



Transport Business Case Report

A28 Sturry Integrated Transport Package

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1 Introduction

1.1 Overview

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

1.2 A28 Sturry Rd Integrated Transport Package (SRITP)

- 1.2.1 The scheme's purpose is to help to fulfil the strategic aims of delivering the SELEP housing and employment growth targets, delivering the Canterbury District Transport Strategy and draft Local Plan, whilst complying with the Department for Transport (DfT) transport scheme performance and approval criteria to justify investment of capital funds. The scheme is programmed for delivery before the end of 2016.
- 1.2.2 The scheme (alongside a number of others across Kent) will contribute to the planned introduction of 165,000 new jobs and construction of 128,000 new homes across the 6 year period 2015 to 2021.
- 1.2.3 The Sturry Road Integrated Transport Package (SRITP) scheme will provide an additional inbound section of bus lane on the A28 approaching Canterbury City Centre. Bus priority measures currently exist along the corridor and the introduction of the additional bus lane is intended to enhance the service provided by the public transport network.
- 1.2.4 The scheme is allocated for Local Growth Fund (LGF) funding in the 2016/17 financial year, subject to transport business case sign off by South East Local Enterprise Partnership (SELEP). The SRITP has a total projected value of £0.55m, and is therefore considered a 'low-value' scheme.

1.3 Area Description

- 1.3.1 Canterbury is a Non-Metropolitan District with a boundary on the north Kent coastline of East Kent. The main urban settlements within the district are Canterbury City, Herne Bay and Whitstable with rural villages and parishes making up the remainder.

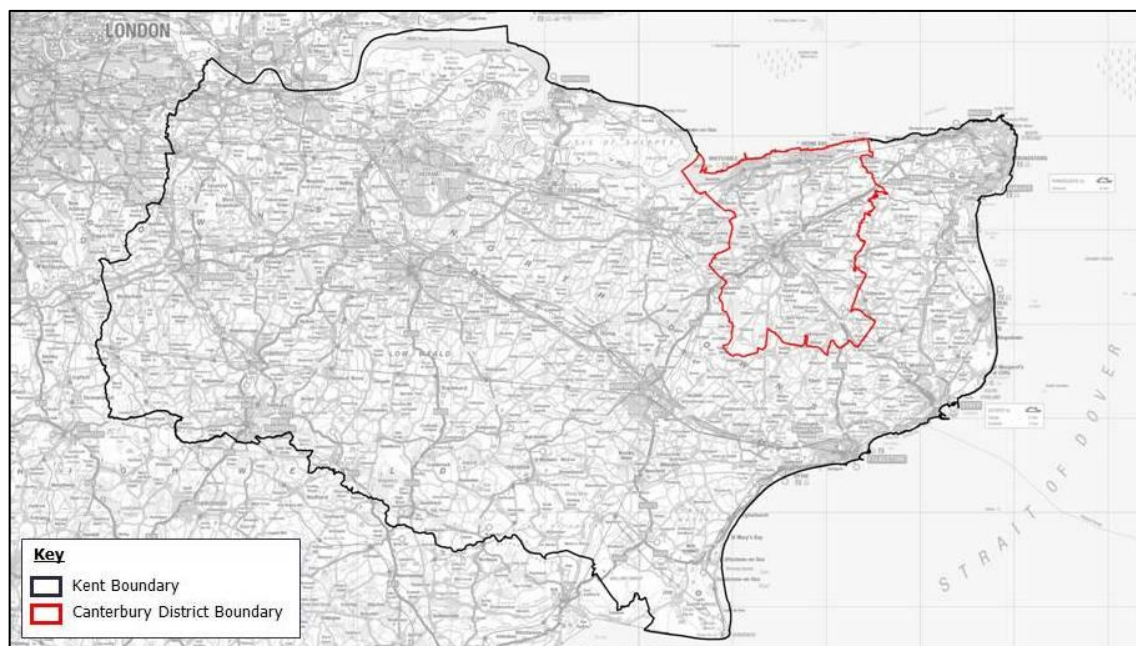


Figure 1 Kent and Canterbury District Boundaries

- 1.3.2 In 2010, the district had a population of 153,200¹ with 80% of these people living in urban areas. Census figures indicate that the population of Canterbury rose by 12% between 2001 and 2011. In 2011, the population² of Canterbury city was estimated to be 55,240 with a further 70,485 residing in Herne Bay and Whitstable.
- 1.3.3 The city of Canterbury is situated at the centre of the district on the river Stour. The city is a popular tourist destination and UNESCO World Heritage Site renowned for its Gothic Cathedral. The city is surrounded by countryside with the north Kent coastline located just 7 miles to the north. Canterbury is accessed from Thanet via the A28 or A257, from the south via the A2, the west via the A28 and A2 and the north Kent coast via the A290 and A291. Figure 2 below indicates the location of Canterbury city in relation to the surrounding highway network.

¹ Office for National Statistics

² Office for National Statistics – Built up Area Populations

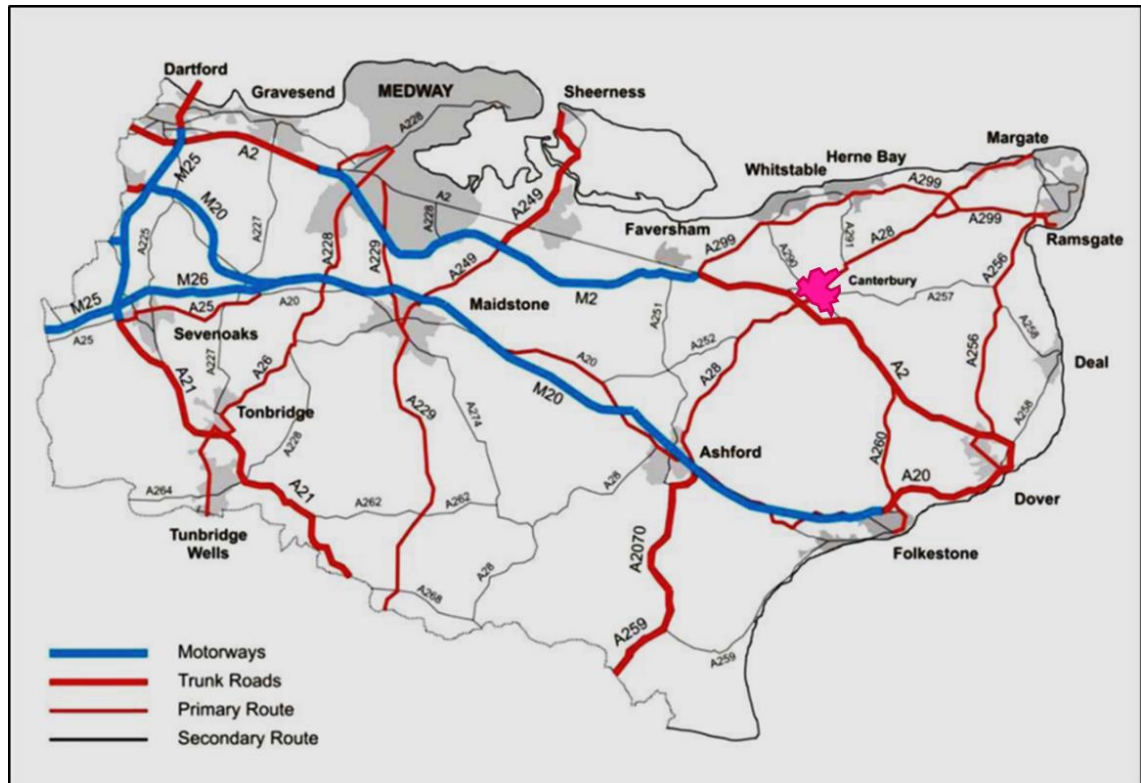


Figure 2 Canterbury Location (Source: Kent LTP3)

- 1.3.4 The proposed scheme is located on the A28 Sturry Rd, to the north-east of the city centre but within a mile of the High Street. The A28 Sturry Road is a key strategic route in and out of the city from the surrounding rural hinterland and coastal resorts of north Kent.
- 1.3.5 The land use to the north-east of the city along the A28 is a mixture of residential, leisure and industrial uses with the leisure use mainly concentrated on the eastbound carriageway. The Canterbury and Maybrook Retail Parks are located on the Sturry Rd, midway between the city centre and the village of Sturry.
- 1.3.6 Three Park and Ride sites are located at strategic points around Canterbury; on the A2050 south of the city and on the A28 both to the east and west of the city. The Sturry Road Park and Ride site is located immediately to the east of the Stour Retail Park on the A28. The site is open 7 days per week Monday to Saturday 0700-1930 and Sunday 1000-1800. There are 600 spaces available on site and the cost of parking is £3.00 per vehicle. The park and ride bus has a service frequency every 8 minutes (Monday to Saturday) with a bus every 15 minutes on Sunday's. There are plans to increase the car park from 600 to 700 spaces (it should be noted that this does not form part of the scheme).

- 1.3.7 An inbound bus only lane currently exists between Old Park Avenue (west of B&Q warehouse on Sturry Rd) and Tourtel Road (at Military Road roundabout). This was introduced as the first phase of bus priority along the corridor.
- 1.3.8 Aside from the park and ride bus service that serves Sturry Rd, local bus services to and from the north and north east of the county also use Sturry Rd with varying frequencies. Bus services using Sturry Road are indicated in Table 1 below.

