

South East Local Enterprise Partnership Transport Business Case

Project Overview

Project Name

Kent Strategic Congestion Management Programme

Project Type

Integrated package

Federal Board Area

Kent

Lead County Council/Unitary Authority

Kent County Council (KCC)

Development Location

Swanley Station, Southern PI, Swanley, BR8 7BY

A2042/A2070 Roundabout, Kingsnorth, Ashford

Dover Traffic Assessment Project (TAP) Congestion Strategy, Dover, Kent

Heavy Goods Vehicle (HGV) Trial Scheme, Kent Wide

INRIX, Kent Wide

Project Summary

The Kent Strategic Congestion Management Programme (KSCMP) is a series of projects or interventions to improve the efficiency of the road network. Hotspot schemes are identified using a methodology derived from data obtained about the road network from a range of sources including journey time reliability, crash record, vehicle flow and bus reliability. The overarching intention of the programme is to develop and deliver schemes at locations that can bring about improvements to all modes of transport and support the unlocking of growth areas within Kent.

The first year of the programme (2015/16) identified two hotspot junction improvements and an enhancement to the Highways Management Centre. The second year of the programme (2016/17) identified three hotspot junction improvements and support for the extension of a Connected Intelligent Transport System (C-ITS) pilot study in Kent along the A229 Corridor. The third year of the programme (2017/18) identified two hotspot junction improvements and continued support for the extension of the Connected Intelligent Transport System study along the A229 Corridor. The fourth year of the programme (2018/19) identified two junction hotspot junction improvements, implementation of Intelligent Transport Systems at junctions in Dover and Tunbridge Wells, upgrade of existing traffic signals equipment to Microprocessor

Optimised Vehicle Actuation (MOVA) at locations in the East of Kent and continued support for the Connected Intelligent Transport System along the A229 corridor.

The latest year of the programme (2019/20) has identified the following:

- Congestion relief measures at Swanley Station by creating a new one-way system which will greatly improve congestion and journey times to and from the station as well as on the surrounding road network in Swanley. These improvements also include walking and cycling enhancements to promote a more attractive route for active mode users.
- The A2042/A2070 Roundabout suffers from significant congestion and safety issues with 11 crashes occurring over the last 3 years (2016-2018). The proposed improvements at this junction will incorporate a Dutch style “Flemish Roundabout”, providing a new layout that will effectively double capacity for particular movements hence relieving congestion and the likelihood of accidents experienced.
- Dover TAP is a temporary traffic management system which queues port-bound lorries in the nearside (left) lane of the A20 after the Roundhill Tunnel to prevent Dover becoming congested with traffic. A package of improvements to help reduce the impact of TAP includes:
 - Traffic signal operations (linking of key junctions - A256 to A20)
 - Introduction of new ‘Intelligent Transportation Systems’ (ITS) technologies (VMS, queue loops and the use of bluetooth data)
 - Bus priority (linking to a future rapid bus transport scheme)
- The HGV Trial Scheme has the objective of considering the possibility of concentrating goods vehicles on the most suitable routes. The implementation of a pilot HGV control plan will reduce congestion and minimise the worse environmental and social effects of HGV movements, whilst recognising the need for effective and efficient transport links.
- INRIX is a global company that specialises in connected car services and transportation analytics. The roadway analytics provides technical analysis, charts, tables and visualisations of collated traffic data for urban roads. This software will help to improve KCC’s understanding of how the network operates, monitoring of network performance and ability to identify and prioritise congestion hotspots where appropriate measures can be considered and implemented.

Delivery Partners

Table 1: Project delivery partners

Partner	Nature of involvement (financial, operational etc.)
Kent County Council (Lead Applicant)	Programme management and financial
Southeastern Railway	Project Delivery Lead (Swanley Station)
Network Rail	Project Delivery, Operational and financial (Swanley Station)
Sevenoaks District Council	Project Delivery, Operational (Swanley Station)
Dover District Council	Project Delivery, Stakeholder (Dover TAP)
ATKINS	Consultants (Dover TAP)
Ashford Borough Council	Financial contribution (Flemmish Roundabout)

Promoting body

Kent County Council

Project Sponsor: Kerry Clarke – kerry.clarke@kent.gov.uk, 07917 639081

Senior Responsible Owner (SRO)

Lee Burchill – lee.burchill@kent.gov.uk, 07725 648285

Total project value and funding sources

Table 2: Project funding sources

Funding source	Amount (£)	Constraints, dependencies or risks
LGF 2019/20	£1,127,021	
LGF 2018/19	£150,000	£25,000 has been spent on Flemmish roundabout design work and £150,000 allocated to Dover TAP (£25k for forward design which has been spent and £100k for delivery which will be rolled forwards into 2019/20)
Network Rail	£250,000	Funding is secure for the refurbishment of the overbridge within the station. Funding to be spent in 2021 and improvements will complement the congestion relief and wider Swanley Station Redevelopment schemes.
KCC - Integrated Transport Programme (ITP)	£70,000	There is £70,000 secured from KCC's ITP to deliver the Flemmish Roundabout scheme. This is secure and available for the 2019/20 financial year.
KCC – Lane Rental income	£90,000	This is secured from KCC's Lane Rental fund and is available for 2019/20 financial year towards the Flemmish Roundabout scheme
Ashford Borough Council	£10,000	This is confirmed contribution towards the Flemmish Roundabout scheme
Total project value	£1,697,021	

SELEP funding request, including type (LGF, GPF etc.)

£1,127,021 LGF sought.

The proposed KSCMP will comply with State Aid as KCC will not give advantage to any competitors, distort competition and or affect trade between member states.

Exemptions

N/A

Start date

16th April 2019

Project development stage

Table 3: Project development stages

Project development stages completed to date			
Task	Description	Outputs achieved	Timescale
Swanley Station Congestion Relief: Option Selection	Design options explored, and outline design completed for preferred option	GRIP 1-3 Report and Outline design	Completed
Flemmish Roundabout: Option selection	Design options explored, and outline design completed for preferred option	Outline Design	Completed
Flemmish Roundabout: Detail Design	Detailed design produced	Design plans, schedule of rates	Completed
Flemmish Roundabout: Consultation	Stakeholder engagement events held	Stakeholder engagement report	Completed
Dover TAP: Option Selection	Study of impacts of TAP on road network and exploration of potential solutions – list of measures to be compiled into a package to be progressed for design	Options report detailing schemes and outline costs. Schemes selected to take forwards	Completed
Project development stages to be completed			
Task	Description	Timescale	
Full Business Case	Submission for additional allocation of LGF	1 st March 2019	
SELEP Accountability Board funding decision	Following the Gate 1 and 2 review with the ITE	12 th April 2019	
Procurement (Swanley Station congestion relief)	Design and build contract let by Southeastern as delivery partner	July 2019	
Procurement (INRIX)	Contract let by KCC	June 2019	
Implementation (Flemmish Roundabout)	Construction by Amey (KCC term contractor) to commence summer 2019	July 2019	
Implementation (Swanley Station congestion relief)	Construction to commence January (one way to be implemented and then main station redevelopment scheme to follow on)	January 2020	

Proposed completion of outputs

31st March 2020

Strategic Case

Scope / Scheme Description

The KSCMP is a continuation of improvements being made by KCC to maximise the efficiency of the local highway network as traffic levels increase in line with development. The Programme is to be delivered between the financial years of 2015/16 and 2020/21 and the total Programme value is £4.8million. This business case will apply for the programme funding for financial year 2019/20 equating to approximately £1.1m.

The KSCMP strategy incorporates a methodology of assessing areas or road links that suffer from congestion and unreliability. The strategy uses several criteria to score road links that are then assessed in more detail to establish the worst performing links. The new Local Transport Plan adopts this approach to tackle unreliable sections of the road network as a way of supporting economic growth.

For the 2019/20 KSCMP funding allocation five schemes have been identified and developed to tackle hotspots, these schemes are:

- Swanley station congestion relief
- Flemmish roundabout improvements (A2042/A2070 roundabout)
- Dover TAP congestion strategy
- Heavy goods vehicle trial scheme
- INRIX roadway analytics

The implementation of the KSCMP will enable the creation of an estimated 2,000 jobs and 2,300 additional homes for the SELEP region within the six-year course of the programme, which is consistent with the length of the SELEP Strategic Economic Plan. It will help to provide a transport environment which makes it easier for businesses and employees to travel to, and for work. Around 10% of the planned housing across the SELEP region relies on the KSCMP, which if delivered could provide significant increases in Gross Value Added (GVA) for the region.

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.

Swanley Station Congestion Relief

Swanley station served approximately 1.5m people in 2017-18, which is an increase of 7.8% on the 2016-17 station figures¹. The main access to the station is via Station Approach which is a narrow road and includes parking along the southern side of the road. This creates a single track which then serves as the main access to the station. During peak times, the inability of vehicles being able to pass each other on Station Approach leads to significant congestion issues which also backs up onto the surrounding road network further exacerbating congestion experienced within Swanley.

¹ Office of Rail and Road, Estimates of Station Usage 2017-18, 11 December 2018

The station is being redeveloped through the West Kent LSTF bid. The proposed works included within this LGF funding bid comprises of access improvements by creating a new one-way system and enhancements made to walking and cycling routes to promote a more attractive route for active mode users. When coupled with the station redevelopment, this scheme will lead to reduced congestion and large benefits to station users.

Dover TAP Congestion Strategy

Dover TAP is a temporary traffic management system which queues port-bound lorries in the nearside (left) lane of the A20 after the Roundhill Tunnel to prevent Dover becoming congested with traffic and helping to improve its air quality. It is not an alternative to Operation Stack but ensures that the town of Dover is kept free of stationary port-bound traffic when the port is experiencing minor disruption.

Even with the implementation of the TAP, Dover still suffers from significant congestion problems when disruption occurs at the port. The proposed congestion strategy which is a package of improvements aimed at improving congestion and reducing the impact of TAP on the town includes; the enhancements of traffic signal operations around key network junctions, the introduction of new ITS technologies and the provision of bus priority linking to a future rapid bus transport scheme. **Appendix G shows the list of measures of which the preferred package was selected from for the Dover TAP improvements.**

Heavy Goods Vehicle Trial Scheme

Kent's role as a UK Gateway means that a high proportion of HGV traffic heading to and from mainland Europe uses the county's road network. This is evidenced by the fact that freight vehicles account for approximately 40% of all vehicles on the county's strategic road network via the M2/A2 and M20/A20 corridors².

Considering the high density of HGV's on the road network, a pilot HGV control plan (trial scheme) which has the objective of considering the possibility of concentrating goods vehicles on the most suitable routes is being considered for implementation. The control plan will reduce congestion and minimise the worse environmental and social effects of HGV movements whilst recognising the need for effective and efficient transport links.

A2070 Flemmish Roundabout

Flemmish roundabouts are a new design concept to the United Kingdom. This type of roundabout provides a spiralling flow of traffic requiring drivers to choose their direction before entering the roundabout. The roundabout consists of lanes physically separating traffic using rubber kerbs. Figure 1 inserted below shows an example of a Flemmish roundabout layout. The first Flemmish-roundabout was built in the Netherlands in 2000 and due to the popularity and effectiveness there are known to be at least 204 of these junctions in the Netherlands alone. Studies have shown that implementation can result in a 46% capacity increase and reduction in conflict points of approximately 50%, therefore resulting in reduction in crashes and congestion.

² Department for Transport, Kent Corridor Evidence Report, 2014

Figure 1: Example of a Flemish roundabout layout



The existing A2070 roundabout suffers from significant congestion and has been on the KCC crash cluster list for both 2016/17 and 2017/18 with 11 crashes happening in the last three years. Therefore, the proposed scheme at the A2070 roundabout was an ideal opportunity to try a new type of scheme that will likely improve roundabout capacity and safety hence also tackling congestion experienced.

INRIX

Roadway analytics based high-definition roadway database and historical data provides technical analysis, charts, tables and visualisations of collated traffic data for urban roads. The data enables before/after studies or comparison and utilises visualisation to communicate findings. The ability that this software provides for KCC to improve our understanding of how our network operates, improved monitoring of network performance, identify opportunities for improved management, identify and prioritise congestion hotspots where appropriate measures can be considered and implemented. The system permits the evaluation of journey time data and enables a comparison before and after any improvements or schemes are implemented and provides verification of the effectiveness of any measures introduced. The system can also produce regular key performance indicators, for example, journey times.

Location Description

KCC and its 12 district councils administer most of the traditional county of Kent, a total of 3,352km². Medway Council (MC) is a unitary authority which administers the remainder (192km²) consisting of the urban agglomeration of Gillingham, Chatham, Rochester and Strood amongst others. Together, KCC and MC have around 300 town and parish councils.

With regards to transport, Kent is well connected, as High Speed 1 operates through the county offering frequent services from Ebbsfleet and Ashford International stations 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 is undergoing a £200million expansion to meet

growing demand for cross Channel freight. Kent is a major employment centre with over 56,000 businesses providing around 575,000 jobs.

The two major road corridors in Kent are the M2/A2 route from Dartford to Dover via the Medway Towns and Canterbury, and the M20 from south-east London to Folkestone via Maidstone and Ashford. Other trunk routes in the county include the A249 Sittingbourne to Sheerness, the A2070/A259 route from Ashford towards Hastings in East Sussex, and the A21 from Sevenoaks also towards Hastings.

