

LGF Transport Business Case Report A28 Chart Road

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1 Introduction

1.1 Overview

Amey has been commissioned by Kent County Council (KCC) to prepare a Transport Business Case (TBC) for the South East Local Enterprise Partnership (SELEP) A28 Chart Road scheme. The scheme has been allocated a portion of the Government's Local Growth Fund (LGF) by the SELEP in the form of the Kent and Medway Growth Deal.

1.2 Location of the Scheme

The proposed scheme is located at the northern end of the A28 in Ashford (shown in Figure 1). The A28 is the main route serving south and west Ashford. The route runs north-south on the western side of the town and connects to the A20/A292 to the north, and ultimately, the strategic highway network via the M20. The proposed scheme runs from the 'Tank' roundabout (A28 junction with Carlton Rd, Sir Henry Brackenbury Rd and Templer Way), passing the residential suburbs of Godinton and Repton Park South to the west and Cobbs Wood Industrial Estate to the east. The scheme continues as far as the 'Matalan' roundabout (A28 junction with Brookfield Rd/ Great Chart Bypass and Chart Rd), traversing the existing railway line serving Ashford International and beyond. The scheme will serve as an extension to recent improvements introduced to the north of Tank, connecting with the M20 junction.



Figure 1: Scheme Location



1.3 Background to the Business Case

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

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

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

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

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, it is the largest strategic enterprise partnership outside of London.

The SELEP has secured £442.2 million in funding from HM Government to boost economic growth - with a particular focus on transport schemes that will bring new jobs and homes to 2021. This includes £358.2 million for new growth schemes in addition to the £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.



All LEP's have signed up to develop a single assurance framework as part of the growth deal to ensure all 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.

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.

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.

1.4 Purpose of this Document

The purpose of this document is to provide evidence-based information to secure support from the Local Growth Fund for £10.23m through the South East Local Enterprise Partnership to progress the A28 Chart Road Scheme. Guidance for the preparation of Business Cases for Transport Schemes has been published by the Department for Transport (DfT). This is based on H.M. Treasury's advice on evidence-based decision making as set out in the Green Book and uses the best practice five case model approach. It also brings in other strands where relevant, such as summary of predicted scheme outcomes and scheme operational case.

This approach assesses whether schemes:

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



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

1.5 Structure of the Document

This report is structured in accordance with the Department for Transport's guidance on Transport Business Cases, 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;
- Chapter 7 provides the Management Case; and
- Chapter 8 presents an operational assessment to confirm that the planned scheme will be fit-for-purpose.



2 Detailed Scheme Description

2.1 Introduction

The A28 Chart Road widening scheme is located at the northern end of the A28 in Ashford and is the main route serving the south and west of the town. The primary purpose of the scheme is to improve congestion along what is currently a very busy single carriageway link between the Matalan and Tank roundabouts on the A28.

2.2 Scheme Description

Figure 2 indicates the scheme extents between Matalan and Tank roundabouts. A more detailed drawing of the scheme and its extents is provided at Appendix A and summarised below.



Figure 2: Scheme Extents



The scheme will see a dualling of the A28 Chart Road carriageway in both directions between Matalan (Brookfield Road) and Tank (Templer Way) roundabouts, separated by a central island. The existing carriageway between Matalan and Tank is single carriageway with limited capacity.

The Matalan and Tank junctions will both be enlarged to accommodate increased capacity stemming from the carriageway upgrade. The Loudon Way signalised junction will be retained but will be improved with more efficient signals and dedicated right and left turning lanes introduced from Chart Road.

Access and egress arrangements to and from the Cobbswood Industrial Estate will be altered to restrict right turning movements to and from Brunswick Road and Hilton Road. Left in and out only movements will be permitted to and from Brunswick Road and Hilton Road. At present, all movements are permitted to and from these side roads which increase delays at the junctions, affecting traffic further up and downstream of the junctions.

In addition to the carriageway and junction improvements along Chart Road, the scheme will also seek to improve conditions for non-motorised users. A shared un-segregated pedestrian and cycleway will be provided along Chart Road (north and southbound) connecting with existing routes to the town and beyond. In order to provide the extent of pedestrian and cycle facilities discussed, a new section of footway/cycleway will be provided on the east side of Chart Road between Brunswick Road and Brookfield Road.

At Loudon way, a new controlled pedestrian/ cycling crossing will be provided to improve crossing facilities. The existing controlled crossing south of Tank roundabout will be retained and a new crossing of Chart Road will be provided to the north of Matalan roundabout.

The 40mph speed limit will be retained along Chart Road with a reduction to 30mph introduced on the approach to the Tank roundabout junction.

It is likely that a compulsory purchase order will be required in order to ensure that the land required to build the scheme is available. A noise fence will be erected to protect local residents from the effects of any potential increase in noise levels.

135 new trees will be planted and landscaping adjacent to the scheme will be improved to ensure that the environment is inviting and pleasant to use for local residents.

The following figures indicate the proposed revised junction alignments along the A28 as a consequence of introducing the scheme.

Project NameA28 Chart RoadDocument TitleLGF Transport Business Case Report





Figure 3: A28/ Brunswick Road Proposed Junction Alignment.

Figure 3 indicates the proposed revision to the A28/ Brunswick Road junction. As discussed previously, the junction would become left in/ left out as indicated above. It is anticipated that the Hilton Rd junction would benefit from a similar arrangement. Figure 4 below indicates the proposed widening of the A28/ Loudon Way junction with 2 dedicated straight ahead lines in either direction on the A28 mainline.



Figure 4: A28/ Loudon Way Proposed Junction Alignment



3 Strategic Case

3.1 Introduction

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

The Strategic Case establishes the:

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

3.2 Strategic Context

National Transport Priorities

National Planning Policy Framework

The 'National Planning Policy Framework' (March 2012) sets out the Governments planning policies for England and how these are expected to be applied. This framework provides a foundation for local stakeholders and councils to produce bespoke local plans that reflect the needs of local communities.



The strategy sets out that sustainable development is at the core of drawing up plans and determining applications. There are three mutually dependant dimensions; economic, environmental and societal improvements. These form the foundation of the majority of long-term objectives set out by the Government and major transport infrastructure projects are assessed against these three tenets both for the present and future. In order to achieve sustainable development, economic, social and environmental gains must be made.

Building a strong, competitive economy and securing economic growth in order to create jobs and prosperity is a strong commitment from the Government. The framework states that pursuing sustainable development involves seeking positive improvements in the quality of the built, natural and historic environment, as well as in people's quality of life, including:

- Making it easier for jobs to be created in cities, towns and villages;
- Replacing poor design with better design;
- Improving the conditions in which people: live, work, travel and take leisure; and
- Widening the choice of quality homes.

National Infrastructure Plan

The 'National Infrastructure Plan 2014' (NIP) sets out the Governments vision and approach to key economic infrastructure sectors such as transport. The NIP sets out a clear delivery plan for each of the key infrastructure sectors for the next 5 years and is underpinned by the infrastructure pipeline which sets out the details for public and private investment to 2020 and beyond. The plan provides clarity and transparency to each sector for potential investors and the supply chain through delivery plans, key actions and longer term goals.

The Government presented its vision for the UK's transport system in the NIP:

- Transport infrastructure can have a significant and positive effect on economic growth and can be a key driver of jobs throughout the economy via enhancing connectivity between businesses, goods and people and by encouraging a sustainable, low-carbon economy that is vital for future success and development;
- Local transport systems are crucial to the overall transport system and must facilitate the growth of suburban areas. The transport network must allow for people to move freely and easily helping to support jobs and growth;



• The transport system must adapt to unexpected pressures allowing for the rapid movement of goods and people, adding value to the economy.

The overarching aim is to create a road network fit for the 21st century, which improves economic productivity and supports jobs and growth. The network should seek to increase capacity, tackle congestion, support development, strengthen connectivity, improve reliability and resilience, and be of the best possible quality.

Regional Transport Priorities

Unlocking Kent's Potential

Kent County Council's (KCC) framework for regeneration 'Unlocking Kent's Potential' (2009) defines the vision for Kent and what the county should look like over the next 17 years to 2026. The framework focuses on growth and regeneration, not simply focusing on economic growth but other factors such as an efficient transport system that supports the economy and residents.

Kent is South East England's fastest recovering region and has great potential for successful economic growth. In the last 20 years, Kent has seen 100,000 more people living in the county, housing stock increase by over 60,000 homes and 130,000 more cars on roads. This pace of change is set to accelerate further over the next 20 years with a projected 8 per cent population increase, accompanied by the presence of two of the UK's four Growth Areas in Thames Gateway and Ashford. Local growth is predicted to result in 250,000 extra journeys being undertaken on Kent's road network by 2026. Coupled with a forecast increase in international traffic it is clear that tackling congestion is regarded as one of the main priorities for Kent.

The regeneration framework has five priorities based on the key challenges and opportunities facing Kent, including:

- Delivering growth without transport gridlock As the UK's gateway county between London and mainland Europe, there is a need to ensure that the county can maintain efficient transport systems at the same time as enabling population and economic growth; and
- Building homes and communities, not estates Ensuring new housing is developed to excellent standards, with the infrastructure that it needs to support it.



Growth without Gridlock

'Growth without Gridlock' (December 2010) is the transport delivery plan for Kent. The plan identifies the necessary transport infrastructure needed to accommodate the level of economic growth and regeneration planned in Kent, the measures required to manage the existing network and offers travel choice and better access to jobs. The overarching goal of Growth without Gridlock is to enable growth and prosperity for Kent and the UK as a whole. 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.

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

- Tackling congestion hotspots;
- Transferring existing and new car trips onto public transport, walking and cycling, especially for short journeys;
- Providing sufficient transport infrastructure to mitigate the impact of planned development.

Growth Deal and Strategic Economic Plan

Published in March 2014, the South East Local Enterprise Partnership (SELEP) Strategic Economic Plan (SEP) outlines the vision and investment strategy to drive growth in the economy to 2021. The SEP outlines the case for necessary investment to infrastructure enterprise and employment that is required for the South East region's economy to continue its successful upward trajectory. Five core geographic areas are the focus of economic growth including: Kent, East Sussex, Medway, Southend and Thurrock.

A component element of the Strategic Economic Plan for the area is the Kent and Medway Growth Deal which sets out the plans for the public and private sectors to invest over £800 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.

The A28 Chart Road Scheme is directly identified within the SEP as a key component for unlocking urban expansion and accelerating economic growth within the East Kent area. The scheme is central to the growth plan in the area unlocking up to 5,750 homes and 1,000 jobs at Chilmington Green.

Local Transport Priorities

Local Transport Plan for Kent 2011-2016

Kent's third 'Local Transport Plan (LTP3), 2011-2016' sets out KCC's strategy and implementation plans for local transport investment in the short term. The plan proposes a new approach to prioritising investment in transport infrastructure in order to support housing and employment in Kent's growth areas and growth points, improve access to jobs and services, make Kent a safer and healthier county (in particular in disadvantaged areas), and cut carbon emissions. The plan prioritises its planned measures under five themes:

- Growth without Gridlock;
- A Safer and Healthier County;
- Supporting Independence;
- Tackling a Changing Climate; and
- Enjoying Life in Kent.

Under each theme, the plan prioritises a range of transport initiatives and the principles and policies underlying them, by area and by mode. Whilst some of the initiatives have already been put in place or are in progress, a number provide the basis for the proposals prioritised by the SELEP for capital investment support. These initiatives have also subsequently been aligned with the local area development and regeneration plan produced or in the process of being produced by the 12 District or Borough Councils in the County. The A28 Chart Road scheme is directly identified within LTP3 as a major transport proposal in Ashford that will support the growth point at Chilmington Green.



The Transport Strategy for Ashford

'The Transport Strategy for Ashford' (2006) prepared by KCC, sets out a number of principles and related action plans using a 'stick and carrot' approach, to deliver a transport system with excellent provision for all users. The strategy focuses on ten key points that support the transport vision for Ashford, including:

- To gain recognition for Ashford as 'the connected city' in a pivotal location at the heart of the strategic region;
- Optimising connectivity and integration of live, work, leisure and learning activity; and
- Providing an adequate road network for all modes of transport but consistent with the above.

Ashford Highway and Transport Study

The Ashford Highway and Transport Study (AHTS, 2006) is a study that was undertaken to support the development of Ashford as a growth area and to accommodate the planned strategic introduction of 28,000 new jobs and 30,000 additional houses by 2031. The role of the AHTS is to develop the significant highway building programme, required as a result of the growth in Ashford.

The strategic need for the proposed dualling of the carriageway which forms part of the A28 Chart Road scheme, as well as highway improvements to the A28 Chart Road are referenced in the AHTS. A widening to dual 2 lanes from the Brookfield Road Junction and the A20 Drovers Roundabout is identified within the study, showing the need for the A28 Chart Road Improvement Scheme.

Chilmington Green Area Action Plan

The Chilmington Green Area Action Plan (AAP) (July 2013) sets out Ashford Borough Council's site-specific plan on how the important new development at Chilmington Green should take place. The purpose of the plan is to provide policy guidance and a delivery framework that provides a clear direction towards achieving the council's aims for Chilmington Green. The AAP forms part of the council's development plan for the borough and has been influenced by the Chilmington Green Masterplan. The action plan sets out the vision for Chilmington Green and a Transport Strategy for the area that identifies specific areas for improvement.



