SEA Environmental Report

LTP4 Strategic Environmental Assessment

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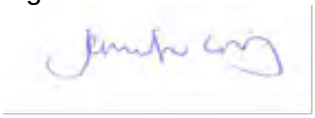
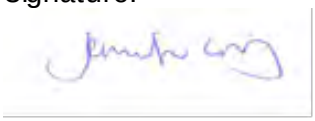
0 DRAFT FOR PUBLIC CONSULTATION	Name: Dean Malik Signature:  Date: 13/07/2016	Name: Jennifer Craig Signature:  Date: 20/07/2016	Name: Jenefer Taylor Signature:  Date: 02/08/2016
1 FINAL	Name: Dean Malik Signature:  Date: 09/06/2017	Name: Jennifer Craig Signature:  Date: 16/06/2017	Name: Jenefer Taylor Signature:  Date: 28/06/2017

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1 Introduction

1.1 Background

Amey has undertaken a Strategic Environmental Assessment (SEA) of Kent County Council's (KCC) fourth Local Transport Plan (LTP4). KCC's third Local Transport Plan (LTP3) ran from 2011 to 2016. The requirement to review Local Transport Plans every five years was removed by the Local Transport Act 2008; therefore LTP4 is a high-level strategy document covering an extended timeframe of 2016 to 2031. The new transport plan will be known as 'KCC Local Transport Plan 4: Delivering Growth without Gridlock 2016-2031'.

KCC is responsible for the management and maintenance of all of Kent's local roads and public rights of way. Additionally, KCC implements local transport schemes that support the long-term objectives of improving the economic, social and environmental wellbeing of the county; and lobbies for major transport infrastructure, such as a new Lower Thames Crossing, an alternative to Operation Stack, a solution for inappropriate overnight lorry parking, and improvements to bus and rail services.

Local Transport Plans are a statutory requirement for Local Transport Authorities, and are used to determine how local transport investment is made, with particular reference to the Local Road Network. As such, it includes all of the aspects detailed above. While KCC does not directly provide or invest in the infrastructure for rail, sea or air transportation modes, their policies and priorities for Rail and Aviation are detailed in LTP4. The current (third) KCC Local Transport Plan (LTP3) was adopted on 6 April 2011 and is for the five-year period 2011-2016. LTP3 contains a 50-page Strategy and 100-page Implementation Plan which look in detail at Kent's requirements, challenges and a range of potential solutions over the plan period. By contrast, the main body of LTP4 is 63 pages long, with an Annexe of 7 pages in length detailing the newly-proposed ITP Prioritisation Methodology.

The final pre-consultation draft LTP4 along with a draft SEA Environmental Report (Rev0) was presented to the Environment and Transport Cabinet Committee on 8 July 2016. Public Consultation on both LTP4 and the SEA Environmental Report Rev0 commenced on 8 August 2016 for 12 weeks, and the responses incorporated as necessary into both documents. This document is the updated Environmental Report (Rev1) that takes into account the changes to LTP4 post-consultation, and the SEA-specific consultation comments. LTP4 has been approved

by Cabinet Committee and Cabinet and will be adopted at full County Council in July 2017, after which the final LTP4 will be published alongside the SEA Statement.

1.2 Outline of LTP4

1.2.1 Policy Context

The local policy context identified by LTP4 is reproduced in Figure 1, below.

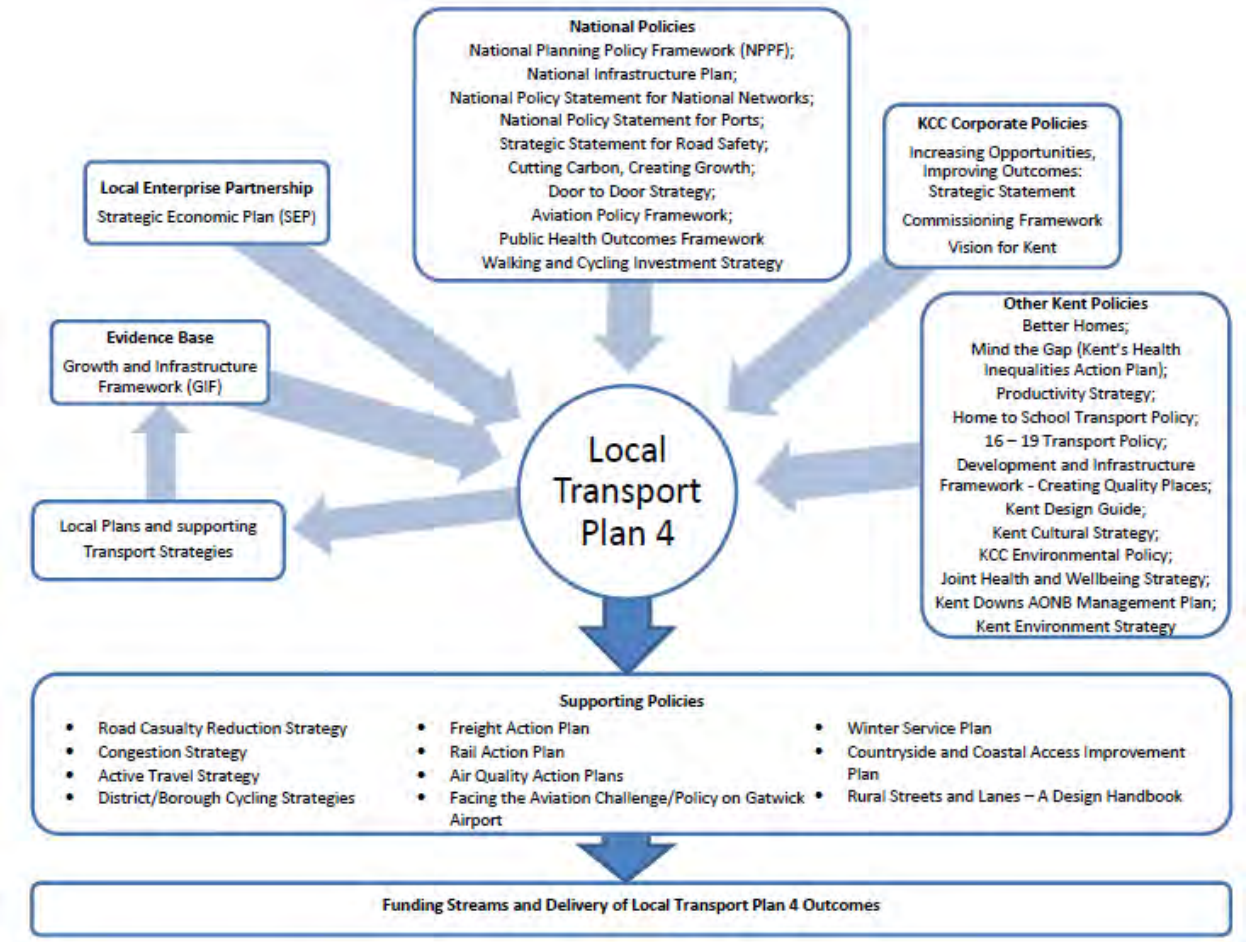

Figure 1: LTP4 Policy Context

While this provides a useful overview of the wide-ranging influences that have been taken into account in the production of LTP4, the following additional plans are identified in the Kent Environment Strategy (KES; adopted by KCC in March 2016) but are not mentioned within LTP4:

- Kent Housing Strategy
- Minerals and Waste Development Plan
- Growth strategies at Local Enterprise Partnership (LEP) and local level
- Joint Strategic Needs Assessment (JSNA)

- Living Well
- Child Poverty Strategy
- Fuel Poverty Strategy
- Kent Nature Partnership Action Plan
- SE LEP Rural Strategy
- Local Flood Risk Strategy

The environmental policy context is presented in Section 2, along with the environmental baseline data.

1.2.2 Objectives of LTP4

The Ambition and Outcomes for the LTP4 Review developed during the initial stages of plan-making are presented below:

"To deliver safe and effective transport, ensuring that all Kent's communities and businesses benefit, the environment is enhanced and economic growth is supported"

Outcome 1: Economic growth and minimised congestion

Policy: Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.

Outcome 2: Affordable and accessible door-to-door journeys

Policy: Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.

Outcome 3: Safer travel

Policy: Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.

Outcome 4: Enhanced environment

Policy: Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.

Outcome 5: Better health and wellbeing

Policy: Provide & promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.

1.3 Kent's Strategic Transport Priorities

Kent's Strategic Transport Priorities within LTP4 are of both National and Countywide significance. These are outlined spatially in Figure 2, and summarised below.

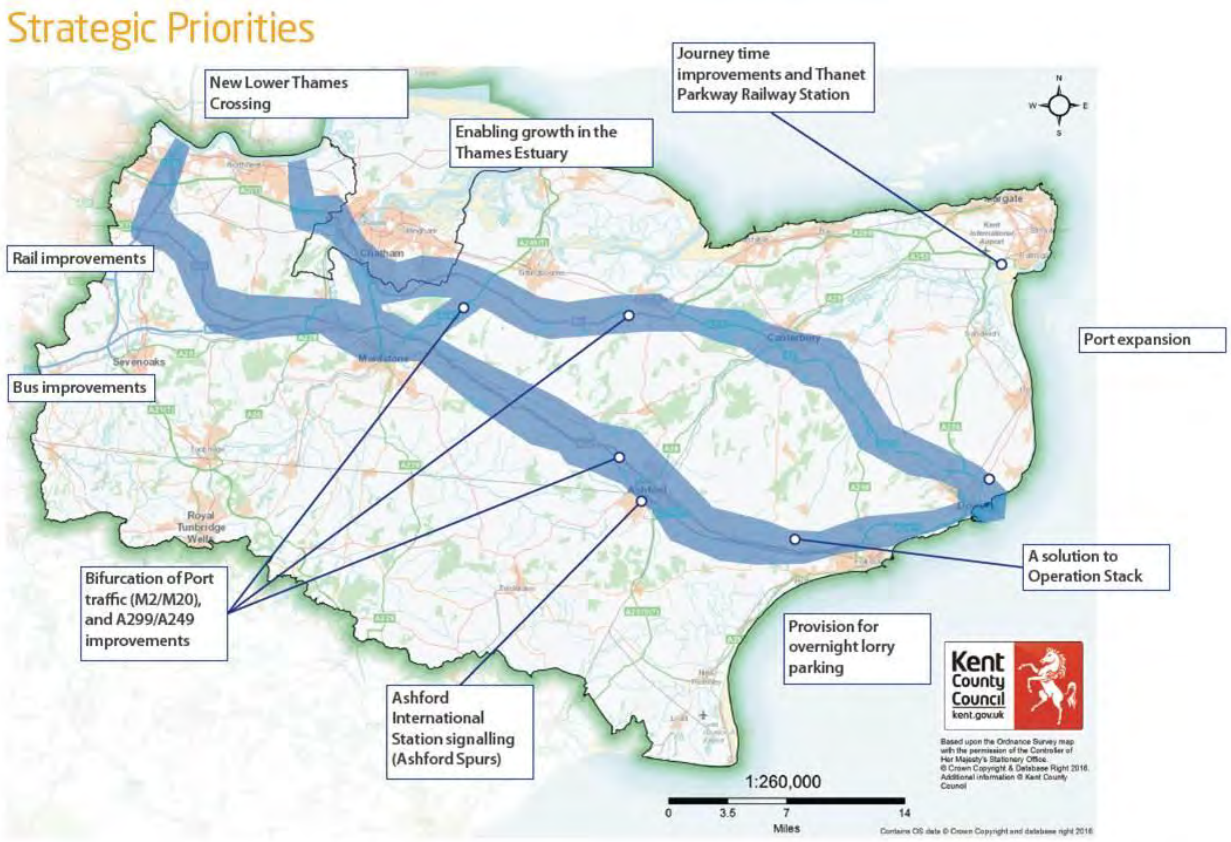

Figure 2: Kent's Transport Priorities

1.3.1 National

LTP4 details several strategic priorities of national importance, as detailed below. Not all national priorities will be included in the scope of the SEA for LTP4 due their inclusion in LTP3 and therefore have already undergone assessment under SEA.

i. Enabling Growth in the Thames Estuary	
Issue	The Thames Estuary is the South East's most important location for housing and commercial growth yet unlocking its potential depends on bringing forward significant new infrastructure given existing levels of congestion and lack of resilience
Action	Prioritise the transport investments that are required to deliver the major commercial and residential developments planned over the next 10 – 15 years.
Transport Improvements Needed	• A2 Bean junction upgrade. • A2 Ebbsfleet junction upgrade. • M2 junction 5 upgrade • Increased high speed rail services to Ebbsfleet. • Enhanced Fastrack bus network • Crossrail extension from Abbey Wood to Dartford, Ebbsfleet and Gravesend.
Outcome	87,000 new homes and up to 20,000 new jobs at Ebbsfleet Garden City and up to 27,000 new jobs at the leisure resort proposed on the Swanscombe Peninsula. LTP4 Outcomes: 1 Economic growth and minimised congestion, 2 Affordable and accessible door-to-door journeys, 4 Enhanced environment
Funding & Decision-making	A2 Bean and Ebbsfleet junctions c. £125 million. Crossrail towards Gravesend c £2 billion.
Status	Previously prioritised in LTP3 and Growth without Gridlock – LTP4 represents continuation of 'business as usual'.
Inclusion in SEA Assessment required?	**No**: No change from LTP3; KCC is not the LPA nor the Highways Authority for the majority of the affected area. KCC transport schemes to be promoted in this area should be subject to prioritisation and early assessment using the revised Value for Money (VFM) matrix to ensure early consideration of potential environmental impacts and opportunities.

ii. New Lower Thames Crossing	
Issue	The Dartford Crossing carries over 50 million vehicles a year and congestion costs the UK economy by constraining growth, impacting on north Kent, south Essex and southeast London. It has one of the highest incident rates on the major road network and there is no real alternative route.
Action	Provision of a new Lower Thames Crossing to the east of Gravesend.
Transport Improvements Needed	In the 2016 consultation, KCC's response was adamant that the Western Southern Link should be chosen and that with careful route alignment and tunnelling, the environmental and heritage impacts could be substantially minimised. As part of the project to deliver the new Lower Thames Crossing the A229 between M2 Junction 3 and M20 Junction 6 should be upgraded (what has previously been called Option C 'variant') along with improvements to the A249 as another link between the two motorways and the upgrades identified for 'bifurcation of port traffic'.
Outcome	Over 50,000 new homes and 26,000 jobs across North Kent. Significant cost savings to UK businesses by improving journey time reliability and network resilience. LTP4 Outcomes: 1 Economic growth and minimised congestion, 2 Affordable and accessible door-to-door journeys, 3 Safer travel, 5 Better health and wellbeing
Funding & Decision-making	Highways England 2016 consultation estimates the cost to be in the range £4.1bn to £5.7bn (if Route 3 with Western Southern Link is chosen).
Status	Previously prioritised in LTP3 and Growth without Gridlock – LTP4 represents continuation of 'business as usual'.

ii. New Lower Thames Crossing	
Inclusion in SEA Assessment required?	**No**: No change from LTP3; no clarity is yet available on the Option to be progressed; scheme is promoted by Central Government with KCC as a consultee.

iii. Bifurcation of Port Traffic	
Issue	Inefficient motorway network along the Channel Corridor as all traffic is routed along the M20/A20.
Action	Bifurcate (split traffic) between the M20/A20 and M2/A2 routes.
Transport Improvements Needed	• M2 Junction 7 (Brenley Corner) improvements to increase capacity and provide free-flow between the M2 and A2. • Dualling sections of single carriageway on the A2 north of Dover along Jubilee Way to Whitfield and near Lydden. • M20 Junction 7 improvements to provide ease of access between the A249 and M20. • M2 Junction 5 Stockbury improvements to provide free-flow between the M2 and A249.
Outcome	A resilient transport network and major regeneration of Dover. LTP4 Outcomes: 1 Economic growth and minimised congestion, 3 Safer travel, 5 Better health and wellbeing
Funding & Decision-making	LGF funding contribution via KMEP and SELEP. Investment by Highways England through their Road Investment Strategies.
Status	Previously prioritised in LTP3 and Growth without Gridlock – LTP4 represents continuation of 'business as usual'.
Inclusion in SEA Assessment required?	**No**: No change from LTP3. KCC transport schemes contributing to bifurcation should be subject to prioritisation and early assessment using the revised VFM matrix to ensure early consideration of potential environmental impacts and opportunities.

iv. Port Expansion	
Issue	Annual forecast for growth at the Port of Dover is between 2% and 4% so capacity is needed to support increasing freight movements and the resilience of the Port.
Action	Work with Dover Harbour Board and other port operators to support development.
Transport Improvements Needed	The Western Docks would provide a dedicated ferry terminal and additional holding capacity for freight vehicles. The redevelopment would also kick-start the regeneration of Dover town, attracting investment, creating jobs and improving the appearance of the Waterfront. The scheme will remodel the Prince of Wales and York Street roundabouts on the A20.
Outcome	Job creation, regeneration and the redistribution of freight traffic. LTP4 Outcomes: 1 Economic growth and minimised congestion
Funding & Decision-making	Dover Western Docks Revival c £250M
Status	Not previously prioritised in LTP3 or Growth without Gridlock – new to LTP4.
Inclusion in SEA Assessment required?	**Yes**: See Section 5.

v. A Solution to Operation Stack	
Issue	Significant and prolonged disruption to the county when Operation Stack closes sections of the M20.
Action	Highways England to deliver an Operation Stack Lorry Area for 3,600 HGVs.
Transport Improvements Needed	KCC are working with Highways England who is leading on the delivery of a Lorry Area that will reduce the need to use the M20 to queue freight vehicles during times of disruption to cross-Channel services. In addition to this work, KCC will lobby for more freight to be transported by rail although they acknowledge that limited train paths for rail freight and the economics of transporting goods by road limits the scope for significant modal shift.
Outcome	Fewer instances of disruption, ultimately improving the image of Kent as a place to do business. LTP4 Outcomes: 1 Economic growth and minimised congestion
Funding & Decision-making	£250m allocated in 2015 Autumn Statement.
Status	Previously prioritised in LTP3 and Growth without Gridlock – LTP4 represents continuation of 'business as usual'.
Inclusion in SEA Assessment required?	**No**: No change from LTP3; scheme is promoted by Central Government.

vi. Provision for Overnight Lorry Parking	
Issue	There is a significant amount of unofficial and often inappropriate overnight lorry parking that causes distress for the communities affected and potential safety issues on Kent's roads.
Action	Identify a network of smaller overnight lorry parks and work with Kent Police to enforce against offenders.
Transport Improvements Needed	KCC are developing a strategy for a network of small lorry parks at suitable locations across Kent and a partnership approach with the Districts and the Police to address enforcement. The proposed Operation Stack Lorry Area adjacent to the M20 at Stanford should be integrated with this overall strategy.
Outcome	Relocation of overnight lorry parking away from communities and reduced antisocial behaviour. LTP4 Outcomes: 3 Safer travel, 4 Enhanced environment
Funding & Decision-making	Lorry parks to be commercially operated, typical construction cost £2.6M to £6M per lorry park.
Status	Previously prioritised in LTP3 and Growth without Gridlock – LTP4 represents continuation of 'business as usual'.
Inclusion in SEA Assessment required?	**No**: No change from LTP3. Identification of potential new lorry parks should be subject to prioritisation and early assessment using the revised VFM matrix to ensure early consideration of potential environmental impacts and opportunities.

1.3.2 Regional

LTP4 also details strategic priorities of regional (countywide) importance. Not all regional priorities will be included in the scope of the SEA for LTP4 due their inclusion in LTP3 and therefore have already undergone assessment under SEA.

vii. International Station Signalling (Ashford Spurs)	
Issue	The signalling on the Ashford Spurs needs upgrading to retain international services to Ashford International Station.
Action	KCC is working in partnership with Ashford Borough Council, Network Rail, Eurostar and High Speed 1 to secure the delivery of the signalling upgrade at Ashford International, for which funding is being sought through the Local Enterprise Partnership.
Transport Improvements Needed	KCC, working in partnership with Ashford Borough Council, have led a working group with all concerned stakeholders to fund, procure and deliver an upgrade to the signalling system.
Outcome	Ashford will continue to operate as an international station and be served by the new trains as well as any future international rail operators. LTP4 Outcomes: 1 Economic growth and minimised congestion, 2 Affordable and accessible door-to-door journeys
Funding & Decision-making	SELEP - £10.5M
Status	Not previously prioritised in LTP3 or Growth without Gridlock – new to LTP4.
Inclusion in SEA Assessment required?	**Yes**: See Section 5.

viii. Journey Time Improvements and Thanet Parkway Railway Station	
Issue	East Kent has real opportunity for growth but currently is beyond the 'magic hour' time from London, which discourages employers from locating in the area. Regeneration in East Kent is dependent on improving accessibility.
Action	Delivery of Thanet Parkway railway station.
Transport Improvements Needed	Not specified
Outcome	Improved rail connectivity between East Kent, London and the wider Kent area, and increased attractiveness of East Kent to employers. LTP4 Outcomes: 1 Economic growth and minimised congestion, 2 Affordable and accessible door-to-door journeys
Funding & Decision-making	Thanet Parkway cost of £21 million (at 2020 prices)
Status	Previously prioritised in LTP3 and Growth without Gridlock – LTP4 represents continuation of 'business as usual'.
Inclusion in SEA Assessment required?	**No**: No change from LTP3.

ix. Rail Improvements	
Issue	Growth in housing and jobs will increase demand for rail travel especially to and from London. Cost of commuting by rail to access employment is a major barrier for many people. The new SE franchise will need to offer increased capacity on both High Speed and Mainline services in Kent.
Action	Create a co-ordinated public transport network and promote initiatives to encourage greater use of rail in Kent. Liaise with partners to identify options for reducing the 'rail price penalty'.
Transport Improvements Needed	KCC will work with Government and the rail franchisee to identify options to reduce this. KCC has made good progress on promoting improvements to rail passenger services through the Rail Action Plan for Kent, and this has led to KCC being recognised as a voice of authority on rail matters for the South East. KCC will now work to influence the new South Eastern rail franchise (2018) as well as continuing to run annual Rail Summits to stand up for Kent's passengers. KCC supports the proposal for an extension of Crossrail 1 from Abbey Wood to Dartford, Ebbsfleet and Gravesend ensuring the delivery of additional rail capacity for the planned Ebbsfleet Garden City, London Paramount and Thames Estuary area.
Outcome	Increased access to jobs, education and health by public transport, providing opportunities to Kent's residents without the need for a private car and therefore reducing road congestion. LTP4 Outcomes: 1 Economic growth and minimised congestion, 2 Affordable and accessible door-to-door journeys, 3 Safer travel, 4 Enhanced environment
Funding & Decision-making	Total infra on the rail network in Kent 2019-2024 c£500M
Status	Not previously prioritised in LTP3 or Growth without Gridlock – new to LTP4.
Inclusion in SEA Assessment required?	**Yes**: See Section 5.

x. Bus Improvements	
Issue	Growth in housing and jobs will increase traffic on Kent's roads. Bus operators will need to ensure that services are reliable despite this challenge and that they cater for the additional demand.
Action	Work closely with bus operators and other partners to ensure that public transport has a high level of modal share.
Transport Improvements Needed	Currently around 97% of bus journeys in Kent operate on a commercial basis, with no contract in place with KCC. KCC have to take a pragmatic approach to funding commercially unviable bus services and will seek to support other means of provision that can achieve the same aims, such as community buses. KCC will review the potential benefits that the new Buses Bill (2017) could bring to Kent and the opportunities for enhanced partnership working.
Outcome	Increased access to jobs, education and health by public transport, providing opportunities to Kent's residents without the need for a private car and therefore reducing road congestion. LTP4 Outcomes: 1 Economic growth and minimised congestion, 2 Affordable and accessible door-to-door journeys, 3 Safer travel, 4 Enhanced environment
Funding & Decision-making	For 2016/17, £5.6m on supported bus services, £16.9m on older and disabled person's bus pass, £8.7m on young person's travel pass, £300k on public transport infrastructure, and c. £600k on Kent Karrier support.
Status	Not previously prioritised in LTP3 or Growth without Gridlock – new to LTP4.

x. Bus Improvements	
Inclusion in SEA Assessment required?	**Yes**: See Section 5.

1.4 Non-Strategic Priorities

1.4.1 Countywide

LTP4 details a number of countywide priorities which equate not to individual schemes or areas, but to policies:

- Road Safety
- Highways Maintenance & Asset Management
- Home to School Transport
- Active Travel
- Public Rights of Way
- Sustainable Transport
- Aviation

With the exception of Aviation and Sustainable Transport (both discussed below) the above have been included within the scope of the SEA and results of the assessment are presented and discussed in Section 5.

Aviation

Aviation has been scoped out of SEA for LTP4: LTP3 recognised that airports "have a significant impact on the County's residents, both positive; such as the employment opportunities they generate, and negative; including the traffic congestion, noise and environmental pollution associated with their activities". LTP3 clearly stated KCC's policy of working with, "airport operators and Central Government to ensure that these negative externalities are minimised whilst supporting managed expansion where it aligns with the County Council's economic growth and regeneration objectives". LTP4 perpetuates this approach, stating, "we are clear that processes are needed to properly measure, minimise and mitigate the noise impacts of existing airport operations and airport expansion". The aviation policy is therefore a continuation of that stated in LTP3, and has thus already undergone SEA.

The one aviation scheme mentioned in LTP4 is that at Lydd (London Ashford) Airport: Planning permission was granted in 2013 at Lydd to increase the size of the terminal and increase

passenger and flight numbers. This has been subject to rigorous Environmental Impact Assessment. The scheme is not promoted by KCC and further assessment under this SEA of LTP4 is not considered appropriate.

Sustainable Transport

A number of local schemes, targeted at sustainable transport and including initiatives to encourage modal shift, will deliver benefits across district boundaries. Details of these have been expanded on in LTP4 post-consultation, identified as 'Cross-District Priorities'. Many of these schemes have already secured funding. As a result of this – and due to their focus on achieving sustainability objectives – these have not been included within the scope of the SEA. These schemes include but are not limited to:

- **Kent Thameside Local Sustainable Transport Fund** (£4.5m LGF funding) – a capital programme of works for Dartford and Gravesham delivering schemes to promote the use of alternative modes of transport to the private car, e.g. cycle parking, cycle and walking routes and bus infrastructure.
- **West Kent Local Sustainable Transport Fund** (£4.9m LGF funding) – a capital programme of works delivering schemes to promote the use of alternative modes of transport to the private car, including Snodland Station forecourt, Tonbridge Station access improvements, Maidstone East Station improvements and Swanley Station improvements.
- **Sustainable access to education and employment** (£1m LGF funding) – schemes to upgrade or create new Public Rights of Way as identified by local communities to encourage walking and cycling to places of education and employment. This will deliver new Public Footpath and Cycling routes in Tonbridge & Malling, Ashford, Maidstone and Tunbridge Wells and assists in delivery of our Countryside and Coastal Access Improvement Plan.
- **Kent Sustainable Interventions supporting growth programme** (£3m LGF funding) – the delivery of smaller schemes designed to encourage users to switch to walking, cycling and public transport through the provision of facilities such as crossings, footway improvements, bus priority and cycle lanes, as well as Smarter Choices initiatives such as publicity and travel plans.
- **Kent Connected journey planning and smart ticketing for public transport** – an innovative journey planner and information hub which allows users to make an informed decision on how to travel. This includes the development of the Connected Kent and Medway Smartcard which offers users a convenient cashless way to pay for bus travel.

