU scheme value threshold.

6.4 Potential for Risk Transfer

6.4.1 It is expected that many of the design risks will only be able to be resolved through rigorous design and review processes, once the design options are clear and the scope of land acquisition, planning requirements, environmental requirements and statutory services issues are fully identified, the primary risks will be related to construction. There is potential for transferring these risks through the construction procurement process. This will be explored further as the scheme progresses.

7 Management Case

7.1 Introduction

7.1.1 The management case assesses the deliverability of the project, testing project planning, governance structure, risk management, communications and stakeholder management, benefits realisation and assurance.

7.1.2 It sets out a plan to ensure that the benefits set out in the economic case are realised and includes measures to assess and evaluate this.

7.2 Evidence of Similar Projects

7.2.1 Kent has a long history of delivering and making use of Intelligent Transport Systems (ITS) to carry out its transport policy objectives. The County Council has been operating Urban Traffic Control (UTC) since 1980 and, in 1983 in Maidstone, implemented the first commercially purchased SCOOT (Split Cycle and Offset Optimisation Technique) system in the UK. With this system traffic signals and pelican crossings are synchronised by a central computer which carries out continuous calculations to determine the most efficient settings to assist traffic and pedestrian movements. The majority of ITS are deployed in urban areas and so must be fully consistent with Local Transport Plan objectives.

7.2.2 ITS has contributed to numerous Local Transport Plans for Kent, examples include:

- the extension of traffic control and monitoring tools (UTC, SCOOT, pedestrian and cycle crossings, variable message signs) to improve safety and reduce congestion in urban areas;
- the roll out countywide of the Kent Bus location and real time information system to improve journey times and reliability and promote the use of public transport;
- monitoring and modelling the impacts of traffic management on air quality and assisting the DfT TRAMAQ research programme; and
- managing traffic on the network by using variable message signs to inform drivers of car park space availability and general traffic congestion.

7.3 Project Dependencies

7.3.1 At present there are no known project dependencies that could impact on the delivery of the KSCMP.

7.4 Governance, Organisation Structure & Roles

7.4.1 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 who will be an appropriately trained and experienced member of KCC staff.

7.4.2 Figure 2 overleaf provides an outline of the overall governance structure implemented to manage the delivery of each scheme.

7.4.3 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

7.4.4 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

7.4.5 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.

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

Figure 2: KCC Project Governance Structure

Programme Board (PB) Meeting

7.4.6 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

7.4.7 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

7.4.8 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).

7.5 Project Plan

7.5.1 Due to the small scale and likely unconstrained nature of the technology refresh and the individual hotspot mitigation schemes there is a degree of confidence that the programme can be delivered successfully with the projected timeframe.

7.5.2 Key project milestones for 2015/16 from business case submission to completion are shown below in the project plan (Figure 3).

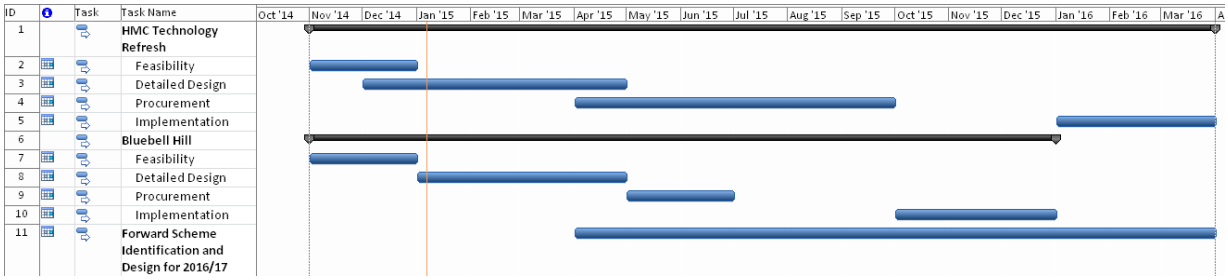

Figure 3: Project Plan

7.6 Assurance and Approvals Plan

7.6.1 KCC to provide Section 151 officer letter

7.7 Communications and Stakeholder Management

7.7.1 A communications plan will be developed specifically focussed on the individual components of the programme. The plan is likely to follow existing plans used for other schemes in Kent. Whilst not exhaustive, the following is an indication of what is likely to be included in the plan:

- Indicate suitable period of time for public consultation;
- Keep general public fully informed of progress during construction;
- Ensure that public and stakeholders are made aware as early as possible of any issues associated with scheme (time slips etc.);
- Engage with key stakeholders at regular pre-defined intervals; and
- Make stakeholders aware of benefits of scheme.

7.8 Key Issues for Implementation

7.8.1 Although this business case has been developed on the basis of the most relevant and accurate information available, there will be changes to the design as the scheme progresses towards delivery. This introduces a number of risks which cannot be taken into account at this stage, namely:

- Land acquisition / CPO procedures take longer than allowed;
- Changes / uncertainty over funding streams;
- Political changes of direction;
- Concurrency of multiple suppliers;
- Unforeseen Statutory Services;

- Teething problems; and
- Competent staff.

7.9 Contract Management

7.9.1 The project will be managed by KCCs project manager (Andrew Westwood) with officers from their in house design team and contracts team delivering the works streams with support from the partnering Engineering Consultants (Amey) providing additional resources where required and specialist services that cannot be provided in house. The senior user (Mary Gillett) on the Programme Board will also be a representative from the Council's Major Projects Planning team who are responsible for submitting the business case. This will ensure the project delivers the objectives identified within the original business case.