Kent also has more motorways by distance than any other county in the UK, totalling 173km. In addition to the M2 and M20 discussed above, part of the M25 runs through Kent, between Westerham and Dartford. The M26 motorway provides a short link between the M25 at Sevenoaks and the M20 near Wrotham.

Swanley Station Congestion Relief

Swanley is located approximately 20 miles South-East of London and within close proximity to the M20/M25 interchange. The station itself is roughly ½ mile outside of the town centre which is served by around 10 trains per hour to destinations such as London Victoria, Ashford International and Dover Priory.

Dover TAP Congestion Strategy

The Port of Dover located on the South-East coast of England is one of Europe's busiest ports, taking around 12 million passengers per year³. The cross-channel port which is accessible by road from the M20/A20 and the M2/A2, has had freight traffic increase by around a third in the past five years, with the port handling around 2.6m lorries in 2017⁴.

Heavy Goods Vehicle Trial Scheme

Kent is home to around 3,352km² of strategic highway and is also seen as the UK's Gateway due to being home to the country's busiest and most successful ferry port at Dover. With freight vehicles accounting for approximately 40% of all vehicles on the county's strategic road network it is important to have a procedure in place that enables the network to operate optimally.

Flemmish Roundabout

The A2042 in Ashford extends from the north of the town centre, across town approximately 2.5km to the south where it merges to become the A2070. The proposed Flemmish roundabout will be located at the existing 4-arm roundabout junction of the A2042 Ave Jacques Faucheux, A2042 Bad Munstereifel Road and Malcolm Sargent Road located in the south of Ashford.

³ Port of Dover, Annual Traffic Statistics (<http://www.doverport.co.uk/about/performance/>)

⁴ Record number of lorries using Dover port raises fears of Brexit delays, Lisa O'Carroll, The Guardian, 9 Jan 2018 (<https://www.theguardian.com/uk-news/2018/jan/09/record-number-of-lorries-using-dover-port-raises-fears-of-brexit-delays>)

INRIX

Due to Kent having a strategically important road network for the UK, it is important that KCC implement new innovative solutions and analytics. The implementation of roadway analytics throughout the county of Kent will enable a better understanding of the network operations and be able to improve the ability in identifying and prioritising congestion hotspots.

Policy Context

National Transport Priorities

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

In its National Infrastructure Delivery Plan 2016-2021, the Government outlines how investment in infrastructure “will drive wider economic benefits, including:

- Supporting growth and creating jobs in the short term as projects are built – especially where public investment is used to attract private investment
- Raising the productive capacity of the economy in the long term as the benefits of new infrastructure are felt; reduced transaction costs; larger and more integrated labour and product markets; and better opportunities to collaborate and innovate
- Driving efficiency – enabling greater specialisation and economies of scale
- Boosting international competitiveness – attracting inward investment and enabling trade with foreign partners”

The KSCMP scheme aims to support these benefits most predominantly by supporting schemes which will enable growth and opportunities across the county.

Regional Transport Priorities

South East LEP: Growth Deal and Strategic Economic Plan 2014

In March 2014, SELEP submitted their Strategic Economic Plan (SEP). The SEP document outlines the case for investment into infrastructure, enterprise and employment that is required for the South East region’s economy to continue its successful upward trajectory.

The Kent and Medway Growth Deal forms part of the SEP and indicates the intention to invest over £80million each year over the six-year SEP plan, in order to:

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

Strategic congestion management in the form of the KSCMP is established as a county-wide priority in the SEP. Traffic congestion is highlighted as a significant constraint to growth in the Canterbury district and in the town centres on Maidstone, Tonbridge, Tunbridge Wells and Sevenoaks. Therefore, Kent stands to benefit from the fulfilment of the criteria of the Kent and Medway Growth Deal.

Local Transport Priorities

Kent is South East England's fastest recovering economy 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 the road. 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.

Local growth 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 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.

Growth without Gridlock

Growth without Gridlock recognises that sustainable economic growth and regeneration is reliant on comprehensive and resilient transport networks. The efficiency of the network affects travel times and reliability for business, freight and logistic operations as well as local residents. Working to this end, the proposed package of schemes as part of the KSCMP, will bring together ITS initiatives to transport corridors to improve journey reliability and accommodate forecast increase in travel demand.

Some of the key transport challenges identified in 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.

The schemes detailed in this business case, as part of the 2019/20 KSCMP, align with the policies in Growth without Gridlock as they are located in or between areas undergoing growth and will contribute to creating a more efficient transport network within Kent.

Local Transport Plan 4: Delivering Growth without Gridlock 2016-2031

Kent's fourth "Local Transport Plan (LTP4), 2016-31" sets out KCC's Strategy and Implementation Plans for local transport investment to 2031. It sets out policies to deliver strategic outcomes for transport and is accompanied by implementation plans and a methodology for prioritising investment in transport infrastructure.

Kent's Local Transport Plan 4 (LTP4) 2016-2031 aims to "deliver safe and effective transport, ensuring that all Kent's communities and businesses benefit, the environment is enhanced,

and economic growth is supported". The five overarching policies targeted at achieving these aims are;

- Economic growth and minimised congestion;
- Affordable and accessible door-to-door journeys;
- Safer travel;
- Enhanced environment; and
- Better health and wellbeing.

The transport priorities are described in the LTP4 as being strategic, countywide or local. LTP4 refers specifically to the KSCMP, for which this business case is prepared, as an integral part of the countywide plan which seeks to improve journey time reliability and in doing so support development and economic growth.

Need for Intervention

There are several challenges facing Kent and the main 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 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
- The housing growth planned for Kent could result in an extra 250,000 car journeys on the County's roads every day

LTP4 recognises that "Funding for local transport schemes is essential to facilitate housing growth" and "Efficient transport that reliably connects places is vital for economic Growth without Gridlock". Regeneration in East Kent is particularly dependent on improving accessibility. The Kent network suffers from unsuitable levels of congestion and has a lack of resilience.

Traffic Congestion

LTP4 notes the opportunities for growth for Kent arising from the proximity to London, access to nationally important ports and major road and rail links to UK and Europe. The potential for growth could be inhibited by ever increasing congestion on major local and strategic routes across Kent. Growth across the county will be constrained unless this can be addressed by investing in increasing capacity or reducing demand on the network.

Swanley Station Congestion Relief

Swanley station serves around 1.5m passengers per year. The main access to the station is via Station Approach which is a narrow road which includes parking along the southern side of the road. This creates a single track which then serves as the main access to the station. During peak times, the inability of vehicles being able to pass each other on Station Approach leads to significant congestion issues which also backs up onto the surrounding road network further exacerbating congestion experienced within Swanley.

With the implementation of a new one-way system and enhancements to walking and cycling routes to promote a more attractive route for mode users, this will lead to greatly improved congestion and journey times to and from the station as well as on the surrounding road network in Swanley.

Dover TAP Congestion Strategy

The Port of Dover handles over 8,000 freight vehicles on a typical day and this has significant impacts on the town centre, especially when services are disrupted. Dover TAP was introduced to hold port bound lorries outside the town on the A20 during busy periods to prevent lorries queuing in central Dover causing serious congestion.

Dover TAP has proved a valuable tool in freight management, therefore with the added implementation of improved traffic signal operations and new ITS technologies, this will maximise the potential benefits that can be achieved in relieving congestion.

Heavy Goods Vehicle Trial Scheme

Approximately 40% of all vehicles on Kent's strategic road network are freight vehicles. Considering the high density of HGV's on the road network, a pilot HGV control plan (trial scheme) which has the objective of considering the possibility of concentrating goods vehicles on the most suitable routes is being considered for implementation. The control plan will reduce congestion and minimise the worse environmental and social effects of HGV movements whilst recognising the need for effective and efficient transport links.

A2070 Flemmish Roundabout

The existing A2070 roundabout suffers from significant congestion and accidents. The proposed innovative Flemmish roundabout will result in an increase in capacity and reduction in conflict points, therefore resulting in a better operating junction hence relieving congestion experienced.

Dependent Development

The housing growth planned for Kent could result in an extra 250,000 car journeys on the County's roads every day. This shows that there is a large amount of development happening within Kent. With this increase in development it is important to ensure that the road network has the capability to cope with the increase in demand and adequate access to new developments within the county.

Swanley station is due to be redeveloped and regenerated in order to improve passenger experience and flow within and through the station. The actual redevelopment includes an extension of the station building at the south and northern entrances and rearranging the layout to create space to allow for additional growth in passenger numbers. It will also provide space for a tenancy on the southern side and increased surveillance and lighting to improve perceptions of safety and to address anti-social behaviour. The redevelopment of the station coupled with improved access will lead to a greater level of mode shift towards rail removing car trips from the road network. Whilst the station redevelopment will be complimented by the congestion relief scheme, they could each be delivered in isolation and are not dependant on the other coming forwards.

When considering the other schemes that make up this KSMCP, there are no direct dependent developments.

Supporting Economic Growth

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.

Kent's economy is not as prosperous as other parts of the south east, with a Gross Value Added (GVA) per head of population (£18,994) well below the national average (£25,843), and relatively high unemployment rates in some areas. 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.

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.

Swanley Station Congestion Relief

Swanley is Sevenoaks district's second town centre, with a population of approximately 16,000 people. It sits just inside the M25 and alongside the A20 with excellent rail links in to London which makes it a desirable location for development. The Sevenoaks Core Strategy was adopted in February 2011, covering the period up to 2026. Policy LO4 of the Core Strategy seeks to deliver new homes and jobs in Swanley as well as increasing the attractiveness of sustainable transport modes with a focus on regeneration and redevelopment within the urban area. Policy LO5 aims to bring about improvements in the town centre, including a mix of new uses, better links to the station and environmental improvements. Easing congestion around Swanley Station will help to unlock the anticipated mixed-use developments within the area (in particular Bevan Place and the U&I town centre regeneration).

Dover TAP Congestion Strategy

There is a huge amount of anticipated development within Dover, and undoubtedly reduced impact of congestion within the town caused by Port disruption will lead to developments coming forwards. This could include; Dover Waterfront mixed use development with up to 800 new dwellings, Dover Mid Town – 100 dwellings and 1500m² retail and Dover Western Docks Revival.

A2070 Flemmish Roundabout

There is significant development planned in the surrounding areas to the A2042/A2070 roundabout, which could be unlocked by reducing congestion in the area. The proposed developments most directly affected by this roundabout are; Waterbrook – 300 dwellings and 20ha employment, Finberry Northwest – 300 dwellings and 8,500m² employment, Parkfarm Southeast – 250 dwellings and Former Newtown site – 450 dwellings.

Improving Access to Jobs and Services

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 most 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.

Swanley Station Congestion Relief

Rail passengers using Swanley station increased by 7.8% from 2016-17 to 2017-18. It is anticipated that passengers are going to continue to increase year on year, especially due to the direct service to London from Swanley. With the station's redevelopment and improved accessibility, this will in turn lead to an increased access to jobs, education and health by rail.

Dover TAP Congestion Strategy

The Port of Dover handles 13 million passengers, 2.5 million freight vehicles and supports 22,000 jobs, many of which are in the local community. The implementation of improved traffic signal operations and new ITS technologies will maximise the benefits of the Dover TAP which improves access to the jobs and services in the town during busy times.

Heavy Goods Vehicle Trial Scheme

Kent's highway network is significantly HGV dense, with 40% of all vehicles on the road being HGV's. With the ability to be able to concentrate goods vehicles on the most suitable routes, this will improve traffic conditions on the wider network and ensure that HGV's are also travelling on the most efficient route for their journey. These combined together will lead to better operating highway network, therefore improving journey times and reliability for journeys to work, school etc.

A2070 Flemmish Roundabout

The A2070 junction is on a major route into and out of the centre of Ashford which has strategic function, serving the station and the town centre and routes to the south of the town. The poor operational efficiency of the junction is a constraint to development opportunities. The improvement scheme will unlock the potential development and improve access to the transport interchange at the station for employees and residents.

INRIX

INRIX provides KCC the ability to improve understanding of how the network operates, improved monitoring of network performance, identify opportunities for improved management and identify and prioritise congestion hotspots where appropriate measures can be considered and implemented. This in turn will allow Kent's highway network to operate more efficiently as areas with poor performance can be solely targeted. This will allow for journey time and reliability improvements for journeys to jobs and services.

A Safer Healthier County

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 CO₂;
- Many of Kent's roadside air quality sites failed to meet the annual mean NO₂ objective; and
- There are significant health inequalities within Kent.

Swanley Station Congestion Relief

The station improvement scheme that aims at improving station access for vehicles also improves access to the station for active mode users and will also impact journey reliability for buses.

Heavy Goods Vehicle Trial Scheme

The control plan will reduce congestion and minimise the worse environmental and social effects of HGV movements whilst recognising the need for effective and efficient transport links.

Sources of Funding

Whilst the Swanley Station redevelopment scheme is being funded from the West Kent LSTF package, all funds from this package are attributed to existing schemes and as such there is no additional funding available to deliver this additional aspect of the project. Contributions to fund the proposed congestion relief scheme have been secured from Network Rail however, there is a funding gap, of which £425,021 is being sought from the Kent Strategic Congestion Management Programme.