1.4.2 Local

The local priorities section of LTP4 brings together the priorities from individual Local Plans and supporting Transport Strategies that set out the transport infrastructure requirements to support growth in each district. They are not listed exhaustively within LTP4, and will be subject to prioritisation as suitable funding sources become available. Environmental assessment will be undertaken on a scheme by scheme basis. Due to the lack of clarity on the funding to be made available and the broad range of potential schemes – not all of which have been detailed within LTP4 - it has not been possible to undertake Strategic Environmental Assessment of these proposals. These schemes include, but are not limited to:

- **Kent Strategic Congestion Management programme** (£4.8m LGF funding) – a countywide programme that identifies areas of poor journey time reliability and develops schemes that seek to improve reliability so as to encourage economic growth.

1.5 LTP4 Funding Sources

LTP4 presents a strategic vision for Kent's transportation requirements, and is primarily concerned with two key funding sources:

National funding sources and the Local Growth Fund (LGF) – Applicable to large-scale schemes, these sources focus on unlocking barriers to economic growth, and as such are related solely to Outcome 1. Administered through the South East Local Enterprise Partnership (SELEP), applications are made by KCC via the Kent and Medway Economic Partnership (KMEP) and must demonstrate accordance with the Key Criteria laid down by SELEP's Strategic Economic Plan (SEP) as detailed in the Common Assessment Matrix (Table 1, below).

Integrated Transport Programme (ITP) – The funding allocation and method of prioritisation for these smaller scale schemes has been subject to an Options Report prepared by KCC and amended during the SEA process. This will be discussed in detail in Section 4. In brief, as previously mentioned LTP4 Annex 1 presents a proposed ITP Prioritisation Methodology based on a wide-ranging series of Value for Money Indicators; additionally LTP4 proposes a scheme for budget allocation to the five Outcomes after the ITP funding has been top sliced by 50% to CRM schemes (40% to economic growth and minimised congestion, 15% to affordable and accessible door-to-door journeys, 15% to safer travel, 15% to enhanced environment, and 15% to better health and wellbeing).

Table 1: Key Criteria within SELEP's Common Assessment Matrix

Fit with SELEP strategic objectives • secure the growth of the Thames Estuary • promote investment in our coastal communities • strengthen our rural economy • strengthen the competitive advantage of strategic growth locations
Impact on housing delivery
Direct jobs supported (existing or new)
Indirect jobs supported (existing or new)
Value for money in terms of cost per job, or cost per home
Risk management and mitigations
Proportion of costs met elsewhere
Adaptability and scalability of project
Deliverability

The funding of Strategic, Kent-wide and District Priorities identified within LTP4 is outlined in Table 2, below.

Table 2: Funding of LTP4 Strategic, Kent-wide and District Priorities

Level	Sub-level	Primary Funding Source(s)
Strategic	National	Central Government (Dept for Transport)– KCC is not the key proponent of the scheme
	Countywide	Central Government (LGF) – KCC is often the key proponent of or major stakeholder in the scheme
Countywide		Central Government (LGF and allocated funding blocks) – KCC is often the key proponent of or major stakeholder in the scheme ITP – KCC is often the key proponent of the scheme Community Infrastructure Levy (CIL) – applied to specific infrastructure projects Other sources external to KCC's influence
Local		

1.6 The SEA Process

1.6.1 Purpose of the SEA

Strategic Environmental Assessment is a legal requirement for Local Transport Plans, falling under the European Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment, as transposed in England by the Environmental Assessment of Plans and Programmes Regulations 2004 ("the SEA Regulations"). The objective of the Directive is:

"To provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans… with a view to promoting sustainable development, by ensuring that, in accordance with this Directive, an environmental assessment is carried out of certain plans and programmes on the environment which are likely to have significant effects on the environment."

SEA is a systematic way to scrutinise a plan or programme of actions and examine the likely impacts it may have on human health and the environment. It provides a high standard to ensure that a plan is environmentally sound and promotes sustainable development. Two key procedural requirements of the SEA Directive are that:

- When deciding on 'the scope and level of detail of the information' which must be included in the Environmental Report there is a consultation with nationally designated authorities concerned with environmental issues. The Scoping exercise is discussed in Section 1.3.3, below.
- A report (the 'Environmental Report') is published alongside the Plan that presents an assessment of the Plan (i.e. discusses 'likely significant effects' that result from plan implementation) and reasonable alternatives. This Environmental Report has been produced in fulfilment of this requirement; this version (Rev1) has been updated post-consultation to reflect consequential amendments to LTP4, and comments made on the SEA (Rev0).

1.6.2 The Environmental Report

The SEA Regulations require that a report is published that 'identifies, describes and evaluates' the likely significant effects of implementing 'the plan, and reasonable alternatives'. The report must then be taken into account, alongside consultation responses, when finalising the plan. In line with the SEA Regulations this report – which is known as the 'Environmental Report' – answers the following four questions:

- What is the scope of the SEA? [See Section 1.6.3]

- What has Plan-making / SEA involved up to this point? [See Section 1.6.4]
- What are the assessment findings at this current stage i.e. in relation to the draft plan? [See Section 5]
- What happens next? [See Section 6]

In order to start addressing these questions, in December 2015 Amey produced a draft Scoping Report (Amey/KCC, 2016), which was amended by Kent County Council and issued as a Consultation Draft in January 2016. This was finalised post-consultation in April 2016.

1.6.3 The Scope of the SEA

The SEA Regulations require that 'When deciding on the scope and level of detail of the information that must be included in the Environmental Report, the responsible authority shall consult the consultation bodies'. In England, the consultation bodies are Natural England, the Environment Agency and English Heritage. These authorities and additionally Kent's District and Borough Councils, were consulted on the Consultation Draft of the SEA Scoping Report in January 2016. Reflecting the requirements of the SEA Regulations, the following information was presented in the final SEA Scoping Report for the nine environmental themes:

- **Context review**: This explored the environmental and sustainability 'context' for the SEA / LTP4 Review through reviewing high level messages (e.g. internationally, from central government and at the regional and county level) with a view to establishing the focus for the SEA.
- **Baseline data**: This established the baseline situation in the area in the absence of the LTP4 Review (including the future baseline) in order to help identify the plan's likely significant effects.
- **Key issues**: This identified particular problems or opportunities ('issues') that should be a focus of the SEA.

On the basis of the evidence detailed in the SEA Scoping Report (Amey/KCC, 2016), the following topic is scoped out of the SEA due to LTP4 being predicted to have negligible effects:

- Soil

The Strategic Environmental Assessment of KCC's fourth Local Transport Plan will therefore be based on the environmental *Topics* presented in Table 3, below.

Table 3: SEA topics of importance identified during scoping

Biodiversity, flora and fauna	Water
Air Quality	Cultural Heritage
Human Health	Landscape
Climatic factors	Noise and Tranquillity
Population	Material Assets

1.6.4 Plan-making and the SEA

Amey received the first outline draft of LTP4 in November 2015, containing the draft Local Transport Schemes Prioritisation methodology and a list of LGF1 and LGF2 schemes. The prioritisation methodology at this stage stated that schemes must, "demonstrably achieve one or more of the outcomes from LTP4", of which Enhanced Environment was one. This lightness of touch was discussed with KCC's Transport Strategy Team who worked with the Traffic Scheme Team to devise a new method that overcame the disadvantages of the previous LTP3 prioritisation method. Subsequently the first draft Options Report (v1) received from KCC on 14/1/16 contained an expanded decision matrix for use irrespective of the desired Outcome(s) which assigned value to a variety of indicators including "Environment – what impact will the scheme have on the natural environment?" and "Air quality – what impact will the scheme have on air quality?".

Progression of LTP4 continued through early 2016, and Amey received a new version in March 2016 which took the SEA Scoping Report (Amey/KCC, 2016) and consultation responses into account, plus feedback from Members. The body of the Plan was expanded to introduce the relationship of Priorities to Outcomes – therefore schemes considered by KCC to have potential for Environmental Enhancement are now identified. The ITP prioritisation methodology was omitted from this draft of LTP4 which utilised a previous ITP budget allocation system. It is believed that this prioritisation methodology was less environmentally favourable to that of the Preferred Option, shown in the Options Report, as illustrated in Table 4 [It should be noted that the lower allocation to Safety shown under v1 and v2 reflects that the ITP budget is already 50% top sliced for Crash Remedial Measures schemes].

As LTP4 was developed, reference to the prioritisation methodology was caveated with the phrase, "TBC - this is being options appraised".

Table 4: Differences in Funding Allocation between Options Report v2 and LTP4 v4.5

Outcome	Preferred Option 3 (Options Report v1 & v2)	Allocation shown in LTP4 v4.2 & v4.5
Economic growth and minimised congestion	45%	45%
Affordable and accessible door-to-door journeys	15%	15%
Safer travel	10%	15%
Enhanced environment	15%	10%
Better health and wellbeing	15%	15%

Amey formally reviewed the revised Options Report (v2) and noted the discrepancies with the draft LTP4 v4.7 plus additional concerns around the ITP prioritisation methodology. A progress meeting resulted in KCC asking Amey to revise the Options Report and appended prioritisation methodology in order to make these more environmentally robust. KCC also amended the budget split within the LTP4 Approved Version for Cabinet Committee, as shown in Table 5 [the allocation to Safety has increased, as this is a priority for Members who wanted it to have an equal allocation to the other 3 priorities]. This allocation has been retained in the Final draft of LTP4.

Table 5: Preferred Funding Allocation in Options Report v3 and LTP4 Cabinet version

Outcome	Preferred Option 3 (Options Report v3 & LTP4 Approved Version for Cabinet Committee)
Economic growth and minimised congestion	40%
Affordable and accessible door-to-door journeys	15%
Safer travel	15%
Enhanced environment	15%
Better health and wellbeing	15%

The proposed SEA Objectives and Assessment Framework were also presented to KCC during this meeting, and the approach agreed.

Amey provided the revised Options Report (v3) to KCC (Appendix B), containing an augmented prioritisation matrix and comments on additional points of concern which are included in this Environmental Report. These have been addressed by KCC in the final iteration of LTP4's Annexe, which is reproduced in Appendix C.

2 Environmental Baseline and Policy Context

A summary of the plans, programmes and policies of relevance to LTP4 is presented in Appendix D, while details of how these relate to each environmental topic are shown below along with baseline information and Scoping conclusions.

2.1 Biodiversity, flora and fauna

2.1.1 Baseline

Natural England has defined Natural Areas within Kent, which each have distinctive wildlife and natural features, and individual nature conservation aims. Kent contributes significantly to the value of the regional biodiversity resource, with numerous sites of European and International Importance including 14 Special Areas of Conservation (SACs), 5 Special Protection Areas (SPAs), and 5 Ramsar Wetland Sites. This is significant as the presence of these sites triggers the requirement for Habitats Regulations Assessment (HRA) Screening to be undertaken for LTP4. There are also 11 National Nature Reserves.

There are 101 Sites of Special Scientific Interest (SSSIs) within Kent, which cover a total area of 33,163 hectares covering 8.5% of the county. As of June 2010, 97% of the area of SSSIs in the county was meeting the Public Service Agreement (PSA) target of being in either favourable (77.17%) or unfavourable recovering (19.90%) condition. Data available for the South East (including Kent) states that 91% of SSSIs are meeting the PSA target (47% favourable; and 44% unfavourable recovering).

There are 456 Local Wildlife Sites (LWSs) across Kent (with some being transboundary with Medway) which contain large tracts of priority habitat. LWSs cover approximately 7% of the county. Over 60% of agricultural land in Kent is under Environmental Stewardship.

Kent Biodiversity Action Plan (BAP) identifies priority habitats/species and includes targeted actions for 85 UK BAP species and 24 UK BAP Priority Habitats within the county. The Kent BAP includes a number of objectives to halt the loss or decline of these species and habitats. The Kent UK BAP priority habitats are now the focus of Habitat Action Plans (HAPs) produced by the Kent Biodiversity Partnership. Each HAP sets out the steps needed to secure a healthy future for the habitat and for the wildlife that depends on the habitat for their survival. These generally relate to raising awareness and securing appropriate habitat management. Some of the BAP priority species are also legally protected such as Noctule bats, great crested newt, otter, dormouse and

water vole.

In relation to biodiversity, the Regional State of the Environment Report identifies that the South East which includes Kent county territory has:

- 30% of England's broadleaved, mixed and yew woodland, making it the most highly wooded region;
- 40% of England's lowland heath resource, more than any other region;
- 16% of the lowland calcareous grassland resource;
- 60% of England's vegetated shingle resource, over 10% of the intertidal mudflats, 16% of coastal lagoons and over 15% of coastal and floodplain grazing marsh, more than other region.

Biodiversity in the UK is already being affected by climate change. BAP habitats at a particular location may not be viable in the same location in the future due to a changing climate. Areas of intertidal habitat have already been lost to sea level rise, in the South East there have been significant losses of saltmarsh across 12 Special Protection Areas. An increasing human population in Kent is likely to cause a decline in biodiversity due to an increased requirement for infrastructure, housing development and water consumption. To withstand these pressures it is important to retain connectivity of existing habitats within the LTP area and reduce fragmentation of habitats where possible.

2.1.2 Policy Context

The UK is a Party to the Convention on Biological Diversity (CBD), a principal objective of which is the conservation of biodiversity. Following implementation of the CBD, member states of the European Union committed to halting biodiversity loss by 2010 and putting biodiversity 'on the course to recovery'. This ambitious target was not achieved and the CBD are looking into a new target for 2020. Commitment to the CBD also led to the preparation of the 1994 UK Biodiversity Action Plan (UKBAP), which identifies our most threatened habitats and species and includes action plans with ambitious targets for their recovery.

A Biodiversity Strategy for England was published in 2012. The Strategy sets out the UK Government's vision for biodiversity in terms of ensuring that biodiversity considerations become embedded in all the main sectors of economic activity, public and private. The Natural Environment and Rural Communities Act 2006 seeks to entrench this new way of thinking about the environment and biodiversity within policy and decision-making process, and places a duty on public authorities to have serious regards to the conservation of biodiversity in exercising their

power.

The Department for the Environment Food and Rural Affairs (DEFRA) developed the Ecosystem Approach, which seeks to provide a framework for looking at ecosystems holistically in the decision making process with an emphasis on putting a sterling value onto ecosystem services. As part of the approach the Government has given consideration to how best to reconcile conserving a list of priority species (as required by the UK BAP) with the wider agenda of maintaining ecosystem services which within the UK focuses on maintaining, creating and restoring functional combinations of habitats.

The full legislative and policy context relevant to biodiversity will be detailed within the aforementioned HRA Screening. Key legislation of importance is presented below:

- Habitats Directive 1992 (92/43/EEC) - protects over 1,000 species and 200 habitats and gives special protection to Special Areas of Conservation (SACs) which form part of the Natura 2000 network. This directive was transposed into UK law under the Conservation of Habitat and Species Regulations 2010.
- Marine and Coastal Access Act 2009 - makes provisions for better systems in improving marine and coastal nature conservation and biological diversity by requiring the creation of sustainable development of marine and coastal environment.
- Natural Environment and Rural Communities (NERC) Act 2006 - Section 40(1) imposes a duty on public bodies to conserve biodiversity.
- Countryside and Rights of Way (CROW) Act 2000 – gives the importance of biodiversity conservation a statutory basis; gives local authorities a statutory duty to further the conservation and enhancement of SSSI both in carrying out their operations, and in exercising their decision making functions; strengthens the legal protection for threatened species and brings up to date the Wildlife and Countryside Act 1981.
- Wildlife and Countryside Act 1981 (as amended) provides detail on a range of protection and offences relating to wild birds, other animals, and plants.

Kent Environment Strategy (KCC, 2016) confirms the county-level importance of biodiversity, flora and fauna, stating as an objective the need to, "Conserve and enhance the quality and supply of the county of Kent's natural and historical resources and assets".

2.1.3 Key Issues

There are many road related pollution or infrastructure development issues which can and do cause damage to habitats and have the potential to negatively affect European, National and local sites of nature conservation value. The main ways in which the existing transport network may impact on biodiversity and wildlife are pollution in the form of noise, air and water contaminants. These may be dispersed many meters away from a diffuse source, such as a road, and cause harm or degradation to the quality of a habitat. Further disturbance of the ecosystems can come as a result of noise and light affecting the migratory or hunting patterns of animals, in particular bats.

The movement of both vehicles and ships can cause damage to individuals within the habitats they pass though (e.g. road kill, tree strikes, benthic layer damage from ships' hulls). Injury of vegetation from vehicle movements enhances the dispersal and movement of weeds, opening the way for intrusive species and disrupting the ecological balance of the ecosystems; concurrently bilge water discharges and anchor dragging from cargo operations in ports may result in the suffocation or displacement of marine life on the seabed in the vicinity of trade routes.

A more significant threat to a habitat is the way road schemes have the potential to result in the loss or fragmentation of key strategic nature areas, impacting on protected or BAP species. Habitats such as ancient or species rich hedgerows, road verges, ditches and other linear habitats are especially at risk. Targeted action within these areas, either in terms of buffering or linking habitat patches or increasing the permeability of flora and fauna to their surrounding landscapes, has the potential to result in large scale functioning of ecological networks, which will allow BAP species and habitats to thrive and be resilient to climate change.

2.1.4 Future Trends

A reduction in the number of Natura 2000 and SSSI sites meeting PSA targets, reflecting a continued decline in biodiversity within the county, in contradiction to the recommendations set out by the BAP possibly resulting in a de-listing of important sites for nature and in extreme cases localized extinction of "at-risk" species.

2.1.5 Gaps and Uncertainties

In order to implement targeted conservation measures, strategic nature areas and critical species present within or near to the Kent transport network that are likely to be affected by the LTP must be identified. Without the latest concise mapping of the precise boundaries and nature of the LTP4 as well as the current ecological states of protected lands and biodiversity make predicting effects in specific areas, and therefore suggestions for mitigation, difficult.

2.2 Air

2.2.1 Baseline

Transport is a significant contributor to poor air quality and its associated health problems in Kent, as evidenced by Kent's 39 declared Air Quality Management Areas (AQMAs); the majority of which are located on main roads or motorways. They have additionally been declared in town centres of Canterbury and Tunbridge Wells, the docks at Dover, Tonbridge Town centre, A20/A25 corridor in Tonbridge and Malling, and areas of Maidstone and Thanet (see Figures 3 & 4). The M25, M20, M2 and A299 are major transport corridors with the heaviest traffic flows between Kent's town centres.

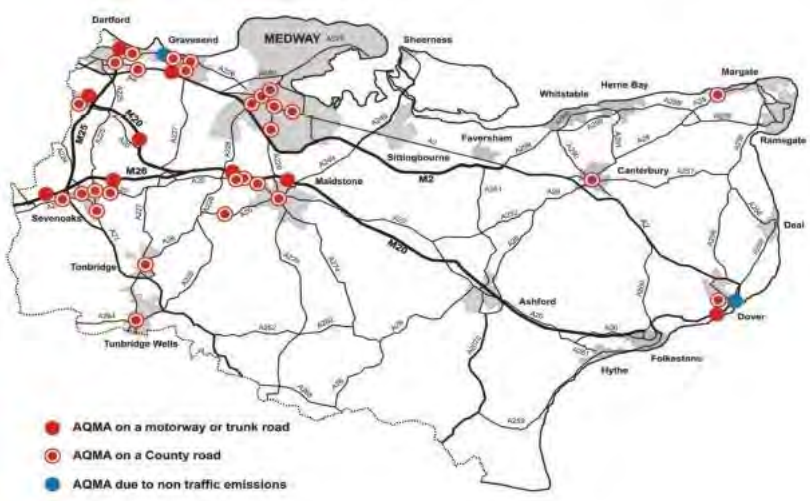

Figure 3: AQMA locations in Kent (Motorways, County Roads and non-road sources)

Causative emissions from industrial sources are comparatively well regulated and minor compared to those from motor vehicles, due to the extensive road network crossing the county. The key pollutants which affect human health and are of most relevance to the SEA of the LTP4 are Nitrogen Dioxide (NO_2) and PM10 (Particulate Matter up to 10 micrometres in size). Poor air quality as a result of these pollutants may result in more than 32,000 premature deaths in the UK per year. These figures demonstrate the importance of good planning to help bring about improved air quality. Kent, despite recent improvements, still contains some of the worst air pollution in the UK. The most recent ratified data for Kent is presented in Table 6, below.

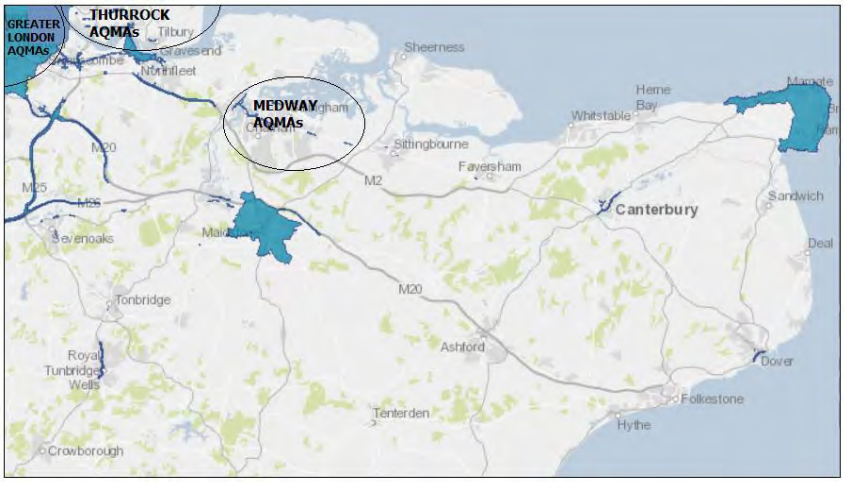

Figure 4: AQMAs in Kent
(shown in blue – some not visible due to scale)

2.2.2 Policy Context

International legislation and conventions have been instrumental to reducing air pollution; most relevant on an EU level was the passing of the Air Quality Framework Directive (96/62/EC) and its amendment Directive (2008/50/EC). These set the limits of seven pollutants: Sulphur Dioxide - SO_2, Nitrogen Dioxide - NO_2, Lead - Pb, Benzene - C6H6, Carbon Monoxide - CO, Butadiene - C_4H_6, Ozone – O_3 and Particulate Matter – $PM_{2.5}$ & PM_{10}. All of which were included into the Air Quality Standards Regulations 2002.

On a local level, the Environmental Protection Act 1990 requires that statutory nuisance is not caused, for example by dust during construction. Additionally, the Environment Act 1995 sets out the statutory duties for the local authorities in assessing air quality in the Local Air Quality Management (LAQM) process. The process allows a review of whether the national air quality objectives (minus ozone) are likely to be met.

An Air Quality Management Area (AQMA) is declared where exceedances of the objectives are likely to or have occurred. To tackle the problem Air Quality Action Plans (AQAP) are written to set out measures to reduce pollution and propose actions to reduce pollution to achieve national air quality objectives. These are District-level documents, with KCC an important stakeholder and implementation partner in working towards meeting transport-related air quality objectives. Local transport plans (LTPs) allow transport policies at the local level to take air quality into consideration and mitigate or improve atmospheric levels.

Kent Environment Strategy (KCC, 2016) has air quality supporting objectives, including the need, "improve our resource efficiency such as energy, water and land" and to "support sustainable access and connectivity for businesses and communities".

Table 6: Comparison of 2014 data with Air Quality Strategy Objectives
(KMAQM, 2014)

	CO	NO_2		O_3	PM_{10}		SO_2		
Period	Running 8-hr mean	1-hr mean	Annual mean	Max daily running 8-hr mean	24-hr mean	Annual mean	24-hr mean	1-hr mean	15-min mean
Objective	10 mgm^{-3}	200 μgm^{-3}	40 μgm^{-3}	100 μgm^{-3}	50 μgm^{-3}	40 μgm^{-3}	125 μgm^{-3}	350 μgm^{-3}	266 μgm^{-3}
Exceedance Object	-	18	-	10	35	-	3	24	35
Roadside									
Canterbury Military Road	-	0	28	-	-	-	-	-	-
Canterbury Roadside	-	0	33	-	-	-	-	-	-
Canterbury St Peter's Place	-	0	42	-	-	-	-	-	-
Chatham Centre Roadside	-	0	25	-	15	21	-	-	-
Dartford Bean Interchange Roadside	-	4[a]	51[a]	-	11[a]	27[a]	-	-	-
Dartford St Clements Roadside	-	51[a]	61[a]	-	11[a]	25[a]	-	-	-
Dartford Town Centre Roadside	-	20[a]	44[a]	-	13[a]	24[a]	-	-	-
Dover Centre Roadside	-	-	-	-	0[a]	24[b]	-	-	-
Gravesham A2 Roadside	-	0	31	-	6	18	-	-	-
Maidstone A229 Kerbside	-	2	47	-	7[a]	18[b]	-	-	-
Swale Canterbury Road	-	2	34	-	-	-	-	-	-
Swale Newington 3	-	1	33	-	-	-	-	-	-
Swale Ospringe Roadside 2	-	0[a]	41[a]	-	4[a] [b]	18[a] [b]	-	-	-
Swale St Pauls	-	2	34	-	-	-	-	-	-
Thanet Birchington Roadside	-	0	31	-	6	21	-	-	-
Thanet Ramsgate Roadside	-	0	26	-	13	25	-	-	-
Tonbridge Roadside 2	-	2	47	-			-	-	-
Tunbridge Wells A26 Roadside	-	0	48	-	3[a]	19[a]	-	-	-
Background and Industrial urban/background									
Canterbury	-	0	12	25	0	18	-	-	-
Chatham Luton Background	0	0	22	-	0[a]	15[a]	0	0	0
Gravesham Industrial Background	-	0	24	-	11	19	-	-	-
Thanet Airport	-	0	16	-	-	-	-	-	-
Gravesham Industrial Background	-	0	24	-	11	19	-	-	-
Rural									
Maidstone Rural	-	0	12.3	2	18	25	0	0	0
Rochester Stoke	-	0	14.4	14	7	18	0	0	0

[a] Annual data capture less than 75 %.
[b] PM_{10} data from TEOM analysers VCM corrected.

2.2.3 Key Issues

Predicted increasing numbers of vehicles and levels of congestion could lead to increasing concentrations of atmospheric pollutants within the already designated AQMAs. This could also lead to an increase in the spatial area of the AQMA. In relation to the specific pollutants as measured by the Kent and Medway Air Quality Monitoring Network (KMAQMN) from over 30 monitoring stations since 1997 the following summarises trends associated with a number of pollutants deemed to be particularly relevant to transport.

Carbon monoxide (CO) - No site in Kent has exceeded the EU levels for CO since pre-2000. The significant reduction in CO concentrations in Kent and in the UK as a whole has been attributed to the use of vehicles with clean burn engines and catalytic converters.

Ozone (O_3) - For fifteen years the Kent rural and urban maximum average ozone level has been dropping, however starting in 2012 the rate has rapidly risen to an all-time high of 75µg/m^3. This can be attributed to the rise in summer temperatures and average number of sunny days in summer which create ozone from precursor pollutants emitted by transportation.