The A28 Corridor is one of the specific areas for improvement derived from this local policy. The AAP references the issues along the A28 corridor, with the A28 Chart Road Improvement Scheme outlined as one of a package of junction improvement and link widening measures which include traffic impacts from the Chilmington Green development. The proposal is central to achieving Ashford Borough Council's future vision for development in the area and to create a positive and lasting legacy for the town.

The above analysis reveals that the A28 Chart Road Improvement Scheme is closely aligned and compliant with the aspirations of relevant national, regional and local policies, specifically helping to contribute to their objectives. It is clear that highway improvements to the A28 Chart Road are central to the growth plan and are seen as core to enabling the urban expansion at Chilmington Green, and accelerating growth in the wider area.

A RAG (Red, Amber, Green) analysis comparing the strategic fit of the A28 Chart Rd widening scheme with key national, regional and local policy has been undertaken. Table 1 below indicates the relationship of the scheme with the policy. It can be seen that the vast majority of policies at national, regional and local level accord well with the proposed A28 Chart Rd scheme.

	Strong strategic fit with policy	
	Neutral/minimal strategic fit with policy	
	Negative strategic fit with policy	
Policy	Objectives	Strategic Fit
National Policy		
National Planning Policy	Making it easier for jobs to be created in cities, towns and villages	
	Moving from a net loss of bio-diversity to achieving net gains for nature	
	Replacing poor design with better design	
	Improving the conditions in which people: live, work, travel and take leisure	
	Widening the choice of quality homes	
National Infrastructure Plan (2014)	To create a national road network fit for the 21 st century, which improves economic productivity and supports jobs and growth across the country.	

 Table 1:
 RAG Policy Assessment of the Scheme against Objectives



	Strong strategic fit with policy	
	Transport infrastructure can have a significant and positive effect on economic growth and can be a key driver of jobs throughout the economy	
	Importance of Local transport systems in allowing free and easy access to support jobs and growth	
	The transport system must adapt to unexpected pressures allowing for the rapid movement of goods and people, adding value to the economy	
Regional Policy		
Unlocking Kent's Potential: KCC's	Building a new relationship with business	
framework for regeneration (2009)	Unlocking talent to support the Kent economy	
	Embracing a growing and changing population	
	Building homes and communities, not estates	
	Delivering growth without transport gridlock	
Growth without gridlock: A	Delivering growth and prosperity	
(2010)	Tackling congestion hotspots	
	Transferring existing and new car trips onto public transport, walking and cycling, especially for short journeys	
	Providing sufficient transport infrastructure to mitigate the impact of planned development	
South East LEP Growth Deal and Strategic Economic Plan (2014)	Generate 200,000 private sector jobs by 2021, an average of 20,000 a year or an increase of 11.4% since 2011	
	Complete 100,000 new homes by 2021, increasing the annual rate of completions by over 50% compared to recent years	
	Lever investment totalling £10 billion by 2021, to accelerate growth, jobs and homebuilding	
Local Policy		
Local Transport Plan for Kent	Growth without Gridlock	
2011-16	A Safer and Healthier County	
	Supporting Independence	
	Tackling a Changing Climate	
	Enjoying life in Kent	
The Transport Strategy for	To gain recognition for Ashford as 'the connected city'	
ASITIORU (2006)	Optimising connectivity and integration of live, work, leisure and learning activity	
	Providing an adequate road network for all modes of transport but consistent with the above	



	Strong strategic fit with policy	
Chilmington Green Area Action Plan (2013)	Chilmington Green to be a place that provides the range of community, school, health and other services needed by local people	
	Offers a range of local jobs, but equally caters for those working in the town centre and elsewhere with frequent bus connections	
	Has a strong identity in a landscape setting, but is closely linked to the urban area and is able to offer new opportunities to other residents of Ashford	

3.3 Problem Identified

This section of the report will outline the existing problems encountered on the A28 Chart Road and provide evidence as to why the scheme is required.

Existing Situation

The A28 Chart Road is the primary route for traffic to the south and west of Ashford, connecting with the motorway network at junction 9 of the M20.

The study area is concentrated along the section of A28 between 'Matalan' and 'Tank' roundabouts in the Godinton suburb of Ashford. Godinton is a primarily residential ward with approximately 2,400 households. Of these households, approaching 85% have access to at least one car¹. Until recently, only one access/egress to or from Godinton was available for motorists to access the strategic network, from Loudon Way, a signalised junction that meets the A28. The recent development of Repton Park provides an alternative access to the wider strategic network via Repton Avenue. The volume of housing in this particular part of Ashford has put a considerable strain on the local highway network.

During peak periods, congestion is a major issue along the A28 and in particular between Matalan and Tank roundabouts. Journey times are unreliable for private car users and public transport operators alike along the corridor. This results in slow moving traffic along the corridor in both directions contributing to higher than normal emissions from vehicles.

The existing A28 Chart Road is a single carriageway road with capacity constraints along the mainline and at each of the junctions intersecting the scheme area and with traffic volumes presently in the region of 27,000 per day; there are limitations on what can be achieved with the existing infrastructure to improve conditions.

¹ Census 2011 – Car or Van Availability



A transport model of the town has been constructed in order to gauge existing conditions along the A28 and wider study area and forecast the effects of future development on the highway network. In order to undertake the modelling exercise, it was essential to collect baseline traffic data in order to construct a model that could be validated against observed conditions. A *Local Model Validation Report (LMVR)* is appended to this report (**Appendix B**) providing detailed information on the transport model for Ashford.

The following paragraphs describe some of the data collected, its relevance to the scheme and further evidence of the issues encountered on A28 Chart Road.

Congestion and Queueing

Queue length data was collected at a number of critical junctions across Ashford, including Tank, Matalan and Loudon Way junctions in order to understand the level of queuing encountered across the day. The data indicated that the A28 Chart Road experiences high levels of traffic and congestion during peak periods. The surveys (undertaken in July 2015) suggest slow moving traffic moves along Chart Road resulting in queues at each of the junctions with queuing in excess of 100m experienced on the A28 at the Loudon Way junction. The highest queue along Chart Road was observed at the Matalan junction (Great Chart Bypass Arm) with the queue extending more than 250m in the AM peak (0800-0900). Figure 5 is a screenshot of the level of queuing experienced at the Matalan junction during the AM peak period.



Figure 5: Queuing at Matalan Roundabout (view looking Northbound)



It can be seen that traffic is queuing back on to the roundabout from the A28 northbound, affecting the operation of the junction and limiting traffic speeds.

Journey Times, Delays and Speeds

One of the primary objectives of the scheme is to improve journey time reliability along the corridor. Journey time data was collected on primary routes across the town in order to assess how long it takes to get between different pre-defined locations.

The A28 Strategic Route was one of the corridors where journey times were recorded (using Tom Tom information). Northbound, between Matalan and Tank roundabouts, the average journey time for vehicles in the AM peak was observed to be approximately 3minutes to cover a distance of just 1km. In the PM peak, journey times were observed to be slightly quicker with journeys taking just over 2minutes in the Inter Peak period.

In the southbound direction, the reverse pattern is observed with journeys taking almost 3 minutes, this time in the PM peak. Journey times of approaching 3 minutes would equate to an average speed 14mph along Chart Road during AM and PM peak periods.



Figure 6: Slow Moving Traffic on Chart Rd (view looking Southbound)

Figure 6 indicates slow moving traffic along Chart Rd at the Loudon Way junction. The volume of traffic is causing vehicles to travel slowly along the link in either direction.

In addition to affecting the operation of the A28 corridor, this slow moving traffic has the effect of increasing harmful emissions being emitted into the atmosphere.



The volume of traffic attempting to reach or leave the M20 also causes considerable delays at each of the junctions along the corridor. In addition to traffic attempting to reach/ leave the M20, the location of Cobbs Wood Industrial Estate also causes delays along the corridor with right turning traffic to Hilton Road and Brunswick Road causing blocking back on the A28 Chart Road mainline.

Figure 7 indicates the level of congestion experienced daily at the Tank roundabout during the PM peak. It can be seen that traffic is blocking back on to the roundabout, affecting the operation of the junction.



Figure 7: Congestion at Tank Roundabout (view looking Northbound)

Road Safety

Analysis has been undertaken in order to identify any patterns with regards to accidents that may exist along the corridor. Personal Injury Accident data was requested from Kent County Council for the years 2010-2014 (full calendar years). 27 accidents in total were observed between Tank and Matalan roundabouts on the A28. All of the reported incidents were classified as slight with no serious or fatal accidents. Figure 8 indicates the spread of accidents along Chart Rd.

It can be seen that the number of accidents along the link are minimal with the majority of accidents located at the junctions along the A28. Clusters exist at the Loudon Way signalised junction and at the junctions with Brunswick Road and Hilton Road.





Figure 8: Chart Rd Accidents (2010-2014 inclusive)

The highest concentration of accidents occurred at the Hilton Road/A28 Chart Road junction. Nine accidents occurred at this junction with six collisions north of Hilton Road approaching the 'Tank' Roundabout. Four accidents occurred at the Brunswick Road junction and three at Loudon Way.

Further analysis reveals that collisions have mainly occurred at junctions and close to the adjacent Industrial Estate access points. The majority of accidents involve vehicles being hit from the rear, accounting for 59% of all accidents between Brookfield Road and Templer way on the A28 Chart Road, indicating slow moving and queuing traffic conditions.

In addition to the existing conditions witnessed along the A28, there are also projected to be considerable issues in the future as a consequence of new development traffic using the A28. Further information on the potential impacts of this traffic is provided in the following section.

3.4 Impact of Not Changing

Growing the local and regional economy through the creation of employment opportunities and providing new housing are key drivers identified by Government, the South East Local Enterprise Partnership (SELEP) and Kent County Council.

It is clear that the highway infrastructure along the A28 is inadequate to deal with existing conditions in Ashford and further development is only going to exacerbate problems further.



Planning consent is in process for a comprehensive mixed use new community at Chilimington Green. The proposed development is located approximately 6km to the south west of Ashford town centre, to the south east of the A28. A planning condition has been imposed by KCC that the A28 will require upgrading in order to carry the expected level of demand attributable to the Chilmington Green development. The development will comprise;

- Up to 5,750 dwellings;
- Up to 10000 sqm of B1 use class;
- Up to 9000 sqm of A1-A5 use classes;
- Three primary schools for up to 1200 pupils; and
- A site for a Secondary School for up to 1080 pupils.

In addition to Chilimington Green, a number of other proposed developments are expected to go ahead in the town over the coming years. A detailed breakdown of the developments most likely to proceed by 2030 are considered in the *Forecasting Report* (Appendix C) following consultation with Ashford Borough Council.

The report indicates that by 2020, over 3,200 homes could be built across the town and by 2030, this figure could increase to almost 6,000. It should be noted that these figures are for the town of Ashford alone and do not consider the likely development in the surrounding area that could affect Ashford and its highway infrastructure.

A significant number of mixed use developments are also expected be built by 2030 with almost 300,000sqm of development anticipated.

The likely level of development in the town alone over the coming 15 years will put an extraordinary strain on the highway network unless mitigation is introduced. In order to test the expected level of development on the existing network, a transport modelling exercise has taken place to understand where issues are likely to be encountered.

Analysis of the outputs from the SATURN model provides an accurate indication of the potential issues that are likely to arise should the expected levels of development go ahead without the scheme.



By 2020, the model suggests that during AM and PM peak conditions, the junctions at Matalan, Brunswick Road, and Loudon Way would operate in excess of its capacity. This is likely to mean that greater delays and congestion will be experienced with blocking back past neighbouring junctions. It is also likely to mean that traffic will re-route around the town in order to make journeys and avoid the congested A28 which will put a strain on the surrounding network and increase the opportunity of accidents.

By 2030, the junctions at Hilton Road and at Tank roundabout will operate above capacity.

Journey time analysis has also been conducted to assess the length of time it would take to travel along the corridor. The following charts indicate the journey times for the do minimum scenario (without scheme) and do something (with scheme) at 2030 for the core scenario (most likely development) between Chilmington Green Road and Tank roundabout.



Figure 9: 2030 AM Core Journey Times (North and Southbound)

Figure 9 indicates that after Matalan roundabout (northbound) there is considerable delay along Chart Rd without the scheme in place (blue line), when compared with the scheme option (red line). The southbound direction also exhibits delay but has less traffic during the AM peak as the majority of traffic is leaving the town.



Figure 10: 2030 PM Core Journey Times (North and Southbound)



A similar pattern is exhibited during the PM peak (Figure 10), transposed from the AM with considerable delay experienced along the A28 southbound, in this instance as traffic travels back to Ashford. The journey with the scheme in place takes approximately 200 seconds (southbound) whilst the same journey would take over 1000 seconds without the scheme meaning a delay of over 13minutes. Delays are also experienced in the northbound direction after the Matalan roundabout.

It is clear from the modelling outputs that the scheme is required to ensure that the A28 can remain operational in future years with the likely level of development in place.

3.5 Internal Drivers for Change

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

3.6 External Drivers for Change

Journey reliability is fundamentally the primary driver and the planned growth of housing and jobs across the South East supports the assertion that the existing problems are likely to worsen in the future and in particular in and around Ashford which has been identified as a major growth area.

3.7 Objectives

As discussed above, the A28 Chart Road widening scheme needs to address existing and future weaknesses in Ashford's transport system to ensure that the development of the transport network keeps pace with the rate of economic growth. The scheme will therefore invest in proposals which address the weaknesses in transport provision, providing improved journey times, enhanced reliability, reductions in accidents, reduced vehicle emissions and improving journey quality to ensure that Ashford remains attractive to residents, visitors and potential investors.