There is no further funding available from National Stations Improvement Programme (via Network Rail) or other sources to deliver this project. However, its completion is expected to unlock further private investment in the location, including housing and employment developments, in particular on the Bevan Place site located within 500m of the Station Approach Road.

For all other schemes local contributions have been sought where possible, however there is still a £702,000 funding gap which is sought from the Kent Strategic Congestion Management Programme.

The total funding sought from KSCMP is £1,127,021.

Impact of Non-Intervention (Do-Nothing)

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 KCC 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 network will not be resilient enough to respond to disruption and resilience to incidents will continue to 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
- The ongoing Air Quality issues will be exacerbated without the mitigation afforded by the scheme

Swanley Station Congestion Relief

The main access to the station is via Station Approach which is a narrow road which includes parking along the southern side of the road. This creates a single track which then serves as the main access to the station. During peak times, the inability of vehicles being able to pass each other on Station Approach leads to significant congestion issues which also backs up onto the surrounding road network further exacerbating congestion experienced within Swanley.

Dover TAP Congestion Strategy

Dover TAP is a temporary traffic management system which queues port-bound lorries in the nearside (left) lane of the A20 after the Roundhill Tunnel to prevent Dover becoming congested with traffic. Even with the implementation of the TAP, Dover still suffers from significant congestion problems when disruption occurs at the port.

Heavy Goods Vehicle Trial Scheme

Kent's highway network is significantly HGV dense, with 40% of all vehicles on the road being HGV's. This is due to the facilities and services that are located within the county. The sheer number of HGV's using the network creates congestion and effects environmental and social indicators within the county.

A2070 Flemmish Roundabout

The A2070 junction is on a major route into and out of the centre of Ashford which has strategic function, serving the station and the town centre and routes to the south of the town. The poor operational efficiency of the existing junction leads to significant congestion and has been on the KCC crash cluster list for both 2016/17 and 2017/18 with 11 crashes happening in the last three years.

INRIX

INRIX provides KCC the ability to improve understanding of how the network operates, improved monitoring of network performance, identify opportunities for improved management and identify and prioritise congestion hotspots where appropriate measures can be considered and implemented. Without the implementation of roadway analytics Kent will not be able to analysis the performance of the network and identify and prioritise areas that require action.

Options Assessment

The KSCMP strategy incorporates a methodology of assessing areas or road links that suffer from congestion and unreliability. The strategy uses several criteria to score areas or road links that are then assessed in more detail to establish the worst performing links. The findings obtained from this strategy then feed into design iterations / options assessment in order to produce the most robust improvement scheme.

Dover TAP queues port-bound lorries in the nearside (left) lane of the A20 after the Roundhill Tunnel to prevent Dover becoming congested with traffic. With the added implementation of improved traffic signal operations and new ITS technologies used in conjunction with Dover TAP will help to significantly alleviate congestion in Dover. Appendix G shows the measures that were considered as a part of this scheme with different combinations of the measures assessed and reviewed. The preferred option for Dover TAP was selected from Appendix G.

The main access to the station is via Station Approach which is a narrow road which includes parking along the southern side of the road. This creates a single track which then serves as the main access to the station. This road during peak hours becomes heavily congested affecting the wider network also. A solution of removing parking to provide 2-way traffic flow in and out of the station car park was considered. However, this option was deemed unacceptable due to the large revenue loss for Southeastern and Network Rail. Therefore, due to the constraints that the parking creates, the preferred option of a one-way system was the only other viable alternative.

Objectives of Intervention

Project Objectives

Objective 1: Alleviate congestion by allowing better flow of traffic.

Objective 2: Supporting economic development in Kent.

Objective 3: To promote accessibility to jobs and services for all.

Objective 4: Provide a resilient network that can respond to disruption and incidents.

Objective 5: Improve air quality.

Problems or opportunities the project is seeking to address

Opportunity 1: Improve car journey times.

Opportunity 2: Improve journey time reliability.

Opportunity 3: Increase public transport modal split and reduce public transport journey times.

Opportunity 4: Improvement of the ability of the transport system to function during adverse conditions and quickly recover to acceptable levels of service after an event.

Opportunity 5: Reduce carbon dioxide and other greenhouse gas emissions.

Table 4: Problems, opportunities and objectives of the scheme

	Problems / opportunities identified in Need for Intervention section				
	Problem / Opportunity 1	Problem / Opportunity 2	Problem / Opportunity 3	Problem / Opportunity 4	Problem / Opportunity 5
Objective 1	✓✓✓	✓✓✓	✓✓	✓✓	✓✓
Objective 2	✓✓	✓✓	✓✓	✓✓	✓
Objective 3	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓
Objective 4	✓	✓✓	✓	✓✓✓	✓
Objective 5	✓	✓	✓✓	✓	✓✓✓

Constraints

The key constraint likely to affect delivery of the KSCMP is the LGF funding allocation to be granted by SELEP.

Scheme Dependencies

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

A list of risks has been prepared as part of the Management Case. The delivery of the KSCMP is dependent on these risks either not arising or being sufficiently mitigated so that scheme delivery remains unaffected.

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

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

Project Delivery

- Concurrency with multiple suppliers
- Teething problems with operations
- Competent staff
- Any land acquisitions/ CPO procedures taking longer than allowed for
- Unforeseen Statutory Services
- Unexpected difficulties during construction
- Increased environmental requirements

Project Funding

- Changes/ uncertainty over funding streams
- Project overspends
- Changes in political direction

Scheme Benefits (including wider economic benefits)

The schemes are expected to benefit Kent's residents, environment and economy in the following ways:

- Improved accessibility to jobs, education and health by rail, road and public transport
- The opportunity for development, in the form of housing and employment growth, because of a better operating highway network
- More reliable, resilient and better operating highway network that allows businesses to operate more efficiently
- Health and wellbeing benefits, due to the improved provision of active mode routes and improved journey reliability for buses because of reduced congestion. Which in turn result in improved air quality
- Reduce congestion and minimise the worst environmental and social effects of HGV movements

Key Risks

The key risks to project delivery, and the realisation of the expected scheme benefits, are as follows:

- Southeastern do not win the new franchise
- BREXIT impacts on measures to be delivered in Dover
- Lack of political/residential support for schemes

Stakeholder Awareness

Consultation with the community, members, and local representatives is a vital part of a scheme's 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. No formal stakeholder engagement has taken place on the various scheme elements of this business case. However, on the Swanley improvement works, discussions between KCC, Sevenoaks District Council, Southeastern and Network Rail to date have been positive. KCC will develop a Communications and Stakeholder management strategy which will provide a detailed approach to stakeholder management. The plan will identify agreed ways of working amongst partners, key messages and a stakeholder analysis plan for future action which targets specific stakeholder groups. It will also provide timescales and attendees for the stakeholder meetings which will be held throughout delivery of the project.

Whilst communication is regular and ongoing with stakeholders through meetings, further consultations will be scheduled as each scheme progresses, with events scheduled for the 2019/20 financial year. The list of Stakeholders identified by KCC is neither definitive nor exhaustive and will be added to during the transport business case process. The following have been identified at this stage:

- Members of Parliament for Sevenoaks, Dover and Ashford
- KCC and District Councillors
- District Councils
- Town and Parish councils
- Network Rail
- Highways England
- SouthEastern
- South East Local Enterprise Partnership
- Local residents and businesses
- Emergency Services

- Regular users of affected transport facilities (road, bus, walk and cycle)

In addition to these stakeholders, it is anticipated that a number KCC staff will be consulted across a range of departments.

Powers and Consents

For the purpose of this business case, powers and consents is not applicable and therefore has been excluded.

Economic Case

Preferred Option

The KSCMP is a continuation of improvements being made by KCC to maximise the efficiency of the local highway network as traffic levels increase in line with development. The Programme is to be delivered between the financial years of 2015/16 and 2020/21 and the total Programme value is £4.8million. This business case will apply for the programme funding for financial year 2019/20 equating to approximately £1.12m.

The KSCMP strategy incorporates a methodology of assessing areas or road links that suffer from congestion and unreliability. The strategy uses several criteria to score road links that are then assessed in more detail to establish the worst performing links. The new Local Transport Plan adopts this approach to tackle unreliable sections of the road network as a way of supporting economic growth.

For the 2019/20 KSCMP funding allocation five schemes have been identified and developed to tackle hotspots, these schemes are:

Swanley station congestion relief

Swanley station served approximately 1.5m people between 2017-18, which is an increase of 7.8% on the 2016-17 station figures⁵. The main access to the station is via Station Approach which is a narrow road which includes parking along the southern side of the road. This creates a single track which then serves as the main access to the station. During peak times, the inability of vehicles being able to pass each other on Station Approach leads to significant congestion issues which also backs up onto the surrounding road network further exacerbating congestion experienced within Swanley.

The station is being redeveloped through the West Kent LSTF bid. The proposed works included within this LGF funding bid comprises of access improvements by creating a new one-way system and enhancements made to walking and cycling routes to promote a more attractive route for active mode users. When coupled with the station redevelopment, this scheme will lead to improvements in congestion and large benefits to station users.

A2070 roundabout improvements

Flemish roundabouts are a new design concept to the United Kingdom. This type of roundabout provides a spiralling flow of traffic requiring drivers to choose their direction before entering the roundabout. The roundabout consists of lanes physically separating traffic using rubber kerbs. The first Flemish-roundabout was built in the Netherlands in 2000 and due to the popularity and effectiveness there are known to be at least 204 of these junctions in the Netherlands alone. Studies have shown that implementation can result in a 46% capacity increase and reduction in conflict points of approximately 50%, therefore resulting in reduction in crashes and congestion.

⁵ Office of Rail and Road, Estimates of Station Usage 2017-18, 11 December 2018

The existing A2070 roundabout suffers from significant congestion and has been on the KCC crash cluster list for both 2016/17 and 2017/18 with 11 crashes happening in the last three years. Therefore, the proposed scheme at the A2070 roundabout was an ideal opportunity to try a new type of scheme that will likely improve roundabout capacity and safety hence also tackling congestion experienced.

Dover TAP congestion strategy

Dover TAP is a temporary traffic management system which queues port-bound lorries in the nearside (left) lane of the A20 after the Roundhill Tunnel to prevent Dover becoming congested with traffic and helping to improve its air quality. It is not an alternative to Operation Stack but ensures that the town of Dover is kept free of stationary port-bound traffic when the port is experiencing minor disruption.

Even with the implementation of the TAP, Dover still suffers from significant congestion problems when disruption occurs at the port. The proposed congestion strategy which is a package of improvements aimed at improving congestion and reducing the impact of TAP on the town includes; the enhancements of traffic signal operations around key network junctions, the introduction of new ITS technologies and the provision of bus priority linking to a future rapid bus transport scheme.

Heavy goods vehicle trial scheme

Kent's role as a UK Gateway means that a high proportion of HGV traffic heading to and from mainland Europe uses the county's road network. This is evidenced by the fact that freight vehicles account for approximately 40% of all vehicles on the county's strategic road network via the M2/A2 and M20/A20 corridors⁶.

Considering the high density of HGV's on the road network, a pilot HGV control plan (trial scheme) which has the objective of considering the possibility of concentrating goods vehicles on the most suitable routes is being considered for implementation. The control plan will reduce congestion and minimise the worse environmental and social effects of HGV movements whilst recognising the need for effective and efficient transport links.

INRIX roadway analytics

Roadway analytics based high-definition roadway database and historical data provides technical analysis, charts, tables and visualisations of collated traffic data for urban roads. The data enables before/after studies or comparison and utilises visualisation to communicate findings. The ability that this software provides for KCC to improve our understanding of how our network operates, improved monitoring of network performance, identify opportunities for improved management, identify and prioritise congestion hotspots where appropriate measures can be considered and implemented. The system permits the evaluation of journey time data and enables a comparison before and after any improvements or schemes are implemented and provides verification of the effectiveness of any measures introduced. The system can also produce regular key performance indicators, for example, journey times.

⁶ Department for Transport, Kent Corridor Evidence Report, 2014

Assessment Approach

In line with the proportionate approach, KCC has prepared a mixture of quantitative and qualitative evidence to support the scheme economic case. For schemes with relatively small cost, mainly qualitative evidence has been assembled. Qualitative assessments have been undertaken for Dover TAP, HGV Trail Scheme, A2070 Flemmish Roundabout and INRIX due to the fact that some of schemes are at initial design stage and a lack of supporting modelling data information and therefore quantifying the associated benefits.

For the Swanley Station congestion relief and station improvement component part, the Present Value Costs and Benefits and resultant Benefit Cost Ratio (BCR) were determined based on journey time data from Google Maps, Office of Rail and Road (ORR) station usage estimates, Network Rail train timetables, local survey data and WebTAG Databook Nov 2018. This formed the assessment undertaken for journey time analysis. For the Active Modes section of the scheme, an assessment was carried out with reference to WebTAG unit A5.1: Active Mode Appraisal. The Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT) was used to analyse the benefits arising from a shift to active modes (namely walking and cycling). Appendix E shows the basic processes used to collect together the various cost and benefit elements for the appraisal of an active modes scheme. This method was used to generate the outcomes presented.