Particulate matter (PM2.5 & PM10) - Concentrations are not just limited to areas that are particularly high in traffic. Saharan dust and European forest fires also contribute so readings can be dependent on continental dust generation levels. As a result PM10 concentrations in Kent come from non-local sources (mainly from London and mainland Europe) thus it is difficult to reduce the annual average reading for Kent to below 40µg/m^3. Dover due to its proximity to the continent and dense road and port infrastructure has the highest readings in the county.

Nitrogen dioxide (NO_2) - For sixteen years there has been very little variation in NO_2 concentrations, with all but two roadside stations (Gravesham and Dartford) meeting the annual mean objective of less than 40µg/m^3. As a pollutant emitted by road vehicles, it is unlikely to decrease without significant reductions in vehicle numbers. However, if an increase in population leads to more private car journeys and additional vehicle kilometres to service this population then NO^2 levels will increase.

Sulphur dioxide (SO_2) - The sources of SO_2 in Kent are power generation and industry located to the north of the county and shipping to the east. Modern scrubbing technology has reduced industrial emissions of SO_2 resulting in minor fluctuations, all within the air quality targets. The exceptions are believed to be the result of shipping traffic along the coast.

The overall trend of air pollution in Kent is shown in Figure 5, which is a count of the days when pollution from the above-detailed pollutants was rated as moderate or greater. Whilst overall there is a moderate downward trend in air pollution, the spikes seen in 2003 and 2011 to 2013 can be attributed to the sunny weather exacerbating the climatic conditions that trap or generate pollutants.

2.2.4 Future Trends

Despite the passing of EU Directive 2005/33/EC on the sulphur content of fuels limiting the amount in diesel to 1.5% from 4.5% in 2010 and the tightening of other legislated pollutant levels; high levels of housing development planned for Kent to house a growing population and the creation of more road acreage will lead to proportionally more cars so there will be a potential for air quality to worsen on major transport corridors.

2.2.5 Gaps and Uncertainties

The volume of traffic and town centre congestion is not just influenced by transport interventions or changes in the local population. The economy can influence traffic flow while industrial and trans-boundary (i.e. continental) emissions make source apportionment and modelling difficult.

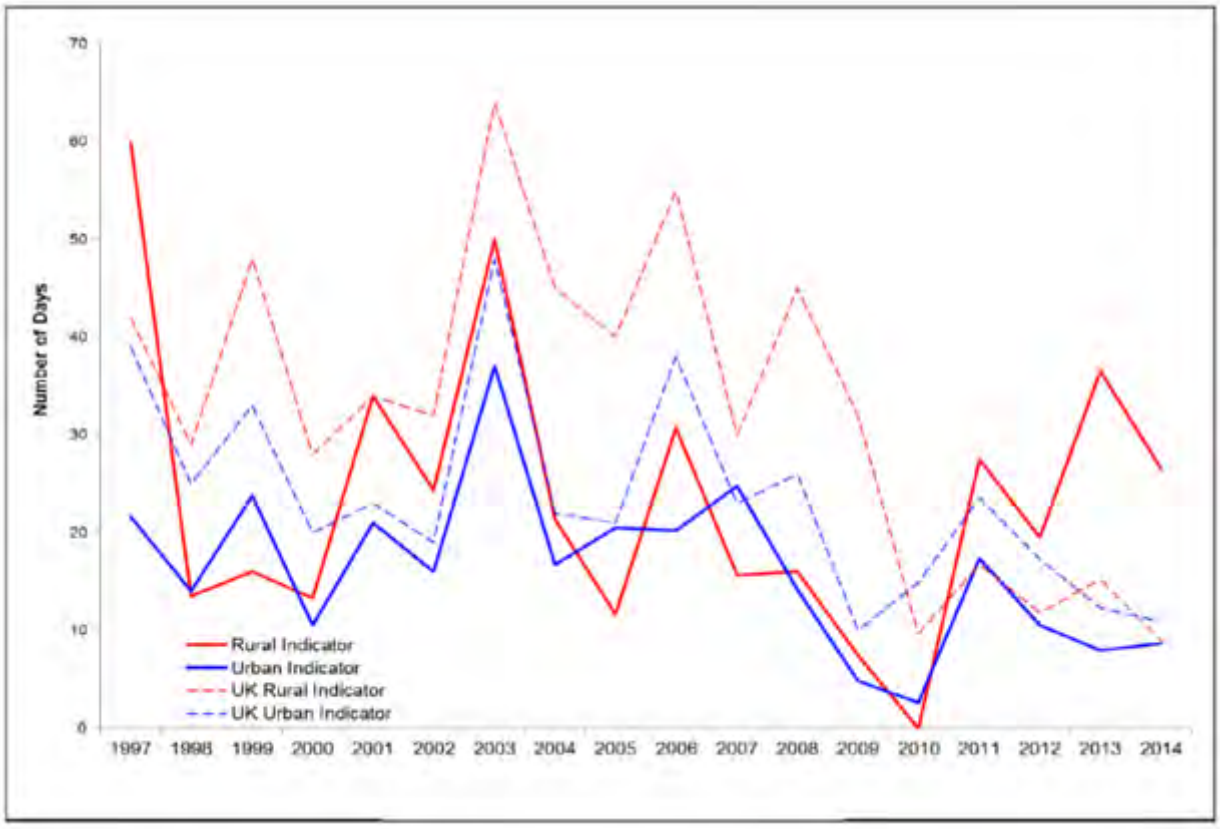

Figure 5: Air quality for Kent & UK

Number of days with "moderate" or higher concentrations

2.3 Human Health

2.3.1 Baseline

Transportation and the access it can provide to vital services, such as hospitals, employment and community amenities, makes it a significant factor in the health and wellbeing of Kent's populous. Conversely, environmental impacts such as noise and air pollution of some modes of transportation negatively affect morbidity and mortality. Therefore it is vital to consider human health when altering transport policies in order to target inequalities and positively impact on human health, rather than inadvertently worsening them.

2.3.2 Policy Context

Human Health is a statutory consideration within SEA. In order to fully address this consideration, Health Impact Assessment (HIA) is to be undertaken separately and will be integrated into the SEA.

The Health Act 1999 places a duty on the health agencies and local authorities to "secure and advance the health and welfare of the people". Government aims to simultaneously improve the health of everyone, whilst also focusing efforts on improving the health of the worst- off in

particular. Additionally the White Paper Choosing Health 2004 in conjunction with the Walking and Cycling Action Plan 2004 further emphasise the importance of shifting from travelling in cars to walking and cycling, providing an alternative forms of transport that can be part of the daily exercise routine as a way of improving health.

Further schemes such as Healthy Weight - Healthy Lives 2008, incorporating the School Transport Bill, calls for an improvement to cycling infrastructure, and improving skills in frontline personnel to deal with children's weight and investing in a Walking into Health campaign At a more local level, Annual Public Health Reports are produced which focus on health issues within individual areas.

The Health and Social Care Act 2012 provides a new focus on Public Health and related inequalities and wider determinants, with transport being explicitly identified as such: Transport policy can have considerable input with regards to tackling obesity, promoting healthy and active lifestyles, supporting independent living and reducing death/injury from road accidents, as well as reducing polluting emissions. Local authorities are given responsibility for improving health and wellbeing in their areas by the Act.

Kent Environment Strategy (KCC, 2017) has human-health supporting objectives, including the need to, "support sustainable access and connectivity for businesses and communities".

2.3.3 Key Issues

The predicted rise in Kent's housing requirement could lead to an increase in congestion, and careful planning will be required to ensure that options for public transport and road improvements are fully explored in order to manage this potential problem. Not only does congestion cause difficulties for travellers such as pedestrians, cyclists and the disabled but it also adversely affects the quality of life for those living close by through noise and air pollution and road safety impacts.

When it comes to the health of the county overall, the total mortality rate has been dropping from 13,000 deaths per 100,000 in 1995 to 950 per 100,000 in 2013; this is in line with the UK national average (Figure 6). Using the latest data, cancer of all kinds is the largest cause of death at 29% of the total mortality rate, followed closely by cardiovascular disease (28%) and respiratory disease (14%). All except respiratory disease have been following a downward trend, which in line with the UK average has stagnated. Poor air quality can be a trigger for more aggressive symptoms in those who are already sick and can in some cases cause illness itself.

The prevalence of obesity is increasing; in the UK 26% of all men and women are obese (BMI 30 kg/m^2 or more) and 68% of men and 58% of women are overweight or obese (BMI over 25 kg/m^2 but less than 30 kg/m^2). The percentage of adults in England who have excess weight (overweight and obese combined) is 63.8%

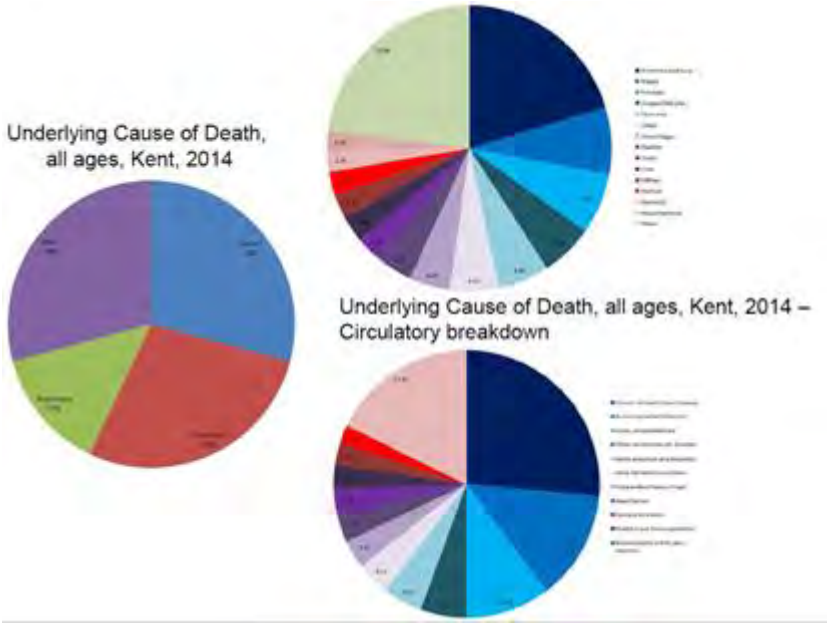

Figure 6: Underlying cause of death for all persons

In Kent, 27% of the population are obese. This figure rises in the Isles of both Sheppey and Thanet to 35%, and is also the site of Kent's most deprived citizens, where high unemployment, smoking, binge drinking and poor diet devalue the quality of life in 80% of households. In Kent the excess weight rate is 64.6%: This translates into 771,476 people across Kent aged 16 and above. Obesity tends to track into adulthood, so obese children are more likely to become obese adults.

Total road deaths in the county have dropped from 6,460 in 2007 to 5,645 in 2014. While better engineering and speed reductions are critical in improving road safety for all users, the most effective way to reduce the potential risk of accidents has been proven to be educational programmes which involve regional and local cooperation.

2.3.4 Future Trends

If the consequences to human health are not considered, alterations to the transportation network could have negative impacts. For example, changes in noise and air pollution due to the proximity to transport infrastructure, water quality, climate change impacts, and access to fresh food would result in a direct effect on human health and wellbeing.

Reduced availability of modes of travel other than private car (such as cycling and walking, which enhance health) affects the local economy by altering access to employment and key services including health facilities, shops and the countryside/local green spaces.

2.3.5 Gaps & Uncertainties

Uncertainty exists as a result of the breadth of determinants of health and wellbeing and the complex interrelationships between influences and risk factors.

2.4 Climatic factors

2.4.1 Baseline

Climate change refers to the slow increase in the global average temperature which, due to anthropogenic factors, has accelerated over the last century resulting in a warming of 0.74ºC over that period and a rise in the UK's sea levels by approximately 1.2mm every year. The anthropogenic actions considered responsible for this are emissions of greenhouse gases (GHGs) including carbon dioxide and methane. In the UK around a quarter of the CO_2 emissions are from transport. Globally higher temperatures increase the available energy in weather systems resulting in more numerous and intense extreme weather conditions such as flooding and droughts. GHGs remain in the atmosphere for centuries, providing inertia even if the GHG emission levels were immediately reduced to historic norms. As a result, human systems must adapt to the new circumstances and where possible assist natural systems to do the same; meanwhile militating against further GHG emissions.

KCC has since 2008 participated in the 'PACT organisational capacity building framework', in addition to the well-established Climate Change Programme created following Kent's inclusion into the Nottingham Declaration framework. However, Kent still faces a challenge when it comes to reducing its GHG outputs and reinforcement of existing infrastructure against the effects of a changing climate.

2.4.2 Policy Context

UK climate change policy can be summarised as reducing greenhouse gas emissions and adapting to climate change. Starting with the Kyoto Protocol in 1997, the UK Government has enforced more stringent and legally binding carbon dioxide reduction targets. The Climate Change Programme 2006 and the Climate Change Act 2008 are examples of the UK's commitment to reducing net carbon release by 80% from 1990 to 2050. The key drivers of this ambitious reduction is investment in greener transportation in the form of electric vehicles and increasing

availability of alternatives to private car road travel in the form of cycle ways, paths and public transport.

Kent Environment Strategy (KCC, 2017) has climate supporting objectives, including the need to, "improve our resource efficiency such as energy, water and land" and to, "improve the county of Kent's environmental, social and economic resilience to environmental change".

2.4.3 Key Issues

According to the Intergovernmental Panel on Climate Change (IPCC), "Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperature, widespread melting of snow and ice and rising global average sea level."

Kent's Local Climate Impacts Profile indicates that the County has seen 52 significant weather events over the last 14 years; 22 of these, caused by heavy rain, have incurred the county £30 million in direct costs.

In 2007 the rate of Kent's GHG emissions was 9 tonnes per person. This figure is above the South East regional average (8.6 tonnes per person in 2007), but in line with the national average. The main sources of Kent's emissions are industrial and commercial (42%), domestic (29.5%) and road transport (26.5%).

2.4.4 Future Trends

In the South East of England we expect climate change to lead to greater volatility of weather - more intense downpours, more severe droughts and floods, more extreme heatwaves. The predictions for Kent up to the year 2050 under the assumption of a continuation of a medium emissions scenario include:

- Winter mean temperature increases by 2.0°C
- Summer mean temperature increases by 2.6°C
- Winter mean precipitation increases by 13%
- Summer mean precipitation falls by 14%
- Up to 76cm sea level rise (by 2095)
- Overall increase in temperature and rainfall variability

These predictions are of particular concern to Kent, as due to its geographic location and long coastline, it is expected to be affected from climate change more than other parts of the UK. The high summer temperatures and low rainfall could adversely affect the local water supply as well as the human health impacts of heat-related illness, water borne and air borne disease and

asthma like symptoms linked to air quality incidents, triggered by more frequent and extreme heat-waves.

Additionally the increase in winter precipitation creates an exacerbated risk of flooding both from fluvial sources and rising sea levels; a combined factor of polar ice melt and isostatic rebound. This risk of coastal flooding puts approximately 10% of Kent's population at risk. Consequently £25 million is invested annually for flood defence across Kent and East Sussex, and the Kent coast is covered by three Shoreline Management Plans (Medway Estuary and Swale, Isle of Grain to South Foreland and South Foreland to Beachy Head) and eight coastal strategies.

Parts of the region's transport network and several key interchanges lie within Flood Zone 2 (current 0.1% chance of flooding). More frequent flooding and heatwaves and sea level rise are likely to result in increased damage to road and rail infrastructure within such areas and may affect the reliability of the networks and services. The government has prioritised the need to improve the long-term resilience of new and existing infrastructure networks in the transport sector.

2.4.5 Gaps & Uncertainties

Predicting the effects of climate change to any degree on a local level is complex, dependent on future GHG emissions and their effect worldwide. How to model their change to the climate and influence the weather is also uncertain. Further research and climate modelling may be needed to begin to understand the wider implications of climate change on the local transport network.

2.5 Population

2.5.1 Baseline

By ensuring that Kent has a robust transport network it will allow residents to have access to jobs and services, therefore it is essential changes in population and travel patterns are monitored to be aligned with the proposed transport priorities. As of 2014, the population for the county is estimated to be in the region of 1,510,400. According to the KCC mid-2014 data (July 2015) Maidstone has the largest population of all Kent districts, with a population of 161,800, however Dartford has the smallest with 102,200 individuals. The population of Kent is projected to grow between 2016 and 2033, rising by 13.8% to 1,734,600 in 2033. This growth is partly due to natural increase (more births than deaths) and net migration into the county. Kent also has an aging population.

2.5.2 Policy Context

The DfT promotes equality of opportunity (goal five, as indicated in the DfT paper: 'Towards a Sustainable Transport System') ensuring that transport systems provide effective access for everyone, including disadvantaged groups and disabled people, to jobs, services and social networks. Individual life-chances can vary hugely depending on birth and geography: average household income varies widely between regions, and there are pockets of deprivation in even the most affluent areas. LTP4 will need to consider where transport improvements can help redress inequalities of this kind and prevent poor accessibility from reinforcing wider social exclusion. Tackling disadvantage in local areas is a key government ambition which is best realised through a collaborative approach with local authorities, as they best understand their residents. Transport is a key driver for achieving wider aims, but accessibility does not just relate to transport. Level of access depends on a number of factors: where people live, where services are located and affordability of transport in the area.

The DfT's 'Guidance on Local Transport Plans (July, 2009) stipulates the need for local authorities to consider the transport needs of older people and people with mobility difficulties when developing local transport plans. According to the legislation (The Local Transport Act 2008) regard has to be given to disabled people, in both phases of development and implementation. The government is keen to improve access to and safety on public transport, more notably for allowing provisions that assist disabled people in accessing public transport. An example is to ensure there are sufficient levels of wheelchair accessibility within taxis across England and Wales and that wheelchair users receive the necessary assistance from drivers when they hire a taxi suitable for them. The government is also planning for the carriage of mobility scooters on public transport.

The government recognises the need to encourage the public to travel more sustainability and ensuring cycling, walking, car sharing and public transport are viable options over the private car. The government believes, however, these changes can only be delivered at a local level, for example by citizens working together to help shape the delivery of local transport solutions that meets the needs of local people and therefore create growth. The government also lobbies that these solutions are tailor-made for the places they serve and individual needs, alongside behavioural patterns of individual communities.

Kent Environment Strategy (KCC, 2017) has population-supporting objectives, including the need to, "improve our resource efficiency such as energy, water and land", "support sustainable access and connectivity for businesses and communities" and, "supporting growth in the economy with a focus on low carbon, environmental services and rural sectors".

2.5.3 Key Issues

As described above, the population of Kent is forecast to grow in the coming years and in addition has an ageing population with the total number of males and females who are 65 and over set to increase by 46% between 2016 and 2033. As highlighted in the Kent and Medway Growth and Infrastructure Framework (2015) as the population ages infrastructure requirements will alter, particularly in terms of more emphasis on health care systems as opposed to housing demand. The number of working age residents will decline by 4% in their total stake of the population by 2031, whereas the elderly will increase their share by 5%.

The English Indices of Deprivation (2015) is a measurement tool which highlights the scale of deprivation in small areas (lower-layer super output areas) across England. The following results were displayed for Kent below:

- Kent ranked 104th out of 152 authorities in England as a deprivation rank. (One being the most deprived).
- Out of all districts within Kent, Sevenoaks was the least deprived and Thanet was the most. Nationally this equates to being 26th out of 326 (Thanet) local authorities districts across England. Sevenoaks is ranked 274th out of 326. This clearly shows Thanet is relatively deprived in Kent and nationally.

The ONS 2011 Census Analysis 'Method of Travel to Work in England and Wales' Reports, in the South East 66.8% use road vehicles as a method of travelling to work, however only 12.1% use public transport and 13.9% choose to walk or cycle. Accessibility to public transport is much simpler for residents living in urban areas than rural. The rural population is also restricted in accessing jobs and services by factors such as distance, travel time and lack of transport.

2.5.4 Future Trends

Growth pressures across the south east, and particularly in London, mean that over the coming years the importance of London as a destination for Kent's residents is likely to grow. Analysis undertaken for the GIF (2015) forecasts that 17% of all new commuting trips across Kent will be destined for London, a large proportion of which will be by rail. Therefore, the importance of connectivity to support sustainable growth across Kent cannot be overstated.

The implications of a growing population will put pressure on community services and potentially put more private car users on the road, therefore contributing towards pollution. Another implication of an ageing population is that those older residents who live in rural areas of the county will have limited travel options, particularly as there are less regular public transport services in those areas and they are less likely to drive.

Rural Kent also has an ageing population with more middle-aged residents and fewer individuals from the younger generation. This will have implications for transport planning, community activities, housing needs and social care provision.

The areas in Kent that are suffering from deprivation are restricted by affordable travel and if this continues there will be limited scope for these residents to access public transport or use a private vehicle in order to approach employment and access other key services, such as health.

There are only a small number of active travel users within Kent and more private road vehicles as a method of travelling. The continuation of this will increase pollution, and neither support healthy lifestyles or a reduction in obesity levels.

2.5.5 Gaps & Uncertainties

Trends and travel habits within the Kent population will need to be closely monitored going forward, as needs can change and therefore transport within the county should reflect that.

2.6 Water

2.6.1 Baseline

North Kent falls in the Thames River Basin District (RBD), which contains a total of 545 surface and ground water bodies (Table 7). Within Thames RBD, the ecological status of surface waters has worsened since 2009, although groundwater quality and chemical status of surface waters have shown some improvement (Table 8). South Kent falls in the South East RBD, which contains a total of 315 surface and ground water bodies (Table 9). In the South East RBD, trends in water quality mirror those in the Thames RBD (Table 10).

Table 7: Water bodies in Thames RBD

Water body categories	Natural	Artificial	Heavily modified	Total
Rivers, canals and surface water transfers	287	21	106	414
Lake	7	47	19	73
Coastal	0	0	1	1
Estuarine	1	4	5	10
Groundwater	47	0	0	47
Total	**342**	**72**	**131**	**545**

Table 8: Water quality in Thames RBD

Percentage of water bodies at good or better status	2009	2015 predicted	2015 actual
Surface water ecological status	23	25	14
Surface water chemical status	13	14	18
Groundwater quantitative status	35	35	57
Groundwater chemical status	43	46	63
Overall status	23	25	17

Table 9: Water bodies in South East RBD

Water body categories	Natural	Artificial	Heavily modified	Total
Rivers, canals and surface water transfers	138	13	69	220
Lake	2	16	10	28
Coastal	2	0	9	11
Estuarine	1	5	17	23
Groundwater	33	0	0	33
Total	**176**	**34**	**105**	**315**

Table 10: Water quality in South East RBD

Percentage of water bodies at good or better status	2009	2015 predicted	2015 actual
Surface water ecological status	19	22	14
Surface water chemical status	11	11	13
Groundwater quantitative status	43	43	57
Groundwater chemical status	63	63	50
Overall status	20	23	16

In both RBMPs, "Urban and Transport" is identified in 2015 as negatively influencing numerous physical and chemical water quality determinants: The transportation network and its associated construction create hundreds of hectares of impermeable areas which can adversely affect water quality and flow. From small steams to the main rivers, all levels of a catchment area are at risk from contamination by silt, engine oil, tyre rubber, de-icing salt, and metals. In addition to these

chronic diffuse pollution sources there is the risk of occasional acute point source spillages of pollutants in the event of accidents. During long dry periods pollutants accumulate on impermeable surfaces and lead to highly polluting surface water run off when it rains.

Impermeable surfaces promote rainwater run-off and prevent infiltration into soil and hence reduce recharge to groundwater; these in turn contribute to both flooding of low lying areas, and water shortages due to depleted aquifers. The nature and severity of these is affected by the design of the existing highway drainage systems and the transport infrastructure such as the roads' construction.

2.6.2 Policy Context

The EU Water Framework Directive (WFD) unifies the management of European rivers, and the transposed UK legislation Water Environment (WFD) Regulations 2003 aim to reach a good overall status in inland, groundwater and coastal waters by 2015 in accordance with the directive. Objectives include promoting the sustainable use of water, reducing the pollution of water by priority substances, reducing groundwater pollution and enhancing existing wetland ecosystems. These are delivered at River Basin District level by River Basin Management Plans.

The Flood and Water Management Act 2010 aims to provide better management of risk associated with flooding and coastal erosion for people, environment and infrastructure. Catchment Flood Management Plans (CFMP) are an important element of flood risk management both fluvial, pluvial and coastal. CFMPs are being superseded by Flood Risk Management Plans. In conjunction with Shoreline Management Plans (SMPs) these aim to communicate the factors that contribute to flood risk within a catchment/shoreline both now and in the future so that recommendations can be made for managing flood risk over the next 50 to 100 years.

Finally, many local authorities have completed Strategic Flood Risk Assessments (SFRA), and a regional SFRA for the South East England Region has also been completed. When considering the proportions of the districts with more than 10% of their area within Flood Zone 3 (from the sea by a flood that has a 0.5 per cent (1 in 200) or greater chance of happening each year; or from a river by a flood that has a 1 per cent (1 in 100) or greater chance of happening each year: see Figure 7) it indicates a relatively high level of inherent flood risk across the Kent area. This requires the adoption of a risk-based approach to development proposals in which it is only permitted if it passed the Sequential and Exceptional Tests.

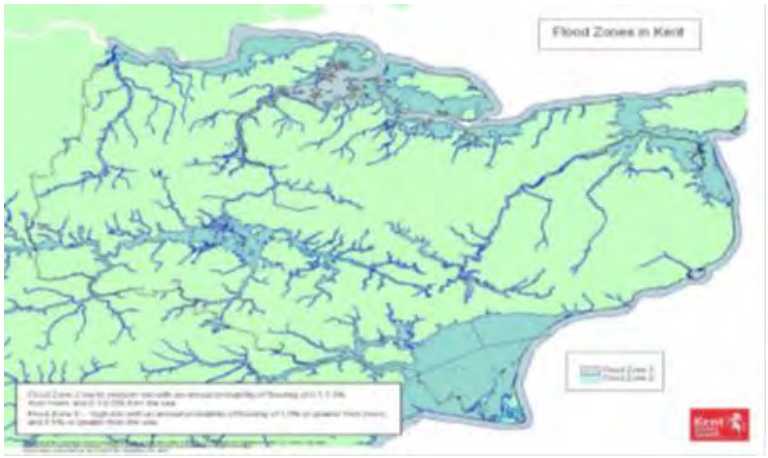

Figure 7: Land at risk from flooding from rivers and the sea in Kent

A number of detailed plans and strategies have been published by the Environment Agency for the southern region of the UK; these include the River Basin Management Plans – for the Southeast River Basin District and the Thames River Basin, the Water Resources Strategy Regional Action Plan (required due to the excessive abstraction in the region), Catchment Abstraction Management Strategy (CAMS). Additionally Natural England is promoting a Catchment Sensitive Farming initiative.

Kent Environment Strategy (KCC, 2017) has water-supporting objectives, including the need to, "improve our resource efficiency such as energy, water and land".

2.6.3 Key Issues

The high rate of intensive farming for many years and encroaching urbanisation has put strain on the water abstraction in Kent, particularly in the Isle of Thanet. There, the treatment of polluted ground water is necessary and abstraction for human use has lowered the water table within the chalk aquifers to a point where the unique habitat of chalk streams are dry during hot weather, damaging the wildlife that live in a habitat with only 210 known examples worldwide.

Over 50,000 properties in Kent are currently at risk of flooding. The impact of this could increase when considering the population that may be unable to escape in the event of flooding as transport infrastructure is overwhelmed.