Investment in this strategic corridor will support improved connectivity to key sites (employment and residential) and maximise value from build-out at key future development sites (e.g. Chilmington Green). This investment will help to drive economic



growth, both in the local area and the wider south east region.

The scheme objectives were set out by KCC and have been reiterated in a number of public documents, these objectives are outlined below:

- Provide additional capacity on the road network to improve traffic flow;
- Alleviate congestion along the A28 Chart Road;
- Improve journey time reliability along the A28 Chart Road;
- Improve road safety along the A28 Chart Road;
- Reduce environmental impacts for local residents; and
- Support the economy by supporting the delivery of houses and jobs.

Table 2 indicates the objectives of the scheme together with the desired outcomes.

 Table 2:
 Objectives and Desired Outcomes

Objective	Desired Outcomes
Provide additional capacity on the road network to improve traffic flow.	Reductions in travel time through the scheme corridor.
Alleviate congestion along the A28 Chart Road.	Reductions in delay at the junctions along the scheme corridor.
Improve journey time reliability along the A28 Chart Road.	Reductions in day to day travel time variability along the scheme corridor.
Improve road safety along the A28 Chart Road.	Reductions in accidents along the scheme corridor.
Reduce environmental impacts for local residents.	Reductions in CO2, NO2 and particulate emissions. Also mitigates against noise levels.
Support the economy by supporting the delivery of houses and jobs.	Contributes to mitigating the impact of new homes and jobs in South Ashford.

3.8 Measures for success

In order to measure whether the scheme objectives set out above have been met, a series of specific; measurable; achievable; realistic and time-bound targets have been



derived. Timeframes have been chosen to coincide with either the scheme opening year of 2020 or the horizon year of 2030, as these are consistent with the years selected for the traffic model.

The Logic Map provided in Figure 11 summarises the rationale for the intervention provided in strategic policy documents and baseline evidence, leading you through a time sequence from the objectives, through implementation to targets and ultimately desired outcomes.

The scheme objectives have been used to develop the desired targets and outcomes for the scheme. The desired targets are the actual benefits that are expected to be derived from the scheme (i.e. taken from model outputs) and are directly linked to the original set of objectives. The definition of outputs and outcomes are:

- Targets tangible effects that are produced directly as a result of the scheme; and
- Outcomes final impacts brought about by the scheme.

It is important that we are mindful of these targets as the outputs of the scheme are measured and monitored. The outcomes identified are important to understanding if the scheme components have fulfilled their objectives. A full monitoring and evaluation plan is included in Chapter 7 'The Management Case'.





Figure 11:A28 Chart Road Logic Map



3.9 Scope

Details of the scheme (and its scope) have been provided in section 2 of this report with a detailed drawing of the extent of the scheme provided at **Appendix A**.

3.10 Constraints

There are a number of physical constraints along the line of the route of the proposed scheme that are discussed throughout the business case. These include:

- Rail constraints related to the need to carry out works to the A28 Chart Road rail bridge;
- Land ownership constraints related to the need to acquire privately owned land;
- Listed Buildings Consent is required for East Lodge in proximity to the scheme; and
- Engineering constraints related to utility diversions.

3.11 Inter-dependencies

There are internal and external factors upon which the successful delivery of the A28 Chart Rd scheme is dependent. The proposed scheme conforms with 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 (Chapter 7). The delivery of the scheme is dependent on these risks either not arising or being sufficiently mitigated so that scheme delivery remains unaffected.

3.12 Stakeholders

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

Engagement has taken place with the following key stakeholders, as identified by KCC.

- Ashford Borough Council (ABC);
- Ashford and KCC Cllrs;



- Great Chart Parish Council;
- Land Owners;
- Local Residents;
- Local Businesses;
- Users of the A28;
- Emergency Services;
- Network Rail;
- Environment Agency;
- Statutory Undertakers;
- Local schools;
- Wyvern School (special needs school within site); and
- Bus Companies.

Information on the level of consultation held with each of the stakeholders is provided below and where applicable, details of any feedback provided.

The scheme was presented to Ashford Borough Council and Kent County Councillors at a Joint Transport Board Meeting in September 2015. The scheme was well received and supported by the councillors. Separate meetings have also been held with the local ward councillors during the development of the scheme. The scheme was also presented to Great Chart with Singleton Parish Council in October of 2015 and was generally well received.

Public Exhibitions were carried out in November and December 2015 with a report on the feedback currently in the process of being finalised. The general feedback to the scheme has been very positive and there is overall support for the scheme. The main comments received relate to specific points of detail that can be dealt with at the detail design stage and it is not anticipated that there will be any changes to the principals of the scheme. The exhibitions were notified via the distribution of newsletters to local residents and businesses and by articles in the local media. Further newsletters will be distributed to the stakeholders at key stages during the development of the project, so that communication is maintained and other concerns can be addressed.



Discussions with affected landowners have commenced, supplemented with further discussions during the engagement process in November and December 2015. Formal discussions regarding land acquisition are programmed to start in March 2016. Initial feedback from meetings with Network Rail regarding the design and provision of a new rail bridge has been positive and an Asset Protection Agreement (APA) has been agreed. Consultation has also been undertaken with the Environment Agency and Southern Water regarding the proposed drainage strategy. Requirements for the drainage design have been agreed.

Statutory Undertakers have also been consulted with regards to the proposed design and have provided C3 estimates for the scheme.

Meetings have also taken place with Wyvern School to discuss access arrangements at the school and the implications of the scheme. Improvements to the school access will be incorporated into the scheme design and initial drawings have been issued for comment.

3.13 Options

A number of options have been considered for the scheme and been through an iterative process to arrive at a preferred option that achieves value for money and delivers the objectives set out in section 3.7.

The Local Development Framework Core Strategy, adopted by ABC in July 2008, placed high emphasis on a 'Smartlink' – a bus rapid transport system for Ashford. In line with this a proposal was developed for the A28 Chart Rd incorporating an improvement to an equivalent dual carriageway standard as part of a 'Smartlink' system in order to create dedicated carriageway space for buses.

Since the adoption of the Core Strategy in 2008, the prospect of capital funding from Government for major transport projects such as 'Smartlink' has receded. As such the previous proposal was discounted as there was no certainty that the 'Smartlink' system could be implemented.

At ABC's request, KCC, as highway Authority, commissioned studies to consider the scale and type of improvements necessary to upgrade the A28 corridor so that it may function at least as well in 2031 as it does currently. A package of junction improvements and link widening was identified and tested, including the traffic impacts from the Chilmington Green development.



The preferred option is a dualling of the A28 Chart Road between Matalan and Tank roundabouts. This is the option that has been appraised; however, different junction configurations at Loudon Way have been investigated including a reconfiguration of the signalised junction at Loudon Way, an option where the signals are replaced by a roundabout and a left in/ left out. Retaining the existing signal control is considered to be the best layout which will achieve a balance between the following aims;

- Maximising traffic flow through the junction;
- Allowing the controlled flow of vehicles in and out of the Godinton estate;
- Providing controlled crossings for pedestrians and cyclists of Chart Road and Loudon Way;
- Minimising noise and air quality impacts on residents of Godinton estate;
- Minimising impacts on existing bus routes;
- Minimising land take;
- Minimising impact on existing underground pipes and cables; and
- Providing opportunities to increase tree planting and landscaping enhancements.


4 Economic Case

4.1 Introduction

The Economic Case provides evidence of how the scheme is predicted to perform, in relation to its stated objectives, identified problems and targeted outcomes. Ultimately, the Economic Case determines if the proposed A28 Chart Road widening scheme is a viable investment, whose strengths outweigh its weaknesses and provides good value for money.

The predicted scheme appraisal focuses on those aspects of scheme performance that are relevant to the nature of the intervention. However, the impacts considered are not limited to those directly impacting on the measured economy, nor to those which can be monetised. The economic, environmental, social and distributional impacts of the proposal are all examined, using qualitative, quantitative and monetised information. In assessing value for money, all of these are consolidated to determine the extent to which the scheme benefits outweigh its costs.

The economic appraisal has been tailored to reflect the needs of the A28 Chart Road widening Business Case and is discussed under the following headings:

- Options Appraised;
- Value for Money Method;
- Assumptions;
- Initial BCR;
- Adjusted BCR;
- Qualitative Impacts;
- Appraisal Summary Table (AST);
- Value for Money Statement; and
- Conclusion.

4.2 **Options Appraised**

The Strategic Case sets out the possibilities for capacity improvements between Matalan and Tank roundabouts in Ashford which are considered appropriate to providing additional capacity on the A28 Chart Road Corridor. These have been



assessed against the Chart Road project objectives. The best performing option is a dualling of the carriageway between Matalan and Tank roundabouts with traffic signals at Loudon Way and left in/left out at Brunswick Road and Hilton Road accesses to Cobbs Wood Industrial Estate & the Waste Recycling Centre.

The preferred option will constitute the 'Do Something' option for appraisal purposes which will be assessed against a 'Do Minimum' option whereby no improvement scheme along the A28 is introduced.

4.3 Value for Money Method

The criteria for assessing the likely performance of the named scheme have been established in terms of measures for success as outlined in section 3.8 of the Strategic Case, as they will predict the scheme's ability to achieve its objectives and resolve identified problems. They have also been detailed in Figure 11 Scheme Logic Map.

The Economic Case for this scheme is focused on:

- Assessing the monetised direct, localised and economic efficiency benefits of the scheme;
- Qualitatively appraising the wider scheme benefits, in terms of enabling planned developments; and
- Offsetting the scheme benefits against the direct scheme capital costs.

Figure 12 overleaf shows the approach used to develop the economic case for the A28 Chart Road widening scheme.





Figure 12: Value for Money Process

Stage 1 - Initial BCR

The Value for Money assessment follows guidance contained within 'Value for Money Assessment: Advice Note for Local Transport Decision Makers – December 2013. Stage 1 assesses those impacts that can be expressed in monetary terms. These monetised impacts are summed to construct an Initial Benefit Cost Ratio (BCR).

Having considered the nature of the scheme and its potential impacts on the economy, environment, social well-being and public accounts, the key benefits of the bypass are likely to be derived from a reduction in delays to traffic and subsequently significant travel time savings around the A28 Chart Road corridor and across the wider study area. Calculation of benefits was based on the output from the SATURN traffic model which was constructed specifically for the purpose of supporting the Business Case.

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

• An assessment of monetised economic impacts (i.e. business users and providers travel time and vehicle operating cost impacts);



- An assessment of monetised environmental impacts, namely: greenhouse gas emissions; air quality; and noise impacts;
- An assessment of monetised social impacts, namely: commuting and other users travel time and vehicle operating cost ad accident impacts; and
- An assessment of public accounts impacts, namely: cost to the broad transport budget; and changes in indirect taxes.

Stage 2 - Adjusted BCR

The second stage of a Value for Money assessment builds on the initial monetised costs and benefits and considers qualitative and quantitative information on those impacts which can be monetised but where the evidence base used to derive the monetary values here is less robust than values used for the initial BCR and therefore it is important to consider these estimates as part of the adjusted BCR.

The impacts which are difficult to monetise but which have nevertheless been appraised using qualitative and quantitative information and given an overall qualitative assessment score are listed below:

- Impacts on Journey Quality;
- Impacts on Landscape; and
- Dependent Development Impacts.

Stage 3 - Qualitative Impacts

At Stage 3, where a monetary assessment is not feasible, analysis of non-monetised impacts have been undertaken in accordance with the methodology recommended within the relevant WebTAG units and the results have been summarised within this section. These impacts are as follows:

- Impacts on Townscape;
- Impacts on Historic Environment;
- Impacts on Biodiversity;
- Impacts on Water Environment; and
- Impacts on Severance.

Stage 4 – Value for Money (VfM) Statement

Finally, at Stage 4 a Value for Money conclusion has been drawn considering the



evidence pulled together from Stages 1 to 3.

4.4 Scope for Proportionality in the Assessment

This business case has made an assessment of the potential impacts presented in DfT WebTAG guidance. An assessment has not been provided for:

- Delays during construction and maintenance;
- Regeneration;
- Wider impacts;
- Physical activity;
- Security;
- Option values and non-use values;
- Accessibility; and
- Affordability

Delays during Construction and Maintenance

Delays during construction and maintenance are not expected to have a significant effect on the scheme BCR and Value for Money. The nature of the scheme is such that it will largely be constructed off-line, with minimal impact on existing road users. Therefore construction delay and maintenance impacts have not been included in the analysis.

Regeneration

WebTAG Unit A2.2 'Regeneration Impacts' indicates that a regeneration assessment only needs to be considered for schemes that affect travel to, from or within one or more regeneration areas. The A28 Chart Road does not impact on such an area, and therefore a regeneration assessment is not deemed necessary.

Wider Impacts

It is confirmed that the A28 Chart Road is an important part of facilitating significant housing growth in Ashford. However it is not considered that the level and type of benefits to be created by the scheme meets the requirement for an assessment in line with TAG Unit A2.1.

Physical Activity

The proposed scheme is expected to result in minimal impact in terms of physical activity



therefore an assessment has not been carried out (TAG Unit A4.1).

Security

No change to security is predicted to arise due to the scheme and therefore no assessment will be completed.

Option Values and Non-use Values

Option and non-use values should be assessed if the scheme being appraised includes measures that will substantially change the availability of transport services within the study area (e.g. the opening or closure of a rail service, or the introduction or withdrawal of buses serving a particular rural area). This appraisal is not required for the A28 Chart Road as there will not be a substantial change in the availability of transport services within the study area.

Accessibility

As there are no proposed changes in routings or timings of current public transport services, an assessment of access to services is not proposed.