7.10 Risk Management Strategy

7.10.1 Project risk is managed as an on-going process as part of the scheme governance structure, as set out in section 7.2 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.

7.10.2 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.

7.10.3 An example scheme risk register is shown in Figure 4 below:

Figure 4: Example Project Risk Register

7.11 Benefits Realisation and Monitoring

7.11.1 Tracking of the scheme benefits will be a key element in understanding the success of a specific intervention. The realisation of benefits is intrinsically linked to the Monitoring and Evaluation plan.

7.11.2 Figure 5 shows the schemes logic map. The logic map identifies the scheme objectives along with the associated expected outcomes. The maps is 'read' from left to right, leading you through a time sequence from the objectives, through implementation to outcomes.

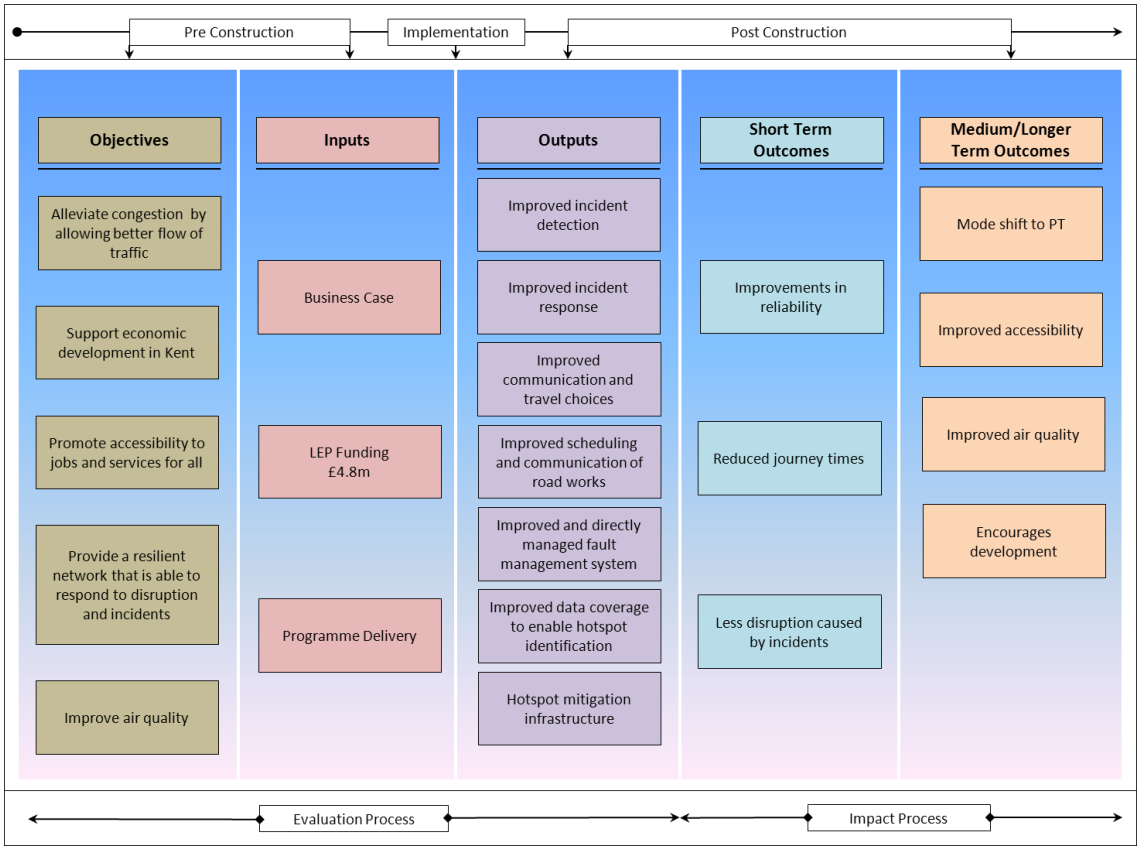

Figure 5: Logic Map

7.11.3 The scheme objectives (as outlined in Section 3.7) have been used to develop the desired outputs and outcomes for the scheme. The desired outputs are the actual benefits that are expected to be derived from the scheme and are directly linked to the original set of objectives. The definition of outputs and outcomes are:

- **Outputs** – tangible effects that are funded and produced directly as a result of the scheme; and
- **Outcomes** – final impacts brought about by the scheme in the short and medium/long term.

7.11.4 To determine whether the scheme benefits are being realised, the outputs and outcomes have been converted into measurable indicators of scheme benefits; these are set out in Table 8 below.

Table 8: Scheme Benefit Indicators

Objective	**Indicator**
Alleviate congestion by allowing better flow of traffic	Car journey times
Supporting economic development in Kent	Travel time variability
To promote accessibility to jobs and services for all	PT modal split PT passenger boardings PT journey times
Provide a resilient network that is able to respond to disruption and incidents	Flow to capacity variation Vehicle journey time variation
Improve air quality	Carbon and Nitrogen dioxide emissions

7.11.5 KCC will conduct a full evaluation of the impact of the scheme in the period after it is completed. The Council will prepare evaluation reports one year and five years after scheme opening, using the information to be collected as set out above to gauge the impact of the scheme on the traffic network, and assess the success of the scheme in meeting the objectives of the KSCMP. Unexpected effects of the scheme will be reported upon and, where appropriate, remedial measures identified.

Appendix A Example Scoring Table

Appendix B Bluebell Hill Scheme Drawing

Appendix C A229/A274 Wheatsheaf Junction Scheme Drawing