Table 1 Sturry Rd Bus Services

Service Number	Frequency	Service Details
4/4A/4B/4X	Every 10-30 minutes	Canterbury - (University of Kent 4X/6X) - Blean - Whitstable - Tankerton
6/6A/6B/6X	Every 10-30 minutes	Herne Bay - (Beltinge - Broomfield 4/4B) - Herne - Sturry - Canterbury
7/ 7A	6 journeys per day	Canterbury - Broad Oak - Sturry - Hoath - Maypole - (Reculver -) Hillborough - Beltinge - Herne Bay
8/8A/8X	Every 15-30 minutes	Canterbury - Sturry - St Nicholas - Birchington - Westgate - Margate – Cliftonville - Northdown
9/9X	Hourly Service	Canterbury - Sturry - Manna Hutte - Ramsgate - Dumpton Gap - Kingsgate - Broadstairs

1.4 Background to the SRITP Business Case

- 1.4.1 In July 2014, the government negotiated a Growth Deal with 39 Local Enterprise Partnerships (LEPs), which awarded a significant proportion of a £12 billion Local Growth Fund, to LEPs. This was extended in January 2015.
- 1.4.2 The South East Local Enterprise Partnership (SELEP) brings together key leaders from business, local government, further and higher education in order to create the most enterprising economy in England through exploring opportunities for enterprise while addressing barriers to growth covering Essex, Southend, Thurrock, Kent, Medway and East Sussex. The SELEP is the largest strategic enterprise partnership outside of London.
- 1.4.3 SELEP has secured £442.2 million (as at July 2014) in funding from HM Government to boost economic growth - with a particular focus on transport schemes that will bring new jobs and homes until 2021. This includes £358.2 million for new growth schemes on top of £74 million already committed for large transport projects. The deal will see at least £84.1 million invested in the SELEP area next year, supporting the delivery of up to 35,000 jobs and 18,000 new homes and over £100 million in private investment over the 6 year period. For Kent, the funding allocation is £104 million which was won by the Kent & Medway Economic Partnership – the local arm of the SELEP.
- 1.4.4 The government asked all LEPs as part of their Growth Deal to sign up to working with them to develop a single assurance framework covering all Government funding flowing through LEPs, to ensure all LEPs have robust value for money processes in place. The purpose of this LEP assurance framework is to support the developing confidence in delegating funding from central budgets and programmes via a single pot mechanism. As part of their Growth Deal, LEPs will be expected to use this national framework to inform how they work locally, which must be set out in their own local assurance framework.

- 1.4.5 It is important that all LEPs have robust arrangements in place to ensure value for money and effective delivery, through strong project development, project and options appraisal, prioritisation, and business case development.
- 1.4.6 The methodology used to assess value for money and the degree of detail to which business cases are developed in support of particular projects or programmes should be proportionate to the funding allocated and in line with established Government guidance including the HM Treasury Green Book. Typically the Government expect business cases to address, in a proportionate manner, the 5 cases set out in supplementary guidance to the Green Book.

1.5 Purpose of this Document

- 1.5.1 This report follows the 5 case model guidance issued by DfT for Business Case preparation. The intention of the report is to provide robust evidence to the SELEP of the merits of introducing the SRITP scheme and justifying the application for funding.

1.6 Structure of the Document

- 1.6.1 This report is structured in accordance with the Department for Transport's guidance on Transport Business Case, which was updated in January 2013. Following this Introduction, the remainder of the document is structured as follows:
 - Chapter 2 provides a description of the scheme design;
 - Chapter 3 states the Strategic Case;
 - Chapter 4 presents the Economic Case including the Value for Money Statement
 - Chapter 5 outlines the Financial Case;
 - Chapter 6 details the Commercial Case; and
 - Chapter 7 provides the Management Case.

2 SRITP Specific Scheme

2.1 Introduction

- 2.1.1 A bus lane currently operates (inbound) on the A28 Sturry Road/Tourtrel Road between Old Park Avenue and Military Road east of Canterbury City Centre. Bus use in Canterbury has been rising year on year since 2004/5. It has been estimated that between 2004/5 and 2011/12, bus patronage in Canterbury has increased by in excess of 170%³ and there is still potential for further growth.
- 2.1.2 The Sturry Road Integrated Transport Package (SRITP) will provide an additional inbound section of bus lane on the A28 approaching Canterbury City Centre. The introduction of the additional bus lane is intended to enhance the service provided by the existing public transport network and in particular the Sturry Road Park and Ride site.
- 2.1.3 The additional lane will supplement the existing inbound bus lane, extending the length of bus lane by a further 0.7km on the A28 corridor which has high traffic occupancy of the available capacity, restricted space for buses at the outer end and significant peak congestion for all road users.

2.2 Location of the scheme

- 2.2.1 The scope of the SRITP is to extend the nearside bus lane for a distance of 0.7km on the inbound section of the A28 single carriageway from Vauxhall Road roundabout to the Marshwood retail park roundabout. It would be constructed within the existing highway boundary on land owned by Kent County Council. The proposed layout would consist of a 3.0m-wide nearside bus and cycle lane, whilst retaining a narrowed 3.0m-wide traffic lane in each of the inbound and outbound directions, giving an approximate carriageway width of 9.0m.
- 2.2.2 Figure 3 below indicates the existing and proposed bus lane extension on Sturry Rd in addition to the location of the Park & Ride site on Sturry Road.

³ Courtesy of Stagecoach



Figure 3 Location of existing and proposed bus lanes on scheme corridor

2.3 Purpose of the Scheme

- 2.3.1 The aim of the scheme is to encourage more travellers to switch away from using the car to access the city centre and instead make sustainable use of bus services either for their entire journey, or by using the A28 Sturry Road Park and Ride site off the Vauxhall roundabout.
- 2.3.2 Extending the bus lane will reduce instances of heavy congestion which bus operators and passengers are currently subject to. This will ensure that faster and more reliable journey times are achieved, in particular during peak weekday hours.
- 2.3.3 This will be especially important for accommodating new travel demand arising from planned housing and employment allocations in Canterbury District. The scheme would both justify and benefit from a planned expansion of the Sturry Road bus Park and Ride site car parking capacity from 600 to 700 spaces.
- 2.3.4 At the same time, the scheme will assist and benefit from the Canterbury City Council policy for re-distributing car parking space away from the City Centre to the bus P&R sites (e.g. A28 Sturry Road), thereby encouraging greater bus use.

2.4 Complementary Measures

- 2.4.1 The SRITP scheme is just one of many being undertaken by Kent County Council aiming to achieve its strategic aims of being a better, more accessible and more sustainable county. Whilst the SRITP is essentially a stand-alone scheme, it will complement others in achieving these aims.
- 2.4.2 The SRITP scheme is closely aligned with the proposed Sturry Link Rd scheme which is discussed later in this report.

3 Strategic Case

3.1 Introduction

3.1.1 The Strategic Case section of the report will clarify;

- Why the investment in the scheme is required; and
- How the proposed scheme meets with the strategic aims of the local authority.

3.1.2 The following sub headings will be addressed appropriate to the size and scope of the scheme.

- Business Strategy – Strategic aims and responsibilities of the organisation responsible for the scheme;
- *Problem Identified* – A description of existing issues with supporting evidence;
- *Impact of not Changing* – Consequences of a Do Nothing Option;
- *Internal Drivers for Change* – What is driving the need for change? (technology etc.);
- *External Drivers for Change* - What is driving the need for change? (legislation/ government);
- *Objectives* – Suggestion of appropriate and realistic objectives that meet with strategic aims of authority;
- *Measures for Success* – What would constitute success?
- *Scope* – What will be delivered and what will not be delivered?
- *Constraints* – What are the constraints/ risks to scheme implementation?
- *Interdependencies* – Are there any other factors/ scheme that will affect scheme delivery?
- *Stakeholders* – An indication of the key stakeholders that will be affected by the scheme; and
- *Options* – Discussion of the options considered and how the favoured option was arrived at.

3.2 Business Strategy

National Transport Priorities

- 3.2.1 The Government has long-term objectives aimed at improving the economy, environment and society. These are the three goals against which major transport infrastructure projects are assessed, and will continue to be assessed in future.
- 3.2.2 In its National Infrastructure Plan (NIP) 2014, the Government presented its vision for growth and how infrastructure *"Has a significant positive effect on output, productivity and growth rates and is a key driver of jobs throughout the economy"*;
- 3.2.3 Transport infrastructure can play a vital role in driving economic growth by improving the links that help to move goods and people around. With regards to the bus network, the strategy aims to;
- increase capacity;
 - tackle congestion;
 - support development; strengthen connectivity; and
 - improve reliability and resilience.
- 3.2.4 The Department for Transport (DfT) is responsible for planning and investing in transport infrastructure to keep people and business in the UK moving. The key priorities for the DfT are aimed at ensuring that these responsibilities are met both now and in future years. Key priorities for the DfT that are relevant to the A28 Sturry Road ITP are;
- Tackling congestion on roads;
 - Improving road safety;
 - Encouraging sustainable travel;
 - Promoting lower carbon transport;
- 3.2.5 It is clear that whilst not all of the visions are directly associated with the SRITP scheme, there is considerable overlap between the scheme and measures to tackle congestion and encourage more sustainable forms of travel.