Economic Appraisal Inputs

Table 5: Economic appraisal inputs

Appraisal Inputs	Details
WebTAG version	WebTAG Unit A5.1, Nov 2018 WebTAG Unit A1.3, Nov 2018 DfT Active Mode Appraisal Toolkit, May 2018 TAG Databook, Nov 2018 v1.11
Opening year and last year of funding	Opening year – 2020 Last year of funding – 2020
Price Base/GDP Deflator	As per TAG Databook, Nov 2018 v1.11
Real Growth (i.e. above CPI or below)	As per TAG Databook, Nov 2018 v1.11
Discounting	WebTAG requires discounting to be applied at a rate of 3.5% per year for 30 years and 3.0% thereafter
Health Input	The following references/sources have been used: <ul style="list-style-type: none">• ONS sickness absence in the labour market, 2016• Compendium of physical activities• Systematic review and meta-analysis of reduction in all-cause mortality from walking and cycling and shape of dose response relationship, 2014• NTS 2012-14• Global burden of disease study, 2015
Occupancy rates	Taxi – 2.4 as per National Transport Survey 2002-16 Car - TAG Databook, Nov 2018

Economic Appraisal Assumptions

Table 6: Economic appraisal assumptions

Appraisal Assumption	Figure Used	Data Source / Evidence
Appraisal Period	20 years	As per TAG Unit A5.1, Nov 2018.
Decay Rate	0%	As per TAG Unit A5-1, the recommended default assumption for infrastructure investments for active modes is zero decay.
Number of Days	253	As per TAG Unit A5-1 and TUBA v1.9.11, it is assumed that the scheme is applicable for 253 days due to the commuting focus.
Percentage of journeys that are return journeys	90%	As per TAG Unit A5-1. There is no evidence to assume otherwise.
Number of walking journeys in do nothing scenario/without project	1946	Based on local survey data carried out at the scheme location.
Number of walking journeys in the do something scenario/with project	2141	Evaluation of evidence from the Sustainable Travel Towns Programme suggests that 10% is the lowest level of growth in walking achieved through improvements to existing infrastructure. This value is applied to the existing number of pedestrian journeys for the do-something scenario.
Average length of walking journey	1.18km	As per National Travel Survey Data 2016.
Average walk speed	5km/h	As per National Travel Survey Data 2016.
% otherwise using a car	11%	As per the literature review carried out by RAND Europe/Systra for DfT. Assumed to be the same as cycling diversion factors.
% otherwise using a taxi	8%	As per the literature review carried out by RAND Europe/Systra for DfT. Assumed to be the same as cycling diversion factors.
Number of cycling journeys in do nothing scenario/without project	101	Based on local survey data carried out at the scheme location.
Number of cycling journeys in the do something scenario/with project	127	Evaluation of evidence from the Sustainable Travel Towns programme and the Cycling Demonstration Towns programme suggests that 26% is the lowest level of growth in cycling achieved through improvements to existing infrastructure. This value is applied to the existing number of cycling journeys for the do-something scenario.
Average length cycling journey	5.6km	As per National Travel Survey Data 2016.
Average cycle speed	15km/h	As per National Travel Survey Data 2016.
% otherwise using a car	11%	As per the literature review carried out by RAND Europe/Systra for DfT.
% otherwise using a taxi	8%	As per the literature review carried out by RAND Europe/Systra for DfT.
Scheme area	Other urban	
Background growth	0.75%	As per National Travel Survey Data 2006-16.
Vehicle journey time in the do-nothing scenario/without project	10 / 9 mins (AM / PM)	Journey based on the average time taken to travel to the station on various routes (From Google Maps)
Vehicle journey time in the do-something scenario/with project	8 / 7 mins (AM / PM)	An 8% improvement in journey time has been assumed
Vehicle flow in the do nothing and do something scenarios	392	As per ORR Estimates of Station Usage 2017-18, with passenger growth, mode share, station usage profile and entry/exit proportion incorporated

Mode split percentages	Car - 29% Walking - 58% Cycling - 3%	As per local survey of mode share carried out in 2014-15
Period station usage profile	22.5% AM and 22.5% PM	As per Network Rail London Victoria to Swanley timetable
Station Road / Everest Place entry exit proportion	89%	As per ORR Estimates of Station Usage 2014-15 and local survey of mode share carried out in 2014-15
Passenger growth	7.80%	As per ORR Estimates of Station Usage 2017-18

As per WebTAG Unit A1.2 and TAG Databook 2018 the following has been applied to the 2018 price to obtain the 2010 discounted market price cost profile:

- Optimism bias (44%) to the scheme costs only
- It has been assumed that construction cost inflation is already considered therefore only an adjustment for general inflation has been applied
- Market price correction and discounting factors been applied

Sensitivity Tests

A critical issue with the appraisal of walking and cycling schemes is that the analysis can be highly sensitive to the forecasts and assumptions used. TAG Unit M4 – Forecasting and Uncertainty also recommends that, in addition to the Core Scenario, appropriate sensitivity tests should be carried out. Therefore, sensitivity tests have been undertaken to understand the sensitivity of both the active modes and journey time assessments in order to produce as robust an analysis as possible.

The following sensitivity tests were carried out:

- The existing evidence base is relatively sparse on how long the benefits of active mode schemes last. Therefore, the impact of the rate of decay was considered.
- The station demand is a strong driver behind the magnitude of benefits that accrue because of the Swanley station scheme. Therefore, Low and High Growth station usage (car, cycling and walking) has been considered. The methodologies to develop the growth factors are summarised below:

- Low Growth Scenario – National uncertainty factors, covering such items as GDP growth, fuel price trends, vehicle efficiency changes and other national trends, have been assessed by following the guidance given in TAG Unit M4, namely; to adjust the scheme opening year trip numbers as follows:

Active Modes - $-2.5\% \times \sqrt{(2020-2015)} = -5.6\%$

Car - $-2.5\% \times \sqrt{(2020-2018)} = -3.5\%$

Table 7: Low growth scenario assumptions

Appraisal Assumption	Assumption Description
Active modes growth	The factors outlined above have been applied to the 26% and 10% which are outlined in Table 6.
Car growth	The factors outlined above have been applied to the 7.8% passenger growth which are outlined in Table 6.
Opening year	2020
Base year	Active Modes – As per the year that the station usage data was collected – 2015 Car - As per ORR Estimates of Station Usage 2017-18 – 2018

- o High Growth Scenario – The national uncertainty has been assessed in a similar way to the Low Growth Scenario, namely; to adjust the scheme opening year trip numbers as follows:

Active Modes - $+2.5\% \times \sqrt{(2020-2015)} = +5.6\%$

Car - $+2.5\% \times \sqrt{(2020-2018)} = +3.5\%$

Table 8: High growth scenario assumptions

Appraisal Assumption	Assumption Description
Active modes growth	The factors outlined above have been applied to the 26% and 10% which are outlined in Table 6.
Car growth	The factors outlined above have been applied to the 7.8% passenger growth which are outlined in Table 6.
Opening year	2020
Base year	Active Modes – As per the year that the station usage data was collected – 2015 Car- As per ORR Estimates of Station Usage 2017-18 – 2018

Environmental Impacts

A qualitative score has been applied using professional judgement.

Table 9: Economic appraisal environmental assessment

Environmental Impact	Assessment
Noise	The proposed schemes are expected to result in limited impact in terms of noise and vibration, therefore a quantitative assessment has not been carried out (TAG Unit A3 November 2014). A qualitative score has been applied using professional judgement. <u>Neutral Impact</u>
Air Quality	The proposed schemes would be expected to reduce congestion in urban areas resulting in fewer vehicles idling at congestion and pollution 'hotspots'. However, given the scope of the schemes it is inappropriate to perform detailed air quality testing (TAG Unit A3 December 2015). A qualitative score has been applied using professional judgement. <u>Slightly Beneficial Impact</u>
Greenhouse Gases	The proposed schemes would be expected to reduce congestion in urban areas resulting in fewer vehicles idling at congestion and pollution 'hotspots'. However, given the scope of the schemes it is inappropriate to perform detailed carbon emissions assessment. A qualitative score has been applied using professional judgement. <u>Slightly Beneficial Impact</u>
Landscape	Any change to landscape value is expected to be small and limited to the corridors and junctions covered in the scheme. A qualitative score has been applied using professional judgement. <u>Neutral Impact</u>
Townscape	Although the urban hotspot schemes are expected to result in townscape changes, these are offset against the reduction of congestion in their immediate vicinities. A qualitative score has been applied using professional judgement. <u>Neutral Impact to slightly beneficial</u>
Heritage	Although the urban hotspot schemes are expected to result in environmental changes, these are offset against the reduction of congestion in their immediate vicinities. A qualitative score has been applied using professional judgement. <u>Neutral Impact</u>

Environmental Impact	Assessment
Biodiversity	Ecological impacts are unlikely with the introduction of any of the component parts of the programme. Works 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. <u>Neutral Impact</u>
Water Environment	The hotspot mitigation schemes are unlikely to significantly affect the water environment. A qualitative score has been applied using professional judgement. <u>Neutral Impact</u>

Social Impacts

Table 10: Economic appraisal social impacts assessment

Social Impact	Assessment
Accidents	All the proposed schemes are likely to improve safety for users and reduce accident rates. However insufficient data is available to determine a quantitative assessment and a qualitative score has been applied using professional judgement. <u>Largely Beneficial Impact</u>
Physical Activity	The proposed scheme is expected to result in minimal impact in terms of physical activity. However, the Swanley station access improvements include walking and cycling improvements which will have a positive impact on physical activity of rail users. A qualitative score has been applied using professional judgement. <u>Neutral Impact</u>
Security	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). A qualitative score has been applied using professional judgement. <u>Slightly Beneficial Impact</u>
Severance	There is not expected to be any change in severance resulting from the scheme. Pedestrian crossings and signal phases will remain in situ at all hotspot sites. 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). A qualitative score has been applied using professional judgement. <u>Neutral Impact</u>
Journey Quality	Due to the low cost of the schemes and the dispersed locations of the improvements, it is not deemed appropriate to undertake a full assessment (i.e. completing TAG worksheets). A qualitative score has been applied using professional judgement. <u>Slightly Beneficial Impact</u>
Option values 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 (November 2014). <u>Neutral Impact</u>
Accessibility	Improvements in access to a number of services are expected. The hotspot schemes will deliver more accessibility to retail, education and leisure. A qualitative score has been applied using professional judgement. <u>Slightly Beneficial Impact</u>
Personal 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. <u>Neutral Impact</u>

Distributional Impacts

At this stage of the business case a distributional impacts assessment has not been undertaken.

Wider Impacts

At this stage of the business case a wider impacts assessment has not been undertaken.

Value for Money and Economic Results

Quantitative Assessment

Table 11 shows the costs and benefits of the Swanley station improvement scheme. Appendix F provides the Public Accounts tables for this KSCMP package. For this scheme, the benefits presented consist of the benefits that would arise due to the mode shift away from private car use and reduced journey time because of the improve one-way system implemented. This scheme accrues a PVB of £1.9m and a PVC of £0.2m. This generates a BCR of 9.1 which as per the DfT Value for Money Framework, is categorised as “very high” value for money. A BCR of 9.1 suggests that for each pound of Broad Transport Budget expenditure £9.1 of benefit to public value is expected to be generated. Therefore, when considering the appraisal results for this scheme it can be said that it is forecast to be successful.

Table 11: Economic appraisal value for money results (Swanley Station Congestion Relief only)

Analysis of Monetised Costs and Benefits	£000's PV (2010)
Present Value of Benefits	£1,940.29
Present Value of Costs	£214.39
Net Present Value	£1,725.90
Benefit Cost Ratio	9.1

Table 12 presents the total cost associated with 2019-20 KSCMP programme and the benefits that were able to be quantified (Swanley station was the only scheme that was able to be quantitatively assessed). The PVC of the whole KSCMP programme is £1.1m and the PVB is £1.9m which generated a BCR of 1.8. This equates to “medium” value for money as per the DfT Value for Money Framework. It must be noted, that the benefits presented in Table 12 are only those that would accrue for the Swanley station Congestion Relief. Once further detailed design is carried out on the other schemes within this package, this would enable a quantitative assessment to be carried out leading to a greater level of benefits being generated and a higher BCR being obtained.

Table 12: Economic appraisal value for money results (All schemes)

Analysis of Monetised Costs and Benefits	£000's PV (2010)
Present Value of Benefits	£1,940.29
Present Value of Costs	£1,097.33
Net Present Value	£842.96
Benefit Cost Ratio	1.8

Sensitivity Tests

Table 13 below shows the sensitivity tests carried out and the corresponding PVB, PVC and BCR obtained.

From the sensitivity tests carried out the findings are as follow:

- Adjusting the rate of decay from 0% to 5% (reduced use of active mode over time) as expected leads to a reduction in benefits generated. The reduction in benefits occurs mainly due to the reduction of physical activity.
- The results of the high and low growth sensitivity tests are an increase in high growth and decrease in low growth benefits generated. This is as would be expected with the results obtained sitting either side of the core growth scenario.
- Considering all sensitivity tests carried out, it can be said that the analysis is sensitive to small changes to assumptions and forecasts. However, the results obtained are logical.