Affordability

The scheme is likely to slightly reduce travel costs through reductions in fuel use due to congestion relief. However, its impacts on overall affordability will be small and therefore no assessment will be completed.

4.5 Assumptions

This section summarises the key assumptions supporting the Value for Money analysis. This includes the assumptions set out in WebTAG as well as further assumptions specific to the A28 Chart Road widening scheme.

Traffic Model/Economic Assessment Tools

Traffic inputs to the economic assessment have been derived from the SATURN highway assignment model, which was developed for the A28 Chart Road widening scheme forecasting. Details of the traffic modelling have been documented in the Local Model Validation Report and in the Traffic Forecasting Report. The highway network was modelled entirely in detailed 'simulation' format.

Forecast outputs from the SATURN model have been input to the economic assessment for a number of situations, as follows:

Document Title LGF Transport Business Case Report



- Highway network configurations:
- Do-Something and Do-Minimum;
- Traffic demand scenarios:
 - Core Scenario (most likely), Low Growth (pessimistic) and High Growth (optimistic);
- Forecast Traffic Assignment years:
 - 2020 and 2030; and
- Model periods:
 - AM Peak hour (0800-0900), average inter Peak hour (1000-1600) and PM peak hour (1700-1800).

Model development and traffic forecasting have been carried out in line with WebTAG units for the modelling practitioner (Units M1-1, M1-2, M3-1 and M4). The Model Forecasting Report and a Local Model Validation Report (LMVR) are available for the A28 Chart Road Model. The LMVR is attached as **Appendix B** and the Model Forecasting Report is attached as **Appendix C**.

Travel time and vehicle operating cost have been assessed using DfT's Transport User Benefit Appraisal (TUBA 1.9.5 with economic parameters 1.9.5) software program with matrix inputs (trips, time and distance) taken from the SATURN models.

Accident benefits have been assessed using DfT's Cost Benefit Analysis – Light Touch (COBALT 2013.2 with 2014.1 WebTAG 2013 parameters) software program with traffic flow inputs taken from the SATURN models.

Economic Assessment Parameters

TUBA Annualisation

In accordance with the guidance, the benefits generated in the modelled time periods have been annualised using annualisation factors. The annualisation factors are defined as the number of times each time period occurs over a full year.

Annualisation has been undertaken in accordance with the principles laid out in the TUBA guidance document (TUBA: General Guidance and Advice, version 1.9.5, November 2014, DfT). ATC data has been used to refine the annualisation factors in order to give a more realistic representation of each time slice.



Benefits have not been included for off-peak hours, weekends or bank holidays.

Table 3 below summarises the annualisation factors that have been calculated for each time slice.

TUBA Time Period	Hours	Traffic Model Period	No. of Traffic Model Periods per TUBA Period	No. of TUBA Period Days per Year	Annuali -sation Factor	
Weekday AM Peak Period	0700-1000	0800-0900	2.60	253	658	
Weekday Inter-Peak Period	1000-1600	Average hour 1000-1600	6.00	253	1518	
Weekday PM Peak Period	1600-1900	1700-1800	2.72	253	688	
Weekday Off- Peak Period	1900-1700	0 Not Included				
Weekend and Bank Holiday	0000-2359	Not Included				

 Table 3:
 TUBA Annualisation Factors

TUBA Matrix Conversion Factors

Trip matrix inputs to TUBA were specified as PCU movements. These were converted to vehicles in accordance with the PCU factors outlined in the LMVR. The associated PCU to vehicle conversion factors are shown in Table 4.

 Table 4:
 Trip Matrix Conversion Factors for TUBA

Car	LGV	OGV1	OGV2
1.000	1.000	0.667	0.435

COBA-LT Flow Conversion Factors

Flows have been factored from AM peak, Inter peak and PM peak model periods to 24hour annual average daily traffic flow (AADT) equivalent, using local traffic flow profiles. The flow conversion factors are shown in Table 5.



Table 5: COBA-LT Flow Factors

Time Period	Hours Traffic Model Period		Expansion Factor
Weekday AM Peak Period	0700-1000	0800-0900	2.60
Weekday Inter-Peak Period	1000-1600	Avg hr 1000-1600	6.00
Weekday PM Peak Period	1600-1900	1700-1800	2.72
Weekday 12 hr to 24 hr AADT	-	-	1.21

Present Value Year/Discounting

The economic assessment has been summarised with costs and benefits discounted to a 'present value year' of 2010, at a 'discount rate' of 3.5% per annum for the first 30 years, from the date of appraisal and a rate of 3.0% for the subsequent 30 years.

All items evaluated in the economic assessment are monetary 'costs' of transport. However, these costs may be less with a highway improvement scheme (do something) in place, than without the scheme (do minimum), thereby providing scheme economic benefits.

The 'present value year' (PVY) is a device for representing the difference between the value of money in a future-year, when an item of transport cost will arise and the value in a common base year (i.e. the PVY). Each future year cost is worth less at PVY than at the year in which it is incurred, in order to reflect the principle of time-preference (i.e. people tend to prefer goods and services now, rather than later).

Future year expenditure is converted to PVY by applying the 'discount rate(s)' outlined above. For example, a cost of £1.0 million incurred in 2015 would be worth $[1.0 / (1.035^{5})]$ £ million, when discounted at 3.5% per annum, over 5 years, to 2010.

Appraisal Period

The appraisal has been completed for a 60-year assessment period (2020-2079).

Opening Year

Opening Year for the proposed A28 Chart Road widening scheme is expected to be 2020. This 'first scheme year' of 2020 has been taken into account in the capital expenditure calculations and the TUBA and COBA-LT assessments.



TUBA/COBA-LT Parameters

Recommended 'default' parameters and values have been used in each of the TUBA and COBA-LT assessments, except where indicated in this report.

Allowances for Uncertainty

Economic implications of the A28 Chart Road widening scheme are uncertain. They have, therefore, been assessed for a range of possible conditions, covering 'core, 'pessimistic' and 'optimistic' outcomes, respectively, as recommended in DfT Transport Analysis Guidance (WebTAG). The key components of these situations are as follows:

Core Scenario

- Best estimate of vehicle trip growth using NTEM and NTM growth as given; and
- Inclusion of certain, near certain or more than likely land use developments with assumed full completion at these sites.

Pessimistic Scenario

- Pessimistic estimate of vehicle trip growth, using NTEM growth reduced for uncertainty and NTM growth; and
- Inclusion of only certain and near certain land use developments.

Optimistic Scenario

- Optimistic estimate of vehicle trip growth, using NTEM growth increased for uncertainty and NTM growth; and
- Inclusion of certain, near certain, more than likely and reasonably foreseeable land use developments.

The make-up of the traffic growth scenarios has been determined using professional judgement, but guided by agreement with Kent County Council regarding accuracy of NTEM planning data and the likelihood of specific developments proceeding.

Full details of the assumptions adopted are contained in the Traffic Forecasting Report (**Appendix B**).

4.6 Initial BCR

As previously outlined, the Initial BCR consists of four key components, namely:



- An assessment of monetised economic impacts (i.e. business users and providers travel time and vehicle operating cost impacts);
- An assessment of monetised environmental impacts, namely: greenhouse gas emissions; air quality; and noise impacts;
- An assessment of monetised social impacts, namely: commuting and other users travel time and vehicle operating cost and accident impacts; and
- An assessment of public accounts impacts, namely: cost to the broad transport budget; and changes in indirect taxes.

Assessment of Economic Impacts

Business Users and Providers

Travel time saving benefits are derived by comparing the overall travel times in the do minimum situation with travel times in the do something scenarios. It will take a shorter time to travel through the study area (including junctions) when the scheme is implemented, and these time savings are converted into a monetary value. For the appraisal of travel time and VOC benefits, matrices (tables of trips, travel times and distances between all origins and destinations) from the traffic model are entered into TUBA, along with other scheme specific data.

TUBA assesses travel time savings over the entire modelled area and then applies monetary values, known as Values of Time (VOT), to derive the monetary benefits of those time savings. WebTAG VOT parameters and forecast changes in their values over future years are included in the standard TUBA economics file (as used within TUBA version 1.9.5).

When road vehicles are used they incur costs such as fuel, maintenance, and wear and tear. These costs are known as Vehicle Operating Costs (VOC). When the scheme is implemented, a variety of changes in speed and distance could occur:

- Traffic that transfers onto the A28 will experience less delay and therefore have quicker journeys. However, some of that traffic travels a slightly longer distance. Such traffic therefore has a mixture of increases and decreases in VOC;
- Other traffic may reroute to take advantage of reduced travel times but this can result in longer distances being travelled (even if they are quicker). Such traffic therefore has a mixture of increases and decreases in VOC; and



 In summary, there is a mixture of increases and decreases in VOC, but there is likely to be a net increase in VOC.

TUBA was also used to determine the overall VOC benefits or dis-benefits. WebTAG VOC parameters and forecast changes in their values over future years are included in the standard TUBA economics file (as used within TUBA version 1.9.5).

A breakdown of the output economic impacts from TUBA is given in Table 6.

Value (£m) 2010 prices, discounted to 2010						
Benefits	Pessimistic	Core	Optimistic			
Travel Time	25.417	70.264	148.905			
Vehicle Operating Costs	1.620	5.028	11.857			
Private Sector Provider Impacts	0.000	0.000	0.000			
Net Business Impact	27.037	75.292	160.762			

Table 6:Economic Impacts (TUBA)

As expected, the results show that there are significant time benefits caused by journey time improvements along the corridor. The results also show that there are slight VOC benefits.

The geographical distribution of the travel time and VOC savings is shown in the sectorto-sector analysis in **Appendix D**.

Assessment of Environmental Impacts

This section summarises the monetised impacts of the scheme on the environment. The monetised environmental impacts include noise, air quality and greenhouse gases.

Greenhouse Gases

The impact of the A28 Chart Road widening scheme on greenhouse gas emissions has been assessed using the WebTAG Guidance (Unit A3.4 Greenhouse Gases, DfT, November 2014).

In line with the WebTAG Unit A3, the option of using the TUBA assessment method was used.

A breakdown of the greenhouse gas impacts from TUBA is given in Table 7.



Table 7: Greenhouse Gas Impacts (TUBA)

Value (£m) 2010 prices, discounted to 2010					
Benefits	Pessimistic	Core	Optimistic		
Greenhouse Gases	0.594	1.788	3.579		

The reduction in carbon dioxide emissions over the 60 years appraisal period is a logical result based on the expected reduction in congestion.

Assessment of Social Impacts

Consumer Users

TUBA was used to determine the travel time and VOC benefits for consumer users. This was done in the same way as for business users and providers. A breakdown of the output consumer user impacts from TUBA is given in Table 8.

Table 8: Econom	nic Impacts (TUBA)
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Value (£m) 2010 prices, discounted to 2010						
Benefits	Pessimistic	Core	Optimistic			
Travel Time – Commuter User	20.159	54.644	105.842			
Travel Time – Other User	21.812	58.226	118.144			
Vehicle Operating Costs – Commuter User	1.001	2.936	6.149			
Vehicle Operating Costs – Other User	0.490	2.100	5.101			
Net Consumer User Impact	43.462	117.906	235.236			

Accidents

Transport interventions may alter the risk of individuals being killed or injured as a result of accidents. Therefore, WebTAG recommends that the impact of the scheme on safety should be assessed. Therefore, the likely impact of the A28 Chart Road widening scheme upon road accidents has been examined using COBA-LT. Account has been taken of the following factors:

- Changes in the amount of vehicle conflicts at junctions, with the scheme;
- Changes in the total vehicle kilometres travelled in the study area highway network, with the scheme;



- Observed accident rates on the existing and unchanged parts of the study area network; and
- Changes in the highway configuration, layout standard and, hence, the safety, the accident rate and the severity of casualties, at links and junctions included within the scheme.

Accident appraisal in COBALT has been performed for the same road network area as contained in the SATURN traffic model, including the same highway links and junctions. This has ensured that full account has been taken of traffic flow changes on all affected routes. All road links in the traffic model have been classified in COBALT, by road type, to enable accident rates to be calculated in accordance with forecast flows.

Observed accident records over the 5-year period 2010-2014 inclusive were input to COBA-LT for links and junctions within the entire study area.

Table 9 gives a summary of the accident impacts of the A28 Chart Road scheme.

Value (£m) 2010 prices, discounted to 2010							
Scenario	Pessimistic		Core		Optimistic		
	Total Accidents	Accident Costs (£m)	Total Accidents	Accident Costs (£m)	Total Accidents	Accident Costs (£m)	
Total Accidents Saved	13	0.428	14	0.644	15	0.705	

Table 9: COBA-LT Summary of Accident Impacts

This shows that the overall number of accidents is predicted to reduce slightly and that there is an associated reduction in accident costs over the 60 year appraisal period.

Assessment of Public Accounts

This section summarises the capital costs associated with the proposed A28 Chart Road widening scheme. Capital costs have been calculated for the do-something scheme situation, only, because there are not expected to be any alternative construction costs that would be incurred in the do-minimum, only and not in the do-something.

A robust approach to the estimation of scheme costs has been developed by the scheme designers. The approach is outlined in detail in Chapter 5 (Financial Case) and summarised below:



- The total costs, once converted to 2010 prices and values and discounted to 2010, produce a PVC of investment of £24.52m (£32.80m 2014 Q2 prices) made up of:
- The total capital cost of the scheme, including all land, preparation and supervision costs but excluding any future inflation, is £21.95m at Q2 2014 prices;
- An allowance of £5.45m for future inflation on construction and land prices has been made;
- Included is a robust and detailed quantified estimate for known risks (including inflation) amounting to £5.40m, therefore optimism bias is excluded; and
- Any sunk costs prior to the current year of appraisal (i.e. 2015) are excluded from this business case.