Regional Transport Priorities

- 3.2.6 In March 2014, the SELEP submitted their Strategic Economic Plan (SEP). Within the six year period covered by the SEP (2015/16 to 2020/21) several considerable developments are planned within Kent. The most relevant to Canterbury District is the East Kent development which proposes 30,000 homes and 20,000 jobs.
- 3.2.7 Through the Kent and Medway Growth Deal (as part of the Strategic Economic Plan), the public and private sectors intend to invest over £80 million each year for the next six years to unlock potential through:
- Substantially increasing the delivery of housing and commercial developments;
 - Delivering transport and broadband infrastructure to unlock growth;
 - Backing business expansion through better access to finance and support; and
 - Delivering the skills that the local economy needs.
- 3.2.8 The SRITP scheme is named directly as one of the key county wide priorities for within the SELEP SEP. The SEP also highlights the importance of a new relief road for Sturry (1 mile east of Canterbury) which has the potential to attract 4800 new homes and 1800 new jobs to the area. Whilst this SRITP scheme is not inherently linked to the relief road, it is seen as a pre-requisite for the scheme to go ahead.
- 3.2.9 Growth without Gridlock is the delivery plan for transport investment in Kent, published in 2010. It sets out the priorities for transport investment and how these will be delivered in order to meet the current and future demands of the County in the context of its crucial role in the UK and European economy.
- 3.2.10 The overarching goal of Growth without Gridlock is to enable growth and prosperity for Kent and the UK as a whole. Although predating the South-East LEP Strategic Economic Plan, the key elements of both are entirely in accord. This has enabled the development of an effective package of transport schemes to be brought forward as part of the Local Growth Fund investment, including the A28 Sturry Integrated Package scheme.
- 3.2.11 Canterbury is identified in 'Growth without Gridlock' as an area with poor air quality and significant congestion challenges. The key transport challenges facing the town and specific to this particular scheme are;
- Reducing congestion and improving air quality ,particularly along the A28; and

- Reducing the impact of traffic on the historic environment by increasing transport choice and reducing car dependency.

Local Transport Priorities

- 3.2.12 The Canterbury District Draft Transport Strategy (2014-2031) aims to; *"improve access to services, goods, and opportunities and tackle the negative impacts of traffic by promoting sustainable modes of transport, achievable reliable vehicle journey times and supporting sustainable development."*
- 3.2.13 The main strands of the strategy are concerned with;
- Encouraging Sustainable Travel;
 - Managing availability of car parking;
 - Managing the transport network; and
 - Reducing the demand to travel.
- 3.2.14 The strategy identifies specific actions to be implemented by 2031 in order to ensure movement and continued development across the district. Specific actions related to the proposed scheme are indicated below;
- Complete the Sturry Rd Bus Lane;
 - Increasing Park & Ride capacity;
 - Re-distributing car parking space from City Centre (i.e. 10% decrease) to all bus P&R sites (i.e. 44% increase);
 - Sturry Relief Rd; and
 - Increasing bus/coach travel from 4.9% to 6.5% by 2031.
- 3.2.15 Canterbury District's Draft Local Plan (published 5th June 2014) has been produced to set out a vision for Canterbury to 2031. The plan incorporates many strands illustrating how the Council intends to satisfy the growing population of the District whilst ensuring that development, infrastructure and the environment is not adversely affected.
- 3.2.16 To this end, the plan proposes a hierarchy of transport modes which are tiered in the following order;
- Walking;
 - Cycling;
 - Public Transport;

- Park & Ride; and
- Private Car.

3.2.17 The plan will follow the previous Canterbury District Transport Action Plan which has proved to be successful in ensuring that Canterbury is an attractive place to live and visit and stabilising traffic flows. This has been achieved by reducing the need to build more highway infrastructure and promoting more sustainable forms of transport. Planning policy has encouraged mixed use development which in turn has reduced journey lengths for people accessing leisure, employment, education and other facilities. The five key aims of the previous plan were to;

- Improve travel choice;
- Reduce traffic congestion;
- Improve road safety;
- Reduce travel demand; and
- Improve travel awareness.

3.2.18 The draft Local Plan indicates how the Council aims to encourage further sustainable travel by mode and bus improvements along Sturry Rd are considered to be critical to the future success of the network.

3.2.19 The Canterbury City Council Corporate Plan (2011-2016) has pledged to tackle congestion as one its key priorities. The historic nature of the city makes it difficult to manage traffic, in particular with the volumes of traffic that access the city on a daily basis exceeding 160,000.

3.2.20 The Canterbury District Housing Strategy 2012-2016 has identified providing enough homes for the rising population of the district as a major challenge.

3.2.21 It is clear that in order to achieve local priorities; the correct infrastructure needs to be in place to permit proposed development. The SRITP will assist in achieving these aims.

3.3 Problem Identified

3.3.1 Kent's LTP3 identifies the following key transport related challenges affecting the county;

- Transport congestion;

- Supporting economic growth;
 - The need to improve access to jobs and services;
 - The need for a resilient network;
 - Realising its importance as a UK gateway; and
 - The need to make it a safer and healthier county.
- 3.3.2 There is currently a severe traffic congestion and delay problem on the A28 north eastern highway corridor, connecting Canterbury with outlying settlements on the North Kent coast and Isle of Thanet. The route handles a 2-way traffic flow in excess of 20,000 vehicles per average day, which is estimated to occupy approximately 95% of carriageway capacity at peak times and which results in heavy delays at junctions and unreliable journey times for cars and buses.
- 3.3.3 Sturry Road carries approximately 200 inbound buses per weekday, of which some 90 buses operate from the Sturry Road bus park and ride site. Bus patronage accessing Canterbury City Centre is increasing at a rate of about 12% per year and represents a 5% modal share across the District.
- 3.3.4 Despite the evident importance of buses and P&R as a travel mode on the A28 corridor, their attractiveness and competitiveness is diminished by being caught in the prevailing traffic congestion, especially at the outer end of the corridor, inbound, before the bus priority facilities become available.
- 3.3.5 There is potential for the Sturry Road scheme to encourage greater bus use, by aligning with a re-distribution of City car parking space, because in 2012, whilst 91% of total City car parking capacity was occupied on a typical day, only 62% of the Sturry Road P&R capacity was occupied.
- 3.3.6 In essence, the SRITP scheme is intended to help resolve current issues, particularly:
- Constrained effectiveness of existing bus priority facilities further inbound on A28, because of heavy delays and unpredictable travel times for buses further out on Sturry Road;
 - Unsuitable road layout on Sturry Road hinders the optimum use of sustainable bus services; and

- Lack of available public transport capacity for accommodating further growth in travel demand between North Kent Coast, Canterbury suburbs and City Centre, because A28 traffic congestion will not allow for increased bus frequencies.

3.4 Impact of Not Changing

- 3.4.1 It is likely that by not introducing the SRITP scheme, the issues indicated above will deteriorate, discouraging sustainable interaction between Canterbury and outlying areas and, thereby, reducing sustainable access to services for residents, visitors and businesses. In the longer term, the lack of SRITP will partially constrain the planned development in the north east segment of the Canterbury District draft Local Plan, especially at sites in Sturry / Broad Oak, equivalent to some 300 homes and 110 jobs.
- 3.4.2 The introduction of further homes and employment opportunities to the local area will inevitably increase the number of people using the already saturated highway network. It is essential that viable, useable transport alternatives are available to ensure that employees are able to travel between their homes and workplace in an efficient and reliable manner.
- 3.4.3 Air quality is already a concern in Canterbury, which is why an Air Quality Management Area has been established. The consequences of increasing the number of vehicles accessing the city via Sturry Rd is likely to be an increase in the volume of harmful emissions being emitted into the atmosphere.

3.5 Internal drivers for Change

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

- 3.5.2 A main objective of the SRITP scheme is to reduce travel times and improve journey reliability, for bus users on the A28 north east Canterbury corridor, thereby releasing some 'headroom' public transport capacity to accommodate future trip growth arising from economic and community development aspirations. It is also aimed at enhancing the effectiveness of the Sturry Road bus priority and park and ride initiative, which is planned for a P&R car park expansion from 600 to 700 spaces.
- 3.5.3 The scheme would also contribute to the successful operation of the planned A28 Sturry Link Road, which would entail an inbound bus lane, by providing a continuous length of bus lane from Sturry village into the city centre.

3.6 External drivers for Change

- 3.6.1 Journey reliability and modal shift are the primary drivers and the planned growth of housing and jobs across the South East is likely to cause further issues in terms of congestion. Whilst KCC has the power and ability to control what happens within its boundaries, it cannot be accountable for development elsewhere in the South East and beyond which may have repercussions within its boundaries.

3.7 Objectives

- 3.7.1 The objectives of the scheme align with both local and national strategic aims. The main purpose of the scheme is to ease congestion along the A28 Sturry Rd. The introduction of the scheme is expected to lead to greater patronage on bus services using the A28, reducing the need to travel by private car as bus journey time reliability is improved. A reduction in private cars along the route will also witness a reduction in harmful gasses being emitted into the atmosphere as a direct consequence of pollution from vehicles.
- 3.7.2 The following are the primary objectives associated with the scheme;
- Objective 1: Improve bus journey time reliability along the A28; and
 - Objective 2: Increase bus patronage along the A28.
- 3.7.3 Achieving the primary objectives will inevitably lead to a number of secondary objectives being realised although these may not be directly linked. These are likely to be;
- Mitigate the re-distribution of car parking capacity from the City Centre to A28 P&R site;

- Reduction in emissions from vehicles;
- Improvement in health as greater numbers of people use walking and cycling to access bus services and making short journeys;
- Increasing capacity on the network allowing further development (such as Sturry Rd/ Broad Oak).

3.7.4 It can be seen that both primary and secondary objectives accord well with the strategic aims of both the local authority and national policy.