The Regional SFRA has identified two areas as particularly vulnerable to flooding: Ashford and the Kent Thames Estuary. Ashford has both a high flood risk and high levels of proposed development. Historically, Ashford has been particularly vulnerable to fluvial flooding since runoff from the higher ground converges into the town via the East Stour, the Great Stour, Ruckinge Dyke, Whitewater Dyke and Aylesford Stream. Ashford has suffered several fluvial flood events over the last 50 years, both within the town and, particularly, to the south of the town.

The Kent Thames Estuary is an area with high flood risk, particularly the low lying areas behind the sea defences, which are at risk from tidal flooding that may cause rapid inundation of the land.

2.6.4 Future Trends

Due to the development of infrastructure there will be an increase in the area of impermeable ground surfaces and consequently this could lead to an increase in surface water runoff and potentially higher flood risk. Due to climate change it is likely that winter flooding is to increase (see Climate Change) and widespread flooding has the potential to impact on communities due to disruption to services and transport.

Water quality is now a priority due to the introduction of the WFD, and demands that new infrastructure proposed for the LTP4 be built to standards that mitigate diffuse pollution. However, the potential increase in use of existing infrastructure due to the expansion of road capacity could impact on water quality also. This may not be designed to the current best practice for water quality preservation and could therefore lead to a deterioration of water quality. Further, current drainage systems may not be designed to best practice and therefore will be unable to adapt to the potential impacts of climate change and increased impermeable area. Conversely, sustainable drainage systems can reduce flood risk by storing rainfall and allowing it to percolate through the soil.

2.6.5 Gaps & Uncertainties

Prediction of flood risk in Kent carries uncertainty due to the different climate impact scenarios.

2.7 Cultural Heritage

2.7.1 Baseline

Kent as the historical gateway to continental Europe from Britain has a rich history of archaeology which includes the oldest evidence of human occupation, starting over half a million years ago. Kent has a large selection of protected cultural heritage features (Table 11) ranging from listed buildings to the World Heritage site at Canterbury where the cathedral, St Augustine's Abbey and St Martin's Church provide the visual record of the introduction of Christianity to Britain. Kent's wider historic landscape gives local distinctiveness that is essential to the character of its towns, villages and countryside.

Table 11: The number of Kent's protected cultural heritage assets

Listed Buildings	Scheduled Ancient Monuments	Historic Parks & Gardens	Conservation Areas	World Heritage Sites
1,406	400	61	>150	1

In addition to this Kent has an extensive record of archaeological finds from known hotspots and discoveries reported by the public. The risk of loss or damage to Kent's historic environment comes from many threats, large and small. From the accumulation of land-take or neglect of buildings eroding their value, to the loss of the cultural heritage features in redevelopment projects, of which transport infrastructure is capable of. It is essential to minimise harmful impacts via good practice. Equally transport schemes can uncover remains, which is properly managed can add to our understanding of the historic environment.

2.7.2 Policy Context

The Council of Europe produced The Valletta Treaty, which protects European archaeological heritage. This includes remains, objects and any other historic traces of mankind. There are many reasons why cultural heritage is considered valuable and therefore should be protected.

When it comes to legislation within the UK, general protection is afforded by the guidelines set out in Planning for the Historic Environment which defined a heritage asset as "a building, monument, site, place, area or landscape positively identified as having a degree of significance meriting consideration in planning decisions and described sustainable practices around historical resources." This and its recommendations have been superseded by the National Planning Policy Framework NPPF, which condenses and simplifies the recommendations of parliament into a step guide for local authorities.

A selection from the text states "local planning authorities should take into account the desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation," which is followed by statements on the importance of creating a sense of place in the landscape due to the wider social cultural economic and environmental benefits that conservation of the historic environment can bring.

It also describes how new development must make a "positive contribution to local character and distinctiveness" and consider clashes between conservation and development. However, "here a development proposal will lead to substantial harm to or total loss of the significance of a designated heritage asset, it should be refused, however this harm should be weighed against the

public benefits of the proposal if the site prevents all reasonable use as is or prevents all reasonable use."

The Ancient Monuments and Archaeological Areas Act 1979 gives powers to schedule monuments and require consent for activities within the scheduled area, and hence grants strong protection with the risk of a criminal conviction to historic ruinous assets and areas.

Heritage protection extends underwater with the Protection of Wrecks Act 1973, as recreational diving and undersea infrastructure and shipping threaten significant wreck sites off the coast of the UK. This is supplemented by the later Protection of Military Remains Act 1986 which provides automatic protection of downed military aircraft and the ability to register sunken vessels as war graves preventing damage or salvage.

Kent Environment Strategy (KCC, 2016) has cultural heritage-supporting objectives, including the need to, "conserve and enhance the quality and supply of the county of Kent's natural and historical resources and assets", and to "support sustainable access and connectivity for businesses and communities".

2.7.3 Future Trends

The LTP4 and other development have the potential to compromise local distinctiveness and historical assets which are essential to the character of Kent's towns, villages and countryside to meet the increasing demands on the transport system by the growing pressures of population growth and economic renewal.

Development that homogenises a landscape or obscures its history is removing an irreplaceable resource that can affect other service industries like tourism. However an increase in tourism and therefore the number of visitors to the area would also be potentially damaging due to an increase in vehicle emissions, which on a local level can damage buildings and contributes to global CO_2 emissions.

Dredging out new shipping channels or increasing the rate of passing ships can damage the underwater heritage of Kent as dumped waste; lost netting and dragged anchors disturb the benthic layers and cover or move valuable or protected wreck sites.

Construction and maintenance of existing infrastructure without appropriate archaeological mitigation could lead to accidental damage and loss of the resource.

2.7.4 Gaps & Uncertainties

The nature of the historic environment means that it is a very much case-by-case basis approach to conservation and protection due to the different qualities of the sites.

2.8 Landscape

2.8.1 Baseline

The quality of Kent's countryside has been recognised as a valuable national asset with two parts of the county having been designated as Areas of Outstanding Natural Beauty (AONB): the Kent Downs and the High Weald. The Kent Downs AONB consists of the eastern half of the North Downs covering nearly a quarter of Kent, stretching from the White Cliffs at Dover up to the Surrey and London borders. In addition, the highest areas of the Greensand ridge in Kent, together with a spit of ragstone escarpment above the Romney Marsh, are also within the Kent Downs. It is a landscape of dramatic chalk escarpments, secluded dry valleys, ancient woodlands and traditional orchards. The area has networks of tiny lanes, historic hedgerows, locally distinctive villages and many sites of historic and cultural interest.

The High Weald AONB is an historical countryside of rolling hills draped by small, irregular fields, abundant woods and hedges, scattered farmsteads and sunken lanes. Other features include flower-rich meadow, patches of heathland, hop gardens, orchards, sandstone outcrops, steep wooded ravines bottomed by streams, and 'hammer' ponds (remnants of the Wealden iron industry). The High Weald was once an untamed, wooded area, with patches of wild grassland and heath land. It remains as a densely wooded area of England and now hosts the highest proportion of ancient woodland in the country.

However, rather than being limited to just the best and most beautiful areas, it is increasingly understood that a consideration of landscape must seek to value and appreciate the diversity of all landscapes. Thus, before the value of landscapes can be evaluated they first have to be characterised. In the 1990s the country was divided into 159 National Character Areas (NCAs). 'Character' was defined as a particular combination of physical influences (geology, topography, soils) with cultural and historical influences. Seven NCAs have been identified in Kent, the descriptions of which highlight that the landscape is sensitive to new roads, road improvement schemes or increased traffic on local roads, particularly where roads tend to be narrow rural lanes (e.g. High Weald) and where tranquillity is currently high (e.g. the North Downs):

NCA 81 – Greater Thames Estuary

NCA 113 – North Kent Plains

NCA 119 – North Downs

NCA 120 – Wealden Greensand

NCA 121 – Low Weald

NCA 122 – High Weald

NCA 123 – Romney Marshes

Hedgerows, trees and woodland are important natural features in Kent's landscape. Although Kent has proportionately less woodland cover than the South East as a whole, a high proportion of its woodland is ancient. Kent has approximately 10% of the national resource of ancient woodland. Ancient woodland inventories are available, some of which have recently been revised (e.g. Ashford Borough and Tunbridge Wells Borough).

2.8.2 Policy Context

The European Landscape Convention ('the Florence Convention' (2000); Council of Europe Treaty Series no. 176) came into force 1/3/2004 promotes the protection, management and planning of European landscapes and organises European co-operation on landscape issues.

National policies such as the UK Sustainable Development Strategy and the DEFRA Rural Strategy aim to find a balance between the economic development of an area and the social development of that area as well as the protection of the natural and built environment.

Section 85 of the Countryside and Rights of Way Act 2000 requires all statutory undertakers in carrying out their duties to have regard to the purpose of conserving and enhancing Areas of Outstanding Natural Beauty. This is applicable to Kent County Council as Highway Authority.

In order to support the conserving and enhancement of areas of outstanding natural beauty within the county, supporting policy has been created through the Kent Downs AONB Management Plan 2014 to 2019 and the Kent Downs AONB Rural Streets and Lanes.

Kent Environment Strategy (KCC, 2016) has landscape-supporting objectives, including the need to, "conserve and enhance the quality and supply of the county of Kent's natural and historical resources and assets", and to "support sustainable access and connectivity for businesses and communities".

2.8.3 Key Issues

Any type of new transport infrastructure or expansion of existing infrastructure has the ability to significantly affect the landscape through many different ways such as land take, visual intrusion, light pollution and loss of tranquillity. There are several aspects of transport infrastructure which require careful management to ensure harmful impacts on the landscape are minimised. These aspects include inappropriate signage, lighting and road surfaces. AONB are particularly sensitive to impacts caused by transport infrastructure, as vehicle use within them increases and roads become busier and consequently noisier, they are widened to accommodate the increased traffic.

Thus concrete curbing is installed to prevent further erosion of verges. Signs proliferate to direct and inform the driver and are more prominent to gain attention as vehicle speeds have increased.

Light pollution is of concern as considerations of the landscape at all times of day must be taken in to account, as both a hindrance to stargazers and scientific measurements as well as the negative effects it can have on the migratory patterns of local fauna (Figure 8).

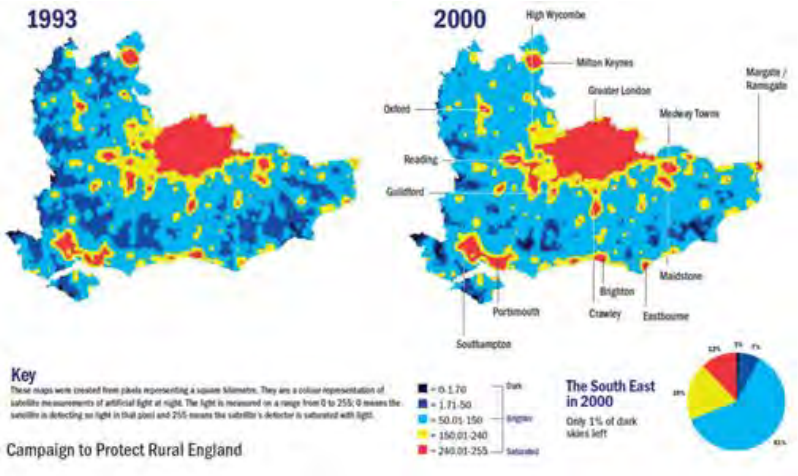

Figure 8: Light pollution in the South East

2.8.4 Future Trends

Due to population growth, development on brown and green field sites surrounding Kent's larger settlements is very likely as there will be a demand to expand these larger settlements outwards into these boundaries, reducing the amount of native landscape. This expansion includes the infrastructure to support development.

However, not all affects are adverse. If managed correctly transport can play an important role in improving the public's access to landscapes of high value which could consequently lead to improvements in health via increased exercise such as walking and cycling. Improvements to general health can also occur through relief of stress from tranquil areas and landscapes.

2.8.5 Gaps & Uncertainties

Data on light pollution is sporadic.

2.9 Noise & Tranquillity

2.9.1 Baseline

Disturbance resulting from noise can be a nuisance and a negative influence on both human health and wellbeing, and biodiversity. Due to the effects noise pollution can have on a surrounding population it is covered by a wide range of legislation, policy and guidance. It is included in this Scoping Report despite not being a topic in its own right within the SEA regulations, as the construction and operation of transport infrastructure has considerable potential to cause negative impacts as a result of noise.

Kent is a relatively tranquil county (Figure 9) due to the dispersed nature of its settlements and wide tracks of agricultural or rural use land, and its prominent position on the coast provides a buffer to ambient noise generated by coastal infrastructure like shipping or road and rail. There are nonetheless transport-related noise hotspots throughout the county, touched on in Figure 10 and shown in more detail for road and rail in Figures 11 and 12 respectively. Noise levels are provided in 'Lden' (day-evening-night) – the equivalent continuous noise level over a whole 24-hour period, but with noise in the evening (19:00 to 23:00) increased by 5 dB(A) and noise at night (23:00 to 07:00) increased by 10 dB(A) to reflect the greater noise-sensitivity of people at those times).

2.9.2 Policy Context

The over-arching aim of the European Union Directive 2002/49/EC on the Assessment and Management of Environmental Noise (Environmental Noise Directive; END) is: "to define a common approach intended to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise". The Directive requires EU Member States to create strategic noise maps and adopt action plans for developments, major roads, railways and major airports, which are defined by the Directive. Under the END and the transposing Environmental Noise (England) Regulations 2006, DEFRA have a responsibility to produce noise maps where certain conditions are met, including agglomerations where the population exceeds 250,000 or for major roads and railways. For these, Noise Action Plans must be developed by the Highway and Rail Authorities where Noise Important Areas are identified (Figure 13).

Noise is regulated through the Control of Pollution Act 1974 and the Environmental Protection Act 1990, amongst others; although transportation noise is exempt from statutory nuisance provisions. The potential noise impact of the LTP4 schemes will be assessed under DMRB, CTRN, the Noise Insulation Regulations 1975 (as amended) and the NPSE.

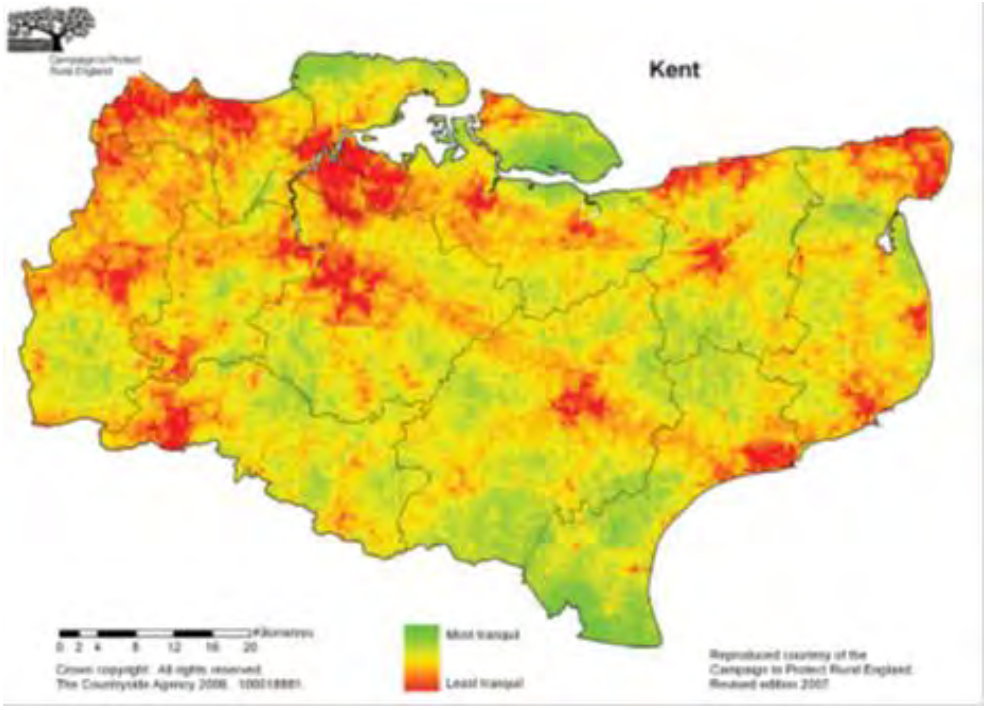

Figure 9: Tranquillity in Kent, as a measure of noise levels

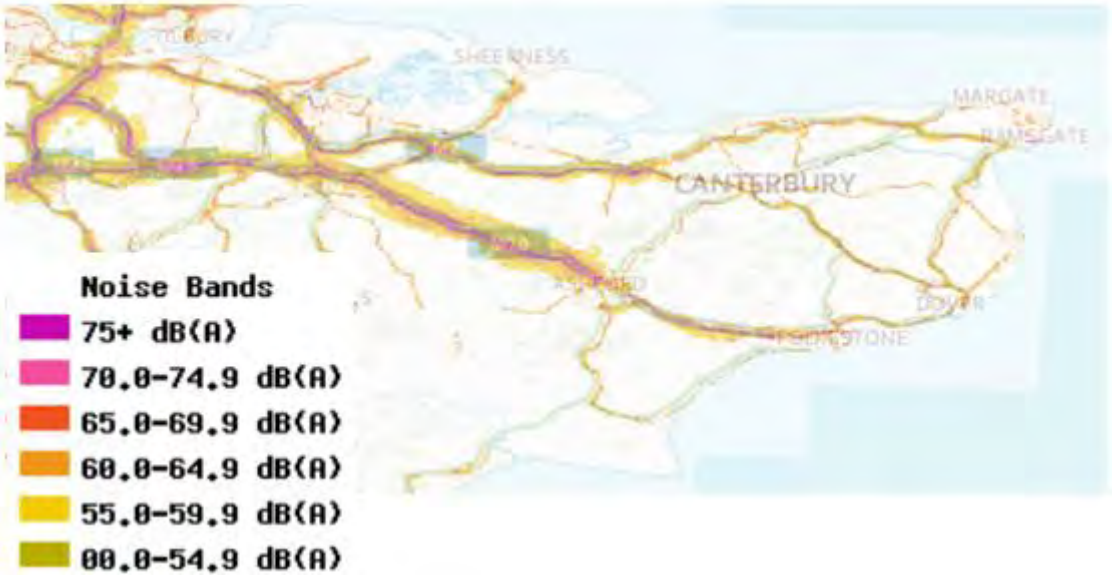

Figure 10: Road Noise (Lden) in Kent

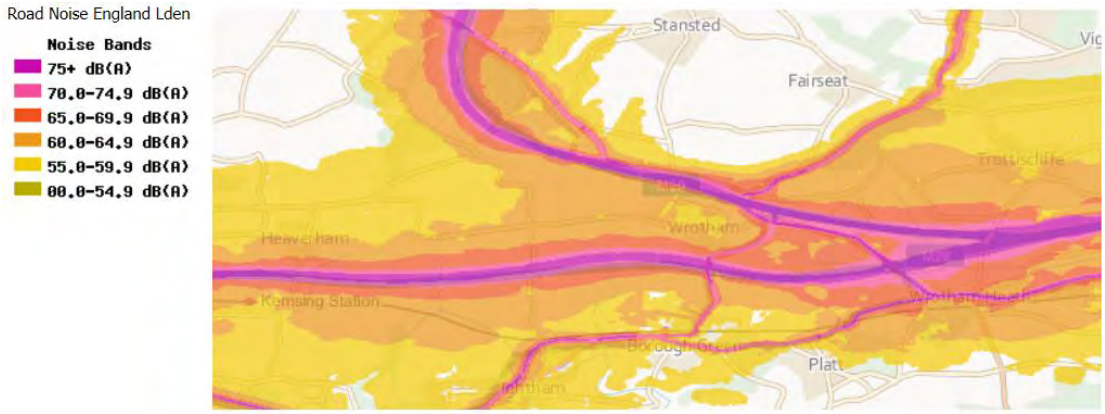

Figure 11: Close-up of M20/M26 junction in Kent showing Lden noise contours

Figure 12: Rail noise (Lden) in Kent

Figure 13: Noise Important Areas in Kent

2.9.3 Key Issues

Increased traffic speed, volume and congestion may all be accompanied by increased noise impacts. With Important Areas already identified throughout Kent where noise levels at human receptors exceed the threshold laid down by the END, LTP4's schemes have potential to worsen the noise climate in existing Important Areas and to increase noise levels in other areas such that they exceed the END threshold. Conversely, LTP4's schemes have potential to improve the noise climate at key transportation locations around the county.

With regard to biodiversity, noise and lighting will only be an issue if they affect European sites designated for their animal interest. The factors that influence a species response to a disturbance are numerous, but the three key factors are species sensitivity, proximity of disturbance sources and timing/duration of the potentially disturbing activity. Disturbance from noise or visual intrusion is likely to be most relevant if the road is immediately adjacent to an SPA or certain SACs (e.g. those designated for bat species), although impacts have been reported up to 1km away due to more intense sources such as busy highways.

2.9.4 Future Trends

As the number of vehicle users is predicted to increase due to a growing population it is likely that congestion will increase in some areas and therefore noise pollution will also increase. However, with LTP4 schemes congestion can be reduced on existing transport infrastructure and where new infrastructure is built there may not necessarily be significant increases in noise pollution for the surrounding areas.

2.9.5 Gaps & Uncertainties

None identified.

2.10 Material Assets

2.10.1 Baseline

"Material assets" is defined as the consumption of resources and the generation of waste. Within the scope of the LTP4 SEA are:

- The transport asset and its condition;
- Material usage, re-usage and waste; and
- Energy and fuel usage.

KCC's transport network includes in excess of 5000 miles of roads, 4000 miles of footway, 4200 miles of public rights of way, 400 miles of cycle routes, as well as 2700 bridges, 130,000 traffic signs, and 700 traffic signal sites. Additions are made to the network each year as well as improvements and general maintenance. Materials are integral to the construction and maintenance of transport infrastructure.

2.10.2 Policy Context

KCC is the statutory waste disposal authority (WDA) for the county. There has been a duty on the WDA to provide household waste recycling centres originally going back as far as the Civic Amenity Act 1967. The duty is now embodied within section 51 of the Environmental Protection act 1990. In summary, the act states that household waste recycling centres must be provided free of charge and open over part of a weekend. The twelve district and borough councils in the county are waste collection authorities (WCA).

The revised European Waste Framework Directive (Directive 2008/98/EC on waste) introduces the "polluter pays principle" and the "extended producer responsibility," and includes two new recycling and recovery targets to be achieved by 2020:

- 50% preparing for re-use and recycling of certain waste materials from households and other origins similar to households; and
- 70% preparing for re-use, recycling and other recovery of construction and demolition waste.

The EU legislation is translated into the Waste Management Plan for England (2013), which has targets as per the Waste Framework Directive. The DEFRA Waste Management Plan for England sets out the waste hierarchy (waste prevention, re-use, recycling, recovery and disposal as the last option). The Plan states that this is to move towards "a 'zero waste economy' in which material resources are reused, recycled or recovered wherever possible and only disposed of as the option of last resort."

European Directive 1999/31/EC on the Landfill of Waste (the Landfill Directive) aims to reduce reliance on landfill, decrease the environmental impacts, and reduce the risk to human health. To help achieve the targets in the directive the UK introduced the Landfill Tax; in the current financial year (2015/16) this is £82.60 per tonne of waste sent to landfill.

A more recent regulation is the Materials Recovery Facility (MRF) Code of Practice Regulations. The requirements of these regulations began in October 2014 and are incorporated in to the Environmental Permitting (England and Wales) (Amendment) Regulations 2013. They require that every MRF that accepts in excess of 1,000 tonnes of mixed recyclables a year reports on the quality of the input, output and residual waste every three months. The regulations intend to

provide confidence to the reprocessing market of materials coming out of MRFs.

All District and Borough authorities along with KCC have developed and signed up to a Joint Municipal Waste Management Strategy (the Kent Waste Strategy) which focuses on how the Partnership will manage municipal solid waste arisings over the next 20 years. The strategy was developed following a baseline study in 2005 which in part, identified current and historic trends in municipal waste.

The Kent Minerals and Waste Local Plan (KMWLP) is at the time of writing being updated following consultation. The KMWLP sets the overarching strategy and planning policies for mineral extraction, importation and recycling, and the waste management of all waste streams that are generated or managed in Kent. The KMWLP affirms the Council's commitment to promote and encourage the use of secondary and recycled aggregates. This is more sustainable than extracting primary land-won aggregates, for example recycled aggregates can be used instead of sharp sand in concrete production.

Kent Environment Strategy (KCC, 2016) has material asset-supporting objectives, including the need to, "improve our resource efficiency such as energy, water and land".

2.10.3 Key Issues

The Landfill Tax is increased each financial year, providing an incentive to minimise waste sent to landfill. In 2005 75% of Kent's household waste was sent to landfill, reducing to just 18% in 2013/14 (Figure 14). However, there is a strong correlation between economic growth and volume of waste and so the amount of waste sent to landfill is likely to increase in absolute terms. There will also be an increase in construction waste as new infrastructure is built. An increase in the amount of waste also has implications for KCC's disposal capacity.

The disposal of waste to landfill is the largest source of methane (CH_4) in the UK. The Kent Resource Partnership has a target to reduce the proportion of waste sent to landfill to 5% by 2020/21 and this will reduce the impact on climate change accordingly. One way to meet this target is to increase recycling and re-use of waste, which have been steadily increasing in Kent (as shown in Figure 14).

The most significant in terms of quantity of all minerals extracted in Kent are construction aggregates, namely sand, gravel, crushed rock, silica sand, brickearth clay, chalk and building stone. The demand for these materials is likely to increase as construction projects increase in number, whether for housing or transport infrastructure. By using recycled aggregates the impact on the environment can be substantially reduced, especially if locally sourced. Globally, recycling reduces the reliance on virgin raw materials and maximises the lifetime of resources. In the

context of LTP4, this includes the use of secondary aggregates for highway maintenance. Where mineral assets may be rendered sterile by a transport scheme then they should be extracted and used as part of that scheme where possible. Similarly, brownfield development should incorporate re-use of onsite materials.

Aside for economic growth, climate change will also increase demand for minerals as the frequency of maintenance is increased. This in itself could further exacerbate climate change by requiring that minerals are transported from further afield, and therefore sustainable modes of transport (water or rail) should be used where minerals cannot be sourced locally. The salt used during winter service has varied significantly over the last few years depending on the severity of the winters (Table 12).