Although developer contributions will be made towards the scheme being promoted, it is likely that KCC would fund the scheme in the first instance and then retrieve it at specific development milestones. Therefore, no developer contributions are assumed as part of the economic assessment.

In addition, TUBA calculated the changes in Indirect Taxes as a result of changes in speed and distance. These changes affect the amount of fuel being used and therefore affect the amount of taxes the Government receives. In line with WebTAG guidance they have been included as part of the Present Value of Benefits (PVB).

Initial BCR

Results from the monetised, business user travel time / vehicle operation, consumer user travel time / vehicle operation, environmental and COBA-LT accident, assessments have been combined, to give an initial assessment of scheme impact. The summary costs and benefits are shown in Table 10.



Value (£m) 2010 prices, discounted to 2010						
Benefits	Pessimistic	Core	Optimistic			
Business Users	27.037	75.292	160.762			
Consumer Users	43.462	117.908	235.236			
Greenhouse Gases	0.594	1.788	3.579			
Accidents	0.428	0.644	0.705			
Indirect Taxes	-1.520	-4.528	-9.998			
Present Value of Benefits (PVB)	70.001	191.104	390.284			
Capital Expenditure Costs	24.518	24.518	24.518			
Present Value of Costs (PVC)	24.518	24.518	24.518			
Net Present Value (NPV)	45.483	166.586	365.766			
Benefit/Cost Ratio (BCR)	2.855	7.794	15.92			

The costs and benefits outlined above show that the Initial BCR of the scheme, based on standard monetised values, for the core scenario is 7.794. This is considered very high value for money according to DfT guidance.

4.7 Adjusted BCR

Impacts on the Economy

Reliability Impact on Business Users

Reliability is defined as a variation in journey times that transport users are unable to predict. Hence, reliability is confined to random effects, arising from either variability in recurrent congestion at the same period each day – Day to Day Variability (DTDV) – or variability in non-recurrent congestion such as incidents. It excludes predictable variation relating to varying levels of demand by time of day, day of week, and seasonal effects that travellers are assumed to be aware of. Measurements of the monetised journey time reliability benefits from a scheme proposal should be based solely on the unpredictable variation, because of the extra costs incurred by travellers.



The reliability analysis has applied guidance on urban road reliability as set out in WebTAG A1.3. This uses a forecast of the improvement in standard deviations of journey time based upon journey distance and time in the do-minimum and do-something scenarios. Reliability benefits have been assessed across the modelled area for all origin-destination pairs, and monetised using a process equivalent to the TUBA calculation of user time benefits.

The value per unit improvement in reliability is measured as being equivalent to 80% of the user's respective value of time, which differs by journey purpose.

This reliability assessment captures only variations (both positive and negative) for highway users. Any additional impacts on reliability of public transport movements have not been captured.

The journey time reliability benefits analysis identifies approximately £8.51m benefits for business users due to the scheme.

Dependent Development

Dependent development is defined in WebTAG Unit A2.3 as housing which is dependent on the provision of some form of transport service. The dependency for Chilmington Green has been directly imposed by the responsible planning (i.e. as a planning condition) and highway authorities (i.e. been given approval by the Environment & Transport Cabinet Committee) based on their experience of existing network conditions.

The assessment has involved three key steps:

- 1. Assessing the benefits of the transport intervention in isolation (without the new housing development);
- 2. Assess the benefits of the dependent development; and
- 3. Assessing the (dis-)benefits of dependent housing.

Step 1

The analysis for the transport intervention in isolation has been calculated using TUBA and is reported in this section of the business case document.

Step 2

Benefits of the Chilmington Green development assuming the implementation of the Chart Road improvement scheme are equal to the Planning Gain (PG) arising from the development. The current and developed land values (i.e. to calculate PG) have been



calculated in 2010 prices using the TAG workbook 'valuing housing impacts'. The total net PG of the development is £516.87m in 2010 prices discounted to 2010.

Step 3

The external costs of development are two-fold. On the one hand there are the forgone non-market or 'external' benefits provided by the land. These benefits include amenity, ecology, cultural and recreational values, among a number of others. The loss of these benefits through development is a cost to society. These losses of benefits are termed the Other Externalities (OE) of land use development.

The OEs have been calculated in 2010 prices using the TAG workbook 'valuing housing impacts'. The total OE impact of the development is ± 150.65 m in 2010 prices discounted to 2010.

In addition, most land use developments give rise to journeys on transport networks. These journeys are usually regarded as 'new' journeys (though, in reality many will have been diverted from other locations). These new journeys take place on transport networks already being used by other, 'existing' users. Thus they exacerbate current congestion, crowding and so on, leading to increases in costs (including journey times, the money costs of journeys, unreliability, crowding and so on) for existing users. These increases in costs are termed the Transport External Costs (TEC) of land use development.

These costs have been estimated using the principles of marginal external costs. In that context, marginal external congestion cost is the change in costs (including time, vehicle operating costs and charges) to users in the transport network as a result of additional traffic. The total TECs of the development is £223.67m in 2010 prices discounted to 2010.

Table 11 below summarises the net benefits in 2010 prices and discounted to 2010. It should be noted that as the TECs and OEs are negative and they are subtracted from the planning gain, this results in positive total benefits for the development.



Table 11: Dependent Development Impact Summary

Value (£m) 2010 prices, discounted to 2010					
Benefits/Costs	£m				
Planning Gain	516.868				
Other Externalities	-150.652				
Transport External Costs	-223.665				
Net Dependent Development Benefits	144.551				

In line with the Value for Money assessment guidance contained within 'Value for Money Assessment: Advice Note for Local Transport Decision Makers – December 2013" the estimated value of benefits of the dependent development has been used to obtain a qualitative assessment score. The qualitative impact score for the estimated value of dependent development unlocked by the transport scheme is *large beneficial*.

Impacts on the Environment

<u>Noise</u>

A Noise assessment has been undertaken by Amey Environmental Consultants in order to evaluate the effects the scheme will have on the local area in the short (during construction) and longer terms (scheme operation). This assessment is an update of a screening report noise assessment undertaken by Jacobs in 2014 for the outline design. The following section summarises the findings of the Noise and Vibration Assessment with the full report provided at **Appendix E**.

Construction Phase

At this stage it is understood that the construction phase of the scheme is scheduled to take 18-21 months, however, this will be re-assessed following completion of detailed design and the appointment of a successful contractor.

During construction of the scheme, it is anticipated that the receptors in closest proximity to the A28 will be affected adversely. With this in mind, it is suggested that the following mitigation issues be considered and if necessary implemented:

- Restricted construction times;
- Establish good community relations; and



Screening.

It is advised that upon appointment, the contractor should seek a Section 61 CoPA agreement with the Environmental Health Officer of the Local Authority.

Operational Phase

The longer term noise and vibration effects of the scheme following construction have also been considered. Three separate noise mitigation scenarios have been tested, namely:

- Do Nothing No scheme;
- Option 1 Scheme in place with earth bunds;
- Option 2 Scheme in place with 2metre vertical barrier at the back of the footpath; and
- Option 3 Testing noise barriers at differing heights (3m, 6m, 9m 12m & 15m) in order to achieve same performance as 2m barrier in previous scenario.

The best performing option was observed to be Option 2 where a 2m high vertical barrier is introduced at the back of the footway at the site of the residential receptors between Matalan and Tank roundabouts. This scheme also performs better than the existing situation.

Option 1 (earth bunds) would result in 31 properties qualifying for noise insulation relating to the 'Noise Insulation Regulations (1975)' whilst the other options would only require one property to be insulated.

From the analysis undertaken, it can be assumed that some properties in the area will suffer from an adverse impact on noise levels as a result of construction. However, should the preferred option be constructed, then some properties in the vicinity of the A28 Chart Road Scheme may see a beneficial impact in noise levels. Therefore on balance, a qualitative impact score of *neutral* has been applied.

Air Quality

An air quality assessment review has been undertaken by Amey Environmental Consultants in order to re-evaluate the effects the scheme will have on the local area. The Air Quality Assessment predicted the increase in traffic and the associated emissions will have a negligible impact on the majority of the worst-case receptors that have been modelled. One receptor is predicted to experience a slight adverse impact but similarly to



all of the receptors modelled the predicted concentration of NO2 is well below the annual mean air quality objective. Therefore on balance, a qualitative impact score of *neutral* has been applied.

Landscape

Ashford and the Chart Road site are not in the Kent Downs Area of Outstanding Natural Beauty. The existing road consists of an urban link road with roundabouts, street lighting, signage and road markings.

The scheme will widen the highway to dual carriageway standard, necessitating changes to some structures and land take at some locations, the character of the area will be affected by the felling of a number of trees, but significant tree and hedge planting and the construction of revised mounding and fencing will be undertaken, including planting to screen the fencing. Views towards the road corridor are limited by adjacent commercial and residential buildings and the road is not a new feature in this urban landscape. As a result the scheme will not have a significant effect on landscape quality. The qualitative impact score for landscape is therefore *neutral*.

Social Impacts

Reliability Impact on Commuter and Other Users

The social reliability impact has been analysed using the same methodology as set out for Business Users.

The journey time reliability benefits analysis identifies approximately £13.30m benefits for commuter and other users due to the scheme

Journey Quality

Travellers don't normally travel for the sake of it. Travel is a derived demand that arises from people's desire to engage in activities. Therefore a high quality journey, when experienced, is often taken for granted. However, a poor journey quality, when experienced, can be easily recognised. Journey quality can be affected both by travellers and by network providers and operators.

Due to the impacts on journey quality due to reduced queuing, an assessment has been made in line with WebTAG A4.1 'Social Impact Appraisal'. As outlined in the guidance, measures to improve journey ambience have been assessed under 3 factors:

• Traveller care: aspects such as cleanliness, level of facilities, information and the general transport environment;



- Travellers' views: the view and pleasantness of the external surroundings in the duration of the journeys; and
- Traveller stress: frustration, fear of accidents and route uncertainty.

Traveller Care

In relation to highway users this could be the presence of service stations and facilities for motorists along with the provision of general travel information.

The existing A28 carriageway is narrow and there are a large number of shunting incidents which can block lanes and cause extensive delays. The A28 Chart Road will be resurfaced and widened to dual carriageway thereby enhancing the facility and improving traveller care accordingly.

An assessment has been made about the effect of the proposed option on traveller care using a simple three point scale – better, neutral, or worse. The assessment of the level of traveller care is considered **better**.

Traveller Views

A transport improvement can affect the extent to which travellers can see the surrounding landscape and townscape and have an effect on the attractiveness of the general travelling environment. The section of route between Matalan and Tank roundabouts will be widened and the junctions at either end would also be modified.

Initially there would be a loss of mature tree and shrub cover throughout Chart Road corridor to accommodate the carriageway widening but subsequent replanting would become increasingly effective and eventually re-establish much of the amenity value and screening capability of the existing tree and shrub cover. Therefore the assessment of the effect on traveller views has been assessed as *neutral*.

Traveller Stress

This refers to factors influencing the level of stress including frustration caused by road layout and geometry, road condition or congestion and concern of potential accidents caused by pedestrians stepping into the road, inadequate road width and inadequate lighting etc.

The existing A28 carriageway is narrow and there is extensive congestion during the peak hours leading to high levels of stress. The A28 Chart Road will be resurfaced and widened to dual carriageway thereby greatly reducing congestion and thereby reducing traveller stress.



In summary, assessing the stress levels indicate that implementing the scheme will reduce stress levels on both local and strategic routes. Therefore the assessment of the effect on traveller stress has been assessed as *better*.

The overall assessment of the level of journey quality is considered *beneficial*.

BCR Adjustment

The qualitative assessment of dependent housing, noise, air quality, landscape and journey quality unlocked by has not been considered here but has been considered alongside any other non-monetised impacts to reach the overall assessment of the Value for Money of the transport scheme.

As outlined previously, journey time reliability results have been derived using guidance as described in TAG unit A1.3 (November 2014). The results of this adjustment is to increase the core scenario present value of benefits by £21.81m (ie £8.51m for business users and £13.30m for commuting and other users) to £212.91m (2010 prices and values) and the BCR to 8.684 representing Very High value for money.

4.8 Qualitative Impacts

Impacts on the Environment

Townscape

The scheme will widen the highway to dual carriageway standard, necessitating changes to some structures and land take at some locations, the character of the area will be affected by the felling of a number of trees, but significant tree and hedge planting and the construction of revised mounding and fencing will be undertaken, including planting to screen the fencing. Views towards the road corridor are limited by adjacent commercial and residential buildings and the road is not a new feature in this urban landscape. As a result the scheme will not have a significant effect on townscape quality. The qualitative impact score for townscape is therefore *neutral*.

Historic Environment

In accordance with the Highway Agency's *Design Manual for Roads and Bridges (DMRB),* Volume 11, Section 3, Part 2: Cultural Heritage, an assessment has been undertaken of the cultural heritage sites in proximity to the proposed scheme between Matalan and Tank roundabouts on the A28.

This section summarises the main findings from the Cultural Heritage Assessment Report



(Appendix F) produced by the Amey Environmental team. Very few heritage assets are anticipated to be directly or indirectly impacted as a consequence of introducing the scheme.