Table 13: Analysis of monetised costs and benefits of sensitivity tests

Sensitivity Tests, Analysis of Monetised Costs and Benefits	£000's PV (2010) Swanley Station Congestion Relief Only	£000's PV (2010) All Schemes
Sensitivity Test 1 – 5% Decay		
Present Value of Costs (PVC)	£214.44	£1,097.38
Present Value of Benefits (PVB)	£1,527.16	£1,527.16
Benefit Cost Ratio (BCR)	7.1	1.4
Sensitivity Test 2 – Low Growth		
Present Value of Costs (PVC)	£214.45	£1,097.39
Present Value of Benefits (PVB)	£1,391.42	£1,391.42
Benefit Cost Ratio (BCR)	6.5	1.3
Sensitivity Test 3 – High Growth		
Present Value of Costs (PVC)	£214.32	£1,097.26
Present Value of Benefits (PVB)	£2,490.09	£2,490.09
Benefit Cost Ratio (BCR)	11.6	2.3

Qualitative Assessment

The introduction and combination of all schemes within this KSCMP will result in improved congestion and traffic conditions by:

- Swanley Station – new one-way system will improve traffic flow and access to the station by removing the inability of vehicles being able to pass on the narrow Station Approach
- Dover TAP – the use of improved traffic signals and ITS technology will reduce the impact of TAP on the highway network and journey time reliability
- HGV Trial – the control plan will concentrate HGV's onto the most suitable route thereby removing HGV's from highly congested and inappropriate areas therefore reduce congestion and improve journey time reliability
- INRIX – roadway analytics will enable KCC to gain a better understanding of the highway network, how it operates and hotspots that need to be prioritised

All schemes included within this KSCMP aim at improving congestion and making the highway network more efficient and resilient. Freer flowing traffic will improve fuel efficiency and air quality for all road users, businesses, pedestrians and residents. Kent can expect a more pleasant environment in terms of less traffic noise and fumes being produced in the areas where congestion is eased, and HGV's are diverted away from.

Better informed travel because of innovative solutions such as INRIX and VMS (a form of ITS), enables drivers to find the best route to their destination by providing information to drivers if a major incident occurs, so that they can alter their route to avoid the congestion and disruption. This will contribute to fewer road emissions due to fewer drivers joining the congestion in the area of the incident. The Cleopatra project in London found that 58% of respondents would respond immediately to VMS congestion warnings, of which 83% would reschedule their journey and 6% would shift modes.⁷

The introduction of physical interventions like a new Flemish roundabout and one system coupled with ITS and INRIX, will improve journey time and journey reliability over the whole network within Kent. Improvements to the already highlighted congestion hotspots, the ability to highlight future hotspots quickly and effectively and the capability to better inform road users will also create a much more resilient network that will have a beneficial knock on impact of improved highway safety.

⁷ Written evidence from Urban Traffic Management & Control Development Group (House of Commons – Transport Committee 2011)

Commercial Case

Procurement Options

KCC have identified two procurement options for the delivery of their LEP funded schemes.

The options are:

Full OJEU Tender

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

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

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

Delivery through existing Amey Highways Term Maintenance Contract (HTMC)

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

Preferred Procurement and Contracting Strategy

The preferred procurement route for the scheme is through the Amey HTMC. This option has been selected as the value of the scheme is less than the OJEU scheme value threshold. The Amey HTMC has already delivered the hotspot schemes in the 2015/16 and 2016/17 financial years and provides similar interventions in the form of construction and maintenance on the Kent highways network. The fact that the contracts are already in place and a mature market for project delivery has already been explored/tendered will help to alleviate potential risks and disbenefits which may otherwise occur from external (OJEU) procurement.

The preferred procurement route for the Swanley Station one-way scheme is for Southeastern (as the delivery partner) to externally procure a design and build contract through an open tender route to encourage competition and drive value for money.

Procurement Experience

KCC has successfully used both procurement methods for Local Growth Funded Projects. It has used Southeastern as the delivery partner on LSTF projects at stations which were delivered. Snodland Station forecourt scheme is an example of an LGF project delivered in this way, which was successfully delivered through a design and build contract let by Southeastern in 2015/16.

Previous experience has shown that when delivering schemes which are on Railway land it is time and cost effective for the delivery partner (Southeastern) to lead on the procurement. There are specific requirements and obligations on contractors who will work on railway land and Southeastern are best placed to manage this during the procurement process and through to supervising the works and scheme delivery.

KCC have a proven track record of procuring major transport schemes within the county. The most recent of which was the Local Growth funded, Maidstone Bridges Gyratory (MBG) project and the East Kent Access Phase 2 (EKA2). These all followed the County Councils approach to "Spending the Councils' Money".

The MBG, completed in March 2017, was designed to reduce congestion, improve journey time reliability and support economic growth. A complex project within the heart of a busy county town was successfully delivered on time and to budget whilst maintaining access for local businesses and commuters alike, this success was in part due to the use of procurement methods to ensure early contractor involvement in the scheme.

East Kent Access 2 Scheme, completed in May 2012, was designed to support economic development, job creation and social regeneration, improving access with high quality connections between the urban centres, transport hubs and development sites in East Kent. The scheme was successfully delivered within budget and ahead of programme through the adoption of a robust management and procurement tools. The total value of the scheme was £87m of which £81.25m was funded by Central Government and was awarded a regional Institution of Civil Engineers (ICE) Excellence Award.

A further two LGF projects are currently under construction, these are St Clements Way, Greenhithe and Lower Road, Minster. Both are due for completion by Spring 2019.

Each of these projects has been completed within the allocated budget and on time. The appointed contractors have all been proactive in resolving issues in partnership to the mutual benefit of all parties. Lessons learnt exercises have been undertaken at the end of each contract and where appropriate improvements made in the procurement process and contract documents.

These projects demonstrate that KCC has a considerable amount of recent experience in procuring major road schemes and effectively managing construction contracts to achieve favourable outcomes.

Competition Issues

The Southeastern franchise is currently up for renewal, with the DfT expecting to open the competition in June 2020. It is unlikely however that this would affect the delivery of the proposed schemes because Network Rail are fully engaged in delivering the current Swanley Station Redevelopment scheme, and as such would take on the delivery of the expansion if Southeastern were unable to do so.

Human Resource Issues

The proposed component schemes are intended to be delivered using a collaborative approach between KCC staff and their appointed consultants. KCC have identified appropriately trained and experienced staff that will be responsible for the delivery of the

schemes. The identified staff fulfilling the Project Sponsor and Project Manager roles for the scheme has been ring-fenced to support the scheme throughout its duration and will have more junior staff available to support them.

KCC will also utilise dedicated Amey resource through the existing HTMC contract to undertake the construction of the highway scheme elements and to provide early contractor involvement (ECI), where appropriate, to the design process to ensure best value.

Risk and Mitigation

Engaging early with contractors will assist in identifying potential threats posed to the delivery of the schemes. The schemes deliverables will be risk assessed and the mitigating methods to be apportioned with the client and contractors appropriately. The KCC contractors are long term partners that have a vested interest in delivering schemes, using close working relationships to avoid unnecessary risk to delivery. Telent Technology and Amey have been utilised in tandem in the past to deliver schemes with a minimal risk. These will be explored further as the schemes progress.

Maximising Social Value

Initially opportunities for social value will be considered as part of the design process. Social value will then be identified as a requirement in the contract and measures taken to review and record the benefits being realised through the delivery of the project. Minimum levels of social value are included within the contract documents i.e. expectations for the number of trainees employed by the contractor. On top of the minimum levels requested there will be a quality element in the tender where each of the Contractors are able to bring their own ideas and innovation to providing social value.

The 5 key areas that are focused on are:

- Management and Control of Waste
- Use of local SME's and Third Sector Organisations
- Training opportunities for employees especially through apprentices' schemes
- Employment of the Long Term unemployed
- Opportunities for improving the Local Environment

Listed below are examples of Social Value provided on recent LGF funded schemes.

- Production and management of Site Waste Management Plans
- Maintaining a register of local SMEs employed through the contract and monitoring against set targets
- Use of the Third Sector Organisation to provide traffic signs for the project
- Employment of trainee supervisors and site engineers
- Summer time Work Experience for Graduate Engineers
- Enabling 6th Form Visits to the site to experience construction works
- Volunteering Days, clearing litter along a river bank adjacent to the works
- Donating wooden toys made by the company apprentices to local schools and hospitals
- Donating old guard railing to a local sports club
- Undertaking repairs to the access track to a local charity

- Supporting the local (In Bloom) competition with floral decoration provided on the site hoarding
- Engaging with schools to produce street art for the site hoardings depicting local historical events
- Training opportunities for employees especially the through apprentices' schemes
- Employment of the Long Term unemployed
- Opportunities for improving the Local Environment
- Supporting local edible garden project
- Resurfacing of church car park and improving access facilities
- STEM activities for local primary schools

Financial Case

Total project value and funding sources

The total project value for this package of schemes is £1,697,021

The match funding sources are shown in Table 14. All the match funding is secure and confirmed for the financial years as shown below.

Table 14: Project funding sources

Funding source	Amount (£000)							Total
	17/18	18/19	19/20	20/21	21/22	22/23	23/24	
LGF		150	1,127					1,277
Network Rail				250				250
KCC - Integrated Transport Programme (ITP)			70					70
KCC – Kent Lane Rental income			90					90
Ashford Borough Council			5	5				10
Total project value		150	1,292	255				1,697

SELEP funding request, including type (LGF, GPF etc.)

LGF ask - £1,127,021

Costs by type

Table 15: Project costs broken down by type

Cost type	Expenditure Forecast							Total
	17/18 £000	18/19 £000	19/20 £000	20/21 £000	21/22 £000	22/23 £000	23/24 £000	
Design		50	157					207
Construction			848	250				1098
Services			20					20
Drainage			10					10
Contingency			54					54
Risk			153					153
Project Management			95					95
QRA								
Optimism Bias								
Monitoring and Evaluation			30	30				60
Total funding requirement		50	1367	280				1,697
Inflation (%)								

A further breakdown of the project cost is shown in Table 16 below, which shows the breakdown of the cost type for each individual scheme.

Table 16: Project costs by scheme and type

Project costs by scheme and type				
Cost type	18/19 £000	19/20 £000	20/21 £000	Total £000
Swanley Station Congestion Relief				
Design and prelims		67		67
GRIP 5-8 - Station Forecourt		13		13
GRIP 5-8 - Station Approach Footpath		75		75
GRIP 5-8 - Station Approach carriageway		150		150
Footbridge renovation			250	250
Drainage		10		10
External Services		20		20
Contingency		54		54
Project management		20		20
Risk		33		33
Monitoring and Evaluation		5	5	10
Total funding requirement		447	255	702
Inflation (%)				
Flemmish Roundabout				
Design and prelims	25			25
Construction		200		200
Project management		20		20
Risk		40		40
Monitoring and Evaluation		5	5	10
Total funding requirement	25	265	5	295
Inflation (%)				
Dover TAP Congestion Management				
Design and prelims	25	50		75
Construction		180		180
Project management		20		20
Risk		40		40
Monitoring and Evaluation		5	5	10
Total funding requirement	25	295	5	325
Inflation (%)				
HGV Trial				
Design and prelims		40		40
Implementation		90		90
Project management		30		30
Risk		20		20
Monitoring and Evaluation		10	10	20

Total funding requirement		190	10	200
Inflation (%)				
INRIX				
Procurement of Technology		140		140
Project management		5		5
Risk		20		20
Monitoring and Evaluation		5	5	10
Total funding requirement		170	5	175
Inflation (%)				
KSCMP Total	50	1367	280	1697

QRA

A contingency allowance has been applied to each scheme within this package of measures in line with the confidence in the cost estimates provided. For each element this contingency is at least 14%, in most cases it is 20%. Due to the relatively small scale of each individual scheme element, this is deemed adequate at this stage.

Funding profile (capital and non-capital)

The funding profile allows for construction of the Swanley Station Congestion Relief scheme to complete ahead of the station redevelopment scheme which will follow on from this element.

The match funding from Network Rail is secure for this project. The scheme is being constructed on station land, although some minor alterations will be required to the highway which will be completed via a Section 278 Agreement. The responsibility for future maintenance of the scheme will lie with Network Rail and the Train Operating Company (presently Southeastern). Therefore, there will be no future non-capital liabilities for KCC generated by this project.

Table 17: Project funding profile

Funding source	Expenditure Forecast							Total £000
	17/18 £000	18/19 £000	19/20 £000	20/21 £000	21/22 £000	22/23 £000	23/24 £000	
LGF		50	1,227					1,277
Network Rail				250				250
KCC - Integrated Transport Programme (ITP)			70					70
KCC – Kent Lane Rental income			90					90
Ashford Borough Council			5	5				10
Total Expenditure		50	1,292	255				1,697

Funding Commitment

Signed assurance relating to expenditure and programme delivery is included as Appendix A.

The Network Rail, ITP, Lane Rental and ABC funding for the project is assured.