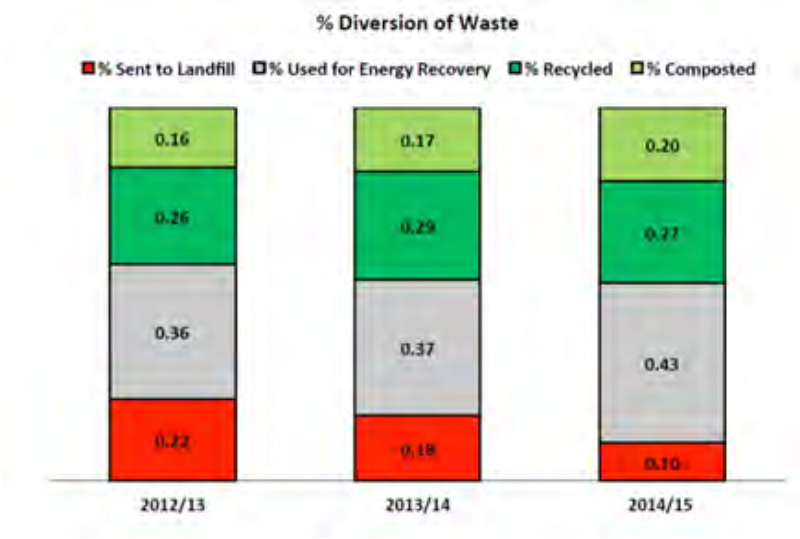

Figure 14: Percentage diversion of waste
(source: Kent State of the Environment Report 2015)

Table 12: Road salting quantities used by KCC since 2009/10

Year	Salt used (tonnes)
2009/10	24,289
2010/11	27,787
2011/12	25,200
2012/13	1,746
2013/14	9,772
2014/15	17,343

KCC does not currently have an asset management approach in place to provide a strategic approach to the allocation of resources in the maintenance and operation of the network. Fossil fuels are used in highway construction materials, but also in providing energy for electrical transport infrastructure. Table 13 shows the energy consumed by Kent's traffic signals. The traffic signal asset has been converted to LED technology and subsequently the energy consumed as approximately halved. It is planned to convert Kent's street lights to LED from 2016, with expectations of a 60% reduction in energy (and therefore carbon) consumed. Continued investment in such technology should see a reduction in the environmental footprint.

Table 13: Energy consumption of highway electrical assets

Traffic signals	**1.8GWh**

2.10.4 Future Trends

The consumption of natural resources in order to maintain Kent's transport network has a negative environmental effect. However, if maintenance was not undertaken the integrity and quality of the asset would deteriorate to the detriment of accessibility and economic growth.

Improvements to the economic climate and government incentives promote housebuilding and large-scale infrastructure projects. These inherently use material assets and produce waste. It is anticipated that this trend will continue over the coming years.

2.10.5 Gaps & Uncertainties

The effects of climate change on the material assets covered by LTP4 over its lifetime are uncertain. Further, no data on the condition of the county's transport assets is currently held so the scale of investment required is unknown. However, owing to nationwide funding constraints it can be assumed that funding will be targeted at those assets in the worst condition.

The data on highway waste that is currently re-used, recycled or sent to landfill is not accessible as this is done on a scheme-by-scheme basis.

The specific detail of, in particular, major transport infrastructure will be developed over time and through prescribed processes. Therefore, it will be impossible for LTP4 to provide any more detail other than a commitment that due consideration will be given to each scheme.

2.11 Opportunities for LTP4 Outcomes and Priorities

A number of *Opportunities* were identified during Scoping, which have been taken through the adoption and implementation of LTP4 (Table 14).

Table 14: Opportunities for LTP4

SEA Topic	SEA Opportunities Identified through Scoping
Biodiversity, flora & fauna	• Maintain and where possible to restore and enhance Kent's biodiversity; protect or enhance habitats of international, national, regional or local importance; and protect international, national, regional or locally important species. • Maintain wildlife corridors and minimise fragmentation of ecological areas and green spaces. • Manage access to sites in a sustainable way that protects or enhances their nature conservation value. • Create new appropriate habitats for at risk populations of flora and fauna.
Air Quality	• Improve air quality in urban areas and achieve the NAQS and the objectives in AQMAs • Minimise transport related pollution using the LTP4 in conjunction with other parallel and daughter plans.
Human Health	• Improve the health of the people of Kent • Reduce disparities in health geographically and demographically • Encourage healthy living for all. Reducing road traffic volume, congestion and pollution by including proposals that will: • Reduce the need to travel, • Promote sustainable transport, • Increase use of public transport, • Increase physically active modes of travel and encourage healthy lifestyles, • Promote integrated transport networks, • Support the modal shift from freight to rail and water, • Minimise safety risk associated with car travellers, cyclists and pedestrians.
Climatic Factors	Reduce Kent's vulnerability to the impacts of climate change as well as its continuing GHG contributions, by trying to: • Reduce the county's contribution to climate change by reducing greenhouse gas emissions from transport; • Increase the proportion of renewable and alternate means of transportation; • Design/construct transportation infrastructure that is resilient to increased incidences of extreme weather events such as storms, flooding, drought and heat waves; • Design public transport systems to be more resistant to heat, such as tinted windows and air conditioning in buses and trains • Review engineering standards to prevent asphalt deformation and increased thermal expansion/contraction of the road and rail network; • Decarbonise transport through the adoption of energy efficient technologies, and the shift to more sustainable modes of transport for

SEA Topic	SEA Opportunities Identified through Scoping
	both people and freight.
Population	• To support transport solutions that cater for individual community needs, for example developing solutions to provide transport links within deprived areas in order to allow for full opportunity to jobs and services. • Additionally promoting positive health outcomes through promoting active and sustainable travel choices, but equally focusing on reducing congestion in order to allow for smoother journeys for the people of Kent. • Road safety and consequently reductions in road casualties for all road users including cyclists is also a key objective and can be achieved through pro-active partnership working within the County and between the County, Local Planning Authorities and other agencies and organisations. • Delivering effective transport infrastructure to aid better-connected journeys throughout Kent.
Water	• Aim to minimise transport-related pollution and reduce the risk of flooding by following best practice and installing sustainable drainage for new schemes. • Consider the capacity of drainage on expansions or maintenance to existing roads and reduce flood risk or provide mitigation/resilience to change in flood risk due to climate change, in particular infrastructure and transport systems on key corridors.
Cultural Heritage	• Aim to preserve and enhance cultural heritage, including sites, areas and features of historic, architectural or archaeological importance. • Promote access to the historic environment in a sustainable manner and look for ways in which the carbon footprint and other disruptive impacts associated with these visits could be reduced.
Landscape	• To value, enhance and protect natural environmental assets including AONBs, historic landscapes, open spaces, parks and gardens and their settings. • To promote the use of rural areas and open space by all, encourage easy non-car based access and accommodate the needs of disabled users.
Noise & tranquillity	• Aim to maintain or reduce the existing ambient noise level. • Use of noise reduction at source and mitigation at pathway and receiver to address Noise Important Areas within Kent.
Material assets	• Strategically coordinate transport for the whole county, including packaging schemes together to minimise their impact on material assets. • Consider the sustainability of the supply chain in highway maintenance, such as locally sourcing materials and re-using and recycling aggregates where possible. • Ensure future technological and materials sciences advances are utilised to prolong the life of transport assets. • New technologies that reduce energy consumption of electrical assets should be supported. • Focus should be on minimising the use of non-renewable energy. • Commit a whole lifecycle approach can be taken to the long-term

SEA Topic	SEA Opportunities Identified through Scoping
	sustainability of infrastructure, thereby minimising waste. • Footways and cycleways for local travel should be maintained and promoted as modal shift will reduce wear and tear and thus the maintenance burden on roads.

These Opportunities have been summarised as follows into themes, to permit their inclusion within the SEA Objectives detailed in Section 3:

- Protect & Enhance…
- Promote sustainable access to …
- Encourage modal shift
- Reduce the need to travel
- Safety
- Technology/Innovation

3 SEA Assessment Methodology and Objectives

The SEA process provides a way in which the environmental effects of the LTP4 and alternative options can be defined and assessed in a structured and consistent way.

The Environmental Report includes:

- The likely significant effects associated with the plan approach; and
- The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects of implementing the plan approach.

This section of the Environmental Report presents the assessment methodology and the key elements to be assessed; Section 4 provides an assessment of alternative options for the LTP4; and, Section 5 presents the assessment findings in relation to LTP4. The objectives and assessment questions are presented for each environmental topic are presented in Table 15.

3.1 Assessment methodology

The assessment identifies and evaluates 'likely significant effects' of the LTP4 on the baseline, utilising the SEA methodology developed through scoping. The SEA Objectives have been developed by combining the Topics and Opportunities developed during Scoping, which identified the environmental issues of relevance for the plan. Findings are presented through these eleven SEA Objectives, which are outlined in Table 15, below.

Assessment matrices have been developed for the Options (Table 16), VFM prioritisation for ITP schemes (Table 17), LTP4 Policies (Table 18 & 19) and LTP4 Strategic Priorities (Table 20) and were used as a framework to undertake the assessment. The completed matrices are presented in Appendices D to G and the findings discussed in Section 5. For each set of results, the worst score is reflected in the overall score in order to be robust and precautionary in the assessment.

Table 15: SEA Objectives and Questions

SEA Topic	SEA Objectives	Overarching Objective	Assessment Questions – will LTP4 help to…
Biodiversity, Flora & Fauna	Protect and enhance the county's habitats, biodiversity levels, and species of international, national, regional and local importance.	Apply innovative and technological approaches to achieving sustainable outcomes.	• Protect the integrity of designated sites in Kent? • Manage infrastructure impacts on designated sites? • Preserve the status of designated sites?
Air Quality	Improve air quality in urban areas and achieve the NAQS and AQMA objectives across the county.		• Reduce quantities of air pollution from transport across the county? • Target areas with problematic air quality issues?
Human Health	Support transport solutions that promote positive health outcomes through active and sustainable travel choices and improved road safety.		• Identify community and economic transport needs? • Create integrated and sustainable transport networks?
Climatic Factors	Reduce vulnerability to climate change-related extreme weather events by creating a resilient transport infrastructure and identifying appropriate adaptation and mitigation measures.		• Implement adaptation and mitigation measures to the infrastructure?
Population	Promote accessible, integrated and sustainable transport networks that support the needs of the economy and local communities.		• Reduce congestion? • Provide viable non-car based transport options?
Water	Coordinate across the county in parallel with other planning policy, in order to address water catchment quality and resource issues.		• Use catchment information positively as part of the infrastructure's development?
Cultural Heritage	Protect and enhance cultural heritage, and access to areas and features of historic, architectural or archaeological importance.		• Allow cultural heritage to exist in parallel with the transport infrastructure?

SEA Topic	SEA Objectives	Overarching Objective	Assessment Questions – will LTP4 help to…
Landscape	Protect and enhance the character and diversity of all landscape assets through planning and policy decisions and ensure development does not decrease visual and recreational amenity.		• Preserve landscape features?
Noise & Tranquillity	Seek to reduce noise at source, particularly in existing Noise Important Areas, and to prevent the creation of new Noise Important Areas; protect tranquil areas from impact, including cumulative impact.		• Alleviate ambient noise levels derived from transport?
Material Assets	Maximise resource efficiency in materials, energy, waste and water use by utilising sustainable construction and procurement methods, and ensuring appropriate ongoing maintenance of assets.		• Use construction and engineering standards to generate efficiency?

The following aspects of the plan were assessed using each of the SEA objectives set out in Table 15:

- LTP4's strategic objectives and supporting policies;
- the plan Options;
- the Value for Money (VFM) prioritisation matrix for ITP schemes;
- strategic and countywide transport priorities which are newly developed since LTP3 and therefore have not previously been subject to SEA.

The following aspects of the plan were assessed using each of the SEA objectives set out in Table 15:

- strategic and countywide transport priorities which featured in LTP3 and therefore have previously been subject to SEA;
- KCC's policy position on Aviation, which is a continuation of LTP3's position, and which does not contain details of any proposed schemes to be promoted by KCC;
- local transport priorities, due to the lack of clarity on the funding to be made available and the broad range of potential schemes – not all of which have been detailed within LTP4.

3.2 Data limitations, uncertainty and assumptions

It is important to acknowledge the limitations of the assessment approach. These relate to both the scope and coverage of the plan and the nature of the SEA process. The following considerations should therefore be recognised:

- Some proposals to be taken forward through the LTP4 Review are not spatially specific and thus are deployed across the county. This situation can reduce the confidence in forecasting potential environmental outcomes.
- Where the proposal has a specific geographic location, the available scheme definition and the subsequent scheme design can lead to uncertainties of the resultant impact. Potential impacts identified in the SEA may be capable of being avoided or mitigated during subsequent scheme design and environmental assessment processes.

Where appropriate, the SEA will acknowledge these limitations throughout the process. Every effort is made to predict effects accurately; however, this is inherently challenging given the high level nature of the policy approaches under consideration, and limited understanding of the baseline. Due to the uncertainties involved there is inevitably a need to make assumptions. Assumptions are made cautiously, and explained within the text included in the matrices. The

aim is to strike a balance between comprehensiveness and conciseness/accessibility to the public. In many instances, given reasonable assumptions, it is not possible to predict significant effects, but it is possible to comment on merits (or otherwise) in more general terms. Effects are predicted taking account of the criteria presented within Schedule 1 of the SEA Regulations 2004. Account is taken of the probability, duration, frequency and reversibility of effects as far as possible. Cumulative effects are also considered.

Table 16: Options Matrix

Plan Options	Biodiversity Protect and enhance the county's habitats, biodiversity levels, and species of international, national, regional and local importance.	Air Quality Improve air quality in urban areas and achieve the NAQS and AQMA objectives across the county.	Health Support transport solutions that promote positive health outcomes through active and sustainable travel choices and improved road safety.	Climate Reduce vulnerability to climate change-related extreme weather events by creating a resilient transport infrastructure and identifying appropriate adaptation and mitigation measures.	Population Promote accessible, integrated and sustainable transport networks that support the needs of the economy and local communities	Water Coordinate across the county in parallel with other planning policy, in order to address water catchment quality and resource issues.	Heritage Protect and enhance cultural heritage, and access to areas and features of historic, architectural or archaeological importance.	Landscape Enhance and protect the character and diversity of all landscape assets through planning and policy decisions and ensure development does not decrease visual and recreational amenity	Noise Seek to reduce noise at source, particularly in existing Noise Important Areas, and to prevent the creation of new Noise Important Areas; protect tranquil areas from impact, including cumulative impact.	Materials Maximize resource efficiency in materials, energy, waste and water use by utilising sustainable construction and procurement methods, and ensuring appropriate ongoing maintenance of assets.	Technology & Innovation Apply innovative and technological approaches to achieving sustainable outcomes.	Overall	Comments Comments
What will be the situation without LTP4 - Option 1: Business as usual – i.e. retain existing prioritisation methodology from LTP3 and keep the funding prioritised on growth points and growth areas as well as being unequally allocated among themes (in the context of LTP4: outcomes). GWG 45%; 15 others; 10 life in Kent													
What will be the situation with LTP4 - Option 2: Use the revised prioritisation methodology and make all outcomes equally weighted and of equal priority – i.e. equal allocation of funding. 20% each													
What will be the situation with LTP4 - Option 3 [preferred by KCC & captured in the LTP4 Draft for Cabinet Cttee] : Use the revised prioritisation methodology and give a priority order to the outcomes and weight them differently – i.e. more available funding for some outcomes (an alternative funding allocation). 40% ec; 15 others.													
What will be the situation with LTP4 - Option 4: Use the revised prioritisation methodology and give a priority order to the outcomes and weight them differently – i.e. more available funding for some outcomes (an alternative funding allocation). 55% ec; 15 others; 0 safety (as CRM already top sliced)													

Table 17: VFM Prioritisation for ITP Schemes Matrix (Biodiversity example)

Biodiversity, flora & fauna: Protect and enhance the county's habitats, biodiversity levels, and species of international, national, regional and local importance.					
Plan Outcomes	**Plan Policies**	**Proposed VFM Indicators**	**Effect**	**Assessment vs SEA Objectives - Biodiversity**	**Assessment key**
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	Is the scheme directly connected with delivering development?			++ Major positive
		Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?			+ Minor positive
		Congestion – what impact will the scheme have on congestion and journey time?			0 None /unknown
		Climate resilience - how will the scheme contribute to improved climate resilience in Kent?			- Minor negative
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?			- - Major negative
		Connectivity – what impact will the scheme have on creating connected door-to-door journeys?			
		Local Masterplanning - has accessibility and reduced journey time been designed into the overall plan for the scheme area?			
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	Safety – are there any secondary benefits to safety (road, cycleway, footway)?			
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?			
		Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?			
		Environment – what impact will the scheme have on...			
		Biodiversity?			
		Carbon Emissions?			
		Water quality and resources?			
		Natural & Cultural Heritage Landscape & Visual Impact?			
		Noise & Tranquility?			
		Material assets (i.e. materials, energy, waste & water resource use in construction & maintenance)?			
		Technology & innovation (i.e. approaches to achieving sustainable outcomes)?			
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	Air quality – what impact will the scheme have on air quality?			
		Active travel – what impact will the scheme have on promoting active travel?			

Table 18: LTP4 Policies Assessment Matrix (Biodiversity example)

LTP4			SEA Objectives		
Plan Outcomes	**Plan Policy**	**Effects**	**Biodiversity, flora & fauna: Protect and enhance the county's habitats, biodiversity levels, and species of international, national, regional and local importance.**		**Assessment key**
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.				++ Major positive
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.				+ Minor positive
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.				0 None identified
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.				- Minor negative
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.				- - Major negative

Table 19: LTP4 Policies Summary Matrix

	SEA Objectives										
	Biodiversity	**Air Quality**	**Health**	**Climate**	**Population**	**Water**	**Heritage**	**Landscape**	**Noise**	**Materials**	**Technology & Innovation**
LTP4 Outcomes	**Protect and enhance the county's habitats, biodiversity levels, and species of international, national, regional and local importance.**	**Improve air quality in urban areas and achieve the NAQS and AQMA objectives across the county.**	**Support transport solutions that promote positive health outcomes through active and sustainable travel choices and improved road safety.**	**Reduce vulnerability to climate change-related extreme weather events by creating a resilient transport infrastructure and identifying appropriate adaptation and mitigation measures.**	**Promote accessible, integrated and sustainable transport networks that support the needs of the economy and local communities**	**Coordinate across the county in parallel with other planning policy, in order to address water catchment quality and resource issues.**	**Protect and enhance cultural heritage, and access to areas and features of historic, architectural or archaeological importance.**	**Enhance and protect the character and diversity of all landscape assets through planning and policy decisions and ensure development does not decrease visual and recreational amenity**	**Seek to reduce noise at source, particularly in existing Noise Important Areas, and to prevent the creation of new Noise Important Areas; protect tranquil areas from impact, including cumulative impact.**	**Maximise resource efficiency in materials, energy, waste and water use by utilising sustainable construction and procurement methods, and ensuring appropriate ongoing maintenance of assets.**	**Apply innovative and technological approaches to achieving sustainable outcomes.**
1. Economic growth & minimised congestion											
2. Affordable and accessible door-to-door journeys											
3. Safer travel											
4. Enhanced environment											
5. Better health and wellbeing											

Assessment key
++ Major positive
+ Minor positive
0 None /unknown
- Minor negative
- - Major negative

Table 20: LTP4 Strategic Priorities Matrix

Type	Scheme	Biodiversity	Air Quality	Human Health	Climatic Factors	Population	Water	Cultural Heritage	Landscape	Noise & Tranqility	Material Assets	Innovation & Technology
Strategic	Port Expansion											
	International Station Signalling (Ashford Spurs)											
	Rail & Bus Improvements											
Non-Strategic Kent-wide	Road Safety											
	Highways Maintenance & Asset Management											
	Home to School Transport											
	Active Travel											
	Aviation											

4 Assessment of reasonable plan alternatives

4.1 Objective

A key element of the SEA process is the assessment of 'reasonable alternatives' to the LTP4. Alternative options have been considered in relation to funding allocations by which the LTP policy outcomes may be taken forward through the Local Transport Plan review process.

4.2 Alternative options considered

Alternative options for the LTP4 have been set out by KCC in an Options Report dated 8/4/2016 (v2, Appendix A), which has subsequently been amended as part of the SEA process (v3, Appendix B; Final draft, Appendix C). The alternative options to be assessed are:

1. Retain existing prioritisation methodology from LTP3 and the funding prioritised spatially as well as being unequally allocated among themes GWG 45%; 15% others; 10% life in Kent (in the context of LTP4 policy outcomes).
2. Use the LTP4 revised prioritisation methodology and equally weight/equally prioritise outcomes – i.e. 20% equal funding allocation.
3. Use the LTP4 revised prioritisation methodology and give a priority order to the outcomes and weight them differently – i.e. 40% Outcome 1; 15% other outcomes.
4. Use the LTP4 revised prioritisation methodology and give a priority order to the outcomes and weight them differently – i.e. 55% Outcome 1; 0% Outcome 3; 15% other outcomes.

4.3 Assessment of the alternative options

An assessment of alternatives has been made in broad terms against the SEA objectives, provided there is sufficient detail to identify the significant environmental effects of each alternative. The focus has been on the effects of the plan, rather than other factors that may influence the achievement of the SEA objectives. Only the main differences between the alternatives options has been considered and documented. In assessing the plan, expert environmental and sustainability judgement has been utilised.

A qualitative assessment has been made based on perceived short or long term improvements or regressions for each SEA objective. The full results of this are presented in Appendix E, and are summarised in Figure 15, below. To support the assessment findings, the options have been ranked in terms of their environmental performance against each theme, and the relative merits of each option depicted in Figure 15. It is anticipated that this will provide a likely

indication of the comparative environmental performance of the four options in relation to the various themes.

	Plan Options	Overall	Comments
1	What will be the situation without LTP4 - Option 1: Business as usual – i.e. retain existing prioritisation methodology from LTP3 and keep the funding prioritised on growth points and growth areas as well as being unequally allocated among themes (in the context of LTP4: outcomes). GWG 45%; 15 others; 10 life in Kent	-2	Option 1's emphasis is housing and employment within the county to support GWG. Having this as a key independant theme by-passes the opportunity to develop sustainable solutions to support GWG (other than by CBA). The funding assessment methodology provides for spatial analysis, although this is based on the theme of LTP3 and therefore is not holistic. The CBA provides very limited ability for consideration of the environment. Funding to key growth points in the county will lead to increased environmental pressures on all areas of the environment will increase. The option does address wider social and commnuity needs in the improved access to non-vehicular travel. The theme for the environment relates primarily to climate change - which is a far-reaching subject in terms of the schemes that could support it. The main issue is the limited spatial distribution of the schemes, leading to an all or nothing outcome for areas. Top slicing of the budget for safety related schemes means that less budget is available for other themes as a wholes. This is despite there being a dedicated theme for safety.
2	What will be the situation with LTP4 - Option 2: Use the revised prioritisation methodology and make all outcomes equally weighted and of equal priority – i.e. equal allocation of funding. 20% each	14	Option 2 is a progression from Option 1, developing the issues found into solutions. Because the assessment scheme uses the themes in LPT4, each area is addressed. Funding is allocated to schemes based on their theme. Funding allocation is equalised - the environment based schemes benefits from a 5% increase (20% total) in allocation.Additionally, Outcome 2 has strong environmental and social benefits and so a 20% funding allocation to outcome 2 benefits outcome 4. Revised assessment scheme allows for consideration of the environment for each scheme. The impact of increased funding for economic growth may or may not have a residual negative impact - this will depend on the scoring for Outcome 4, whch may well be high. Scheme design will play a role in deciding the Outcome scores.
3	What will be the situation with LTP4 - Option 3 [preferred by KCC & captured in the LTP4 Draft for Cabinet Cttee] : Use the revised prioritisation methodology and give a priority order to the outcomes and weight them differently – i.e. more available funding for some outcomes (an alternative funding allocation). 40% ec; 15 others.	6	Option 3 is a progression from Option 2, developing the issues found into solutions. Because the assessment scheme uses the themes in LPT4, each area is addressed. Funding is allocated to schemes based on their theme. Funding allocation is equalised - the environment based schemes benefits from a 15% funding allocation. Revised assessment scheme allows for consideration of the environment for each scheme. The impact of increased funding for economic growth may or may not have a residual negative impact - this will depend on the scoring for Outcome 4, whch may well be high. Scheme design will play a role in deciding the Outcome scores.
4	What will be the situation with LTP4 - Option 4: Use the revised prioritisation methodology and give a priority order to the outcomes and weight them differently – i.e. more available funding for some outcomes (an alternative funding allocation). 55% ec; 15 others; 0 safety (as CRM already top sliced)	-5	Option 4 is a progression from Option 2, developing the issues found into solutions. Because the assessment scheme uses the themes in LPT4, each area is addressed. Funding is allocated to schemes based on their theme. Funding allocation is equalised - the environment based schemes benefits from a 5% increase in allocation. Revised assessment scheme allows for consideration of the environment for each scheme. The impact of increased funding for economic growth may or may not have a residual negative impact - this will depend on the scoring for Outcome 4, whch may well be high. Scheme design will play a role in deciding the Outcome scores. Outcome 3 'Safety' delivers little in environmental benefits and therefore a reduction in the funding allocation for Outcome 3 raises the amount available for Outcome 4 'Environment'. However, the allocation for Outcome 1 'Growth' has benefited directly from the lack of funding for Outcome 3 and this has the strongest negative effect on environmental outcomes.

Figure 15: Assessment of Options

Option 1

Option 1's emphasis is housing and employment within the county to support GWG. Having this as key independent theme by-passes the opportunity to develop sustainable solutions to support GWG (other than by CBA). The funding assessment methodology provides for spatial analysis, although this is based on the theme of LTP3 and therefore is not holistic. The CBA provides very limited ability for consideration of the environment. Funding to key growth points in the county will lead to increased environmental pressures on all areas of the environment will increase. The option does address wider social and community needs in the improved access to non-vehicular travel. The theme for the environment relates primarily to climate change - which is a far-reaching subject in terms of the schemes that could support it. The main issue is the limited spatial distribution of the schemes, leading to an all or nothing outcome for areas. Top slicing of the budget for safety related schemes means that less budget is available for other themes as a whole. This is despite there being a dedicated theme for safety.

Option 2

Option 2 is a progression from Option 1, developing the issues found into solutions. Because the assessment scheme uses the themes in LPT4, each area is addressed. Funding is allocated to schemes based on their theme. Funding allocation is equalised - the environment based schemes benefits from a 5% increase (20% total) in allocation. Additionally, Outcome 2 has strong environmental and social benefits and so a 20% funding allocation to outcome 2 benefits

outcome 4. Revised assessment scheme allows for consideration of the environment for each scheme. The impact of increased funding for economic growth may or may not have a residual negative impact - this will depend on the scoring for Outcome 4, which may well be high. Scheme design will play a role in deciding the Outcome scores.

Option 3

Option 3 is a progression from Option 2, developing the issues found into solutions. Because the assessment scheme uses the themes in LPT4, each area is addressed. Funding is allocated to schemes based on their theme. Funding allocation is equalised - the environment based schemes benefits from a 15% funding allocation. Revised assessment scheme allows for consideration of the environment for each scheme. The impact of increased funding for economic growth may or may not have a residual negative impact - this will depend on the scoring for Outcome 4, which may well be high. Scheme design will play a role in deciding the Outcome scores.

Option 4

Option 4 is a progression from Option 2, developing the issues found into solutions. Because the assessment scheme uses the themes in LPT4, each area is addressed. Funding is allocated to schemes based on their theme. Funding allocation is equalised - the environment based schemes benefits from a 5% increase in allocation. Revised assessment scheme allows for consideration of the environment for each scheme. The impact of increased funding for economic growth may or may not have a residual negative impact - this will depend on the scoring for Outcome 4, which may well be high. Scheme design will play a role in deciding the Outcome scores. Outcome 3 'Safety' delivers little in environmental benefits and therefore a reduction in the funding allocation for Outcome 3 raises the amount available for Outcome 4 'Environment'. However, the allocation for Outcome 1 'Growth' has benefited directly from the lack of funding for Outcome 3 and as this has the strongest negative effect on environmental outcomes.