The assessment has revealed that the scheme will have a direct impact on the Grade II listed East Lodge relating to the removal and re-erection of a newly aligned boundary wall as well as the removal of a relict section of red-brick walling. Discussions with the local planning authority are currently in progress with regards to mitigation as the proposals may require Listed Building Consent.

In addition to East Lodge, archaeological mitigation is proposed for elements of the scheme that affect the site of the 19th century brickworks at Tank roundabout and potential Roman activity/ earlier road alignments to the south of Matalan roundabout.

An archaeological evaluation should be undertaken to understand the potential for surviving 19th century structures and features at Tank roundabout. An archaeological watching brief is recommended to record details of any archaeological remains which may survive associated with Roman activity and post medieval route ways to the west and north of Matalan roundabout. Overall the significance of impact is deemed to be *Slight.*

Biodiversity

The scheme is situated in an urban/sub-urban environment, with generally residential development to the north and industrial development to the south of Chart Road. Highway widening/ dualling will predominantly be achievable within land already owned by the highways authority, thus habitat permanently affected by the scheme is generally managed roadside verge, footway and structures.

Extensive ecological survey has been undertaken of areas bordering and in the vicinity of the site and an assessment has been made of the value of these areas for biodiversity and therefore the potential impact of the scheme on biodiversity resources.

Some areas bordering the site have significant habitat value, including the Bombardier land which is currently disused and has value as reptile and invertebrate habitat, however the scheme will not require significant land take from this site. Where small areas of habitat are lost permanently due to the scheme, it is envisaged that adequate mitigation will be achievable within the scheme boundaries through landscaping and planting. Temporary effects will be managed through the implementation construction environmental management measures. The qualitative impact score for biodiversity is



therefore *neutral*.

Water Environment

The existing Chart Road is an operational highway on the outskirts of urban Ashford. Highway drainage has been surveyed as part of the outline design process and is currently dealt with through a conventional gulley and pipework system, discharging into a variety of surface water features nearby (predominantly to the River Great Stour to the South of the site). The site is located in a Flood Zone 1 for Rivers and Sea, although there is a risk of localised surface water flooding with historic flooding at Geerings and Territorial Army Centre.

A Flood Risk Assessment and Drainage Strategy has been prepared as part of the outline design and has been submitted to KCC in their role as Lead Local Flood Authority. As part of the drainage strategy and where possible and space permits, the improved highway drainage scheme will incorporate elements of a sustainable drainage system (attenuation, flow control etc), and although the paved area will be increased by approximately 1 ha, the impact of the improvements on the water environment will be negligible by control and management of the discharge rates to match existing.

Detailed drainage design is has not been commenced, but through design it is envisaged that the scheme will not increase flood risk on site or elsewhere. The qualitative impact score for the water environment is therefore *neutral*.

Social Impacts

Severance

There is signal controlled crossing south of the Tank roundabout which causes pedestrians a slight level of severance due to the wait to cross. There are also two uncontrolled crossings, one at Brunswick Road and another north of Matalan roundabout. Pedestrian flows at these locations are low and counts have shown that only 9 people crossed the road in 12 hours.

No change to severance is predicted to arise due to the scheme therefore a qualitative impact score of *neutral* has been applied.

Overall Qualitative Impact

Overall, the findings of the qualitative assessments are not considered to be significant enough to impact on the adjusted BCR category of Very High.



4.9 Appraisal Summary Table

The quantitative and qualitative assessments of impacts made above have been input to the Appraisal Summary Table (AST) provided overleaf in Table 12.

4.10 Value for Money Statement

The VfM has been prepared in accordance with the DfT's "Value for money assessment: advice note for local transport decision makers". The overall qualitative outcome is Very High, on a 4-point scale. This VfM is based on the quantified initial BCR for the scheme of 7.794 (i.e. Very High), with further adjustments for non-quantified BCR components and qualitative outcomes.

Document Title LGF Transport Business Case Report



Table 12: Appraisal Summary Table

Impacts		Summary of key impacts		Assessment						
			Quantitative			Qualitative	Monetary £(NPV)			
Economy	Business users & transport providers	Benefits in terms of transport economic efficiency for business users and transport providers have been assessed over the entire network with the A28 Chart Road widening resulting in a positive net benefit. These users are estimated to get significant benefits (£75.292m) from reductions in journey times, over 70% of which have a reduced travel time of more than 5 minutes due to predicted congestion.	Value Net 0 to 2min £0.397m	e of journey time t journey time ch 2 to 5min £19.595m	changes (£)	£) 5min 5.300m	Not Assessed	£75.292m		
	Reliability impact on Business users	The reduction in travel time resulting from the scheme provides improved reliability for business user trips on the network.					Not Assessed	£8.510m		
	Regeneration	WebTAG Unit A2.2 Regeneration impacts' indicates that a regeneration assessment only needs to be considered for schemes that affect travel to, from or within one or more regeneration areas. The A28 Chart Road does not impact on such an area, and therefore a regeneration assessment is not deemed necessary.					Not Assessed	Not Assessed		
	Wider Impacts	It is confirmed that the A28 Chart Road is an important part of facilitating significant housing grow th in Ashford. How ever it is not considered that the level and type of benefits to be created by the scheme meets the requirement for an assessment in line with TAG Unit A2.1.					Not Assessed	Not Assessed		
n ental	Noise	From the analysis undertaken, it can be assumed that some properties in the area will suffer from an adverse impact on noise levels as a result of construction. How ever, should the preferred option be constructed, then some properties in the vicinity of the A28 Chart Road Scheme may see a beneficial impact in noise levels.					Neutral	Not Assessed		
Environ	Air Quality	The Air Quality Assessment predicted the increase in traffic and the associated emissions will have a negligible impact on the majority of the worst-case receptors that have been modelled. One receptor is predicted to experience a slight adverse impact but similarly to all of the receptors modelled the predicted concentration of NO2 is well below the annual mean air quality objective.					Neutral	Not Assessed		
	Greenhouse gases	The reduction in Greenhouse Gases has been calculated over the entire network and a net positive benefit forecast	Change in non-tra Change in traded (ded carbon over 60 carbon over 60y (0	0y (CO2e) CO2e)	-38.311m tonnes 8m tonnes	Not Assessed	£1.788m		
	Landscape	Ashford and the Chart Road site are not in the Kent Dow ns Area of Outstanding Natural Beauty. The character of the area will be affected by the felling of a number of trees, but significant tree and hedge planting and the construction of revised mounding and fencing will be undertaken. View s towards the road corridor are limited by adjacent commercial and residential buildings and the road is not a new feature in this urban landscape. As a result the scheme will not have a significant effect on landscape quality.					Neutral	Not Assessed		
	Townscape	The character of the area will be affected by the felling of a number of trees, but significant tree and hedge planting and the construction of revised mounding and fencing will be undertaken. Views tow ards the road corridor are limited by adjacent commercial and residential buildings and the road is not a new feature in this urban landscape. As a result the scheme will not have a significant effect on tow nscape quality.				Neutral	Not Assessed			
	Historic Environment	The assessment has revealed that the scheme will have a direct impact on the Grade II listed East Lodge relating to the removal and re-erection of a newly aligned boundary wall as the removal of a relict section of red-brick walling. Discussions with the local planning authority are currently in progress with regards to mitigation as the proposals may require Listed Building Consent.				Slight	Not Assessed			
	Biodiversity	Some areas bordering the site have significant habitat value, including the Bombardier land which is currently disused and has value as reptile and invertebrate habitat, how ever the scheme will not require significant land take from this site. Where small areas of habitat are lost permanently due to the scheme, it is envisaged that adequate mitigation will be achievable within the scheme boundaries.			Neutral	Not Assessed				
	Water Environment	Detailed drainage design is has not been commenced, but through design it is envisaged that the scheme will not increase flood risk on site or elsew here.					Neutral	Not Assessed		
Social	Commuting and Other users	Benefits in terms of transport efficiency commuter and other users have been assessed over the entire network with the A28 Chart Road widening resulting in a positive net benefit. These users are estimated to get significant benefits (£117.906m) from reductions in journey times, over 75% of which have a reduced travel time of more than 5 minutes due to predicted congestion.	Value Net 0 to 2min £0.292m	e of journey time t journey time ch 2 to 5min £28.403m	changes(£)	£) 5min 9.211m	Not Assessed	117.906m		
	Reliability impact on Commuting and Other users	The reduction in travel time resulting from the scheme provides improved reliability for consumer and other user trips on the network.					Not Assessed	£13.300m		
	Physical activity	The proposed scheme is expected to result in minimal impact in terms of physical activity therefore an assessment has not been carried out (TAG Unit A4.1).					Not Assessed	Not Assessed		
	Journey quality	There are a number of scheme components that will enhance the journey quality for new and existing users.					Beneficial	Not Assessed		
	Accidents	The overall number of accidents is predicted to reduce slightly and that there is an associated reduction in accident costs over the 60 year appraisal period.					Not Assessed	£0.644m		
	Security	No change to security is predicted to arise due to the scheme and therefore no assessment will be completed.			Not Assessed	Not Assessed				
	Access to services	As there are no proposed changes in routings or timings of current public transport services, an assessment of access to services is not proposed.			Not Assessed	Not Assessed				
	Affordability	The scheme is likely to slightly reduce travel costs through reductions in fuel use due to congestion relief. How ever, its impacts on overall affordability will be small and therefore no assessment will be completed			Not Assessed	Not Assessed				
	Severance	No change to severance is predicted to arise due to the scheme.					Neutral	Not Assessed		
	Option and non-use values	This appraisal is not required for the A28 Chart Road as there will not be a substantial change in the availability of transport services within the study area.					Not Assessed	Not Assessed		
Public	Cost to Broad Transport Budget						Not Assessed	£24.518m		
Ϊ.	Indirect Tax Revenues						Not Assessed	-£4.528m		



5 Financial Case

5.1 Introduction

This section of the report presents the Financial Case for the A28 Chart Road scheme. It concentrates on the affordability of the proposal, its funding arrangements and technical accounting issues. The total outturn costs and expenditure profile are presented, along with an assessment of the impact on public accounts.

The Financial Case for the A28 Chart Road widening is based on significant scheme development and the identification and costing of the preferred option which has been determined by the Planning Authority that it is permitted development and does not require planning approval. The proposed funding arrangements are set out and described, including the substantial Section 278 developer contribution committed by the Chilmington Green Developer Consortium as owners of the development site and the Local Growth Fund allocations.

The full scheme cost was last updated in June 2014 and will be updated further as the scheme design progresses.

5.2 Base Costs

Table 13 shows that the base cost estimate for the scheme is **£21,951,749**. The cost estimate was recently reviewed by KCC in January 2016 and is considered by KCC to be up-to-date, robust and complete (including landscaping and environmental mitigation). The estimates were undertaken by cost consultants Allen Dadswell who are experienced in highway scheme cost estimation.

Cost Category	£
Construction Costs	17,229,683
Land and Property	1,639,813
Preparation and Administration	3,082,253
Total	21,951,749

Table 13:Components of Investment Cost (2014/Q2)



5.3 Inflation

Inflation has been applied to capital costs at 26.9%, based upon the Royal Institute of Chartered Surveyors (RICS) Building Cost Information Services (BCIS) Tender Forecast Index. The total allowance for inflation is estimated to be £5,452,224.

5.4 Risk Budget

A Quantified Risk Assessment (QRA) has been undertaken by Allen Dadswell Consultants for A28 Chart Road and a quantitative risk register has been developed for the scheme. See attached Appendix F Risk Register. A total of £5,395,250 has been identified as the anticipated QRA.

5.5 Optimism Bias

Optimism bias refers to the tendency for scheme promoters to be overly optimistic about scheme costs. DfT WebTAG unit A1.2 sets out the recommended contingency which should be added to the scheme costs. However, in line with HM Treasury guidance document "Early financial cost estimates of infrastructure programmes and projects and the treatment of uncertainty and risk- March 2015" optimism bias should not be included in project funding. The risk-adjusted scheme cost estimate is therefore considered robust but will be reviewed as the scheme proceeds.

5.6 Final Scheme Costs

Table 14 below indicates the costs associated with the proposed scheme including inflation and risk allowance.

Table 14:Summary of Final Scheme Costs (2014/Q2 prices)

Cost Type	£
Scheme Cost	21,951,749
Inflation	5,452,224
Risk Allowance	5,395,250
Total	32,799,223



5.7 Funding Arrangements

A28 Chart Road is one of a number of pipeline schemes planned to be delivered by KCC as part of the South East Local Enterprise Partnership (SELEP) Growth Deal agreed between SELEP and Government in July 2014. This included an allocation of \pounds 10.2 million for the A28 Chart Road scheme.

The Chilmington Green Consortium have forward funded the scheme development costs of \pounds 1.5m to date and will provide the balance of \pounds 21.1m of funding towards the A28 Chart Road. The Consortium will also pay any costs in excess of the total \pounds 32.8m scheme budget up to an additional \pounds 3.5m. The spend profile is shown below in Table 15.

Table 15:	Outturn	Spend	Profile
-----------	---------	-------	---------

£m								
Total	2015	2016	2017	2018	2019	2020		
32.8	0.2	1.3	1.0	1.0	22.8	4.5		

As outlined, a significant element (69%) is committed from the Chilmington Green Developer Consortium but the details have not been provided in any detail. This reflects commercial sensitivities relating to contributions from individual developers. It is also likely that KCC would fund the scheme in the first instance and then retrieve it at specific development milestones.