Risk and Constraints

The risks are shown in the risk management plan (Appendix B). In summary, there are two risks with medium or high residual risk after mitigation. The first of these is that Southeastern do not win the new franchise, which would impact the project as they are the delivery partner. However, Network Rail are fully on board with the scheme and in the case that Southeastern are not awarded the contract, Network Rail would work with the new franchisee on the delivery of the scheme.

The second is regarding the unknown impacts of BREXIT within Kent, which could have a significant impact on the delivery of the Dover TAP congestion relief scheme. This remains a substantial concern, however the package of improvements contains significant opportunity to deliver certain aspects of the scheme in isolation, for example the linking of traffic signals.

Management Case

Governance

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. The KSCMP scheme has a designated project sponsor who is an appropriately trained and experienced member of KCC staff.

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

Figure 2: KCC LGF Meeting Governance Diagram

KCC LGF Meeting Governance Diagram								
Local Growth Fund	High level Agenda	Frequency	Attendees	Format	Scope	Agenda Items	Key Deliverables/Feedback	Templates
Sponsoring Group	Planning Design Construction Post Scheme Monitoring	Every two months - Can be called in emergency if required	Chair: TR MW/BC/SJ/KS/CH/TR/S N Supported by PB attendees as required	Face to face meeting	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 Communication/Stakeholder Engagement Issues/Risk/Change Decisions	Minutes of Meeting Action List/Decision Log Output distributed to all attendees + Programme Board Attendees where appropriate	Agenda Minutes Decision list
Sponsoring Group Progress Report	Decisions Needed	Every two months	LB	Report	To record progress/outstanding actions/issues that require a decision made by the board		Action list ready for the Sponsoring Group	Progress Report
Programme Board Meeting	Planning Design Construction Post Scheme Monitoring	Bi- Monthly	Chair: LB LB/KCC PMs/ External Suppliers	Face to face meeting	To discuss progress/preview next steps and discuss and resolve issues. Escalate issues/decisions required to the Sponsoring Group	LEP programme progress to date Programme financial reporting Communication/Stakeholder Engagement Issues/Risk/Change Internal Governance	Minutes of Meeting Action List Output distributed to all attendees + Steering Group attendees where appropriate	Agenda Minutes
Highlight Report	Identify key points for Programme Board Meeting	Monthly	LB	Report	To collate and streamline all reports highlighting areas of interest for the Programme Board meeting.		Used for Programme Board Meeting. Highlight report shared with PB attendees.	Highlight Report
Steering Group Meeting	Progress Update	Monthly/Fortnightly as required	Chair: KCC PMs All input staff - Project Team/KCC PMs/External Suppliers	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 e.g Risk Register/ Issues Log	Agenda Minutes Progress Report

List of Initials:

MW	Mike Whiting	Cabinet Member Planning, Highways, Transport and Waste
BC	Barbara Cooper	Corporate Director Growth, Environment and Transport
SJ	Simon Jones	Director of Highways, Transport and Waste
KS	Katie Stewart	Director of Environment, Planning and Enforcement,
CH	Cath Head	Head of Financial Management Strategic and Corporate Services.
TR	Tim Read	Head of Transportation for Growth, Environment and Transport
SN	Sarah Nurdén	Strategic Programme Manager (KMEP)
LB	Lee Burchill	Local Growth Fund Programme Manager for Growth, Environment and Transport

Approvals and Escalation Procedures

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

Project Steering Group (PSG) Meetings

PSG meetings are held fortnightly to discuss progress on the scheme. Progress is discussed in technical detail raising any issues or concerns for all to action. A progress report, minutes of meeting and an update on programme dates are provided ahead of the Programme Board (PB) meeting for collation and production of the Highlight Report.

Highlight Report

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

Programme Board (PB) Meeting

The PB meeting is held monthly and is chaired by the KCC LEP Programme Manager. Attendees include representatives from all three stages of the schemes (i.e. KCC LEP Management, KCC Sponsors, KCC PMs, External Consultant and 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 the meeting.

Escalation Report

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

Sponsoring Group (SG) Meeting

The SG meeting is held monthly and chaired by Tim Read (KCC Head of Transportation). Attendees are Barbara Cooper (Corporate Director), Simon Jones (Director of Highways, Transportation and Waste) and Lee Burchill Local Growth Fund Programme Manager. The meeting discusses high-level programme progress to date, financial progress, next steps and closes out any actions from the escalation report. 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).

Contract Management

KCC will enter in to a legal agreement with Southeastern (the delivery partner for the Swanley One Way scheme) which will set out the project scope, timescales, budgets and KPIs, as well as the risks to be managed by each of the parties. This has been successful in previous projects, for example Snodland Station Forecourt Scheme in ensuring that the project has been delivered to time, budget and quality.

For the remaining projects in the programme, KCC will ensure that robust contracts are in place with our suppliers and contractors to ensure that projects are delivered within scope and within deadlines and budget.

Key Stakeholders

Consultation with the community, members, and local representatives is a vital part of a scheme's 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. No formal stakeholder engagement has taken place on the various scheme elements of this business case. However, on the Swanley improvement works, discussions between KCC, Sevenoaks District Council, Southeastern and Network Rail to date have been positive. KCC will develop a Communications and Stakeholder management strategy which will provide a detailed approach to stakeholder management. The plan will identify agreed ways of working amongst partners, key messages and a stakeholder analysis plan for future action which targets specific stakeholder groups. It will also provide timescales and attendees for the stakeholder meetings which will be held throughout delivery of the project.

Whilst communication is regular and ongoing with stakeholders through meetings, further consultations will be scheduled as each scheme progresses, with events scheduled for the

2019/20 financial year. The list of Stakeholders identified by KCC is neither definitive nor exhaustive and will be added to during the transport business case process. The following have been identified at this stage:

- Members of Parliament for Sevenoaks, Dover and Ashford
- KCC and District Councillors
- District Councils
- Town and Parish councils
- Network Rail
- Highways England
- South Eastern
- South East Local Enterprise Partnership
- Local residents and businesses
- Emergency Services
- Regular users of affected transport facilities (road, bus, walk and cycle)

In addition to these stakeholders, it is anticipated that a number KCC staff will be consulted across a range of departments.

For the purpose of this business case, powers and consents is not applicable and therefore has been excluded.

Equality Impact

An Equalities Impact Assessment has been developed for the Swanley Station Redevelopment Scheme, and this is currently awaiting sign off.

The main findings of the EQIA show that whilst there may be some negative impact to all passengers during the construction period, the provision of the additional facilities will improve the access to the station for three protected groups (disability, age and pregnancy/maternity). For the remaining groups there is no evidence of a significant impact (either positive or negative).

The existing EQIA has considered the Congestion relief scheme in addition to the Station Redevelopment aspect.

An EQIA has yet to be undertaken for the remaining schemes, however one will be produced to support the scheme designs. The EQIA is a key document when developing the scheme designs. To inform the EQIA the consultation responses will be examined, and a further public engagement exercise will be undertaken as this specific scheme design develops in more detail including relevant consultation with local access groups.

Risk Management Strategy

Project risk is managed as an on-going process as part of the scheme governance structure.

The KSCMP 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. An example risk register is shown in Appendix B.

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.

Work Programme

The Gantt Chart showing the high-level work programme for the project is shown in Appendix C.

The critical path for the Swanley Congestion Relief project is as follows:

LGF funding awarded, design and build contract let, stakeholder engagement, detail design complete, construction.

Southeastern and KCC each have a project manager in place to take on the delivery of the project, the team has ample previous experience and a proven track record of delivering schemes of this nature. The only potential difference in the team is that the contractor for the design and build contract would differ depending on the procurement process. It would be ensured through the procurement process that the successful contractor has the relevant experience required to deliver the project.

Previous Project Experience

KCC have a proven track record of delivering major transport schemes within the county. The most recent of which was the Local Growth funded, LGF, Maidstone Bridges Gyratory (MBG) project, M20 Junction 4 bridge widening, Local 'Pinch Point' funded Westwood Relief Strategy, Poorhole Lane, North Farm Improvements and the East Kent Access Phase 2 (EKA2).

The MBG, completed in March 2017, was designed to reduce congestion, improve journey time reliability and support economic growth. A complex project within the heart of a busy county town was successfully delivered on time and to budget whilst maintaining access for local businesses and commuters alike. Excellent working relations with Maidstone Borough Council have been formed which will be beneficial to the delivery of the Maidstone Integrated Transport Package project, should this bid be successful. The total value of the scheme was £5.74m of which £4.6m was funded by LGF.

Figure 3: The Maidstone Bridges Gyratory



M20 Junction 4 Eastern Overbridge Widening was implemented to reduce congestion and support local housing growth in the surrounding area. A project that had a significant level of interface with Highways England. This was a £5m LGF scheme delivered on time and within budget.

Westwood Relief Strategy, Poorhole Lane Widening was a 'Local Pinch Point' funded scheme that has seen the reduction in congestion at the highly trafficked location near the Westwood Cross shopping centre in Thanet. The £5m project was successfully completed in June 2015 within budget despite being a challenging construction scheme due to the amount of utility diversions required.

North Farm Improvements, also funded through 'Local Pinch Point' was completed in October 2015 on budget but delayed due to very complex utility diversions and lack of co-operation from Statutory Undertakers. KCC has mitigated this risk on subsequent projects of a similar nature by engaging a dedicated Statutory Undertaker Co-Ordinator. With a total project cost of £7.35m, a complex retaining structure was constructed which required the need for a multidisciplinary project team.

East Kent Access 2 Scheme, completed in May 2012, was designed to support economic development, job creation and social regeneration, improving access with high quality connections between the urban centres, transport hubs and development sites in East Kent. The overall objectives of the scheme were to unlock the development potential of the area, attract inward investment and maximise job opportunities for local people. The scheme was successfully delivered within budget and ahead of programme through the adoption of a robust management. The total value of the scheme was £87.0m of which £81.25m was funded by Central Government and was awarded a regional Institution of Civil Engineers (ICE) Excellence Award.

Monitoring and Evaluation

At this stage it is not deemed necessary to outline a full methodology but to suggest a standard advisory series of monitoring and evaluation tasks. The following tasks will commence after implementation of the scheme in question.

KCC are committed to monitoring, evaluating and reporting the scheme post-opening. Data surveys undertaken before the scheme will be repeated. In addition, pre-opening data for accidents is available and can also be repeated post-opening.

It is important for a congestion relief scheme to compare traffic flows so that the changes in delay are put into context.

The acceptability will be judged on the predictions supporting the economic case and on delivering the scheme objectives.

Benefits Realisation Plan

Tracking of the scheme benefits will be a key element in understanding the success of a specific intervention and the final value realised from public expenditure. The realisation of benefits is inherently linked to the Monitoring and Evaluation plan.

The scheme objectives 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 because of the scheme
- Outcomes – final impacts brought about by the scheme in the short and medium/long term

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 18 below.

Table 18: 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	Public transport modal split; public transport passenger boardings; public transport journey times
Provide a resilient network that is able to respond to disruption and incident	Flow capacity variation; vehicle journey time variation

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 modal shift and air quality. Any unexpected effects of the scheme will be reported upon and, where appropriate, remedial measures and a delivery mechanism identified.

Table 19: Scheme benefits monitoring measures

Measures	Monitoring	Benefit Realisation	Comments
Air Quality improvement in scheme locations	Nitrogen Dioxide	District Council/KCC	Ongoing as part of District Council Air Quality reviews
Impact on accidents and safety	Number and type of accidents	KCC	Pre-scheme data to be compared with one and Five year post- opening
Number of rail passengers using Swanley Station	Annual data provided by ATOC	Southeastern/KCC	Pre-scheme data to be compared with one and Five year post- opening to determine growth
Rail passengers cycling to the Station	Number of bikes parked in cycle storage	Southeastern/KCC	One and five-year post opening through manual counts
Rail passengers walking to the station	Passenger surveys	Southeastern/KCC	One and five-year post opening through manual counts
Passenger satisfaction with station and journeys	Rating against specified criteria	Southeastern/KCC	Pre and post scheme passenger surveys
Growth (housing, jobs)	Not measured directly – part of wider LGF package	Realisation involves other schemes, including non-transport (e.g. development)	Ongoing dialogue with related developers and monitoring of Housing completions on key housing sites.
Wider economic benefits	Not measured directly – part of wider LGF package	Realisation involves other schemes, including non-transport (e.g. development)	Part of SELEP SEP Performance Management and Local Plan management.

Declarations

Has any director/partner ever been disqualified from being a company director under the Company Directors Disqualification Act (1986) or ever been the proprietor, partner or director of a business that has been subject to an investigation (completed, current or pending) undertaken under the Companies, Financial Services or Banking Acts?

No

Has any director/partner ever been bankrupt or subject to an arrangement with creditors or ever been the proprietor, partner or director of a business subject to any formal insolvency procedure such as receivership, liquidation, or administration, or subject to an arrangement with its creditors

No

Has any director/partner ever been the proprietor, partner or director of a business that has been requested to repay a grant under any government scheme?

No

[If the answer is "yes" to any of these questions please give details on a separate sheet of paper of the person(s) and business(es) and details of the circumstances. This does not necessarily affect your chances of being awarded SELEP funding.]