Option 2 performs more favourably than Options 1, 3 and 4 in terms of providing improvements to the SEA themes and/or to meeting the SEA objectives. With a focus on shared economic, social and environmental features, it is considered that this approach will deliver wider beneficial outcomes for air quality, greenhouse gas emissions and residents' quality of life and health and wellbeing through more effectively addressing issues related to congestion, accessibility and modal shift.

4.4 Development of the preferred plan

It is acknowledged that the main focus of LTP4 is 'Delivering Growth without Gridlock'. It is therefore accepted that KCC's preferred Option 3 – which delivers greater funding for Outcome 1 while not causing significant negative impacts on the SEA Objectives – is an appropriate choice for the funding allocation.

LTP4 extends the plan period up to 2031 to reflect the timeframes of the emerging district-led development plans. Each district describes the different challenges faced over the next 15-20 years and the proposed transport initiatives to be prioritised for that area, as well as for issues for beyond Kent linked to transport in the county. For each of the districts, the LTP4 process selects a series of schemes for potentially taking forward in the plan period. These are to be determined through the Scheme Value for Money (VFM) Prioritisation System (including affordability and acceptability) and their potential role in enabling future development and growth. It is intended that these schemes will be delivered through the Integrated Transport Programme (ITP). The Scheme Prioritisation System (the LTP3 prioritisation method) has been assessed as part of this SEA (see Section 5, below) and the revised prioritisation system (v3) can be found in Appendix B.

It is noted that these Options and the related VFM prioritisation system relate only to ITP schemes. It is recommended that there would be value in applying the VFM Matrix to all scheme decision-making, to enable early consideration of environmental topics irrespective of funding source (see also Section 5.3).

5 LTP4 Assessment Results

The assessment of LTP4's Outcomes, Policies, Priorities and VFM Prioritisation Matrix indicates that no major (i.e. significant) negative effects on the SEA Objectives will arise. As such, it has not been necessary to develop and assess alternatives to the policies. The Tables below summarise the results of the various assessments, and results are also presented graphically in charts. The full assessment matrices for these are presented in Appendices D to G, respectively. The results for each SEA Objective are then explored. In each case, in pursuance of the Precautionary Principle, the worst score is taken as representative.

5.1 LTP4 Outcomes and Policies

The environmental assessment of the Outcomes and Policies proposed by LTP4 indicates that overall these will have a minor negative environmental impact (Table 21). This is principally as a result of Outcome 1 (Economic Growth and Minimised Congestion). Early consideration of environmental aspects and impacts is key to identifying and mitigating these – this has been built into the ITP schemes through the use of the VFM prioritisation matrix, but may be lacking for more major schemes where specific funding streams are focused on economic growth, such as the Local Growth Fund. It is proposed that by way of mitigation the ITP VFM matrix is routinely used at bid and business case stage for all priority transport schemes promoted by KCC and Kent's Districts, irrespective of the funding source, in order to counteract the economic bias inherent in growth-centred proposals.

5.2 LTP4 Priorities

The environmental assessment of the Priorities put forward by LTP4 and which do not represent 'business as usual' (i.e. are not priorities which have been carried over from LTP3 and thus have not previously been subject to assessment) indicates that overall these will have a neutral environmental impact (Table 22). No specific concerns came to light during the assessment, although it is clear that the level of benefit in relation to schemes proposing modal shift will depend on the approach taken in developing the sustainable and active travel networks and the ways in which this are promoted to the population. LTP4 acknowledges that private motorised vehicles will remain the primary mode of transport within Kent and therefore step-change is unlikely – however at individual level the benefits of such change must be appreciated.

Table 21: LTP4 Outcomes and Policies Summary

	SEA Objectives											
	Biodiversity	**Air Quality**	**Health**	**Climate**	**Population**	**Water**	**Heritage**	**Landscape**	**Noise**	**Materials**	**Technology & Innovation**	**Overall**
LTP4 Outcomes	**Protect and enhance the county's habitats, biodiversity levels, and species of international, national, regional and local importance.**	**Improve air quality in urban areas and achieve the NAQS and AQMA objectives across the county.**	**Support transport solutions that promote positive health outcomes through active and sustainable travel choices and improved road safety.**	**Reduce vulnerability to climate change-related extreme weather events by creating a resilient transport infrastructure and identifying appropriate adaptation and mitigation measures.**	**Promote accessible, integrated and sustainable transport networks that support the needs of the economy and local communities**	**Coordinate across the county in parallel with other planning policy, in order to address water catchment quality and resource issues.**	**Protect and enhance cultural heritage, and access to areas and features of historic, architectural or archaeological importance.**	**Enhance and protect the character and diversity of all landscape assets through planning and policy decisions and ensure development does not decrease visual and recreational amenity**	**Seek to reduce noise at source, particularly in existing Noise Important Areas, and to prevent the creation of new Noise Important Areas; protect tranquil areas from impact, including cumulative impact.**	**Maximise resource efficiency in materials, energy, waste and water use by utilising sustainable construction and procurement methods, and ensuring appropriate ongoing maintenance of assets.**	**Apply innovative and technological approaches to achieving sustainable outcomes.**	
1. Economic growth & minimised congestion	-	0	0	0	+	-	-	-	-	0/+	+	-
2. Affordable and accessible door-to-door journeys	0	0/+	+	0/+	+	0	+	+	+	0/+	+	0
3. Safer travel	0/-	0	++	0	++	0	0	0	0	0/+	+	0/-
4. Enhanced environment	0/+	0/+	+	0/+	+	0/+	0/+	0/+	0/+	+	+	0/+
5. Better health and wellbeing	0	0/+	++	0/+	+	0/+	0/+	0	0/+	0/+	+	0
Overall	-	0	0	0	+	-	-	-	-	0/+	+	-

Assessment key
++ Major positive
+ Minor positive
0 None /unknown
- Minor negative
- - Major negative

Table 22: LTP4 Priorities Summary

Type	Scheme	Biodiversity	Air Quality	Human Health	Climatic Factors	Population	Water	Cultural Heritage	Landscape	Noise & Tranqility	Material Assets	Innovation & Technology	Overall	Comments
Strategic	Port Expansion	0/+	+	+	+	+	0	0/+	+	+	+	0	0	This scheme has potential to have minor positive impacts providing there is appropriate mitigation/enhancement following proper assessment of environmental aspects at outline design stage.
	International Station Signalling (Ashford Spurs)	0	0	0	0	0	0	0	0	0	0	0	0	Resignalling scheme is to permit the perpetuation of the status quo - i.e. continued international rail services at Ashford - therefore this scheme represents 'business as usual' There is potential for temporary negative impacts during construction - these must be properly managed and mitigated through scoping assessment plus BS5228/IAQM construction assessments if deemed necessary.
	Rail & Bus Improvements	+	+	++	+	++	+	+	+	+	+	0	0	This Priority has potential to have minor positive impacts providing there is appropriate mitigation/enhancement of any related route enhancement schemes, following proper assessment of environmental aspects at outline design stage.
Non-Strategic Kent-wide	Road Safety	0	0	++	0	++	0	0/+	0/+	0	0/+	0	0	Although significantly beneficial in terms of direct impact on human health, and thus having intrinsic value for that reason alone, there are few additional benefits. Care must be taken that schemes do not cause negative impacts to the environment during construction or operation, through proper assessment of environmental aspects at outline design stage.
	Highways Maintenance & Asset Management	0/+	0/+	0	+	0/+	+	0	0	0	+	0/+	0	Minor benefits may be achieved through lifecycle thinking and a holistic approach.
	Home to School Transport	+	+	++	+	+	0/+	0/+	0/+	0/+	0/+	0	0	Minor benefits may arise from the promotion of active travel modes and the provision of additional buses - there is potential for significant positive impact if this Priority focuses on the promotion of School Travel Plans and the encouragement of sustainable modes amongst school-age children and their parents/guardians. Attending school - irrespective of how they get there - is a significant benefit therefore the positive impact to individuals of transport being facilitated - whether sustainable or not - must not be overlooked.
	Public Rights of Way	0	0/+	++	+	0	0	0/+	0	0	0	0		Benefits of the improved access, condition and use of public footpaths for recreation or non-motorised transport to health and climate
	Active Travel	+	+	++	0/+	+	0/+	0/+	0/+	0/+	0/+	0	0	Minor benefits may arise from the promotion of active travel modes - there is potential for significant positive impact however this is dependent on the level of uptake by the population and consequent knock-on effects.
	Overall	0	0	0	0	0	0	0	0	0	0	0	0	

Assessment key
++ Major positive
+ Minor positive
0 None /unknown
- Minor negative
- - Major negative

5.3 LTP4 VFM Prioritisation Assessment

An environmental assessment was undertaken of the original VFM prioritisation matrix (Figure 16; Appendix F1) and then of the revised matrix produced by Amey (Figure 17; Appendix F2 and summarised in Table 23). Although by taking the worst-case as the overall outcome this comes out as having a negligible negative effect, it is notable that the Sustainable Travel indicator and the Population SEA Objective are predicted to benefit from minor positive effects as a result of using this methodology. Furthermore, it would appear that the likelihood of achieving a significant or minor positive effect has been increased (from 39% to 78% of the total) as a result of the revisions to the matrix. In the final version of the VFM Matrix presented in the LTP4 Annexe (reproduced in Appendix C of this report) it is noted that Climate Resilience/Adaptation has been removed from the Matrix; KCC has however provided assurances that the resilience of schemes will be a key consideration at the design stage. It is worth noting that, although carbon reduction/climate change are not explicitly mentioned, the sections within the Matrix on Sustainable Travel, Environment and Air Quality are all intended to to ensure the proper consideration of schemes' potential climate impacts.

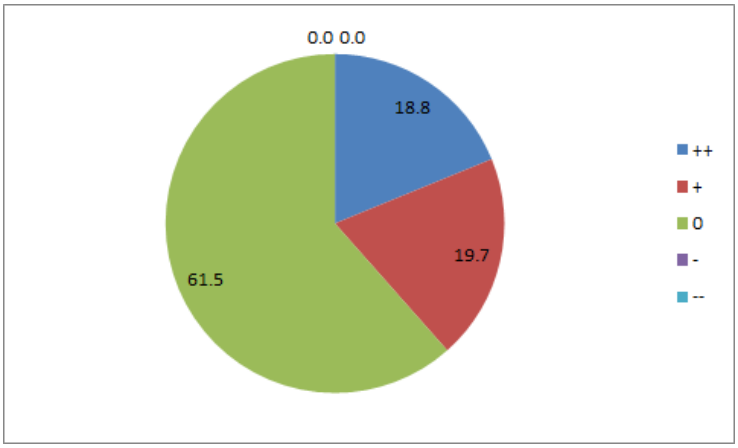

Figure 16: Effect of original (v2) VFM Prioritisation Matrix on SEA Objectives (% of total)

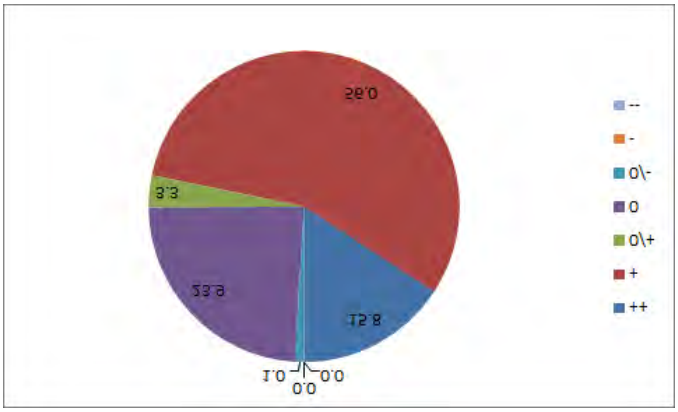

Figure 17: Effect of revised (v3) VFM Prioritisation Matrix on SEA Objectives (% of total)

Table 23: LTP4 VFM Prioritisation Assessment Summary

	Biodiversity	Air Quality	Human Health	Climatic Factors	Population	Water	Cultural Heritage	Landscape	Noise & Tranqility	Material Assets	Innovation & Technology	Overall
Is the scheme directly connected with delivering development?	0	0	0	+	+	0	0	0	0	+	0	**0**
Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?	0	+	++	+	++	0	0	0	+	+	0	**0**
Congestion – what impact will the scheme have on congestion and journey time?	0/+	+	+	0	++	+	+	+	+	+	0	**0**
Climate resilience - how will the scheme contribute to improved climate resilience in Kent?	+	+	+	++	+	+	+	0	0	+	+	**0**
Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?	0	0	+	+	+	0	+	+	0	0	+	**0**
Connectivity – what impact will the scheme have on creating connected door-to-door journeys?	+	+	+	+	++	0	+	+	+	0/+	+	**0**
Local Masterplanning - has accessibility and reduced journey time been designed into the overall plan for the scheme area?	0	0	+	++	+	0	+	+	+	+	+	**0**
Safety – are there any secondary benefits to safety (road, cycleway, footway)?	0/+	0	++	0/+	+	+	0/+	+	0/-	0/+	+	**0/-**
Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?	+	++	+	++	++	+	+	+	++	++	+	**+**
Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?	0	+	+	+	+	0	++	+	0	0	0	**0**
Biodiversity?	++	0	+	+	+	+	+	+	0	0	++	**0**
Carbon Emissions?	+	++	+	++	+	+	+	+	0	+	+	**0**
Water quality and resources?	+	0	+	0/+	+	++	0	0	0	+	++	**0**
Natural & Cultural Heritage Landscape & Visual Impact?	+	0	+	0	+	+	+	++	0	+	+	**0**
Noise & Tranquility?	+	0	+	0	+	0	+	+	++	+	++	**0**
Material assets (i.e. materials, energy, waste & water resource use in construction & maintenance)?	0	+	+	++	+	+	+	+	+	++	+	**0**
Technology & innovation (i.e. approaches to achieving sustainable outcomes)?	+	+	+	++	+	+	0	0/+	+	++	+	**0**
Air quality – what impact will the scheme have on air quality?	+	++	++	++	+	0	+	+	0	+	+	**0**
Active travel – what impact will the scheme have on promoting active travel?	+	++	++	+	+	+	+	+	++	++	+	**+**
Overall	**0**	**0**	**0**	**0**	**+**	**0**	**0**	**0**	**0/-**	**0**	**0**	**0/-**

Assessment key
++ Major positive
+ Minor positive
0 None /unknown
- Minor negative
- - Major negative

5.4 Assessment against SEA Objectives

5.4.1 Biodiversity, flora and fauna

Habitats Regulations Assessment (HRA) Screening has been undertaken for LTP4, and the resultant report is presented in Appendix I. This has concluded that Appropriate Assessment is not required for any Natura 2000 site – although it has identified that project-level HRA Screening will be required for all schemes detailed within LTP4.

As summarised in Tables 21 to 23, LTP4's Priorities and the VFM Matrix are assessed as being neutral overall in their impact on biodiversity, albeit with some negligible and minor positive elements resulting from predicted improvements to air quality and the potential for enhancement to be carried out in a way that benefits (for example) at-risk species such as bees through carefully selected planting and maintenance. LTP4's Outcomes/Policies on the other hand have potential to cause minor negative impact overall, with loss of habitat and connectivity being key issues of concern.

It is therefore concluded that, while LTP4 will avoid having a significant detrimental effect on biodiversity, the potential for minor (non-significant) negative effects remain. Mitigation will require the topic to be considered early and holistically, with proper ecological impact assessment and HRA, and with both mitigation and enhancement being prioritised in scheme development.

5.4.2 Air Quality

As summarised in Tables 21 to 23, LTP4 is assessed as being neutral overall in its likely impact on air quality, albeit with some negligible positive elements in respect of the Outcomes and Policies; and minor positive elements associated with the Priorities and the VFM Matrix. The latter also notes some major (significant) positive effects. Reduced congestion and modal shift to sustainable and active travel are key to these predicted improvements; these are not easy to achieve in practice therefore the implementation of LTP4 will be central to determining success. It is likely that vehicle traffic will increase in parallel with the growing population, creating a shifting baseline within which that any positive changes could easily be hidden.

It is concluded that LTP4 will avoid having a detrimental effect on air quality and could contribute positively – providing the topic is considered early and holistically, with proper detailed assessment, and with both prevention and mitigation being prioritised in scheme development.

5.4.3 Human Health

Health Impact Assessment (HIA) has been undertaken for LTP4, and the resultant report is presented in Appendix J. The outcome of the assessment demonstrates that some of the strategic outcomes and Kent-wide priorities within LTP4 will lead to positive health impacts for the Kent population; however, in some instances the health impacts at this stage are unknown.

Human health has also been assessed using matrices. As summarised in Tables 21 to 23, LTP4 is assessed as being neutral overall in its likely impact on human health, albeit with some positive elements in respect of each of Outcomes and Policies, Priorities and the VFM Matrix. The potential for health benefits to arise due to improved safety, reduced noise and air pollution, improved local environments and the adoption of healthier lifestyles is noted; although overcoming the inertia of current travel choices and achieving modal shift to active and sustainable options is a key challenge for LTP4 to face.

No effects of LTP4 were assessed as being negligible, minor or major negative. In accordance with the HIA findings, it is therefore concluded that LTP4 will avoid having a detrimental effect on human health and could contribute positively.

To ensure positive benefits are maximised, the following recommendations for mitigation and/or enhancement are proposed by the HIA:

- Prioritise the allocation of funding to schemes with the least negative impact or a positive impact on health.
- Assess each scheme/proposal for health impacts in order to maximise the positive health impacts of each scheme.
- Plan construction activities to minimise disturbance to pedestrians, residents, tourists and workers within affected areas, for example through the use of temporary acoustic screening, low emission equipment and sound on site practices.
- Continue to encourage people to use sustainable modes of transport, prioritising walking and cycling and educating people in the health benefits of doing so, focusing on the most deprived areas of the county.
- Communicate with schools and health care providers to establish the most appropriate method for encouraging the young and physically inactive to cycle and walk in addition to raising awareness around safety.
- Consider investment in cycle infrastructure and awareness for cyclists and other motorists (including HGVs), due to the vulnerability of cyclists.
- Consider investment in public transport provision in deprived areas.

- Carefully plan schemes in terms of location, scale and design at the project level to ensure air quality reductions are realised.
- Seek to implement measures to counteract traffic growth (e.g. by continuing to improve opportunities for sustainable transport).
- Consider the use of trees in appropriate locations to filter out pollution.
- Ensure that schemes are designed and implemented in line with other KCC policies and guidance concerned with improving public health.

5.4.4 Climatic factors

As summarised in Tables 21 to 23, LTP4 is assessed as being neutral overall in its likely impact on climatic factors, albeit with some negligible positive elements in respect of the Outcomes and Policies; and minor positive elements associated with the Priorities and the VFM Matrix. The latter also notes some major (significant) positive effects. The resilience of schemes and their environs will depend on the use of sustainable design to future-proof both the network and the surrounding area in terms of rainfall, heat and flooding. Decreasing Kent's carbon footprint in the face of increasing traffic resulting from a growing population is a significant challenge, and modal shift plus the use of 'green' technology will need to be central to LTP4's approach.

No effects of LTP4 were assessed as being negligible, minor or major negative. It is therefore concluded that LTP4 will avoid having a detrimental effect on climatic factors and could contribute positively – providing the topic is considered early and holistically, with proper detailed air quality assessment, and with prevention and mitigation in terms of carbon emissions and climate resilience being prioritised in scheme development.

5.4.5 Population

An Equalities Impact Assessment (EqIA) has been undertaken for LTP4, and the resultant report is presented in Appendix K. The EqIA has concluded that LTP4 will have an impact on Kent Residents, as summarised in Table 24, below.

Population effects have also been assessed using matrices. As summarised in Tables 21 to 23, LTP4's Priorities are assessed as being neutral overall in their impact on population, albeit with some positive elements identified in the increased access and connectivity proposed by the Strategic and Non-Strategic schemes. LTP4's Outcomes/Policies and the VFM Matrix on the other hand have potential to cause minor positive impact overall, with both also displaying major (significant) positive elements. Affordability, accessibility, connectivity, safety, enhanced environments and increased ability to choose healthier lifestyles have the potential to work together to enable the population to reach education, employment, healthcare, leisure and

service destinations.

Table 24: Summary of EqIA Findings

Adverse Impact: After completing the initial screening grid, it indicated that LTP4 will not have a significant negative impact on any of the protected characteristics. As stated earlier, individual schemes (example two of the strategic priorities in the Plan are a new Lower Thames Crossing and solution to Operation Stack) will be subject to an individual Equalities Impact Assessment as the schemes are developed and taken forward for delivery to ensure that no protected characteristics are adversely impacted. The consultation was tailored to ensure that a range of people with protected characteristics, and groups representing them, had the consultation specifically promoted to them. This is so we could take their views into account and revise LTP4 and this EqIA accordingly. KCC's Inclusive Communication Policy was followed so that those members of the public that have a disability, for example visual impairments or learning disabilities, were able to access the information in alternative formats. **Positive Impact:** The objectives and aims of LTP4 through the delivery of schemes will promote a better quality life for all residents in Kent by providing a transport network of all modes that enables access to jobs and services within the county. Therefore, it will benefit the overall needs of residents within Kent. The older generation and families with younger children tend to rely on public transport, and therefore will benefit from more affordable and accessible transport solutions (bus and rail) that will enable them to enjoy their journeys throughout Kent, for example through accessing jobs and education services. The provision and promotion of active travel choices will potentially benefit all residents' health and well-being, but equally reducing congestion and pollution will benefit road users. Disabled people, who rely on public transport, will also be a beneficiary.

No effects of LTP4 were assessed as being negligible, minor or major negative. In accordance with the EqIA findings, it is therefore concluded that LTP4 will avoid having a detrimental effect on population, and could contribute positively if the Action Plan provided by the EqIA is followed as shown in Table 25.

Table 25: KCC's EqIA Action Plan

Protected Characteristic	Observations made	Action to be taken	Expected outcomes	Owner	Time Scales	Cost Implications
Age	• Kent has an ageing population. • Older Kent residents are: less mobile; less likely to use independent travel; have greater concerns with safety.	• Ensure the elderly and young can access future consultations. • Ensure there are alternative formats of new transport information. • Include design features for those with limited mobility (e.g. dropped curbs). • Include design features for those with safety concerns (e.g. well-lit pedestrian paths).	The LTP's five outcomes deliver a net benefit for all members of the community: **Outcome 1**: Economic growth and minimised congestion **Outcome 2**: Affordable and accessible door-to-door journeys **Outcome 3**: Safer travel **Outcome 4**: Enhanced Environment **Outcome 5**: Better health and wellbeing All schemes and policies are expected to have regard to achieving these outcomes.	Director of Highways, Transportation and Waste – Roger Wilkin Director of Environment, Planning and Enforcement – Katie Stewart	Ongoing	Will vary dependent on the individual scheme or policy.

Protected Characteristic	Observations made	Action to be taken	Expected outcomes	Owner	Time Scales	Cost Implications
Disability	• Disabled Kent residents are: less mobile; less likely to use independent travel.	• Ensure the disabled can access future consultations and developments • Ensure there are alternative formats of new transport information • Include design features for those with limited mobility (e.g. dropped curbs) • Work with other transport operators to ensure they accommodate disabled users. For example, in January 2017, the Supreme Court ruled that bus drivers must try to persuade other passengers to make room for wheelchair users[1].				

[1] https://www.theguardian.com/society/2017/jan/18/court-backs-wheelchair-user-who-was-stopped-from-boarding-bus-yorkshire-leeds

Protected Characteristic	Observations made	Action to be taken	Expected outcomes	Owner	Time Scales	Cost Implications
Race	• BME Kent residents are more likely to: be dependent on public transport systems; be concerned with safety.	• Ensure BME communities can access future consultations and developments • Ensure there are alternative formats of new transport information (including other languages)				
Gender	• Female residents are: less likely to use independent travel by car; be concerned with safety; make journeys with additional dependents; have multiple stages to their journeys. • Male residents are more likely to suffer injuries or fatalities in a car accident; statistically undertake longer journeys.	• Ensure all genders can access future consultations and developments • Ensure alternative formats of new transport information • Include design for those with safety concerns (e.g. well-lit pedestrian paths)				

Protected Characteristic	**Observations made**	**Action to be taken**	**Expected outcomes**	**Owner**	**Time Scales**	**Cost Implications**
On-going Action Plan						

Protected Characteristic	Observations made	Action to be taken	Expected outcomes	Owner	Time Scales	Cost Implications
Age	• Kent has an ageing population. • Older Kent residents are: less mobile; less likely to use independent travel; have greater concerns with safety.	• Ensure the elderly and young can access future consultations and developments • Ensure there are alternative formats of new transport information • Include accommodations for those with limited mobility (eg: dropped curbs) • Include accommodations for those with safety concerns (eg: well-lit pedestrian paths)	• The LTP's five outcomes deliver a net benefit for all members of the community: Outcome 1) Economic growth and minimised congestion Outcome 2: Affordable and accessible door-to-door journeys Outcome 3: Safer travel Outcome 4: Enhanced Environment Outcome 5: Better health and wellbeing	Relevant Project Manager for the scheme being implemented	On-going or in-line with the writing of an implementation plan.	To be determined.

Protected Characteristic	Observations made	Action to be taken	Expected outcomes	Owner	Time Scales	Cost Implications
Disability	• Disabled Kent residents are: less mobile; less likely to use independent travel.	• Ensure the disabled can access future consultations and developments • Ensure there are alternative formats of new transport information • Include accommodations for those with limited mobility (eg: dropped curbs)				
Race	• BME Kent residents are: more likely to dependent on public transport systems; be concerned with safety.	• Ensure the elderly and young can access future consultations and developments • Ensure there are alternative formats of new transport information • Include accommodations for those with safety concerns (eg: well-lit pedestrian paths)				

Protected Characteristic	Observations made	Action to be taken	Expected outcomes	Owner	Time Scales	Cost Implications
Gender	• Female residents are: less likely to use independent travel by car; be concerned with safety; make journeys with additional dependents; have multiple stages to their journeys. • Male residents are more likely to suffer injuries or fatalities in a car accident; statistically undertake longer journeys.	• Ensure all genders can access future consultations and developments • Ensure alternative formats of new transport information • Include accommodations for those with safety concerns (eg: well-lit pedestrian paths)				

5.4.6 Water

As summarised in Tables 21 to 23, LTP4's Priorities and the VFM Matrix are assessed as being neutral overall in their impact on water, albeit with some negligible and minor positive elements in terms of the potential to improve water quality as a result of improved air quality; and the reduction in likelihood of pollution incidents which could arise from increasing the proportion of sustainable travel modes. LTP4's Outcomes/Policies on the other hand have potential to cause minor negative impact overall, with particular concerns arising from the potential for contaminated run-off reaching water courses, and the potential for decreased recharge to groundwater arising from increases to the impermeable surface area.

It is therefore concluded that, while LTP4 will avoid having a significant detrimental effect on water, the potential for minor (non-significant) negative effects remain. Mitigation will require the topic to be considered early and holistically, with proper drainage and hydrological assessment, and with both prevention and mitigation being prioritised in scheme development.

5.4.7 Cultural Heritage

As summarised in Tables 21 to 23, LTP4's Priorities and the VFM Matrix are assessed as being neutral overall in their impact on cultural heritage, albeit with some negligible and minor positive elements such as improved access to sites, and protection of heritage features resulting from potential improvements to air quality. LTP4's Outcomes/Policies on the other hand have potential to cause minor negative impact overall, with the requirement for land-take for schemes potentially in conflict with heritage assets.