5.8 Whole Life Costs

Future maintenance works associated with the scheme will be added to the maintenance inventory and funded from KCC's maintenance budgets. It is anticipated that the provision of new or upgraded assets (such as drainage system, street lighting, signing and pavement/footways) will reduce future maintenance liabilities on KCC.

5.9 Section 151 Officer Letter

A signed letter from KCC's Section 151 Officer is attached (**Appendix H**) to confirm KCC's financial commitment and ability to fund the scheme.

5.10 Accounting Implications

The following implications on public accounts are expected:

• Devolved LEP funding of £10.2m (31%) of the scheme costs is requested, with



expenditure starting in the 2016/17 financial year;

- A developer contribution of £22.6 million (69%) of the scheme cost is required, expenditure started in the 2014/15 financial year as developers have been forward funding the scheme development costs; and
- Maintenance costs will be added to the maintenance inventory and funded from KCC's maintenance budgets.



6 Commercial Case

6.1 Introduction

The Commercial Case for the A28 Chart Road scheme provides evidence that the proposed investment can be procured, implemented and operated in a viable and sustainable way. Adopting a commercial approach to the project is fundamental to determining that KCC gets the best deal from the market.

This chapter defines the current progress of the commercial aspects requirements. Areas this chapter considers include:

- Output Based Specification;
- Procurement Options
- Procurement Strategy;
- Payment Mechanisms;
- Pricing Framework and Charging Mechanisms;
- Potential for Risk Transfer;
- Contract Length; and
- Contract Management.

6.2 Outcome Based Specification

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'.



The Output Based Specification for the A28 Chart Road widening scheme has yet to be developed, this is to be expected at this stage for the following reasons:

- The need to secure funding approval for the preferred scheme prior to undertaking this significant piece of work;
- The detailed design components are not programmed to begin until February 2016; and
- The tendering process does is not due to start until November 2016.

KCC will use either experienced in-house resources or external consultants, who have been involved in other recent highways projects, to develop the specifications.

The specification for the scheme is broadly as follows:

- Construction of dual carriageway between the 'Tank' and 'Matalan' roundabouts;
- Reconfiguration of the 'Tank' roundabout, 'Matalan' roundabout, Loudon Way junction and other intermediate side roads/accesses;
- Using the existing railway bridge for the northbound carriageway with construction of a new railway bridge to carry the southbound carriageway;
- Extensive landscaping proposals;
- Traffic noise screening for adjacent residents;
- Provision of continuous shared footway/cycleways on both sides of the road; and
- Construction of controlled crossings, for pedestrians and cyclists, at Loudon Way/Chart Road junction and Chart Road north of Matalan roundabout.

6.3 **Procurement Options**

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

Full OJEU Tender

This option is required for schemes with an estimated value of over £4,104,394.

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



OJEU website.

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

Delivery through existing Highways Term Maintenance Contract (HTMC)

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

6.4 Procurement Strategy

KCC has chosen to appoint a Contractor by full OJEU tender. The works will be procured in accordance with the requirements of the Public Contracts Regulations 2015. With a works cost of approximately £33 million, the scheme is above the threshold of £4,104,394 where contracts have to be advertised in the Official Journal of the European Union (as at January 2016).

The proposed form of contract used will be the Engineering and Construction Contract (ECC), part of the New Engineering Contract (NEC3) family of contract documents, the standard form of construction contract in the UK and in widespread use across Europe.

6.5 Payment Mechanisms

Payment timing will be adopted to maximise the value from the contract through minimising financing and construction costs. Prompt and fair payment mechanisms will be applied throughout the supply chain. This is covered under the procurement process and will be monitored during the contract to ensure full value is delivered.

6.6 Pricing Framework and Charging Mechanisms

Under the preferred procurement approach which has been adopted the Contractor will provide the A28 Chart Road construction works described in the contract for a sum of money. The contract will provide for specified risks to be carried by the Employer which will result in the lump sum being adjusted if the compensation events occur.



6.7 **Potential for Risk Transfer**

Although many of the design risks can only be resolved through rigorous design and review processes, once the design options are clear and the scope of land acquisition, planning requirements, environmental requirements 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 fully as the design and procurement process.

6.8 Contract Length

It is envisaged that the contract will be of approximately 2 years duration with an anticipated contract start date of December 2017.

6.9 Contract Management

KCC will meet with the contractor on a monthly basis throughout the construction period, or more frequently if this is deemed necessary by the Project Manager. The contractor will be contractually obliged to provide monthly progress and financial updates to KCC, which will include updates to the project programme.



7 Management Case

7.1 Introduction

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

7.2 Evidence of Similar Projects

KCC has a successful track record of delivering major transport schemes across the county. The *East Kent Access Phase 2 (EKA2)* and *Sittingbourne Northern Relief Road schemes (SNRR)* are two successfully managed and delivered schemes.

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 8 overleaf.

The scheme was successfully delivered within budget and ahead of programme through the adoption of a robust management approach similar to that set out above to deliver the A28 Chart Road scheme. The total value of the scheme was £87.0m of which £81.25m was funded by Central Government.

The intended scheme outcomes are currently being monitored but the intended benefits of the scheme are anticipated to be realised. Figure 13 indicates the scheme extent and layout.
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Figure 13: EKA2 Scheme Layout



The SNRR scheme, completed in December 2011, was designed to remove the severance caused by Milton Creek and give direct access to the A249 trunk road for existing and new development areas, thereby relieving Sittingbourne town centre. The delivered scheme is shown in Figure 14 below:



Figure 14: SNRR Scheme Layout

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

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

7.3 **Project Dependencies**

The scheme programme is reliant on achieving the following key dependencies:

Land Acquisition

Appendix I identifies the location of the land that needs to be acquired to complete the scheme and the affected landowners. The landowners are listed below and are being

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contacted as part of the consultation process.

- Ashford Borough Council;
- Network Rail;
- Imperial Tobacco Pension Trustees Ltd;
- Bombardier Transportation UK Ltd;
- Owners of East Lodge;
- Secretary of State for Transport;
- Taylor Wimpey UK Ltd;
- Street Investments LLP;
- Land Owners to the north of Matalan (adjacent to A28 Eastbound carriageway); and
- Mirod Investments Ltd/ TESCO Holdings Ltd.

The feasibility of acquiring the land to deliver the scheme has been considered and the cost of land has been estimated. To ensure programme certainty for the delivery of this scheme, a parallel process to acquire the land has been adopted as follows:

- The starting point will be to acquire all the land and rights by negotiation and agreement. This is invariably quicker and less complicated than seeking to acquire the land compulsorily; and
- At the same time, make Compulsory Purchase Orders (CPOs) covering all the land to be acquired, under Part XII of the Highways Act 1980 and the Acquisition of Land Act 1981, to ensure that any land that cannot be acquired by agreement can be acquired compulsorily. An allowance for this process has been included within the programme, should it be required.

Network Rail

The existing A28 Chart Road rail bridge is currently owned and maintained by Network Rail, albeit it carries an adopted publicly maintained road. The proposal for the scheme is to construct a new bridge adjacent to the existing one so that the existing bridge will carry northbound traffic and the new one southbound traffic.



Formal discussions have been held with Network Rail regarding the new bridge and an Impact Assessment Report has been submitted and agreed. This has enabled the Asset Protection Agreement (APA) and costs relating to their management and possessions costs to be agreed.

Listed Buildings Consent

Listed Building Consent is required for East Lodge in proximity to the scheme. Liaison has taken place with relevant parties in order to ensure any issues are resolved as early as possible. Initial discussions with the property owner and Ashford Borough Council's Conservation Team have been positive and supportive with KCC incorporating changes to the design based on the owner's suggestions regarding noise and visual intrusion. The listed building application is expected to be made in March 2016 in order to mitigate this risk at the earliest opportunity.

Utility Diversions

It is anticipated that utility diversions will be required as a consequence of the scheme. These diversions could involve complex engineering challenges, however, early contractor involvement will mitigate against any potential utility or construction risks. In addition trial holes have been undertaken to establish the location of apparatus in key areas to ensure an accurate assessment of impacts and costs can be made at this stage of the project.

7.4 Governance, Organisation Structure, Roles and Assurance

KCC have set up a clear and robust structure to provide accountability and an effectual decision making process for the management of LEP funded schemes. Each scheme will have a designated project manager (also referred to as the Senior Responsible Officer) who will be an appropriately trained and experienced member of KCC staff.

Figure 15 provides an outline of the overall governance structure implemented to manage the delivery of each scheme.

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

Project Steering Group (PSG) Meetings

PSG meetings are held fortnightly to discuss individual progress on each scheme and are chaired by KCC Project Managers (PMs). Attendees include representatives from



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

Highlight Report

The Progress Reports sent by the KCC PMs comprise of the following updates:

- General progress;
- Project finances;
- Issues; and
- Risks and governance meeting dates.

The Highlight Report identifies any areas of concern or where decisions are required by the PB meeting or higher to the KCC LEP Programme Manager. An agreed version of the Highlight Report is issued to the PB meeting attendees during the meeting.

Programme Board (PB) Meeting

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

Escalation Report

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



В		Design	Construction	High level Agenda	Frequency	Attendees	Format	Scope	Age nd a Items	Key Deliverables/Feedback	Templates
	Sponsoring Group		Bid Design Construction	Monthly- Can be called in emergency if required	Chair: TR BC/RW/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	
Sponsoring Group Progress Report			ess 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		leeting	Bid Design Construction	Monthly	Chair: MG MG/KCC Promoters/KCC PMs/ AQ or RC/SW/PC/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 Repor	t	ldentify 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
- RW Roger Wilkin TR Tim Read
- MG Mary Gillett
- AQ Andrew Quilter
- RC Richard Cowling
- SW Steve Whittaker
- PC Paul Couchman
- JW Joanne Whittaker

Figure 15:	KCC Governance	Structure
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Sponsoring Group (SG) Meeting

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

7.5 Project Plan

An overall Project Plan has been developed and is provided in **Appendix J**. It covers each key stage of the project and the critical path. The tasks that have a critical end date that affect the delivery timescale are highlighted on the Project Plan. The plan will be reviewed and updated on regular basis and will be considered at fortnightly Project PSG meetings.

The Project Manager as chair of the PSG will have overall responsibility for delivering the tasks required to achieve key milestones. Key milestones, timescales and tasks are summarised below:

- Outline Business Case ready for submission to ITE: January 2016;
- Full Business Case ready for submission to ITE: March 2016;
- Approval sought from SELEP: April 2016;
- Detailed design begins: May 2016;
- Tendering process begins: June 2017;
- Works begin on ground: December 2017; and
- Completion works: March 2020.

7.6 Assurance and Approvals plan

Project assurance and approvals are the main responsibility of the PB supported by the PSG who will also ensure the quality of the work carried out. The scheme will be managed in line with the seven stages outlined in Section 7.5 and the Project Board will



sign off each of these stages and give the go/no go decision to start the following stage.

7.7 Communications and Engagement Management and Action Plan

KCC have a tried and tested Communication and Engagement Management Plan which is used on all major projects. Effective use of the plan has resulted in limited adverse feedback from the public and ensured successful delivery of schemes both from a project management and public relations perspective. This section will provide further information on how stakeholders are identified, how they are communicated to and the methods/ techniques used to communicate.

Aims and objectives

The main aim of the Communication and Engagement Plan is to ensure that stakeholders and members of the general public are kept informed throughout the development and implementation of a scheme. This can range from keeping key stakeholders updated with critical information, essential to the successful delivery of the scheme to providing information to the general public.

Target Audiences

Table 16 indicates the approach used by KCC to categorise the various scheme stakeholders.

Stakeholder Category	Stakeholder Characteristics
Beneficiary	Stakeholders who will receive some direct or indirect benefit from the scheme.
Affected	Stakeholders who are directly affected by the scheme in terms of its construction and/ or operation
Interest	Stakeholders who have some interest in the scheme, although not affected directly by its construction or operation
Statutory	Stakeholders who have a statutory interest in the scheme, its construction, operation or wider impacts
Funding	Stakeholders who are involved in the funding of the construction or operation of the scheme

Table 16:	Stakeholder	Categorisation	Approach
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Engagement Categories

As has previously been mentioned, the information supplied to stakeholders can vary depending on their involvement with the scheme. The following table indicates the level of engagement that the variety of stakeholders can expect in relation to the A28 Chart Road scheme.

Engagement Category	Details of Engagement Method
Intensive consultation	Stakeholders who are directly affected by the scheme and whose agreement is required in order for the scheme to progress. Consultation throughout the design and implementation.
Consultation	Stakeholders who are affected by the scheme and can contribute to the success of its design, construction or operation. Consultation at key stages
Information	Stakeholders with some interest in the scheme or its use. Information to be provided at appropriate stages

 Table 17:
 Stakeholder Engagement Levels

Stakeholder Communication Plan

Table 18 summarises the strategy for managing engagement with stakeholders for the scheme. It itemises the relevant stakeholders and interests and indicates the stakeholder category with which each is associated.

Table 18:	Stakeholder Management Strategy
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Name of Stakeholder / Interest Group	Stakeholder Category	Engagement and Consultation Level
Ashford Borough Council (ABC)	Funding	Intensive
ABC and KCC Councillors	Funding	Intensive
Great Chart Parish Council	Affected	Intensive





Name of Stakeholder / Interest Group	Stakeholder Category	Engagement and Consultation Level
Network Rail	Affected	Intensive
Environment Agency	Interest	Consultation
Statutory Undertakers	Statutory	Consultation
Bus Companies	Affected	Consultation
Wyvern School	Affected	Consultation
Local schools	Affected	Consultation
A28 users	Beneficiary	Consultation
Land Owners	Affected	Intensive
Local Residents	Affected	Consultation
Local Businesses	Affected	Consultation

7.8 Project reporting

Details of project reporting is provided in section 7.4 of this report.