3.8 Measures for Success

3.8.1 It is envisaged that successful outcomes from the SRITP scheme will be gauged in terms of its easing of travel delays for buses in the A28 north east Canterbury corridor, handling of additional travel demand from bus users, encouragement of additional bus patronage on bus priority routes, delivery of planned homes and jobs growth in north east Canterbury District and improved performance against various measures of transport and travel activity on key routes, specifically:

- Passing bus passenger flow volumes and vehicle movements on the A28 road, bus corridor, and on parallel routes, in relation to network capacity;
- Pedestrian and cyclist flow volumes;
- Travel mode shares;
- Travel time and distance by bus, car and train;
- Journey time variability by bus and other modes;
- Car park occupancy in City Centre and at P&R sites.
- Accident occurrences and severities; and
- Air quality and noise impacts on A28 main route and 'rat run' parallel roads.

3.9 Scope

- 3.9.1 The scope of the Sturry Rd Integrated Transport Package is to extend the nearside bus lane for a distance of 0.7km on the inbound section of the A28 single carriageway from Vauxhall Road roundabout to the Marshwood retail park roundabout. It would be constructed within the existing highway boundary on land owned by Kent County Council. The proposed layout would consist of a 3.0m-wide nearside bus and cycle lane, whilst retaining a narrowed 3.0m-wide traffic lane in each of the inbound and outbound directions, giving an approximate carriageway width of 9.0m.
- 3.9.2 A Traffic Regulation Order will be required to prohibit kerbside car parking within the inbound bus lane. The bus lane would start downstream of the Vauxhall Road roundabout and end upstream of the Marshwood retail park roundabout. It would be interrupted across each of the existing minor side road access junctions along the scheme, at Reed Avenue and South Street. Existing bus stops along the A28 would be retained.
- 3.9.3 At present, there are nearside cycle lanes along parts of the proposed scheme (inbound and outbound). These will be removed in order to provide the necessary lane widths for the proposed bus lane and traffic lanes.
- 3.9.4 The scheme will not directly increase bus service frequency on A28 Sturry Road. However, it is intended that improvements to service-levels here could be encouraged through the Quality Bus Partnership between Stagecoach and Canterbury CC (policy 5.3 of Canterbury District Transport Strategy 2014-31).

3.10 Constraints

- 3.10.1 The key constraints likely to affect delivery of the SRITP scheme are summarised below:
- KCC committee approval is required by early 2015, to proceed with the scheme, which may be influenced by objections to the scheme by residents, property owners and cyclists on Sturry Road;
 - Traffic Regulation Orders for implementing the bus lane would need to be approved;
 - Statutory procedures must be completed in time for works procurement to start in February 2016, so that construction preparation can start in March 2016 and construction works can start in April 2016;

- A full scheme capital cost breakdown is not available; the earmarked funding sources may not therefore cover the full cost of the scheme. This constraint is only for declaration and there are no expectations of funding issues, noting a 10% QRA allowance. There is no land take issues removing that potential key cost issue;
- Funding allocation from SELEP (LGF) has not yet been awarded; this is required to supplement the available funding contribution accumulated from various land-use developers; and
- Performance and outcomes from SRITP scheme may be affected by public transport operator decisions regarding service levels in the corridor, i.e. Stagecoach East Kent buses and SouthEastern trains, which will affect highway / PT mode choice and amount of traffic congestion.

3.11 Interdependencies

- 3.11.1 The SRITP scheme is a desirable prerequisite for delivering the A28 Sturry Link Road scheme, as the SRITP will provide a 'missing link' in the A28 inbound bus lane, which would be continued along the SLR scheme.
- 3.11.2 Sturry and Broad Oak have been identified in Canterbury City Council's Draft Local Plan as a "strategic site" for housing. In order to facilitate the delivery of the scheme and ease congestion, a link Road effectively bypassing the village of Sturry will be required.
- 3.11.3 Preliminary plans for the scheme indicate that the new residential site would be accessed from Sturry Hill and the A28 Sturry Road. In order to provide an access on Sturry Road, new bridges will be required to traverse the River Stour and the railway line.
- 3.11.4 This report assesses the merits of the SRITP alone and does not take account of the proposed development at Sturry and Broad Oak.

3.12 Stakeholders

- 3.12.1 Key stakeholders have been identified by KCC who will play a key role in ensuring that the scheme can not only be delivered successfully, but also operated and maintained in future. 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:
 - Canterbury City Council (promoter of Canterbury District Transport Strategy and draft Local Plan);
 - Stagecoach East Kent (operator of Canterbury local and district-wide bus services in A28 / A291 corridor);
 - Land-use developers at Sturry / Broad Oak, BDB and Hobbs Parker (potential source of scheme funding);
 - SELEP (source of scheme funding);
 - Sturry Residents Together (community interest group);
 - Local residents and businesses; and
 - Regular users of affected transport facilities (road, rail, bus, walk and cycle).

- 3.12.2 In addition to these stakeholders, it is anticipated that a number KCC staff will be consulted across a range of departments.
- 3.12.3 It is envisaged that conflict could arise amongst stakeholders. The removal of existing parking and cycle lanes from the carriageway are likely to lead to some consternation.

3.13 Options

- 3.13.1 Details of the currently proposed scheme are set out in Section 1.3 of this report.
- 3.13.2 There is no evidence available of detailed option sifting having been undertaken for the SRITP scheme. The initial options that are believed to have been considered for inclusion in the Strategic Case of the SRITP scheme Transport Business Case are detailed below.

Option A

- 3.13.3 **Option A** is the do nothing option and assumes that the existing situation will remain.

*Advantages of **Option A***

- 3.13.4 The do nothing option benefits from not requiring investment as existing facilities would remain.

*Disadvantages of **Option A***

- 3.13.5 Congestion is a significant issue on the A28 Sturry Rd. This is likely to be exacerbated with projected housing growth in Sturry and Broad Oak. This would put a strain on a network that is currently experiencing 95% of its highway capacity.
- 3.13.6 Allowing existing conditions to remain is likely to reduce the effectiveness of the park and ride site on Sturry Road, reducing the number of people using the site. Increasing transport choice is a key objective for local, regional and national policies.

Option B

- 3.13.7 Option B is the do minimum option which would introduce intermittent improvements to bus facilities on Sturry Road between Marshwood and Vauxhall roundabouts to avoid pinch points.

*Advantages of **Option B***

- 3.13.8 Option B would tackle congestion on Sturry Road and ensure improved facilities for buses along the scheme corridor.
- 3.13.9 The option would not be as costly as the do something option.

*Disadvantages of **Option B***

- 3.13.10 The option is unlikely to go far enough in addressing the issues of congestion along Sturry Road, in particular when taking into account the expected development at Sturry and Broad Oak.

Option C

- 3.13.11 Option C is the do something or preferred option. This scheme will introduce a full inbound, nearside bus lane on Sturry Road between Marshwood and Vauxhall roundabouts.

*Advantages of **Option C***

- 3.13.12 The total cost of the scheme is relatively low (£0.55million) and will allow free flow for buses between Vauxhall Rd and Kingsmead Roundabout (combining with the existing bus lane between Marshwood and Kingsmead).
- 3.13.13 This will substantially improve bus journey time reliability along this corridor and offer bus travel as a viable alternative to personal car use along the corridor.

*Disadvantages of **Option C***

- 3.13.14 Of the three options considered, the preferred option is the most costly.
- 3.13.15 The scheme will require Traffic Regulation Orders to be approved to remove existing parking arrangements.

3.14 Conclusions

- 3.14.1 Option C, the preferred option has been assessed against the other options by KCC and has been selected as the option to be taken forward for further assessment.

4 Economic Case

4.1 Overview

- 4.1.1 This section of the report will provide evidence of how the scheme will perform in relation to its objectives and predicted outcomes.
- 4.1.2 It considers the relative performance of possible scheme options, in order to determine the optimum scheme. Ultimately, the Economic Case determines if the proposed scheme is a viable investment, whose strengths outweigh its weaknesses and which provides good value for money.
- 4.1.3 The predicted scheme appraisal focuses on those aspects of scheme performance that are relevant to the nature of the intervention. However, we do acknowledge the strands of assessment that are required under various pieces of statutory guidance (e.g. DfT WebTAG, VfM Assessment, LSTF; HM Treasury 'Green Book'; Network rail GRIP; etc.).
- 4.1.4 In accordance with the requirements of HM Treasury's Green Book 'Appraisal and Evaluation in Central Government', (July 2011), this section of the TBC report gives an appraisal of the scheme options that have been considered as possible solutions to the project objectives and problems identified in the strategic case.
- 4.1.5 Although this scheme is expected to contribute to the wider economic development of the area, it is mainly focused on more localised objectives. These objectives are set out in the 'logic map' in **Appendix A**. The Economic Case is mainly focused on these specific benefits.

4.2 Background

- 4.2.1 There is currently a severe traffic congestion and delay problem on the A28 north eastern highway corridor, connecting Canterbury with outlying settlements on the North Kent coast and Isle of Thanet. The route handles a 2-way traffic flow in excess of 20,000 vehicles per average day, which is estimated to occupy approximately 95% of carriageway capacity at peak times and which results in heavy delays at junctions and unreliable journey times for cars and buses.