I am content for information supplied here to be stored electronically and shared in confidence with other public sector bodies, who may be involved in considering the business case.

I understand that if I give information that is incorrect or incomplete, funding may be withheld or reclaimed and action taken against me. I declare that the information I have given on this form is correct and complete. I also declare that, except as otherwise stated on this form, I have not started the project which forms the basis of this application and no expenditure has been committed or defrayed on it. I understand that any offer may be publicised by means of a press release giving brief details of the project and the grant amount.

Signature of Applicant



Print Full Name

Kerry Clarke

Designation

Transport Innovations Programme Manager

Date

01/02/2019

Appendix A - Funding Commitment

Draft S151 Officer Letter to support Business Case submission

Dear Colleague

In submitting this project Business Case, I confirm on behalf of [Insert name of County or Unitary Authority] that:

- The information presented in this Business Case is accurate and correct as at the time of writing.
- The funding has been identified to deliver the project and project benefits, as specified within the Business Case. Where sufficient funding has not been identified to deliver the project, this risk has been identified within the Business Case and brought to the attention of the SELEP Secretariat through the SELEP quarterly reporting process.
- The risk assessment included in the project Business Case identifies all substantial project risks known at the time of Business Case submission.
- The delivery body has considered the public-sector equality duty and has had regard to the requirements under s.149 of the Equality Act 2010 throughout their decision-making process. This should include the development of an Equality Impact Assessment which will remain as a live document through the projects development and delivery stages.
- The delivery body has access to the skills, expertise and resource to support the delivery of the project
- Adequate revenue budget has been or will be allocated to support the post scheme completion monitoring and benefit realisation reporting
- The project will be delivered under the conditions in the signed LGF Service Level Agreement with the SELEP Accountable Body.

I note that the Business Case will be made available on the SELEP website one month in advance of the funding decision being taken, subject to the removal of those parts of the Business Case which are commercially sensitive and confidential as agreed with the SELEP Accountable Body.

Yours Sincerely,

SRO (Director Level)

S151 Officer

Appendix B - Risk Management Strategy

Description of Risk	Impact of Risk	Risk Owner	Risk Manager	Likelihood of occurrence (Very Low/ Low/Med/ High/ Very High) (1/2/3/4/5) *	Impact (Very Low/ Low/ Med/ High/ Very High) (1/2/3/4/5) **	Risk Rating	Risk Mitigation	Residual Likelihood/Impact Scores
				[e.g. Medium 3]	[e.g. Very Low 1]	[Likelihood of occurrence multiplied by Impact]		
Southeastern do not win the new franchise	No delivery partner on board so scheme delayed	Network Rail	Kerry Clarke (KCC)	4	3	12	Network Rail fully engaged to work with the new franchisee on delivery of the project	Medium
BREXIT impacts on measures to be delivered in Dover	Scheme delivery delayed	KCC	Neil Edwards (KCC)	4	5	20	A package of measures will be developed so that alternative schemes can be swapped in	High
Lack of political/residential support for schemes	Scheme delivery delayed	KCC	Neil Edwards (KCC)	3	3	9	Early engagement will take place to shape the trial to suit the local requirements	Low

* Likelihood of occurrence scale: Very Low (1) more than 1 chance in 1000; Low (2) more than 1 chance in 100; Medium (3) more than 1 chance in 50; High (4) more than 1 chance in 25; Very High (5) more than 1 chance in 10.

** Impact scale: Very Low (1) likely that impact could be resolved within 2 days; Low (2) potential for a few days' delay; Medium (3) potential for significant delay; High (4) potential for many weeks' delay; Very High (5) potential for many months' delay.

Appendix C - Gantt Chart



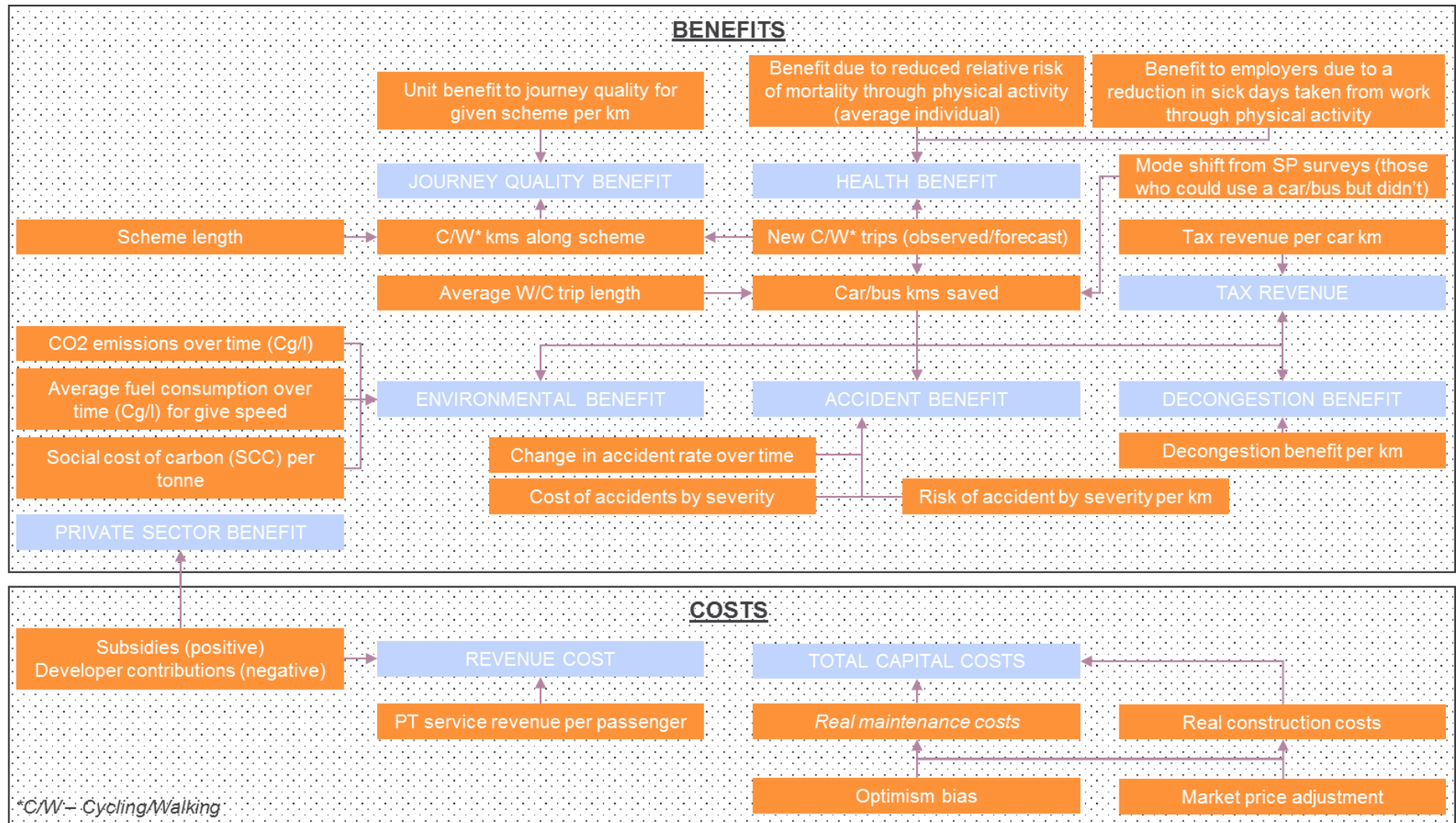
Tasks	Start date	Finish date	2019										2020					
			April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
HGV Trial																		
Stakeholder Engagement	01/04/2019	30/04/2019																
Detail design	01/05/2019	30/09/2019																
Baseline data gathered	01/06/2019	30/06/2019																
Implementation	01/10/2019	28/02/2020																
Monitoring	01/04/2020	30/04/2020																
Tasks	Start date	Finish date	2019										2020					
			April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
INRIX																		
Tender for procurement of technology	01/05/2019	30/06/2019																
Mobilisation	01/07/2019	30/08/2019																
Implementation	01/09/2019	31/10/2019																
Evaluation	01/02/2020	31/03/2020																

Appendix D – Monitoring and Evaluation Metrics

Category	Key Performance Indicators	Description
High-level outcomes	Jobs connected to intervention (permanent, paid FTE)	This section is N/A to this scheme
	Commercial floorspace planned - please state sqm and class	
	Commercial floorspace constructed to date - please state sqm and class	
	Housing unit starts (forecast over lifetime)	
	Housing unit starts (to date)	
	Housing units completed (forecast over lifetime)	
	Housing units completed (to date)	
Social (outputs)	Improved Air Quality in scheme locations	Monitored via District Council Air Quality reviews
	Reduced crashes in scheme locations	Crash data pre and post scheme to be compared
	Improved passenger journey experience	Pre and post scheme passenger surveys completed
Transport (outputs)	Total planned length of resurfaced roads (km)	0.3km
	Total completed length of resurfaced roads (km)	
	Total planned length of newly built roads (km)	
	Total completed length of newly built roads (km)	
	Total planned length of new cycle ways (km)	
	Total completed length of new cycle ways (km)	
	Type of service improvement	
Land, Property and Flood Protection (outputs)	Anticipated area of site reclaimed, (re)developed or assembled (ha)	This section is N/A to this scheme
	Actual area of site reclaimed, (re)developed or assembled (ha)	
	Length of cabling/piping planned (km) - Please state if electricity, water, sewage, gas, telephone or fibre optic	
	Length of cabling/piping completed (km) - Please state if electricity, water, sewage, gas, telephone or fibre optic	
	Anticipated area of land experiencing a reduction in flooding likelihood (ha)	
	Actual area of land experiencing a reduction in flooding likelihood (ha)	
	Follow-on investment at site (£m) - Please state whether Local Authority, Other Public Sector, Private Sector or Third Sector	
	Anticipated commercial floorspace refurbished - please state sqm and class	

Category	Key Performance Indicators	Description
Business, Support, Innovation and Broadband (outputs)	Actual commercial floorspace refurbished - please state sqm and class	
	Anticipated commercial floorspace occupied - please state sqm and class	
	Actual commercial floorspace occupied - please state sqm and class	
	Commercial rental values (£/sqm per month, by class)	This section is N/A to this scheme
	Anticipated number of enterprises receiving non-financial support (#, by type of support)	
	Actual number of enterprises receiving non-financial support (#, by type of support)	
	Anticipated number of new enterprises supported	
	Actual number of new enterprises supported	
	Anticipated number of potential entrepreneurs assisted to be enterprise ready	
	Actual number of potential entrepreneurs assisted to be enterprise ready	
	Anticipated number of enterprises receiving grant support	
	Actual number of enterprises receiving grant support	
	Anticipated number of enterprises receiving financial support other than grants	
	Actual number of enterprises receiving financial support other than grants	
	Anticipated no. of additional businesses with broadband access of at least 30mbps	
	Actual no. of additional businesses with broadband access of at least 30mbps	
	Financial return on access to finance schemes (%)	

Appendix E – Active modes economic assessment approach



Appendix F – Economic appraisal results (Public Accounts Table)

Public Accounts Table (Swanley scheme only)	£000's PV (2010)
Revenue	£0.00
Operating Costs	£0.00
Investment Costs	£473.65
Developer and Other Contributions	-£259.11
Grant/Subsidy Payments	£0.00
Indirect Tax Revenues	£3.33
Broad Transport Budget	£214.54
Wider Public Finances	£3.33

As per WebTAG developer and other contributions are considered as negative in the Public Accounts Table

Public Accounts Table (All schemes)	£000's PV (2010)
Revenue	£0.00
Operating Costs	£0.00
Investment Costs	£1,356.59
Developer and Other Contributions	-£259.11
Grant/Subsidy Payments	£0.00
Indirect Tax Revenues	£3.33
Broad Transport Budget	£1,097.48
Wider Public Finances	£3.33

As per WebTAG developer and other contributions are considered as negative in the Public Accounts Table