It is therefore concluded that, while LTP4 will avoid having a significant detrimental effect on cultural heritage, the potential for minor (non-significant) negative effects remain. Mitigation will require the topic to be considered early and holistically, with proper assessment, and with both prevention and mitigation being prioritised in scheme development.

5.4.8 Landscape

As summarised in Tables 21 to 23, LTP4's Priorities and the VFM Matrix are assessed as being neutral overall in their impact on landscape, albeit with some negligible and minor positive elements such as improved access to sites, and enhanced visual amenity. LTP4's Outcomes/Policies on the other hand have potential to cause minor negative impact overall, with the location of schemes and the requirement for land-take potentially in conflict with Kent's landscape assets.

It is therefore concluded that, while LTP4 will avoid having a significant detrimental effect on landscape, the potential for minor (non-significant) negative effects remain. Mitigation will require the topic to be considered early and holistically, with proper assessment, and with both mitigation and enhancement being prioritised in scheme development.

5.4.9 Noise and Tranquillity

As summarised in Tables 21 to 23, LTP4's Priorities are assessed as being neutral overall in their impact on noise and tranquillity, albeit with some negligible and minor positive elements in the prioritisation of sustainable and active transport modes which have lower noise emissions, and focus on some areas of deprivation and thus potential to reduce environmental inequality. LTP4's VFM Matrix and the Outcomes/Policies on the other hand have potential to cause negligible to minor negative impact overall, with low noise vehicles potentially conflicting with safety objectives, and schemes designed to increase road and junction capacity being associated with increased noise levels due to changes in traffic volume and flow.

It is therefore concluded that, while LTP4 will avoid having a significant detrimental effect on noise and tranquillity, the potential for minor (non-significant) negative effects remain. Mitigation will require the topic to be considered early and holistically, with proper detailed assessment, and with both prevention and mitigation being prioritised in scheme development.

5.4.10 Material Assets

As summarised in Tables 21 to 23, LTP4's Priorities and the VFM Matrix are assessed as being neutral overall in their impact on material assets, albeit with some positive elements potentially arising from prolonging asset life and reducing maintenance costs by achieving modal shift to sustainable travel. LTP4's Outcomes/Policies on the other hand have potential to cause negligible positive impact overall, resulting from the opportunity to promote the use of sustainable materials and supply chain and more broadly the drive to reduce the environmental footprint of Kent's transport.

No effects of LTP4 were assessed as being negligible, minor or major negative. It is therefore concluded that LTP4 will avoid having a detrimental effect on material assets and could contribute positively – providing the topic is considered early and holistically, with proper lifecycle assessment and sustainable procurement being prioritised in scheme development.

5.4.11 Innovation and Technology

As summarised in Tables 21 to 23, LTP4's Priorities and the VFM Matrix are assessed as being neutral overall in their impact on innovation and technology, albeit with some positive elements

such as the use of asset management systems for highways maintenance, and the promotion of sustainable travel smartphone applications. LTP4's Outcomes/Policies on the other hand have potential to cause minor positive impact overall through the early consideration of opportunities in partnership with environmentalists, engineers and designers.

No effects of LTP4 were assessed as being negligible, minor or major negative. It is therefore concluded that LTP4 could contribute positively to the development and use of environmental innovation and technology – providing the topic is considered early and holistically in scheme development.

6 Consultation and Implementation

6.1 Environmental Report Consultation

Parallel consultation took place for the draft LTP4 and the draft Environmental Report (Rev0), engaging with statutory consultees (Environment Agency, Natural England, Historic England), interested parties and the public.

The 12 week consultation period for the Environmental Report was between 8th August 2016 to 30th October 2016. The consultation questionnaire could be completed online at: kent.gov.uk/localtransportplan. Alternatively, interested parties were invited to write to: Transport Strategy Team, Environment, Planning and Enforcement, Kent County Council, Invicta House, County Hall, Maidstone, Kent ME14 1XX. Hard copies the consultation documents were available via email: alternativeformats@kent.gov.uk or by calling: 03000 421553.

6.2 Final Steps for the LTP and SEA process

Consultation responses relevant to the Environmental Report are presented in Appendix L. The Final draft of LTP4 was developed in the period to January to June 2017, and adoption is anticipated in July 2017. Any changes arising to the LTP4 Review following consultation were assessed as part of the SEA process. This Environmental Report (Rev1) has been published to accompany the final KCC LTP4.

SEA Regulations (2004) 16.3c) (iii) and 16.4 require that a 'statement' be made available to accompany the plan, as soon as possible after the adoption of the plan or programme. The purpose of the SEA Adoption Statement is to outline how the SEA process has influenced and informed the LTP4 Review development process and demonstrate how consultation on the SEA has been taken into account. As the regulations outline, the statement contains the following information:

- The reasons for choosing the preferred strategy for the LTP4 Review as adopted in the light of other reasonable alternatives dealt with;
- How environmental considerations have been integrated into the LTP4 Review;
- How consultation responses have been taken into account; and
- Measures that are to be taken to monitor the significant environmental effects of the LTP4 Review.

To meet these requirements, a SEA Adoption Statement has been published with the adopted version of KCC's Fourth Local Transport Plan 2016-2031.

6.3 Monitoring and Implementation

The SEA Directive states that 'member states shall monitor the significant environmental effects of the implementation of plans and programmes…..in order, inter alia, to identify at an early stage unforeseen adverse effects, and to be able to undertake appropriate remedial action' (Article 10.1).

Monitoring the impacts of LTP4's implementation is therefore not required by the legislation because no significant negative effects have been predicted as a result of this Strategic Environmental Assessment. It can be noted however that the Kent Environment Strategy forms a framework for the monitoring of relevant targets and indicators, and Kent is committed to producing an annual State of the Environment report.

7 Conclusions

The LTP4 Ambition is "to deliver safe and effective transport, ensuring that all Kent's communities and businesses benefit, the environment is enhanced and economic growth is supported". To this end, the Outcomes, Policies and Priorities, preferred Funding Allocation Option, and proposed VFM Prioritisation Matrix have been assessed as being unlikely to have significant adverse effects on the environmental criteria encompassed by the SEA Objectives. Moreover, there is evidence that some effects of LTP4 will have beneficial environmental effects.

It is however important to note the areas in which potential for negligible and minor negative impacts to occur have been identified; namely:

- Outcomes & Policies – minor negative – conflict between Outcome 1 and biodiversity, water, cultural heritage, landscape, and noise & tranquillity.
- VFM Prioritisation – negligible negative – conflict between Safety and Noise & Tranquillity, in the form of the potential hazard to the public associated with low noise vehicles.

Avoidance and mitigation of these impacts will require particular care in the implementation of LTP4 and the prioritisation and assessment of individual schemes.

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Appendices

Appendix A Options Report v2

(provided to Amey by KCC)

Kent County Council

Local Transport Plan 4 – Options Appraisal

Background

Four options have been considered in the preparation of LTP4 in relation to the outcomes the strategy wants to achieve and how this influences funding. The five outcomes set out in LTP4 are:

1. Economic growth
2. Affordable and accessible door-to-door journeys
3. Safer travel
4. Enhanced environment
5. Better health and wellbeing

One of the funding sources used by KCC is the Integrated Transport Block, which is awarded by the Department for Transport (DfT). Once this has been top-sliced for maintenance and then again for the Crash Remedial Measures Programme the remainder is available for the Integrated Transport Programme (ITP). The third Local Transport Plan (LTP3) produced a prioritisation methodology that focused spending in specific geographical areas of the county as well as on the themes identified in the strategy ('themes' being equivalent to 'outcomes' in LTP4). However, since the implementation of LTP3 and the practical application of this methodology some issues have become apparent that indicate it would benefit from amendment. Therefore, a new methodology has been drafted.

The proposed new methodology is a scoring mechanism based on the LTP4 outcomes, deliverability and financial criteria that determines if a scheme should be progressed and then ultimately delivered using ITP funding. Each proposed scheme must target at least one LTP4 outcome and come from a credible source, such as adopted plans and strategies or Member suggestions. The spatial targets have been removed from this methodology because the Growth Points and Growth Areas are no longer recognised designations, and by ensuring schemes are derived from district Transport Strategies then a prerequisite is in place that the infrastructure/improvements are required to support growth or some other identified need. The second part of the options is the distribution of funding amongst the outcomes. Therefore the four options are:

1. Business as usual – i.e. retain existing prioritisation methodology from LTP3 and the funding prioritised spatially as well as being unequally allocated among themes (in the context of LTP4: outcomes).
2. Use the revised prioritisation methodology and equally weight/equally prioritise outcomes – i.e. equal allocation of funding.

3. Use the revised prioritisation methodology and give a priority order to the outcomes and weight them differently – i.e. more available funding for some outcomes (one funding allocation).
4. Use the revised prioritisation methodology and give a priority order to the outcomes and weight them differently – i.e. more available funding for some outcomes (an alternative funding allocation).

Each option will now be explained in more detail.

Options

Option 1: Business as usual – i.e. retain existing prioritisation methodology from LTP3 and keep the funding prioritised on growth points and growth areas as well as being unequally allocated among themes (in the context of LTP4: outcomes).

This option, as used currently, consists of a two stage approach. Firstly, the annual budget is divided according to the weightings for the five LTP3 themes, and secondly funding is assigned spatially. This is demonstrated in figure 1 below.

Budget allocation/spatial distribution methodology

LTP3 Theme	Budget allocation	Spatial distribution	Scheme type	Value for money assessment
Growth Without Gridlock		 Growth Areas and Growth Points	Schemes that support housing and employment	1* - Access road 2 - Bus rapid transit 3 - Cycle route 4 - Traffic management
A Safer and Healthier County		 Problem sites	Schemes that tackle road casualties, air pollution, poor health etc.	1 - Safety schemes 2 - Safe routes to school 3 - Walking routes 4 - Bus route to hospital
Supporting Independence		 Disadvantaged areas	Schemes that provide access to jobs and services for those without access to a private car	1 - Bus improvements 2 - Walking and cycling 3 - Community transport 4 - Public information
Tackling a Changing Climate		 Urban areas	Schemes that promote low emission travel	1 - Low emission vehicles 2 - Travel Plans 3 - Kent Freedom Pass 4 - Walking and cycling
Enjoying Life in Kent		 Countywide	Schemes that improve access to opportunities and reduce impact of transport on Kent and it's communities	1 - Public rights of way improvements 2 - Public realm 3 - Lorry management 4 - Journey planner

* - Indicative scheme types for illustration only

Figure 1: LTP3 budget allocation/spatial distribution methodology

Growth without Gridlock is given the highest weighting owing to the economic challenges facing the county, as well as due to projected housing growth in the Thames Gateway, Ashford, Maidstone and Dover. The lowest weighting was given to Enjoying Life in Kent as all schemes broadly contribute towards a better quality of life in some way. The funding is then

targeted at specific areas to incentivise the delivery of complimentary packages of schemes to improve value for money compared to schemes delivered individually and spread across the county.

A Cost Benefit Analysis (CBA) is carried out for all proposed schemes by calculating a cost score (build, maintenance and external funding contribution) and a benefit score (geographical extent of impacts, distributional impacts and public acceptability) and dividing the latter by the former. This is designed to overcome a limitation in the previous methodology (LTP2) whereby larger, more expensive, schemes that may have a range of positive impacts in a wider area were disadvantaged because the method was biased towards low cost schemes.

Each of the elements assessed for the CBA is given a score of 1, 2 or 3 according to the magnitude of the cost or benefit. This is explained in appendix 1 to this note.

There have been a number of issues identified with this methodology, as follows:

- Two schemes might receive the same score but there is no means of prioritising between them because the scoring system does not differentiate enough. There are only three elements assessed for each of the costs and the benefits with a limited range from 1 – 3 in the scoring.
- The CBA tends to benefit less costly schemes, which are usually the smaller ones. It should assess the magnitude of the impact of the scheme more than the magnitude of the cost, i.e. cost should not be given an equal weighting to benefits.
- The public acceptability criterion in the assessment is flawed as it requires a scheme to be endorsed by an individual or a Parish Council but does not have regard to whether that scheme is in an adopted strategy/plan. If it in a strategy or plan then some extent of public consultation will have been completed and there will be a clear aim that the scheme targets, for example supporting development or addressing some other identified need. Under the existing method a scheme could be progressed so long as it's been proposed by a single member of the public – is this sufficient justification for a scheme where limited funding is available?
- The Crash Remedial Measure (CRM) programme has funding top-sliced from the IT Block budget. Therefore the merit in making available further funding for the Safer Travel outcome as part of the ITP is questionable. The CRM schemes address sites with statistically higher than expected crash rates and if that is the definition of a safety problem then are the 'other' safety schemes actually improving safety? Is there a case for addressing the perception of safety?
- The costs are also assessed by awarding a score based on the relative construction and maintenance costs of individual schemes. Extra points are awarded for external funding, however, even if there is no external funding the scheme gets 1 point. This is another flaw in the methodology.

- The growth areas and growth points designation is no longer relevant and the context for housing development has changed so that this is spread throughout the county rather than in those specified areas since the demise of regional planning.
- Targeting certain schemes in certain areas disadvantages other parts of the county that may suffer from the same issues. For example, although the east Kent coastal towns are areas of deprivation there are also pockets of deprivation in West Kent. Schemes addressing that issue would be prevented from being progressed elsewhere in the county.

Option 2: Use the revised prioritisation methodology and make all outcomes equally weighted and of equal priority – i.e. equal allocation of funding.

A revised prioritisation methodology has been developed to overcome the issues identified above. This is annexed to the draft LTP4 and has been appended to this document (appendix 2). The funding allocations in the appended document are illustrative and vary between options 2, 3 and 4.

The assessment methodology looks at a range of criteria, much wider than the LTP3 version, and has a greater range of possible scores. This also includes the potential for a negative score where the scheme may adversely affect congestion, air quality, connectivity, and so on. The bias towards smaller schemes has been overcome by effectively reserving the extremities of the scoring scale to larger schemes; therefore a small scheme that has been awarded a score of +6 would have to have a highly significant impact to justify that score. Scheme endorsement has also been added as an assessment criterion to replace public acceptability. This reinforces that schemes must come from a legitimate source, with higher scores awarded to those schemes coming from approved transport strategies.

The cost part of the assessment now uses financial data rather than awarding points based on relative proportionate costs of each scheme. This will produce a 'points per pound' final assessment score, and is in effect a value for money figure.

There is no spatial distribution to types of schemes or schemes targeting specific outcomes. Therefore, each proposed scheme must be assessed on its own merits and for the scale of the impact it achieves, regardless of area. The assessment methodology is designed as a means of prioritising but does not determine the ITP or the schemes and therefore it is reliant on local knowledge to accurately assess the magnitude of the benefits. Before carrying out the assessment, officers should consider whether to package schemes together to magnify their benefits.

When the final programme is compiled it may be appropriate to slip schemes to the following financial year where there is a concentration of schemes in one geographical location. For example, it may not be possible to be granted the permits in the school holidays for all schemes.

Outcome	ITP budget allocation (once CRM budget has been top sliced)
Economic growth	20%
Affordable and accessible door-to-door journeys	20%
Safer travel	20%
Enhanced environment	20%
Better health and wellbeing	20%

Table 1: Option 2 funding allocations

Table 1 shows the funding allocations that would be available under option 2. All outcomes are of equal importance and so 20% of the ITP should address each outcome. All proposed schemes should be sorted by the outcome they are targeting and then ranked by their value for money score. Under each outcome, all schemes should be progressed until a total of 20% of the available budget is reached.

Option 3: Use the revised prioritisation methodology and give a priority order to the outcomes and weight them differently – i.e. more available funding for some outcomes (one funding allocation).

This option uses the revised prioritisation methodology as per option 2 but with unequal funding allocations. Economic growth (outcome 1) has been awarded the most owing to the priority with which both central government and KCC strategic policy affords it. Schemes coming from district/borough transport strategies would naturally align with this outcome because they are designed to support housing growth. The lowest amount of funding has been allocated to safer travel (outcome 1) to reflect the fact that at least 50% of the budget has already been top sliced for safety critical schemes delivered through the CRM programme. The additional 10% of funding could be awarded to schemes that address perceived safety issues or sites identified through the use of data other than that which is currently utilised in the calculation of Killed and Seriously Injured (KSI) figures.

Outcome	ITP budget allocation (once CRM budget has been top sliced)
Economic growth	45%
Affordable and accessible door-to-door journeys	15%
Safer travel	10%
Enhanced environment	15%
Better health and wellbeing	15%

Table 2: Option 3 funding allocations

Option 4: Use the revised prioritisation methodology and give a priority order to the outcomes and weight them differently – i.e. more available funding for some outcomes (an alternative funding allocation).

This option is the same as option 3 but with further revised funding allocations. Again, economic growth has been given a greater proportion of the budget. Safer travel has not

been allocated any of the ITP budget to reflect that this outcome has already been addressed by the CRM programme; and no scheme will be implemented if it has a negative effect on safety.

Outcome	ITP budget allocation (once CRM budget has been top sliced)
Economic growth	55%
Affordable and accessible door-to-door journeys	15%
Safer travel	0%
Enhanced environment	15%
Better health and wellbeing	15%

Table 3: Option 4 funding allocations

Preferred Option

In summary, option 1 retains the existing methodology and funding allocation, which includes a spatial element. The other 3 options use the new methodology but with varying allocations to the different outcomes.

Prior to any environmental assessment of the range of options, the KCC preferred option is **option 3**.

Option 1 has been rejected because of the flaws identified above by officers currently using the methodology. Option 2 has been rejected because the outcomes should not be equally weighted when they should align with KCC's strategic and corporate objectives, one of which is to grow the Kent economy. Option 4 has been rejected because it was deemed politically important to continue to fund schemes that target safer travel from the ITP funding in addition to the CRM programme funding.

Option 3, conversely, funds every outcome through the ITP budget but varies the amount of funding for each outcome so that economic growth is prioritised.

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Appendix 1: Integrated Transport Programme CBA methodology for LTP3

(Available on Request)

Appendix 2: Integrated Transport Programme CBA methodology for LTP4

Prioritisation for the Integrated Transport Programme

Background and overview

A robust method of appraising and prioritising local transport schemes is required to ensure that those delivered help to achieve the outcomes specified by this fourth Local Transport Plan (LTP4). The previous prioritisation methodology, developed as a result of the third Local Transport Plan (LTP3), has been updated and modified to enable Kent County Council (KCC) to generate a score for every proposed scheme, with the highest scoring schemes representing the highest possible value for money and contributing towards the LTP4 outcomes.

This methodology applies to schemes seeking Integrated Transport Block funding and used to form the Integrated Transport Programme (ITP). In addition to the ITP, KCC implements a Crash Remedial Measure (CRM) programme, which identifies locations where statistical data shows that an unexpectedly high number of crashes occur. If suitable, schemes are then designed and implemented aiming to prevent future crashes from following the same pattern. More information can be found in the KCC Road Casualty Reduction Strategy. The funding for these schemes is top-sliced from the ITP budget representing the importance with which KCC views safety. CRM funding is allocated on a needs basis but KCC will endeavour to ensure a minimum of 50% of the total budget is allocated to these schemes (achieving Outcome 1: Safer travel).

For the remainder of the funding forming the ITP, each proposed scheme will be assessed for the impact it achieves compared to the cost to implement and maintain it. As illustrated in Figure A4.1, at the beginning of the financial year 1 proposed schemes should be assessed and prioritised. The top schemes selected should form approximately 120% of the anticipated budget and then for the remainder of that year should be worked up to be deliverable in financial year 2, when the budget is formally allocated.

Pre-assessment criteria

Schemes should be put forward from valid sources, such as Transport Strategies that support district/borough Local Plans, approvals at Joint Transportation Boards (JTB) or similar bodies, or from Member and Parish Council suggestions. This requires that some public consultation must have been carried out. They should also be at a stage where minimal additional design work is required so that a reasonable estimation of cost is available. For a scheme to be put forward for the ITP it must demonstrably achieve one or more of the outcomes from LTP4, these are:

Outcome 1: Safer travel

Outcome 2: Economic growth

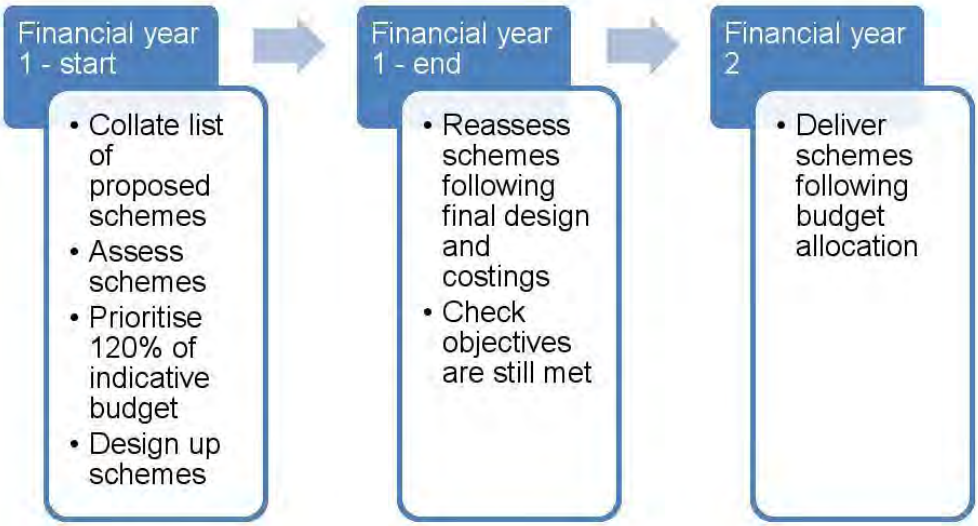
Outcome 3: Enhanced environment

Outcome 4: Better health and wellbeing

Outcome 5: Affordable and accessible door-to-door journeys

However, where a request has been investigated in the last three years and rejected, and the situation has not changed significantly enough to justify reconsidering, it will not be assessed.

Figure A4.1: ITP scheme prioritisation, design and delivery process.



Funding allocation

Consistent with LTP3, available funding will be allocated to the LTP4 outcomes so that the ITP is a rounded programme that targets all of KCC's outcomes. Funding will be allocated as follows:

Outcome	ITP budget allocation (once CRM budget has been top sliced)
Safer travel	20%
Economic growth	20%
Better health and wellbeing	20%
Enhanced environment	20%
Affordable and accessible door-to-	20%

door journeys

Value for money assessment

The value for money assessment considers both the positive and negative effects of a scheme to produce an overall score. However, it has no mechanism to cease the progression of a scheme in the case that the scheme has some strong positive impacts (resulting in a high score) and a wide range of weakly negative impacts (reducing that score slightly). In these cases, the Officers need to ensure that sufficient consultation has been conducted and, where possible, alter the scheme to mitigate negative impacts.

The first part of the process is an impact assessment, producing an impact score for the scheme. These have broadly been grouped into the five LTP4 outcomes, although it is recognised that there is some crossover. When assessing the scale of the impact consideration should be given to the size of the scheme, for example it would be expected that large schemes should have stronger impacts than the smaller schemes and therefore a highly significant positive impact would be required for a small scheme to be awarded 6 points.

	-6	-3	0	3	6
Outcome 1: Safer travel					
Safety – are there any secondary benefits to safety (road, cycleway, footway)?	N/A – scheme should not be progressed if it has a negative impact on safety		Neutral	Positive impact	Strong positive impact
Outcome 2: Economic growth					
Is the scheme directly connected with delivering development?	N/A		No	Yes	Yes – with developer funding contribution
Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?	N/A		No direct impacts in one or more of Kent's 60% most deprived LSOAs	Direct impacts in one or more of Kent's 20% – 60% most deprived LSOAs	Direct impacts in one or more of Kent's 20% most deprived LSOAs
Congestion – what impact will the scheme have on congestion and journey time?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Outcome 3: Better health and wellbeing					
Air quality – what impact will the scheme have on air	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact

quality?					
Active travel – what impact will the scheme have on promoting active travel?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Outcome 4: Enhanced environment					
Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Environment – what impact will the scheme have on the natural environment?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Outcome 5: Affordable and accessible door-to-door journeys					
Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Connectivity – what impact will the scheme have on creating connected door-to-door journeys?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Scale of impact					
	N/A		Localised impact – few people benefit	Wider impact – a substantial number of people benefit	Very wide impact – many people benefit

The second part of the assessment deals with scheme deliverability, producing a deliverability score.

	-1	1	3	6
Scheme endorsement	N/A – scheme should not be assessed if it does not have a legitimate source	Derived from a recognised body, such as a Quality Bus Partnership, from Members or parish councils	Scheme has been to JTB and is approved	Scheme derived from an adopted strategy (including district/borough transport strategies) or has been approved by Cabinet Committee or at a similar level
Scheme readiness	Substantial further design and feasibility work required	Minimal additional design work required some consultation necessary.	Minimal additional design work required, no further consultation necessary	Scheme is ready to construct
Is the scheme dependent on the completion of any other projects?	Yes	No	N/A	

This then produces a total combined score out of a maximum of 85 points.

Next the cost of the scheme is considered. This has three elements to it: the construction costs, the whole life maintenance costs, and any external funding contribution.

Cost element	Cost
Construction cost	£
Maintenance cost (commuted sum or selection of indicative costs supplied)	£
External funding contribution (funding from budgets other than the ITP, e.g. S106 money or Combined Member Grant fund)	-£
Total scheme cost	£

A cost-benefit analysis (CBA) can now be made by taking the total points scored by the scheme and dividing it by the scheme cost, producing a simplistic "points per pound" score that demonstrates the value for money a scheme achieves. Schemes

targeting each LTP4 outcome can then be sorted by the CBA score and the best performing schemes prioritised for delivery the coming financial year.

Compiling the ITP

The cost-benefit analysis does not determine the ITP; rather it is a tool to guide officers. After the proposed schemes have been subjected to CBA they will be validated and scrutinised to ensure that a consistent approach to scoring has been used and that a balanced and deliverable programme is provided, for example so that schemes are not concentrated in one area. The final list will then be approved at senior management level using delegated powers.

Appendix B Options Report v3

(amended by Amey and showing additional Amey comments to be addressed post-consultation)

Produced for SEA Environmental Report
Draft 3 – 04/07/2016

Kent County Council

Local Transport Plan 4 – Options Appraisal Report

Version 2 drafted 08/04/16 by Katie Pettit, Principal Transport Planner (KCC) in advance of the Post-Scoping stages of LTP4's SEA being commenced.
Version 3 drafted 04/07/16 by Jen Taylor, Principal Environmentalist (Amey) as part of Stage B of LTP4's SEA.

Background

Four options have been considered in the preparation of LTP4 in relation to the outcomes the strategy wants to achieve and how this influences funding. The five Outcomes set out in LTP4 are:

1. Economic growth and minimised congestion
2. Affordable and accessible door-to-door journeys
3. Safer travel
4. Enhanced environment
5. Better health and wellbeing

One of the funding sources used by KCC is the Integrated Transport Block, which is awarded by the Department for Transport (DfT). Once this has been top-sliced for maintenance and then again for the Crash Remedial Measures (CRM) Programme the remainder is available for the Integrated Transport Programme (ITP). The third Local Transport Plan (LTP3) produced a prioritisation methodology that focused spending in specific geographical areas of the county as well as on the themes identified in the strategy ('themes' being equivalent to 'outcomes' in LTP4). However, since the implementation of LTP3 some issues have become apparent with the practical application of this methodology that indicate it would benefit from amendment. Therefore, a new methodology has been drafted and is presented here.