- 4.2.2 The preferred option to be implemented in Canterbury is the '*Sturry Rd Integrated Transport Package (SRITP)*' which will see the extension of an inbound bus lane along Sturry Rd. Approximately 700metres of additional bus lane will be introduced between Vauxhall Rd roundabout and Marshwood Retail Park roundabout. This bus lane will connect with an existing inbound bus lane between Marshwood Retail Park roundabout and Kingsmead roundabout, effectively creating a free flow bus lane of approximately 1 mile along Sturry Road.
- 4.2.3 The following are the primary objectives associated with the scheme;
- Objective 1: Improve bus journey time reliability along the A28; and
 - Objective 2: Increase bus patronage along the A28.
- 4.2.4 Achieving the primary objectives will inevitably lead to a number of secondary objectives being realised although these may not be directly linked. These are likely to be;
- Reduction in emissions from vehicles;
 - Improvement in health as greater numbers of people use walking and cycling to access bus services and making short journeys;
 - Increasing capacity on the network allowing further development (such as Sturry Rd/ Broad Oak).

4.3 Proportionality Assessment

- 4.3.1 In line with HM Treasury Green Book guidance, a proportionality assessment has been undertaken in order to determine the level of detail required for the economic assessment.
- 4.3.2 The following section discusses each of the impacts identified in the TAG Appraisal Summary Table (AST) and how the scheme will be assessed against these criteria and whether this has been done quantitatively or qualitatively. The AST is provided later in this chapter and indicates the predicted scheme performance.

4.4 Economic Case Content and Method

- 4.4.1 This section of the report will assess the merits of the proposed scheme using a proportionate approach to WebTAG guidance. Due to the size and nature of the scheme, a predominantly qualitative assessment of its merits has been undertaken in this section using, where possible, a quantified appraisal of bus user travel time savings and scheme capital, supported by case study evidence. In the absence of case study evidence, professional judgement has been applied.
- 4.4.2 WebTAG guidance is the standard method of appraising the strengths, weaknesses, benefits and costs of transport schemes regarding local priorities, in particular with regards to enabling investment, creating jobs and building houses.
- 4.4.3 The following headings indicate how the scheme performs against each of the criteria in the Appraisal Summary Table (AST). An AST is provided later in the section, summarising the performance of the scheme.

4.5 Economy Aspects of Appraisal Summary Table

Travel Costs for Business Users and Transport Providers

- 4.5.1 The scheme is expected to have a beneficial effect on business users and providers, in terms of reducing bus travel time costs and increasing journey time reliability.
- 4.5.2 The Present Value Benefit (PVB) for the scheme has been calculated with respect to existing bus passenger travel time savings (for business, commuter and other users). This represents the 2010 present value benefit, at market prices, over ten (10) years of operation, discounted. This was undertaken in a spreadsheet exercise and extracted data from WebTAG databook (Nov 2014). The key unit calculated was existing bus passenger vehicle-hours (veh-hrs).
- 4.5.3 This has been based on inbound bus flows along Sturry Road, average speeds (existing) and an estimate of bus occupancy throughout the day. A comparison between the existing and proposed situation has resulted in a PVB of £926,641 over a 10 year period. Detailed information on this calculation is provided at **Appendix B**.
- In addition to this, the Marginal External Costs (MEC) methodology has been applied to monetise a targeted small mode-shift to park-and-ride. It is noted that this element is wider-reaching than just travel costs.

Reliability impact on business users

- 4.5.4 Bus service reliability will improve and as a consequence, benefits will accrue for those using buses for business (note this does not include commuters) and bus service providers who will have a more dependable timetabled service. Having a reliable service is also likely to lead to a greater number of people using the service.

Qualitative Outcome: SLIGHT BENEFICIAL

Regeneration

- 4.5.5 The scheme will have no effect on any regeneration areas designated by Government or the European Union.

Qualitative Outcome: NEUTRAL

Wider Impacts

- 4.5.6 It is unclear how the scheme will affect 'wider impacts'. An assessment has therefore been done on a qualitative basis for the purposes of this report.

Qualitative Outcome: NEUTRAL

4.6 Environmental Aspects of Appraisal Summary Table

Noise

- 4.6.1 The area does not feature in DEFRA's noise action plan and it is unlikely that the scheme would have a considerable effect on noise levels. No definitive evidence is available regarding changes to traffic flow as a result of the scheme; however, it is unlikely that traffic flows will decrease in the short term.

Qualitative Outcome: NEUTRAL

Air Quality and Greenhouse Gases

- 4.6.2 The scheme is predicted to slightly improve air quality along Sturry Rd by reducing the need to travel by private car and improving reliability of journey times (in the long term). An Air Quality Management Area is located in close proximity to the proposed scheme as transport emissions have led to concentrations of NO₂ above EU limits. Whilst one of the secondary impacts of introducing the scheme is anticipated to be an improvement in air quality, it would prove difficult to apportion any benefits to the specific scheme as air quality can be affected by a number of measures.
- 4.6.3 Nitrogen Dioxide is the only pollutant of concern in Canterbury District which has necessitated the establishment of an Air Quality Management Area. The proposed scheme will have very little effect on greenhouse gases in Canterbury.

Qualitative Outcome: NEUTRAL

Landscape

- 4.6.4 The scheme involves taking away existing parking and cycle lanes from the highway network in order to facilitate the introduction of a new bus lane. No further land will be lost as a consequence of the scheme. A traffic regulation order will be required to prohibit kerbside parking.

Qualitative Outcome: NEUTRAL

Townscape

- 4.6.5 Aside from taking away existing parking and cycle lanes, the scheme will have a very limited effect on the townscape on Sturry Rd. At present, the scheme corridor is a mixture of residential, industrial and retail land use which will not change. Removing kerbside parking is unlikely to have any effect on the townscape.

Qualitative Outcome: NEUTRAL

Heritage/ Historic Environment

- 4.6.6 The city of Canterbury was designated World Heritage Site status by UNESCO in 1988 according to its cultural criteria. The sites included as part of the World Heritage Site are Canterbury Christchurch Cathedral, St Augustine's Abbey and St Martin's Church.

4.6.7 Canterbury District Council issued a supplementary planning document in 2007 in order to address Heritage, Archaeology and Conservation concerns. The purpose of the document was to protect the historic nature of buildings and the townscape across the district.

4.6.8 The proposed scheme is located on Sturry Rd, approximately 1mile from the designated World Heritage Site and will not have any influence on its designation or other urban conservation areas.

Qualitative Outcome: NEUTRAL

Biodiversity

4.6.9 The scheme will have no tangible effect on biodiversity.

Qualitative Outcome: NEUTRAL

Water Environment

4.6.10 The scheme will have no tangible effect on the water environment.

Qualitative Outcome: NEUTRAL

4.7 Social Aspects of Appraisal Summary Table

Travel Costs to Commuter & Other Users

4.7.1 A quantified appraisal has been performed with respect to the travel time savings predicted for business, commuter and other, bus-users (see earlier PVB assessment). However, it is considered highly unlikely that changes to any of the following will occur as a consequence of introducing the scheme

- Parking Charges;
- Car fuel & non-fuel operating costs;
- Road User Charges;
- Public Transport Fare charges; and
- Public transport concession availability.

Qualitative Outcome: NEUTRAL

Accidents

- 4.7.2 The scheme has not been designed as a result of road safety concerns; however, it does take away the conflict between buses and other vehicular traffic for an increased distance along Sturry Rd.
- 4.7.3 Research suggests that the introduction of bus priority can lead to accident reductions. A TfL pilot scheme of a red route in London (between Haringey and Hackney) in 1991 was reported by TRL⁴ to achieve a 17% reduction in personal injury accidents along the route.
- 4.7.4 In Australia, research by the Accident Research Centre at Monash University '*Road Safety Benefits from Bus Priority*' suggested that bus priority reduced accidents by 14% on routes in Melbourne.
- 4.7.5 A TfL report (Attitudes to Bus Priority Schemes, 2009), suggested that a third of cyclists felt that bus priority had a positive effect on cycling in the capital. Approximately 50% observed no effect from bus priority suggesting that the vast majority of cyclists observed no negative effects from the introduction of bus priority.
- 4.7.6 On street parking is being removed from a section of Sturry Rd which will also enhance road safety. The additional lane is a shared bus/ cycle lane meaning that conflict will also be removed for cyclists, thus improving cycle safety.
- 4.7.7 It is clear that a link exists between introducing bus priority and a reduction in accidents.

Qualitative Outcome: SLIGHT BENEFICIAL

Physical Activity

- 4.7.8 Research⁵ by Greener Journeys Research indicates that mode shift can lead to increased activity levels, in particular for those shifting to bus travel. The research suggests that those who walk to bus stops do so in order to get their regular exercise. It will be difficult to quantify the potential levels of additional physical activity as a consequence of introducing the scheme and therefore, a qualitative assessment has been undertaken as to its benefits.

Qualitative Outcome: SLIGHT BENEFICIAL

⁴ www.parliament.uk/briefing-papers/SN00032.pdf

⁵ Greener Journeys Research

Journey Quality

- 4.7.9 In the short term, the scheme is unlikely to have a dramatic effect on journey quality (note that 'journey quality' does not take account of reliability or other factors such as safety and security as these are already covered in separate sub-headings within this section). Journey quality in this instance is concerned with bus service cleanliness, facilities, comfort and information which do not form part of the scheme scope.

Qualitative Outcome: NEUTRAL

Reliability

- 4.7.10 The main purpose of the scheme is to improve journey time reliability along Sturry Rd. Evidence suggests that improving reliability of bus services can increase modal shift from private car to bus services.
- 4.7.11 A 2009 TfL report⁶ looking specifically at public attitudes towards bus priority recorded high levels of support for bus priority from a range of transport users. The main reason for supporting bus priority (39%) was making bus travel more efficient/ quicker.