Appendix G – Dover TAP Proposed Measures

Dover Traffic Technology Review - Phase 2 Recommendations



	Current Situation	Aspiration	Discipline	Per	Cost	Comments	Recommendations / Next Steps
ITS Strategy							
Develop an ITS Strategy	There is currently no definitive strategy for either the equipment modernisation, or the introduction of new technologies and system operation of ITS in Dover.	To develop an ITS Strategy that provides; • Direction for the use of existing ITS equipment • Recognition of the benefits of emerging technologies, therefore acting as an investment mechanism for the benefit of all stakeholders including Dover District Council, Highways England and the Port of Dover.	Consultancy	-	Staff fee £25,000	This cost is projected staff time cost to provide a medium to long term direction, to assist with procurement and optimisation of the existing and new ITS technologies.	Development of a comprehensive ITS Strategy for Dover.
Network Resilience							
Promoting Alternative Transport Modes	Dover District Council commissioned LDA Design consultancy to undertake a public realm study considering the vision of pedestrian and cycle orientated improvements, building on local strengths, space, connectivity, green infrastructure and movement hierarchy. The study proposed a number of opportunities including alternative highway layouts, surfacing, furniture, lighting, public art, wayfinding and signage improvements.	To enact a programme of local improvements, based around Public Realm Study recommendations, concentrating on pedestrian and cyclists' enhancements including footway and kerb line improvements, rationalised guard railing, improved and new signalised crossings, advanced stop lines for cyclists, cycle only signals, signage improvements and cycle hire stations.	Design/Consultancy Highway ITS Equipment	Location (small to large traffic signalled facility)	Preliminary design Detailed design Highway works ITS Equipment £5,000 - £10,000 £10,000 - £25,000 £15,000 - £100,000+ £5,000 - £70,000	For the costs breakdown example, it is assumed the works would initially concetrate around the current stress points, typically at traffic signalled locations ranging from signalised standalone crossing points to large junctions. The cost is largely driven by the extent of highway improvements. Other discipline costs would be tailored to project scope and available budget. For ITS equipment costs it is assumed that alterations would range from a very minor improvement e.g. the addition of new cycle signals to existing equipment, to a full traffic signals modernisation with new signalised crossing points.	Identify key locations and progress preliminary design for approval.
Selective Vehicle Detection to Deter Heavy Goods Vehicles (HGVs) from Using Local Roads	A proportion of HGVs use local roads to reach the Port of Dover. There are currently limited measures to deter unsuitable vehicles from travelling on local roads.	To enact a programme of local highway improvements to reduce HGV traffic observed on local roads for travel to Port or as an overnight stop-over. The proposal would include HGV detection, Variable Message Signage (VMS) display activated by approaching HGVs, static signage on key approaches and kerb line alterations to make the route difficult for HGVs.	Design/Consultancy Highway ITS Equipment	Entry Point	Preliminary design Detailed design Highway works ITS Equipment £5,000 - £8,000 £10,000 - £15,000 £20,000 - £50,000+ £30,000	It is assumed the works would include the installation of new early warning signs located at the Port, the A2 and the A20, and localised road narrowing including over-run strips. For ITS equipment, HGV detection equipment and VMS installation would be required. As per earlier example, the project cost is largely driven by the extent of highway improvements and the amount of additional signage prior to a	Identify key locations and progress preliminary design for approval.
ITS Equipment Modernisation Programme	The majority of existing traffic signals equipment is almost life expired with some components being obsolete.	To modernise traffic signals equipment to be more energy efficient featuring Light Emitting Diode (LED) signals, Extra Low Voltage (ELV) for safety and the latest vehicle and pedestrian detection. This approach would lead to lower power consumption, a reduction in carbon footprint, reduced equipment fault rates and futureproofing of the equipment to accommodate future initiatives like the bus priority at traffic signals mentioned below.	Design/Consultancy Highway ITS Equipment	Traffic signal location (pedestrian crossing or junction)	Design element Highway works ITS Equipment £6,000 - £10,000 £8,000 - £55,000 £20,000 - £70,000	The range of prices ensures a mixture of ITS equipment is covered, a pedestrian crossing is at the lower end of the scale and a complex traffic signalled junction is at the top end of the scale. Highway works cost includes a simple traffic management required for the duration of works, minor civils work to modify tactile paving, dropped kerbs, repair to the existing chambers, works around traffic signal poles and the controller. It is assumed the existing ducting, like the road crossings, is in good condition and does not require replacement.	Identify key locations and form a priority list. Commence work on detailed design for approval and issue to contractor.
Network Monitoring							
Systems Integration with Highways England	Recently a link between Highways England and Kent County Council (KCC) Urban Traffic Management and Control (UTMC) equipment was completed. This has enabled information sharing at a number of locations across the South East. However, currently there is no joint traffic management agreement in place that covers the Dover area.	Co-ordination of systems at UTM level to allow sharing of data between Highways England and KCC as well as joint-control of ITS infrastructure where appropriate. The agreement would capture work streams from other recent projects like those being undertaken as part of the Collaborative Traffic Management (CTM) programme and Dover Traffic Assessment Project (TAP).	Liaison/Consultancy	Link	Staff fee £8,000	This cost is projected staff time cost only required to establish a communication channel with Highways England to define scope, system operation and protocols. A bulk of initial collaborative work has already taken place under the CTM programme so it is expected the process to include Dover area to be relatively straight forward.	Commence discussions with Highways England on the extent of co-operation and expected outcomes. It is recommended this work stream is prioritised as it is vital to progressing other recommendations outlined in this table.
Link to Dover District Council's (DDC) CCTV system	Currently there is no link to DDC's CCTV system.	To include a future link to DDC's CCTV equipment that allows both live picture feeds as well as stills and other available traffic data to be sent to the UTM system. DDC are currently looking at upgrading the existing CCTV system and a right technological solution would offer local enforcement, incident detection and average journey time monitoring.	Liaison/Consultancy	Link	Staff fee £6,000	This cost is projected staff time cost required to assist DDC with technical appraisal of the new CCTV system. The cost of providing the live feed link to both KCC Control Centre and the UTM system is excluded as it is expected it will be included in the new CCTV system procurement strategy.	Commence discussions with DDC on the technical aspects of the proposed CCTV system, additional features and interface to other ITS systems.
Deployment of Traffic Detection and Sensors	Currently there are no strategically placed traffic detectors to detect speed, flow, journey times congestion and vehicle classification.	The use of data from detection, sensors or other sources, such as floating vehicle data (FVD), to provide information that can be both used in real-time to identify issues on the network and in the future to monitor network performance and identify trends. Data types collected include speed, flow, journey	Design/Consultancy ITS Equipment	Unit	Preliminary design ITS Equipment £5,000 £8,000	It is assumed the installation would be either solar powered or permanently fed from a nearby authority power source. The communication would be made through either permanent or a 4G connection.	Identify key locations, investigate available access to power and communications, provide outline proposal.
Clean Air Zone (CAZ)	There are currently two pollution monitors installed in Dover, gathering data that is then published at regular intervals in Air Quality Status Report.	To increase the number of pollution monitors and provide Air Quality system external connectivity. An automated feed into the UTM system permits manual or automatic interventions to signal timings at times of high pollution and can provide pollution level information displayed on VMS, to re-route drivers away from the affected area.	Design/Consultancy Highway ITS Equipment Operation/Consultancy	Single location on the network	Preliminary design Highway works ITS Equipment Operation/Consultancy £5,000 £5,000 £45,000 £25,000	For maximum local impact, the UTM connection of pollution monitors would benefit from the installation of other complimentary UTM systems like the VMS to inform and re-route drivers, Automatic Number Plate Recognition (ANPR) to monitor compliance and Journey Time Monitoring to feedback on network delays. The development of CAZ Strategies would require liaison with the stakeholders, site observations and UTM system configuration, this cost is included under the Operation/Consultancy heading.	Identify key locations, investigate available access to power and communications, provide outline proposal.
Network Control							
Area wide signal timings review	Currently all Dover traffic signalled locations operate on demand. During a recent site visit it was observed that some approaches did not offer sufficient maximum green time.	To undertake area wide signal timings review. The review will verify if the existing maximum green signal and other timings are appropriate and if these require updating.	Liaison/Consultancy	Location	Crossing validation Junction validation (VA) Junction validation (MOVA) £900 £1,500 £2,100	The assignment will include changes to controller timings (via handset in RAM) and an update to relevant KCC paperwork. Before and after site observations are included in the outlined costs. The cost of providing new controller configuration (loaded into permanent memory) is excluded from this workstream due to equipment age and the expectation of equipment update in the near future.	It is recommended the signal timings review includes all signalised locations. Such comprehensive approach ensures all site issues are captured and appropriate timings entered, resulting in elimination of residual queuing without causing upstream or downstream friction due to older, less appropriate signal timings.

Split Cycle Offset Optimisation Technique (SCOOT) detection upgrade and re-validation of SCOOT parameters at key locations	Currently all Dover traffic signalled locations operate on local timings. This form of control does not consider the operation of nearby signals and may result in additional delays caused by poor progression. All Dover locations include SCOOT facility, an alternative method of control that offers improved progression.	To review SCOOT detection positions to ensure these are still appropriate, undertake SCOOT validation and update SCOOT parameters.	Operation/Consultancy ITS Equipment	Location	Crossing SCOOT validation Junction SCOOT validation ITS Equipment (per loop)	£1,400 £2,700 £1,900	The assignment will include assessment of the existing SCOOT network to determine optimum loop positions and recommend changes. The cost of any changes is covered under ITS Equipment heading and will require local signals company and civils company services. SCOOT validation will review database and operational parameters, UTC plans and timetable entries. We have assumed a remote SCOOT UTC system access will be granted for SCOOT validation allowing on-site working.	It is recommended SCOOT review is included in the wider package of measures that will provide an alternative method of control to the current local operation and offer future network resilience. As a result of systems integration work linking the two UTMC systems it would be possible to invoke SCOOT operation on the KCC network from UTMC Strategy activated on the Highways England system. Example of area wide UTMC Strategy could be the closure of Port of Dover impacting both the Highways England and KCC road networks.
Linking of A256 St James's Development and A256 Castle Street junctions with two Highways England sites on the A20 (two physical links for each set of junctions)	Currently there is no physical or cloud-based UTMC link between the locations.	To configure both a physical and a cloud-based UTMC link strategy between the two sets of locations. A physical link would ensure during normal operation a form of permanent linking is achieved to improve traffic progression between the two sets of signals, the first set is A256 St James's Development to nearby A20 signals, and the second set is A256 Castle Street to nearby A20 signals. A256 signals are on the KCC network and the A20 junctions are on the Highways England network. A further cloud-based UTMC linking strategy actioned at times of high traffic demand, for example during holiday periods, would offer a greater level of linking intervention that includes other nearby signals.	Design/Consultancy Highway ITS Equipment	Physical link	Design&Validation Highway works ITS Equipment	£18,000 £3,000 £8,000	For physical link connection, the Highway works cost covers new ducting to link the two traffic signal locations (KCC and Highways England traffic signalled junctions). Design and Validation cost covers new design, updated Microprocessor Optimised Vehicle Actuation (MOVA) datasets, testing and site validation. ITS Equipment includes running new cable between the two traffic signal locations, provision of new controller software and testing. The cost of cloud-based UTMC Strategies at times of high traffic demand is covered in the below item.	Commence work on detailed design for approval and issue to contractor.
Development of UTMC Dover Strategies	As there is no agreed information exchange between the two UTMC systems, there are no UTMC Strategies developed for the town of Dover that cover both the Highways England and KCC road networks.	A further cloud-based UTMC linking strategy actioned at times of high traffic demand, for example during holiday periods, would offer a greater level of linking intervention that includes other signal installations to create a mini-network.	Liaison/Consultancy	Strategy	Implementation&Validation	£36,000	The Implementation and Validation cost includes staff time to formulate UTMC Strategies that provide an alternative control method. A solution that offers a fixed form of control at traffic signals with pre-defined green times and offsets, and works across different UTMC systems. It is assumed upto three junctions and three crossings on the Highways England network, and three junctions and two crossings on the KCC network would benefit from a more rigid operation aimed at improving network resilience.	This critical work stream needs to be considered after a number of other measures are completed first. Successful completion of the UTMC systems link, signal timings review and physical junction linking outlined in earlier sections would need to be completed first.
Introduction of Bus Priority at Traffic Signals	There is currently no bus priority equipment fitted at traffic signals.	Planned Dover Bus Rapid Transit (BRT) System would benefit from priority at traffic signals. New bus detection equipment fitted at traffic signal installations would offer additional green time or a revert back to green signal feature, ensuring delays to buses are minimised. Local buses would require a transponder to communicate with traffic signals when approaching the junction. At some locations it may be possible to install a dedicated bus lane, here a standard form of bus detection would be sufficient.	Design/Consultancy ITS Equipment	Junction or Bus	Preliminary system outline Detailed design and validation (per junction) Transponder installation (per bus) ITS Equipment (per junction)	£18,000 £8,000 £1,000 - £2,000 £8,000 - £12,000	For the costs breakdown, it is assumed the existing bus locating system is not modified and the bus priority at traffic signals is a separate add-on. This approach minimises cost by limiting the roll out of new equipment to affected traffic signals and to allocated local buses. A more complex system could be considered where the existing bus locating system is enhanced to include a communication interface to traffic signals equipment. It is expected this would be a more expensive option as the upgrade would require both software and hardware alterations. It is also possible the current system may not offer sufficient resolution required for accurate bus placement and instant data feed. Preliminary system design covers investigation of applicable technologies, preliminary outline of system design and operation. Detailed design includes traffic controller specification required for software changes to accommodate priority demands.	Progress preliminary system design for approval.
Network Information								
Implementation of Variable Message Signs (VMS)	There are currently no urban VMS installations in Dover offering local information to drivers.	Deployment of VMS at key decision points on the highway network, enabling network managers to provide appropriate information to inform the travelling public of issues and influence driver decision making. Use of a background system for VMS control which is integrated into a cloud-based UTMC system allows the remote management of VMS as well as control through UTMC Strategies.	Design/Consultancy Highway ITS Equipment	Key point on the network	Preliminary design Highway works ITS Equipment	£5,000 £10,000 £25,000	It is assumed VMS installation will be UTMC compatible. Highway works cover the cost of concrete base and power connection to the nearest power source. Communications would be achieved through a 4G solution.	Identify key locations, investigate available access to power and provide preliminary design.