7.9 Key issues for implementation

The Risk Management section (paragraph 7.11) provides information on the potential issues that could affect project implementation.

7.10 Contract Management

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



7.11 Risk Management

Project risk will be managed as an on-going process as part of the scheme governance structure, as set out in section 7.4 of this report. A scheme risk register is maintained and updated at each of the two-weekly Project Steering Group meetings. Responsibility for the risk register being maintained is held by KCC's Senior Responsible Officer and is reported as part of the monthly Progress Reports.

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

RISK R	EGISTER														
Project	Title: Example 1				16.4k						•	Hia.			
Project Manager: Mr Smith					H. 61							H. 64	-	Total Risk Allowance	
Bata al	Last Review: 25/12/2014			x.	Les						x.	L		•	Rick Classed
Rick Neader	Risk Description	Date Lagged	factorial frequent	Production		Nature of Impact (Commercial/Programme/HAS)	Action to be taken (Mitigation)	07 Vice	By Visio	Rudden	Resident Production	Burlinson Street	Prograss	Resident Cest Allowance in Project Estimate	Rick sacaded this ceriew?
*1	En ample: Plancin parmiarias for constitutions out altraine Michael	GARDAN	ų.	¢.	¢.	Example: Delay ta project as Einpact as contract decomentation.	En angla Eurora that his ing nga mga mga anna ulith ata parto Sing Mant pravi Sal.	Amay WOC		×.	ų.	×.			

Figure 16: Project Risk Register

7.12 Scheme Risks

Earlier in this section of the report, the experience of KCC's staff has been highlighted in terms of delivering major transport schemes effectively and with little adverse effect. In order to achieve successful delivery of major schemes, management policies, processes and procedures are required to be followed accurately. An important aspect of the management process is identifying risks associated with scheme delivery and funding early in the process to allow mitigation to be identified.

Table 19 indicates the risks associated with the A28 Chart Rd scheme from a project delivery and project funding perspective.

Risk description	Likelihood	Impact	Likelihood x Impact	Mitigation			
Project Delivery							
Public/political objection to scheme preventing its progression	Low	High	Neutral	PR company engaged to assist with consultation phase. Detailed consultation plan to be developed			

Table 19: Scheme Risks

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				to maximise engagement with interested parties
Procurement Risks – procuring services could be affected leading to delays or competition issues	Low	High	Neutral	Continued application of robust procurement framework
Unable to meet delivery programme	Low	High	Neutral	Pre-order required materials in advance of construction period to avoid delay. Ensure procurement and construction procedures are sufficiently robust to minimise likelihood of construction difficulties.
Utility diversion costs	Low	High	Neutral	Work with utility companies at an early stage after completion of the outline design to identify stats issues and cost-effective means of dealing with them
	Pr	oject Fund	ling	
LEP Funding not granted leading to shortfall	Medium	High	Neutral	Ensure that Business Case process is followed and scheme benefits are achievable and realistic
Award of major fund allocation is dependent upon uncertain external events and outcomes	Medium	High	Neutral	Seek alternative funding streams that are not dependent upon uncertain events and outcomes
Variation in operating costs from those identified	Low	High	Neutral	Ensure that operation schedules are accurate and updated regularly
Government policy change disables a planned funding source	Low	High	Neutral	No mitigation available



7.13 Benefits Realisation and Monitoring

The purpose of benefits realisation is to plan for and track the benefits that are expected to be accrued over the lifetime of the scheme. The plan will detail the activities required to track the progress of the scheme including project milestones and responsibilities.

Monitoring will take place prior to scheme opening (baseline) and at predefined intervals upon successful delivery of the scheme, notably:

- 1 year post scheme opening;
- 3 years post scheme opening;
- 5 years scheme opening; and
- 10 years scheme opening.

Scheme benefits can be realised immediately but others do take time and there are wider benefits to be considered.

The remainder of this section will:

- Summarise the key scheme objectives;
- Outline how the objectives will be measured; and
- Outline who will be responsible for ensuring that outcomes are measured and calculated.

Table 20:Scheme Benefit Indicators

Objective	Desired Outcomes
Provide additional capacity on the road network to improve traffic flow.	Reductions in travel time through the scheme corridor.
Alleviate congestion along the A28 Chart Road.	Reductions in delay at the junctions along the scheme corridor.
Improve journey time reliability along the A28 Chart Road.	Reductions in day to day travel time variability along the scheme corridor.
Improve road safety along the A28 Chart Road.	Reductions in accidents along the scheme corridor.



Objective	Desired Outcomes
Reduce environmental impacts for local residents.	Reductions in CO2, NO2 and particulate emissions. Also mitigates against noise levels.
Support the economy by supporting the delivery of houses and jobs.	Contributes to mitigating the impact of new homes and jobs in South Ashford.

In order to ensure that the objectives are being realised, a method for measuring outputs from the scheme are classified in table 21 below. The acceptable thresholds are deemed to be realistic and achievable based on outputs from the forecast highway model for A28 Chart Rd.

Monitoring Indicator	Measurement	Acceptable Threshold	
Provide additional capacity on the road network to improve traffic flow	Conduct Peak Hour Journey Time Surveys	15% reduction in peak hour journey times along scheme corridor (2020). 10% reduction at 2030.	
Alleviate congestion along the A28 Chart Road.	Conduct Peak Hour Delay Surveys	20% reduction in peak hour journey times along scheme corridor (2020). 15% reduction at 2030.	
Improve journey time reliability along the A28 Chart Road.	Monitor day-to-day travel time through scheme corridor	10% reduction in day-to- day travel time variability (2020). 10% reduction at 2030.	
Improve road safety along the A28 Chart Road.	Analyse road traffic collision data along scheme corridor	12% reduction in accidents along scheme corridor (at 2020). 10% reduction at 2030.	
Reduce environmental impacts for local residents.	Monitor traffic volume and speed characteristics in order to assess change in emissions	Reduction in Annual Carbon emissions by 350 tonnes (at 2020). Reduce by 650 tonnes at 2030.	

Table 21 :	Outcome Measurement and Acceptability	Thresholds
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Monitoring Indicator	Measurement	Acceptable Threshold
Support the economy by supporting the delivery of houses and jobs.	Monitor net number of new houses and jobs delivered	Delivery of new homes and jobs in line with Ashford Local Plan.

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, three years 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 in meeting the scheme objectives. Unexpected effects of the scheme will be reported upon and, where appropriate, remedial measures identified.

7.14 Contingency Plan

At Full Business Case stage, a contingency plan will be adopted reflecting KCC's approach to dealing with any management issues encountered.

7.15 Options

KCC have extensive experience of delivering major schemes and following the procedures and policies that ensure successful delivery.

KCC will use the experience gained on other major projects to ensure that the A28 Chart Rd Widening scheme is delivered to budget and timescale.



8 **Operational Assessment**

8.1 Introduction

Although it is not required under the DfT 5-strand transport business case guidance, or the KCC/SELEP scheme template, a scheme operational assessment has been included here, in order to affirm that the proposed scheme content and layout design will be fitfor-purpose and fulfil its operational remit and be resilient to future shocks (such as incorporating sufficient 'headroom' capacity to handle unexpected growth in travel demand).

8.2 Model Development

<u>Network</u>

In order to test the A28 Chart Road schemes operational effectiveness, a VISSIM microsimulation model was developed for the A28 corridor and the immediate access roads. As the VISSIM model was primarily concerned with the assessment of the A28 between Matalan and Tank Roundabouts, the model includes the A28 mainline from Tithe Barn Lane to the A20, in order to model the full extent of any queues. The model includes junctions at Matalan, Brunswick Road, Loudon Way, Hilton Road and Tank. The VISSIM modelled network coverage is shown in Figure 17.

OS AutoCAD mapping was used as a basis to accurately code the VISSIM base network and identify lane width, road length and general road alignment. Site visit data and video recordings were used for lane markings, give-way markings and stop lines, junction coding, lane discipline and to determine the exact location of a lane drop or lane gain.

The following additional details were added to the link structure to ensure that traffic behaviour was realistic:

- Priority Rules and Conflict Areas: used to model the right-of-way for non-signalprotected conflicting movements;
- Speed Decisions used to implement a permanent speed change usually related to speed limits;
- Reduced Speed Areas used to model a temporary speed change mostly on short sections, for example on bends or turns;
- Traffic Signals and detectors used to model the operation of signal controlled



junctions; and

• Bus Stops – identify links that contain bus stops and define their location.



Figure 17 Vissim Modelled Network Coverage

Signal controller specification configurations were obtained from the Kent County Council. The Vehicle-Actuated Signal Control Module (VisVAP) in VISSIM has been used to accurately replicate the signal timings.

The public transport services modelled within VISSIM have been based on information from the latest published timetables.

Information on the data collection exercise is provided in the LMVR (Appendix B) attached to this report.

<u>Matrix</u>

As the traffic flow data input into the VISSIM models were extracted from the South Ashford SATURN Model, the VISSIM models were developed for the same time periods, namely: AM Peak (0800-0900), average inter Peak hour (1000-1600) and PM Peak (1700-1800). However, a 15-minute 'warm-up' period was added to ensure that traffic was allowed to reach a steady-state before congestion occurred.



In order to develop Origin-Destination matrices for input into the VISSIM model, the SATURN model was cordoned around the VISSIM model network coverage as shown in Figure 17. This process output 2015 cordoned matrices disaggregated by Car, LGV, OGV1 and OGV2. The SATURN pcu matrices were then converted to vehicle matrices for input into VISSIM.

The traffic profile within the SATURN model is flat, therefore local traffic at 15-minute intervals was used to disaggregate the matrices into the correct hourly profile.

8.3 Traffic Assignment

The base matrices were subsequently assigned to the modelled network using Dynamic Assignment which allows route choice to be modelled. Within a dynamic assignment model, VISSIM determines the multiple routes through the network and identifies a number of most likely routes for each origin and destination pair dependent upon the generalised cost of the route. The assignment is then done dynamically over time by an iterated application of the simulation.

The iteration of simulation runs was continued until a stable state was reached, in that traffic volumes and travel times across the network did not change significantly from one iteration to the next. At this point the model had converged.

8.4 Model Calibration/ Validation

The standard process for calibration and validation of traffic models outlined in TAG Unit 3.19 requires the modeller to compare the outputs from the models against observed conditions using both volumes and the GEH statistic. The criteria used in the calibration/validation of the base models were as follows;

- Modelled vs observed turning counts at junctions;
- Modelled vs observed journey times;
- Modelled vs observed queues; and
- General observations on traffic conditions

Once the models had converged, the calibration of the base year traffic models was undertaken using a standard approach where the network and behavioural characteristics were adjusted to ensure that there was no adverse driving behaviour such as unnecessary lane changing and weaving.



The VISSIM models were then validated to ensure that the models represented an accurate picture of traffic in the modelled area by comparing journey times generated by the model with average observed journey times and observed traffic flows. The model validation demonstrated that the models accurately represent traffic behaviour across the modelled area and are considered robust and suitable for testing the A28 Chart Road scheme.

The Operational Assessment Report discusses the development of the model in detail and is available upon request.

8.5 Operational Testing

A single 'worst case' Do-Something scenario was tested for the Horizon Year of 2030 at high growth, which incorporated both the A28 Chart Road scheme and the proposed Chilmington Green dependent development. The testing was initially undertaken using the local SATURN Model in order to test the wider area impact of the scheme. The results of this assessment are discussed in the SATURN Forecasting Report in **Appendix C**.

8.6 Future Model Development

<u>Network</u>

In order to test the effectiveness of the scheme the VISSIM model network was adjusted to include the scheme proposals along the A28.

<u>Matrix</u>

As with the base models, cordoned matrices were extracted from the 2030 Do-Something SATURN models, disaggregated by Car, LGV, OGV1 and OGV2, and converted from pcu to vehicle matrices before input into VISSIM. Again a peaked profile was assumed for the VISSIM matrices.

8.7 Traffic Assignment

The forecast matrices were assigned to the forecast networks using Dynamic Assignment until the models converged. Five model runs were then carried out for each time period using a different seed, with the results averaged over the five runs.



8.8 Model Results

Outputs from the future model were analysed and indicate that the model at 2030 High Growth performs well with reductions in unassigned vehicles and queuing and improvements in journey times along the A28. Figure 18 provides an illustration of the level of queueing along the mainline A28 at the Matalan roundabout during the AM peak in the base year (2015).



Figure 18 2015 Base Year AM Peak Screenshot (A28/ Matalan Junction)

Figure 19 indicates the situation at 2030 (High Growth) with the scheme in place. It can be observed that queuing along the A28 is greatly reduced when compared with the Base Year situation.



Figure 19 2030 AM Peak Screenshot (A28/ Matalan junction)



In summary, the A28 Chart Road operates efficiently in the 2030 Do-Something high growth scenario, with relatively short average queues forming on all approach roads during all the peak periods.



Appendix A Detailed Scheme Extents



Appendix B Local Model Validation Report



Appendix C Forecasting Report



Appendix D Geographical Distribution of the Travel Time and VOC Savings

Doc. Ref.:CO04300369/008 Rev. 01



Appendix E Noise and Vibration Assessment



Appendix F Cultural Heritage Assessment

Report



Appendix G Risk Register



Appendix H Section 151 Sign Officer Letter



Appendix I Affected Land Owners



Appendix J Project Plan