It is clear that service reliability will be improved as a consequence of the scheme.

Qualitative Outcome: SLIGHT BENEFICIAL

Option & Non Use Values

- 4.7.12 The scheme will not '*substantially change the availability*' of transport services along the scheme corridor and as such will have a negligible effect on Option and No Use Values.

Qualitative Outcome: NEUTRAL

Security

- 4.7.13 The introduction of an additional bus lane will not have any effect on the levels of security in the local area.

Qualitative Outcome: NEUTRAL

⁶ <http://www.tfl.gov.uk/cdn/static/cms/documents/attitudes-to-bus-priority-schemes-report.pdf>

Access to Services

- 4.7.14 As a consequence of improving reliability along the A28 corridor, access to services will improve.

Greater reliability will increase bus speeds along the corridor, making it more efficient to access employment, education, retail and leisure facilities.

Qualitative Outcome: SLIGHT BENEFICIAL

Affordability

- 4.7.15 Personal affordability is unlikely to be affected by the introduction of the scheme.

Qualitative Outcome: NEUTRAL

Severance

- 4.7.16 It could be argued that the scheme could cause severance as parking spaces and existing cycle lanes are removed in order to allow the introduction of the bus lane between Vauxhall Rd roundabout and Marshwood Retail Park roundabout. The reality is that the scheme will have very little effect on those living locally.

Qualitative Outcome: NEUTRAL

4.8 Public Accounts Aspects of Appraisal Summary Table

- 4.8.0 A quantified calculation has been performed for the present value capital cost of the proposed Sturry Road ITP scheme. This represents the 2010 present value cost at market prices, discounted.

4.9 Case Study Evidence

- 4.9.1 In 2004, the Department for Transport (DfT) issued a guidance and practical information resource pack on successful implementation of bus priority. The resource pack is a useful document which provides case study evidence as to the potential benefits that bus priority can produce from best practice examples across the UK.
- 4.9.2 In the absence of quantifiable data, case study evidence from schemes that resemble the proposed scheme on Sturry Rd has been used in order to analyse potential benefits.
- 4.9.3 In addition to using the DfT resource pack, a report composed by Jacobs Consulting to the Passenger Transport Executive Group (PTEG); *'Value for Money and Appraisal of Small Scale Public Transport Schemes'* builds an evidence base on the value for money of relatively small scale schemes. The report collated and analysed data from over 150 schemes across the UK including Bus Quality Corridors, Bus Priority, Real Time Information and Park and Ride with capital costs less than £5million. The report suggested positive benefits across the range of schemes with a BCR of 3.5 with bus priority measures exceeding 3.

4.10 Analysis of Monetised Costs and Benefits

- 4.10.1 Table 2 provides a summary of analysis of monetised costs and benefits associated with the scheme. This is based on travel time savings with the scheme in place, and a small change in mode-shift due to increased park-and-ride usage (increase in capture rate from 20% to 22.5%). There was reduction in bus passenger veh-hr of 39 hours. It can be seen that the scheme leads to a BCR of **2.04**. The PVC includes optimism bias at 3% ('full business case stage' in previous DfT stages), and a QRA of 10%. Sunk costs are assumed to be subsumed in normal council operations. Inflation and discounting are included in the spreadsheet calculations of PVC.

The appraisal period was ten (10) years. For simplicity the current conditions have been extrapolated as constant in the opening year and forecast years. This is noted as conservative.

Table 2 Summary of Analysis of Monetised Costs and Benefits

Scheme Summary Analysis of Monetised Costs and Benefits (2010 present values and prices)	
Net Outcome for: Do-Something Preferred Scheme minus Do Minimum	Present Values in 2010 prices and values (£)
User Present Value Benefit (PVB)	£1,014,389
Capital Present Value Cost (PVC)	£496,902
Scheme Net Present Value (NPV) = PVB - PVC	£517,487
Scheme Initial Benefit to Cost Ratio (BCR) = PVB/PVC	2.04

4.11 Sensitivity testing

The appraisal spreadsheet can be easily adjusted to judge the possible sensitivity of certain parameters.

Some examples are given below, showing the change in BCR from the reported 2.0:

- Increasing appraisal period to 15 years give a BCR of 2.6
- Changing new park-and-ride capture (from 22.5%) : 21% gives a BCR of 1.9, 25% gives a BCR of 2.2
- If the bus speed on the link is assumed as 48kph rather than 40kph, BCR becomes 2.5

In conclusion, the sensitivity testing does not give any undue concerns about value for money. Some of the factors could lead to a lower BCR but these are outweighed by some of the factors that have not been monetised (e.g. air quality). In addition VOT (Value of time) has been kept constant which is conservative.

4.12 Appraisal Summary Table (AST)

4.12.1 The AST presents the evidence both quantitatively and qualitatively of the proposed scheme. The AST assesses the merits of the scheme and its impact; economically, environmentally and socially as well as looking at public accounts and distribution. The table provides a summary of the impacts discussed earlier in this chapter.

4.12.2 Where data has been made available to undertake a detailed quantitative assessment, this has been done, however, in the absence of quantifiable data; research has been undertaken looking at similar case studies from across the UK or by applying professional judgement. For simplicity, noting the small value of both scheme costs and benefits, the quantitative results have all been grouped into travel costs for commuters.

Table 3 - Appraisal Summary Table

Scheme Appraisal Summary Table (AST)											
Impact Category	Monetised / Non-Monetised Impact?	Specific Impact	Quantitative Outcome (Monetised)	Qualitative Outcome (✓) (Non-Monetised)							
				Beneficial			Neutral	Adverse			
				Large	Moderate	Slight		Slight	Moderate	Large	
Economy	Usually Monetised	Travel Costs to Business Users and Providers	See commuters								
	Sometimes Monetised	Reliability for Business Users				✓					
		Regeneration					✓				
		Wider Impacts					✓				
Environment	Usually Monetised	Noise					✓				
		Air Quality	Subsumed in Travel Costs					✓			
		Greenhouse Gases					✓				
	Sometimes Monetised	Landscape					✓				
		Townscape						✓			
	Rarely Monetised	Heritage / Historic Environment						✓			
		Biodiversity							✓		
		Water Environment								✓	
Social	Usually Monetised	Travel Costs to Commuter & Other Users	£926,641 (£1,014,389 including MEC)					✓			
		Accidents	Subsumed in Travel Costs					✓			
		Physical Activity						✓			
		Journey Quality							✓		
	Sometimes Monetised	Reliability for Commuter & Other Users						✓			
		Non-User Option/Non-Use Values								✓	
	Rarely Monetised	Security								✓	

Scheme Appraisal Summary Table (AST)										
Impact Category	Monetised / Non-Monetised Impact?	Specific Impact	Quantitative Outcome (Monetised)	Qualitative Outcome (✓) (Non-Monetised)						
				Beneficial			Neutral	Adverse		
				Large	Moderate	Slight		Slight	Moderate	Large
		Access to Services				✓				
		Affordability					✓			
		Severance					✓			
Public Accounts	Usually Monetised	Cost to Broad Transport Budget						✓		
		Indirect Tax Revenue	Subsumed in Travel Costs	n/a						

4.13 Value for Money Statement

4.13.1 Table 4 below provides a summary of the scheme Value for Money Assessment (VfM).

Table 4 – Summary of Scheme Value for Money Assessment

Scheme Value for Money (VfM) Summary				
VfM Component	VfM Assessment Mechanism & Outcome Measurement Method	Scope of VfM Component	VfM Component Strands	VfM Outcome Qualitative (See 2 nd Column)
Initial BCR	Quantified BCR, or 5pt Qualitative BCR: Poor (<1.0) Low (1.0-1.5) Medium (1.5-2.0) High (2.0-4.0) Very High (>4.0)	Derived from usually-monetised scheme user economic appraisal and cost/benefit analysis	Economic Efficiency (Consumer Users Commuters & Others) – Economic Efficiency (Business Users & Providers) – Noise – Local Air Quality – Greenhouse Gases – Journey Quality – Physical Activity – Accidents – Wider Public Finances (Indirect Tax revenues) – Broad Transport Budget – <u>Overall –</u>	High(2.04)
Adjusted BCR	Quantified adjustment to BCR, or 5pt Qualitative adjustment to BCR: Poor/Low/Medium/High/Very High	Initial BCR adjusted to allow for sometimes-monetised scheme impacts	Journey Reliability – Area Regeneration – Wider economy – Landscape – Non-user option / non-use values – <u>Overall Adjusted –</u>	High
Qualitative Assessment	7pt Qualitative outcome: Large/Moderate/Slight Beneficial Neutral Slight/Moderate/Large Adverse	Covers rarely-monetised scheme impacts	Townscape – Heritage / Historic Environment – Biodiversity – Water Environment – Security – Access to Services – Affordability – Severance – <u>Overall –</u>	Moderate

Scheme Value for Money (VfM) Summary				
VfM Component	VfM Assessment Mechanism & Outcome Measurement Method	Scope of VfM Component	VfM Component Strands	VfM Outcome Qualitative (See 2 nd Column)
Initial VfM Category	4pt Qualitative outcome: Low/Medium/High/Very High	Aggregate of above VfM components, excluding risk component	<u>Overall Initial VfM Category</u> (excluding risk adjustment) –	High
Key Risks, Uncertainties & Sensitivities	7pt Qualitative negative or positive adjustment to initial VfM: Large/Moderate/Slight Beneficial Neutral Slight/Moderate/Large Adverse	<i>Scheme performance risk/outcome sensitivity requires moderate adverse adjustment; Initial BCR, based on outline overestimated capital cost, requires slight beneficial adjustment; etc.</i>	<u>Overall risk/uncertainty/sensitivity adjustment</u> –	Neutral
Final VfM Category	4pt Qualitative outcome: Low/Medium/High/Very High	Aggregate of above VfM components, including risk component	Overall Final VfM Category (including risk adjustment) –	High

4.14 Overall VfM Category

4.14.1 The initial BCR attributed to the scheme is 2.04

4.14.2 Reliability impacts, improved physical activity and access to services combined with a reduction in accidents have been measured qualitatively using case study evidence, suggesting that additional benefits could be accrued.

4.14.3 Case Study evidence suggests that bus priority schemes can achieve a BCR of 3.5 which would indicate that this scheme has the potential to achieve a HIGH BCR, in particular when considering proposed future housing allocations that could affect the scheme.

4.14.4 The overall Value for Money category for the A28 Sturry Road Integrated Transport Package scheme is considered to be HIGH.

5 Financial Case

5.1 Introduction

- 5.1.1 This chapter presents the financial case for the SRITP scheme. It is concerned with the affordability of the proposal, its funding arrangements and technical accounting issues. The total outturn costs and expenditure profile are presented, along with an assessment of the impact of the proposed deal on the Department's budgets and accounts.
- 5.1.2 Capital costs have been calculated for the do-something scheme situation only as there are not expected to be any construction costs associated with the 'do nothing scenario'. The 'do something' scenario is the preferred option as indicated in chapter 3, namely 'Option C'.

5.2 Project Costs

- 5.2.1 The capital required to fund the project is £0.55m for the period 2015-2017. Table 5 indicates the various items of scheme capital cost as estimated in 2014 prices and outturn prices.

Table 5: Scheme Costs

Cost Category	£million
Preparatory	£0.05
Preliminaries	
Construction	£0.45
Site Supervision	
Land	£0.00 (no requirement)
Quantified Risk Budget (10%)	£0.05
Total 2014 prices	£0.55
Inflation	
Total outturn prices	£0.55

5.3 Risk Budget

5.3.1 The purpose of the risk budget is to cover any increased costs that may result from the full set of identified scheme risks, whether direct cost increases or indirectly as a result of scheme delays. A risk register has been populated with pre and post construction risks in order to obtain a Quantified Risk Assessment (QRA). For each risk, the associated 'residual probability' is multiplied by the 'most likely' cost impact to calculate a 'mean expected value'. The sum of the 'mean expected values' for each component is **£0.05million**.

5.3.2 Further details on risk can be found in section 7.

5.4 Spend Profile

5.4.1 An estimated outturn spend profile for the SRITP is shown in Table 6, split by financial year.

Table 6: Outturn Spend Profile

Estimated Spend	£m/ year						
	Total	15-16	16-17	17-18	18-19	19-20	20-21
Construction			0.45				
Land							
Preparation			0.05				
Supervision							
Risk Budget			0.05				
Total Costs			0.55				

5.5 Whole Life Costs

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

5.6 Funding Assumptions

5.6.1 The total project cost is estimated at £0.55 million. Table 7 indicates the breakdown of costs by contributor.

Table 7 Breakdown of Scheme Cost by Contributor

Contributor	Cost (£million)
Government (SELEP Local Growth Fund)	£0.3
Local Government Authority (KCC)	-
Public Organisation	-
Private Organisation (land use developer etc.)	£0.25
Borrowed funds & scheme promoter's income	-
Total	£0.55

These funding sources are understood to be likely and no funding constraints are identified.

5.7 Accounting Implications

5.7.1 The following implications on public accounts are expected for the preferred option (Option C):

- LEP funding of £0.3m is requested; and
- Maintenance Costs (yet to be determined). This was excluded from the appraisal and is assumed to be absorbed into normal council operations.

6 Commercial Case

6.1 Introduction

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

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

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

6.2 Procurement Options

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

Full OJEU tender

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

- 6.2.3 KCC will then need to opt for an 'open' tender, where anyone may submit a tender, or a 'restricted' tender, where a Pre-Qualification is used to whittle down the open market to a pre-determined number of tenderers. This process takes approximately one month and the first part is a 47 day minimum period for KCC to publish a contract notice on the OJEU website.
- 6.2.4 The minimum tender period is 6 weeks but could be longer for larger schemes. Once the tenders are received they must be assessed and a preferred supplier identified. There is a mandatory 10 day 'standstill' period, during which unsuccessful tenderers may challenge the intention to award to the preferred contractor.

Delivery through existing Amey Highways Term Maintenance Contract (HTMC)

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

6.3 Preferred Procurement Option

- 6.3.1 The preferred procurement route for the A28 Sturry Road Integrated Transport Package scheme is delivery through Amey HTMC.
- 6.3.2 This option has been selected as the value of the scheme is considerably less than the OJEU scheme value threshold.

6.4 Potential for Risk Transfer

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

7 Management Case

7.1 Introduction

- 7.1.1 The chapter will assesses the deliverability of the project, testing project planning, governance structure, risk management, communications and stakeholder management, benefits realisation and assurance.
- 7.1.2 It sets out a plan to ensure that the benefits set out in the economic case are realised and includes measures to assess and evaluate this.

7.2 Approach to Scheme Development and Delivery

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

7.3 Evidence of Similar Projects

- 7.3.1 KCC have a successful track record of delivering major transport schemes within the county. The most recent of which were the East Kent Access Phase 2 (EKA2) and Sittingbourne Northern Relief Road schemes (SNRR).
- 7.3.2 The EKA2 scheme, completed in May 2012, was designed to support economic development, job creation and social regeneration, improving access with high quality connections between the urban centres, transport hubs and development sites in East Kent. The overall objectives of the scheme were to unlock the development potential of the area, attract inward investment and maximise job opportunities for local people. The extent of the scheme is shown in Figure 4 overleaf.
- 7.3.3 The scheme was successfully delivered within budget and ahead of programme through the adoption of a robust management approaches which will be used to deliver the Sturry Road Integrated Transport Package Scheme. The total value of the scheme was £87.0m, of which £81.25m was funded by Central Government.
- 7.3.4 The intended scheme outcomes are currently being monitored but the intended benefits of the scheme are anticipated to be realised.

[illegible]

7.3.6 The delivered scheme is shown in Figure 5 below:

7.3.7 The project is an excellent example of multi agencies working towards a common aim. The scheme was funded by the Homes & Communities Agency in its Kent Thameside regeneration role, by the Department for Transport in its support of local major schemes and by private sector S106 contributions. The scheme was delivered under budget and to programme.

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

7.4 Project Dependencies

- 7.4.1 At present there are no known project dependencies that could impact on the delivery of the SRITP. The project is classified as stand-alone; however, its successful implementation is likely to accelerate proposals for delivering the A28 Sturry Link Rd scheme.

7.5 Governance, Organisation Structure & Roles

- 7.5.1 KCC have set up a clear and robust structure to provide accountability and an effectual decision making process for the management of the LEP funded schemes. Each scheme will have a designated project manager who will be an appropriately trained and experienced member of KCC staff.
- 7.5.2 Figure 6 overleaf provides an outline of the overall governance structure implemented to manage the delivery of each scheme.
- 7.5.3 A detailed breakdown of the meetings (along with the attendees, scope and output of each) which make up the established governance process is set out below.

Project Steering Group (PSG) Meetings

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

Highlight Report

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

Figure 6 KCC Project Governance Structure

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

List of Initials:

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

Programme Board (PB) Meeting

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

Escalation Report

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

Sponsoring Group (SG) Meeting

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

7.6 Project Plan

- 7.6.1 Due to the small scale nature of the scheme and based on the fact that the authority has experience of delivering similar projects there is a high degree of confidence that the programme can be delivered successfully within the projected timeframe.
- 7.6.2 Key project milestones for 2015/16 from business case submission to completion are shown below in the project plan.

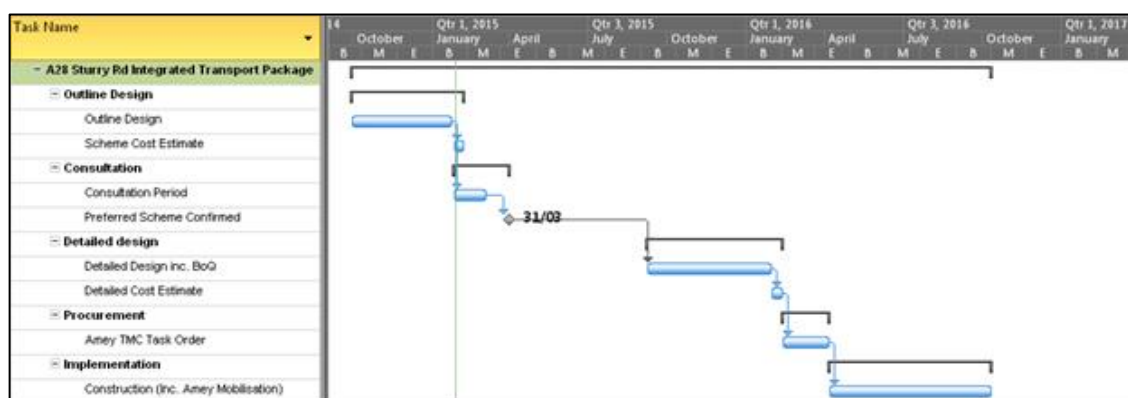


Figure 7 SRITP Project Plan

7.7 Communications and Stakeholder Management

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

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

The stakeholder engagement is an on-going process. One of the key groups to keep informed has been identified as cyclists, noting it is important that any loss of cycling facilities is considered in the wider transport strategy.

Other key stakeholders are the bus operators (particularly Stagecoach EastKent and local residents. These latter groups are both beneficiaries in the long-run but will be subject to short-term disruption.

Local members are being kept informed.

There are no significant concerns in the process at the current time.

7.8 Key Issues for Implementation

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

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

7.9 Risk Management Strategy

- 7.9.1 Project risk is managed as an on-going process as part of the scheme governance structure. A scheme risk register is maintained and updated at each of the two-weekly Project Steering Group meetings. Responsibility for the risk register being maintained is held by the KCC PM and is reported as part of the monthly Progress Reports.
- 7.9.2 Any high residual impact risks are then identified on the highlight report for discussion at the Programme Board (PB) meeting. Required mitigation measures are discussed and agreed at the PB meeting and actioned by the KCC PM as appropriate.
- 7.9.3 An example scheme risk register is shown in Figure 8 below.

Figure 8 Scheme Risk Register

Risk Register															
Project Title: Example 1				H		High				H		High		Total Risk Allowance	
Project Manager: Mr Smith				H		Medium				H		Medium			
Date of Last Review: 19/02/2014				L		Low				L		Low			
Risk Number	Risk Description	Date Logged	Residual Impact	Residual Probability	Residual Priority	Notes of Impact (Commercial/Programme/RLI)	Action to be taken (Mitigation)	By When	By When	Residual Impact	Residual Probability	Residual Priority	Progress	Residual Cost Allowance in Project Estimate	Risk needs this review?
01	Example: Planning permission for a new scheme not obtained in time	12/02/2014	L	L	L	Example: Delay to project on final scheme as a result of a new scheme.	Example: Ensure that the project is approved with adequate time for the project.	By KCC		L	L	L			

- 7.9.4 Higher level risks associated with the scheme have been identified and will be mitigated against as far as is practicable. As has been alluded to earlier, KCC have extensive experience of delivering projects and assessing the risks associated with them.
- 7.9.5 The following table identifies the higher level risks associated with the SRITP, their potential effects, likelihood of occurring and mitigation. *(Note: The scoring is based on a 5 point scale. 1=Unlikely, 5= Extremely Likely).*

Table 8 Risks associated with SRITP Scheme

Risk description	Likelihood	Impact	Likelihood x Impact	Mitigation
Increase in Scheme Costs	2	3	6	Investigate scheme design and amend to achieve greater BCR & VFM
Funds do not cover costs	2	3	6	Lobby alternative sources for shortfall in funding
Changes in direction (from government, LEP,	2	3	6	Ensure co-operation and communication between all concerned parties

Local Authority)				
Delays in Construction	2	4	8	KCC to ensure that design, procurement and construction procedures are carefully planned
Statutory Undertakers	1	4	4	KCC to ensure that relevant searches along scheme corridor are conducted as early as is practicable to flag up any issues at the earliest possible juncture
Issues uncovered during construction (environmental, archaeology etc.)	1	4	4	Early liaison with geotechnical, environmental and archaeology specialists to minimise
Health and Safety	1	3	3	Ensure that KCC & Contractor Health & Safety procedures are adhered to at all times
Opposition to scheme (Residents/ Cyclists/ Road Users)	3	2	6	Ensure clear and effective consultation is undertaken with all relevant consultees providing fullest possible information

7.10 Project Assurance

A signed Section 151 officer letter is provided as **Appendix C**.

7.11 Benefits Realisation and Monitoring

Overview

- 7.11.1 The strategy for monitoring the outcomes from the named scheme, once it is in operation, is usually contained within the Management Case. However, it has been included separately here, to fit with the agreed format of the Kent CC / SELEP scheme transport business case executive summary. It identifies the scheme performance aspects, measurement items and thresholds of acceptability that will be monitored, in order to evaluate whether or not the scheme achieves its stated objectives and targeted outcomes and resolves the identified problems.

Outcomes Monitoring

- 7.11.2 The scheme objectives (as outlined in Section 3) have been used to develop the desired outputs and outcomes for the scheme. The desired outputs are the actual benefits that are expected to be derived from the scheme and are directly linked to the original set of objectives. The definition of outputs and outcomes are:

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

- 7.11.3 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 9 below.

Table 9: Scheme Benefit Indicators

Objective	Indicator
Improve Bus Journey Time Reliability	Bus Journey Times along A28
Increase in Bus Patronage	PT Modal Split

7.11.4 Table 10 provides a summary of the proposed measurements metrics and thresholds of acceptability that will be used to evaluate the primary and secondary benefits of the scheme.

Table 10 Outcome Measurement and Acceptability Thresholds

Benefit	Monitoring Indicator	Measurement	Acceptable Threshold
PRIMARY	Journey time reliability	Average Speed	20mph average
	Bus Patronage Increase	Passenger Counts	Greater than 5% passenger increase
SECONDARY	Re-distribution of parking	Car Park Counts	Greater than 10% increase
	Reduction in emissions	Annual mean Nitrogen Dioxide (NO ₂) measured at AQMA monitoring station	% reduction from existing µgm ⁻³
	Health Improvements	Cycling numbers/ pedestrian counts	% increase from existing
	Network Capacity	Speed/ Reliability	% available capacity increase

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

8 Conclusion

8.1 Recommendation

This report has demonstrated that the £0.3m funding request for this scheme should be released. The low amount of the 'ask' to the LEP and the leverage due to the developer contribution outweigh any lack of certainty about 'value for money'.

Appendix A SRITP Logic Map

Appendix B Economic Case Calculations

NCC Canterbury - A28 Sturry Road Integrated Transport Package (bus lane)

Assumptions used to calculate estimate of travel time savings, for exiting Sturry Road bus passengers, resulting from bus lane.

1 Existing Situation			
Recorded traffic flow A28 Vauxhall Rd - Kingmead Av (AADT) DfT 2013			
A28 westbound (in)	Car	Bus	Total Veh
A28 westbound (out)	9025	279	11106
	8811	266	10728
Estimate of bus passengers	No. Seats per Bus		
80% of buses single deck at 40 seats per bus	32		
20% of buses double deck at 80 seats per bus	16		
Total seats	48		
Estimated average daily bus occupancy	No. Passengers per Bus		
25% of total seat capacity occupied per bus	12		
Estimated average daily bus passengers			
A28 westbound (in)	3348	pass per day	
A28 westbound (out)	3192	pass per day	
Estimate of bus travel time on A28 Sturry Rd inbound			
Link distance	0.7	km	
Assumed average free-flow speed per bus (all day)	24	kph	15 mph
Average bus free-flow travel time on link	105	Secs	
Estimated delay at bus stops	30	Secs	per stop
Total bus dwell time on link	3	bus stops	
	90	Secs	
Total average bus travel time on link (all day)	195	Secs	
Total bus passenger travel time on link (average day)	181.35	Pass Hrs	
WebTAG Value of Time (Data Book 2014 / US 5.6 VoT&VoC Oct 2013)			
2030 prices & values	VoT		
Average PSV (average occupancy) per weekday (Tab9)	£95.18	per hour	
Average bus passenger occupancy per weekday (Tab5)	12.2	pass per bus	
Average bus passenger VoT	£7.80	per hour	
Total bus passenger travel time cost per av day	£1,414.53	per day	
Total bus passenger travel time cost per av year	£516,303.45	per year	
2 Predicted Situation			
Recorded traffic flow A28 Vauxhall Rd - Kingmead Av (AADT) DfT 2013			
A28 westbound (in)	Car	Bus	Total Veh
A28 westbound (out)	9025	279	11106
	8811	266	10728
Estimate of bus passengers	No. Seats per Bus		
80% of buses single deck at 40 seats per bus	32		
20% of buses double deck at 80 seats per bus	16		
Total seats	48		
Estimated average daily bus occupancy	No. Passengers per Bus		
25% of total seat capacity occupied per bus	12		
Estimated average daily bus passengers			
A28 westbound (in)	3348	pass per day	
A28 westbound (out)	3192	pass per day	
Estimate of bus travel time on A28 Sturry Rd inbound			
Link distance	0.7	km	
Assumed average free-flow speed per bus (all day)	40	kph	25 mph
Average bus free-flow travel time on link	63	Secs	
Estimated delay at bus stops	30	Secs	per stop
Total bus dwell time on link	3	bus stops	
	90	Secs	
Total average bus travel time on link (all day)	153	Secs	
Total bus passenger travel time on link (average day)	142.29	Pass Hrs	
WebTAG Value of Time (Data Book 2014 / US 5.6 VoT&VoC Oct 2013)			
2030 prices & values	VoT		
Average PSV (average occupancy) per weekday (Tab9)	£95.18	per hour	
Average bus passenger occupancy per weekday (Tab5)	12.2	pass per bus	
Average bus passenger VoT	£7.80	per hour	
Total bus passenger travel time cost per av day	£1,109.86	per day	
Total bus passenger travel time cost per av year	£405,099.63	per year	
3 Predicted Scheme Impact			
Total bus passenger travel time saving on link (av day)	35.06	Pass Hrs	
Total bus passenger travel time cost saving per av day	£304.67	per day	
Total bus passenger travel time cost saving per av year	£111,209.82	per year	

Appendix C **S151 Officer Letter**