The proposed new methodology is a scoring mechanism based on the LTP4 Outcomes, deliverability and financial criteria that determines if a scheme should be progressed and then ultimately delivered using ITP funding. Each proposed scheme must target at least one LTP4 outcome and come from a credible source, such as adopted plans and strategies or Member suggestions. The spatial targets have been removed from this methodology because the Growth Points and Growth Areas are no longer recognised designations, and by ensuring schemes are derived from district Transport Strategies then a prerequisite is in place that the infrastructure/improvements are required to support growth or some other identified need.

The second part of the options is the distribution of funding amongst the Outcomes. Therefore the four options are:

1. Business as usual – i.e. retain existing prioritisation methodology from LTP3 and the funding prioritised spatially as well as being unequally allocated among themes (in the context of LTP4: outcomes).
2. Use the revised prioritisation methodology and equally weight/equally prioritise outcomes – i.e. equal allocation of funding.
3. Use the revised prioritisation methodology and give a priority order to the outcomes and weight them differently – i.e. more available funding for some outcomes (one funding allocation).
4. Use the revised prioritisation methodology and give a priority order to the outcomes and weight them differently – i.e. more available funding for some outcomes (an alternative funding allocation).

Each option will now be explained in more detail.

Options

Option 1: Business as usual – i.e. retain existing prioritisation methodology from LTP3 and keep the funding prioritised on growth points and growth areas as well as being unequally allocated among themes (in the context of LTP4: outcomes).

This option, as used currently, consists of a two stage approach. Firstly, the annual budget is divided according to the weightings for the five LTP3 themes, and secondly funding is assigned spatially. This is demonstrated in figure 1 below.

Budget allocation/spatial distribution methodology

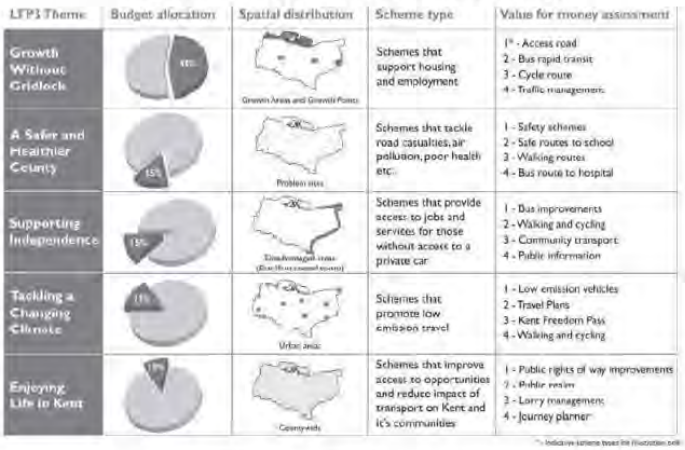


Figure 1: LTP3 budget allocation/spatial distribution methodology

Growth without Gridlock is given the highest weighting owing to the economic challenges facing the county, as well as due to projected housing growth in the Thames Gateway, Ashford, Maidstone and Dover. The lowest weighting was given to Enjoying Life in Kent as all schemes broadly contribute towards a better quality of life in some way. The funding is then targeted at specific areas to incentivise the delivery of complimentary packages of schemes to improve value for money compared to schemes delivered individually and spread across the county.

A Cost Benefit Analysis (CBA) is carried out for all proposed schemes by calculating a cost score (build, maintenance and external funding contribution) and a benefit score (geographical extent of impacts, distributional impacts and public acceptability) and dividing the latter by the former. This is designed to overcome a limitation in the previous methodology (LTP2) whereby larger, more expensive, schemes that may have a range of positive impacts in a wider area were disadvantaged because the method was biased towards low cost schemes.

Each of the elements assessed for the CBA is given a score of 1, 2 or 3 according to the magnitude of the cost or benefit. This is explained in appendix 1 to this note.

There have been a number of issues identified with this methodology, as follows:

- Two schemes might receive the same score but there is no means of prioritising between them because the scoring system does not differentiate enough. There are only three elements assessed for each of the costs and the benefits with a limited range from 1 – 3 in the scoring.
- The CBA tends to benefit less costly schemes, which are usually the smaller ones. It should assess the magnitude of the impact of the scheme more than the magnitude of the cost, i.e. cost should not be given an equal weighting to benefits.
- The public acceptability criterion in the assessment is flawed as it requires a scheme to be endorsed by an individual or a Parish Council but does not have regard to whether that scheme is in an adopted strategy/plan. If it in a strategy or plan then some extent of public consultation will have been completed and there will be a clear aim that the scheme targets, for example supporting development or addressing some other identified need. Under the existing method a scheme could be progressed so long as it's been proposed by a single member of the public – is this sufficient justification for a scheme where limited funding is available?
- The Crash Remedial Measure (CRM) programme has funding top-sliced from the IT Block budget. Therefore the merit in making available further funding for the Safer Travel outcome as part of the ITP is questionable. The CRM schemes address sites with statistically higher than expected crash rates and if that is the definition of a safety problem then are the 'other' safety schemes actually improving safety? Is there a case for addressing the perception of safety?

- The costs are also assessed by awarding a score based on the relative construction and maintenance costs of individual schemes. Extra points are awarded for external funding, however, even if there is no external funding the scheme gets 1 point. This is another flaw in the methodology.
- The growth areas and growth points designation is no longer relevant and the context for housing development has changed so that this is spread throughout the county rather than in those specified areas since the demise of regional planning.
- Targeting certain schemes in certain areas disadvantages other parts of the county that may suffer from the same issues. For example, although the east Kent coastal towns are areas of deprivation there are also pockets of deprivation in West Kent. Schemes addressing that issue would be prevented from being progressed elsewhere in the county.

Option 2: Use the revised prioritisation methodology and make all outcomes equally weighted and of equal priority – i.e. equal allocation of funding.

A revised prioritisation methodology has been developed to overcome the issues identified above. This is annexed to the draft LTP4 and has been appended to this document (appendix 2). The funding allocations in the appended document are illustrative and vary between options 2, 3 and 4.

The assessment methodology looks at a range of criteria, much wider than the LTP3 version, and has a greater range of possible scores. This also includes the potential for a negative score where the scheme may adversely affect congestion, air quality, connectivity, and so on. The bias towards smaller schemes has been overcome by effectively reserving the extremities of the scoring scale to larger schemes; therefore a small scheme that has been awarded a score of +6 would have to have a highly significant impact to justify that score. Scheme endorsement has also been added as an assessment criterion to replace public acceptability. This reinforces that schemes must come from a legitimate source, with higher scores awarded to those schemes coming from approved transport strategies.

The cost part of the assessment now uses financial data rather than awarding points based on relative proportionate costs of each scheme. This will produce a 'points per pound' final assessment score, and is in effect a value for money figure.

There is no spatial distribution to types of schemes or schemes targeting specific outcomes. Therefore, each proposed scheme must be assessed on its own merits and for the scale of the impact it achieves, regardless of area. The assessment methodology is designed as a means of prioritising but does not determine the ITP or the schemes and therefore it is reliant on local knowledge to accurately assess the magnitude of the benefits. Before carrying out the assessment, officers should consider whether to package schemes together to magnify their benefits.

When the final programme is compiled it may be appropriate to slip schemes to the following financial year where there is a concentration of schemes in one geographical location. For example, it may not be possible to be granted the permits in the school holidays for all schemes.

Outcome	ITP budget allocation (once CRM budget has been top sliced)
Economic growth and minimised congestion	20%
Affordable and accessible door-to-door journeys	20%
Safer travel	20%
Enhanced environment	20%
Better health and wellbeing	20%

Table 1: Option 2 funding allocations

Table 1 shows the funding allocations that would be available under option 2. All outcomes are of equal importance and so 20% of the ITP should address each outcome. All proposed schemes should be sorted by the outcome they are targeting and then ranked by their value for money score. Under each outcome, all schemes should be progressed until a total of 20% of the available budget is reached.

Option 3: Use the revised prioritisation methodology and give a priority order to the outcomes and weight them differently – i.e. more available funding for some outcomes (one funding allocation).

This option uses the revised prioritisation methodology as per option 2 but with unequal funding allocations. Economic growth (outcome 1) has been awarded the most owing to the priority with which both central government and KCC strategic policy affords it. Schemes coming from district/borough transport strategies would naturally align with this outcome because they are designed to support housing growth.

Outcome	ITP budget allocation (once CRM budget has been top sliced)
Economic growth and minimised congestion	40%
Affordable and accessible door-to-door journeys	15%
Safer travel	15%
Enhanced environment	15%
Better health and wellbeing	15%

Table 2: Option 3 funding allocations

Option 4: Use the revised prioritisation methodology and give a priority order to the outcomes and weight them differently – i.e. more available funding for some outcomes (an alternative funding allocation).

This option is the same as option 3 but with further revised funding allocations. Again, economic growth has been given a greater proportion of the budget. Safer travel has not

been allocated any of the ITP budget to reflect that this outcome has already been addressed by the CRM programme; and no scheme will be implemented if it has a negative effect on safety.

Outcome	ITP budget allocation (once CRM budget has been top sliced)
Economic growth and minimised congestion	55%
Affordable and accessible door-to-door journeys	15%
Safer travel	0%
Enhanced environment	15%
Better health and wellbeing	15%

Table 3: Option 4 funding allocations

Preferred Option

In summary, option 1 retains the existing methodology and funding allocation, which includes a spatial element. The other 3 options use the new methodology but with varying allocations to the different outcomes.

Prior to any environmental assessment of the range of options, the KCC preferred option is **option 3**.

Option 1 has been rejected because of the flaws identified above by officers currently using the methodology. Option 2 has been rejected because the outcomes should not be equally weighted when they should align with KCC's strategic and corporate objectives, one of which is to grow the Kent economy. Option 4 has been rejected because it was deemed politically important to continue to fund schemes that target safer travel from the ITP funding in addition to the CRM programme funding.

Option 3, conversely, funds every outcome through the ITP budget but varies the amount of funding for each outcome so that economic growth is prioritised.

Produced for SEA Environmental Report
Draft 3 – 04/07/2016

Appendix 1: Integrated Transport Programme CBA methodology for LTP3

(Available on Request)

Appendix 2: Integrated Transport Programme CBA methodology for LTP4

Prioritisation for the Integrated Transport Programme

Background and overview

A robust method of appraising and prioritising local transport schemes is required to ensure that those delivered help to achieve the outcomes specified by this fourth Local Transport Plan (LTP4). The previous prioritisation methodology, developed as a result of the third Local Transport Plan (LTP3), has been updated and modified to enable Kent County Council (KCC) to generate a score for every proposed scheme, with the highest scoring schemes representing the highest possible value for money and contributing towards the LTP4 outcomes.

This methodology applies to schemes seeking Integrated Transport Block funding and used to form the Integrated Transport Programme (ITP). In addition to the ITP, KCC implements a Crash Remedial Measure (CRM) programme, which identifies locations where statistical data shows that an unexpectedly high number of crashes occur. If suitable, schemes are then designed and implemented aiming to prevent future crashes from following the same pattern. More information can be found in the KCC Road Casualty Reduction Strategy. The funding for these schemes is top-sliced from the ITP budget representing the importance with which KCC views safety. CRM funding is allocated on a needs basis but KCC will endeavour to ensure a minimum of 50% of the total budget is allocated to these schemes (achieving Outcome 3: Safer travel).

For the remainder of the funding forming the ITP, each proposed scheme will be assessed for the impact it achieves compared to the cost to implement and maintain it. As illustrated in Figure A4.1, at the beginning of the financial year 1 proposed schemes should be assessed and prioritised. The top schemes selected should form approximately 120% of the anticipated budget and then for the remainder of that year should be worked up to be deliverable in financial year 2, when the budget is formally allocated.

Pre-assessment criteria

Schemes should be put forward from valid sources, such as Transport Strategies that support district/borough Local Plans, approvals at Joint Transportation Boards (JTB) or similar bodies, or from Member and Parish Council suggestions. This requires that some public consultation must have been carried out. They should also be at a stage where minimal additional design work is required so that a reasonable estimation of cost is available. For a scheme to be put forward for the ITP it must demonstrably achieve one or more of the outcomes from LTP4, these are:

Outcome 1: Economic growth and minimised congestion

Outcome 2: Affordable and accessible door-to-door journeys

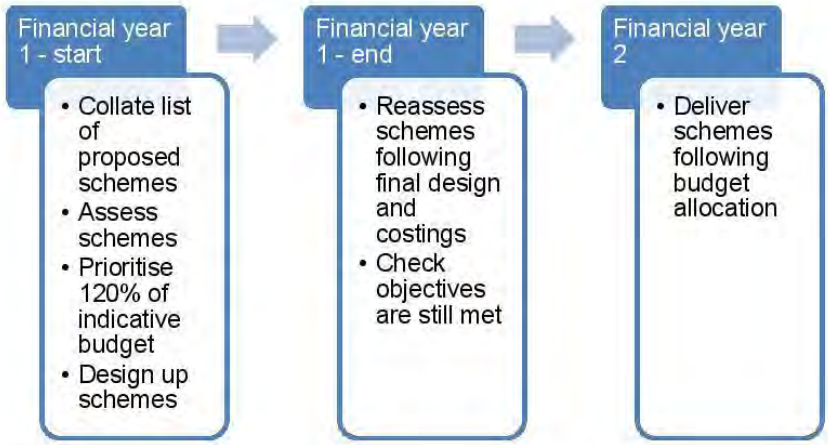
Outcome 3: Safer travel

Outcome 4: Enhanced environment

Outcome 5: Better health and wellbeing

However, where a request has been investigated in the last three years and rejected, and the situation has not changed significantly enough to justify reconsidering, it will not be assessed.

Figure A4.1: ITP scheme prioritisation, design and delivery process.



Funding allocation

Consistent with LTP3, available funding will be allocated to the LTP4 outcomes so that the ITP is a rounded programme that targets all of KCC's outcomes. Funding will be allocated as follows, as per the Options Appraisal:

Outcome	ITP budget allocation (once CRM budget has been top sliced)
Economic growth and minimised congestion	40%
Affordable and accessible door-to-door journeys	15%
Safer travel	15%
Enhanced environment	15%
Better health and wellbeing	15%

Value for money assessment

Comment [JT1]: Meeting with client 140616 – client agreed to the points below and it was agreed that I will make suggestions for a revised and expanded table of assessment for inclusion in consultation draft of LTP4

The value for money assessment considers both the positive and negative effects of a scheme to produce an overall score. However, it has no mechanism to cease the progression of a scheme in the case that the scheme has some strong positive impacts (resulting in a high score) and a wide range of weakly negative impacts (reducing that score slightly). In these cases, the Officers need to ensure that sufficient consultation has been conducted and, where possible, alter the scheme to mitigate negative impacts.

Comment [JT2]: Careful of using this formal language –mustn't allow it to be confused with formal EIA (etc) which comes later in the process. Who carried out the impact assessment? Are they qualified to do so – will they adequately take all variables into account?

The first part of the process is an impact assessment, producing an impact score for the scheme. These have broadly been grouped into the five LTP4 outcomes, although it is recognised that there is some crossover. When assessing the scale of the impact consideration should be given to the size of the scheme, for example it would be expected that large schemes should have stronger impacts than the smaller schemes and therefore a highly significant positive impact would be required for a small scheme to be awarded 6 points.

Indicator	-6	-3	0	3	6
Outcome 1: Economic growth and minimised congestion					
Is the scheme directly connected with delivering development?	N/A		No	Yes	Yes – with developer funding contribution
Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?	N/A		No direct impacts in one or more of Kent's 60% most deprived LSOAs	Direct impacts in one or more of Kent's 20% – 60% most deprived LSOAs	Direct impacts in one or more of Kent's 20% most deprived LSOAs
Congestion – what impact will the scheme have on congestion and journey time?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Climate resilience - how will the scheme contribute to improved climate resilience in Kent?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact

Outcome 2: Affordable and accessible door-to-door journeys					
Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Connectivity – what impact will the scheme have on creating connected door-to-door journeys?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Local Masterplanning - has accessibility and reduced journey time been designed into the overall plan for the scheme area?	N/A		No	Yes	Yes – priority Masterplan area/ scheme
Outcome 3: Safer travel					
Safety – are there any secondary benefits to safety (road, cycleway, footway)?	N/A – scheme should not be progressed if it has a negative impact on safety		Neutral	Positive impact	Strong positive impact
Outcome 4: Enhanced environment					
Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Environment – what impact will the scheme have on…					
Biodiversity?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Carbon Emissions?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact

Water quality and resources?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Natural & Cultural Heritage Landscape & Visual Impact?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Noise & Tranquility?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Material assets (i.e. materials, energy, waste & water resource use in construction & maintenance)?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Technology & innovation (i.e. approaches to achieving sustainable outcomes)?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Outcome 5: Better health and wellbeing					
Air quality – what impact will the scheme have on air quality?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Active travel – what impact will the scheme have on promoting active travel?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Scale of positive impact					
	N/A		Localised impact – few people benefit	Wider impact – a substantial number of people benefit	Very wide impact – many people benefit

The second part of the assessment deals with scheme deliverability, producing a deliverability score.

	-1	1	3	6
Scheme endorsement	N/A – scheme should not be assessed if it does not have a legitimate source	Derived from a recognised body, such as a Quality Bus Partnership, from Members	Scheme has been to JTB and is approved	Scheme derived from an adopted strategy (including district/borough transport

		or parish councils		strategies) or has been approved by Cabinet Committee or at a similar level
Scheme readiness	Substantial further design and feasibility work required	Minimal additional design work required some consultation necessary.	Minimal additional design work required, no further consultation necessary	Scheme is ready to construct
Is the scheme dependent on the completion of any other projects?	Yes	No	N/A	

This then produces a total combined score out of a maximum of 85 points.

Next the cost of the scheme is considered. This has three elements to it: the construction costs, the whole life maintenance costs, and any external funding contribution.

Cost element	**Cost**
Construction cost	£
Maintenance cost (commuted sum or selection of indicative costs supplied)	£
External funding contribution (funding from budgets other than the ITP, e.g. S106 money or Combined Member Grant fund)	-£
Total scheme cost	£

A cost-benefit analysis (CBA) can now be made by taking the total points scored by the scheme and dividing it by the scheme cost, producing a simplistic "points per pound" score that demonstrates the value for money a scheme achieves. Schemes targeting each LTP4 outcome can then be sorted by the CBA score and the best performing schemes prioritised for delivery the coming financial year.

Compiling the ITP

The cost-benefit analysis does not determine the ITP; rather it is a tool to guide officers. After the proposed schemes have been subjected to CBA they will be validated and scrutinised to ensure that a consistent approach to scoring has been used and that a balanced and deliverable programme is provided, for example so that schemes are not concentrated in one area. The final list will then be approved at senior management level using delegated powers.

Appendix C Final Options Report (LTP4 Annexe)

Annexe

Background and overview

A robust method of appraising and prioritising local transport schemes is required to ensure that those delivered help to achieve the outcomes specified by this fourth Local Transport Plan (LTP4). The previous prioritisation methodology, developed as a result of the third Local Transport Plan (LTP3), has been updated and modified to enable Kent County Council (KCC) to generate a score for every proposed scheme, with the highest scoring schemes representing the highest value for money and contributing towards the LTP4 outcomes.

This methodology applies to schemes seeking Integrated Transport Block funding and used to form the Integrated Transport Programme (ITP). In addition to the ITP, KCC implements a Crash Remedial Measure (CRM) programme, which identifies locations where statistical data shows that an unexpectedly high number of crashes occur. If suitable, schemes are then designed and implemented aiming to prevent future crashes from following the same pattern. More information can be found in the KCC Road Casualty Reduction Strategy. The funding for these schemes is top-sliced from the ITP budget representing the importance with which KCC views safety. CRM funding is allocated on a needs basis but KCC will endeavour to ensure a minimum of 50% of the total budget is allocated to these schemes (achieving Outcome 3: safer travel).

For the remainder of the funding forming the ITP, each proposed scheme will be assessed for the impact it achieves compared to the cost to implement and maintain it. As illustrated in Figure A4.1, at the beginning of the first financial year proposed schemes should be assessed and prioritised. The top schemes selected should form approximately 120% of the anticipated budget and then for the remainder of that year should be worked up to be deliverable in the second financial year, when the budget is formally allocated.

Pre-assessment criteria

Schemes should be put forward from valid sources, such as Transport Strategies that support district/borough Local Plans, approvals at Joint Transportation Boards (JTB) or similar bodies, or from Member and Parish Council suggestions. This requires that some public consultation must have been carried out. Members of the public are encouraged to go through their local Parish Council or County Council Member to gain community support; they will then be able to promote the scheme for inclusion in the ITP. They should also be at a stage where minimal additional design work is required so that a reasonable estimation of cost is available. For a scheme to be put forward for the ITP it must demonstrably achieve one or more of the outcomes from LTP4, these are:

Outcome 1: Economic growth and minimised congestion
Outcome 2: Affordable and accessible door-to-door journeys
Outcome 3: Safer travel
Outcome 4: Enhanced environment
Outcome 5: Better health and wellbeing

However, where a request has been investigated in the last three years and rejected, and the situation has not changed significantly enough to justify reconsidering, it will not be assessed.

Figure A4.1: ITP scheme prioritisation, design and delivery process.

Funding allocation

Consistent with LTP3, available funding will be allocated to the LTP4 outcomes so that the ITP is a rounded programme that targets all of KCC's outcomes. Funding will be allocated as follows:

Outcome	ITP budget allocation (once CRM budget has been top sliced)
Economic growth and minimised congestion	40%
Affordable and accessible door-to-door journeys	15%
Safer travel	15% (in addition to top slicing for safety critical schemes)
Enhanced environment	15%
Better health and wellbeing	15%

Value for money assessment

The value for money assessment considers both the positive and negative effects of a scheme to produce an overall score. However, it has no mechanism to cease the progression of a scheme in the case that the scheme has some strong positive impacts (resulting in a high score) and a wide range of weakly negative impacts (reducing that score slightly). In these cases, the officers need to ensure that sufficient consultation has been conducted and, where possible, alter the scheme to mitigate negative impacts.

The first part of the process is an assessment, producing a score for the scheme. These have broadly been grouped into the five LTP4 outcomes, although it is recognised that there is some crossover. Each scheme will be assessed against each criterion regardless of which LTP4 Outcome the scheme is targeting. When assessing the scale of the impact consideration should be given to the size of the scheme, for example it would be expected that large schemes should have stronger impacts than the smaller schemes and therefore a highly significant positive impact would be required for a small scheme to be awarded 6 points.

Score:	-6	-3	0	3	6
Outcome 1: Economic growth and minimised congestion					
Is the scheme directly connected with delivering development?	N/A		No	Yes	Yes – with developer funding contribution
Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?	N/A		No direct impacts in one or more of Kent's 60% most deprived LSOAs	Direct impacts in one or more of Kent's 20% – 60% most deprived LSOAs	Direct impacts in one or more of Kent's 20% most deprived LSOAs
Congestion – what impact will the scheme have on congestion and journey time?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Outcome 2: Affordable and accessible door-to-door journeys					
Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Connectivity – what impact will the scheme have on creating connected door-to-door journeys?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Outcome 3: Safer travel					
Safety – are there any secondary benefits to safety (road, cycleway, footway)?	N/A – scheme should not be progressed if it has a negative impact on safety		Neutral	Positive impact	Strong positive impact

Score:	-6	-3	0	3	6
Outcome 4: Enhanced environment					
Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Environment – what impact will the scheme have on the natural environment? Including landscape quality and considering the impact on protected landscapes, e.g. AONB.	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Outcome 5: Better health and wellbeing					
Air quality – what impact will the scheme have on air quality? Consider any relocation of traffic.	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Active travel – what impact will the scheme have on promoting active travel?	Strong negative impact	Negative impact	Neutral	Positive impact	Strong positive impact
Scale of impact					
How wide an impact will the scheme have?	N/A		Localised impact – few people benefit	Wider impact – a substantial number of people benefit	Very wide impact – many people benefit

The above criteria are to be subjectively assessed to be proportionate to the scale of the schemes being promoted and to ensure that there is not a cost burden on the assessment itself.

The second part of the assessment deals with scheme deliverability, producing a deliverability score.

	-1	1	3	6
Scheme endorsement	N/A – scheme should not be assessed if it does not have a legitimate source	Derived from a recognised body, such as a Quality Bus Partnership, from Members or parish councils	Scheme has been to JTB and is approved	Scheme derived from an adopted strategy (including district/borough transport strategies) or has been approved by Cabinet Committee or at a similar level
Scheme readiness	Substantial further design and feasibility work required	Minimal additional design work required some consultation necessary	Minimal additional design work required, no further consultation necessary	Scheme is ready to construct
Is the scheme dependent on the completion of any other projects?	Yes	No	N/A	

This then produces a total combined score out of a maximum of 85 points. Next the cost of the scheme is considered. This has three elements to it: the construction costs, the whole life maintenance costs, and any external funding contribution.

Cost element	Cost
Construction cost	£
Maintenance cost (commuted sum or selection of indicative costs supplied)	£
External funding contribution (funding from budgets other than the ITP, e.g. S106 money or Combined Member Grant fund)	-£
Total scheme cost	**£**

A cost-benefit analysis can now be made by taking the total points scored by the scheme and dividing it by the scheme cost, producing a simplistic "points per pound" score that demonstrates the value for money a scheme achieves. Schemes targeting each LTP4 outcome can then be sorted by the cost-benefit analysis score and the best performing schemes prioritised for delivery the coming financial year.

Compiling the Integrated Transport Programme

The cost-benefit analysis does not determine the Integrated Transport Programme; rather it is a tool to guide officers. After the proposed schemes have been subjected to cost-benefit analysis they will be validated and scrutinised to ensure that a consistent approach to scoring has been used and that a balanced and deliverable programme is provided, for example so that schemes are not concentrated in one area. The final list will then be approved at senior management level using delegated powers.

Appendix D Plans, programmes and policies relevant to LTP4

Other plan, programme or policy	Objectives or requirements of the other plan, programme or policy
International	
EU Environment Action Programme (2012)	Priority objectives to: • Protect nature and strengthen ecological resilience • Boost sustainable resource-efficient low-carbon growth, and • Effectively address environment-related threats to health.
The EU Biodiversity Strategy to 2020 (2011)	Strategy to halt the loss of biodiversity and degradation of ecosystem services in the EU by 2020, restoring them where feasible and stepping up the EU contribution to averting global biodiversity loss.
The Convention on Biological Diversity (CBD) (1992) CBD Aichi Biodiversity Targets - Strategic Plan 2011-2020 (2010)	CBD main objectives: • The conservation of biological diversity • The sustainable use of components of biological diversity • The fair and equitable sharing of the benefits arising out of the utilization of genetic resources Aichi Biodiversity Targets - strategic goals to: • Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society • Reduce the direct pressures on biodiversity and promote sustainable use • To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity • Enhance the benefits to all from biodiversity and ecosystem services • Enhance implementation through participatory planning, knowledge management and capacity building
European Landscape Convention (2007)	A convention aimed at promoting the protection, management and planning of all landscapes

Water Framework Directive (2000/60/EC)	Aims to protect and enhance Europe's water environment. Its main objectives are to improve water quality and resource use, reduce flood risk and improve aquatic habitats for wildlife. Establishes a framework for the long term protection of inland surface waters, transitional and coastal waters and groundwater. The Framework's implementation in the UK also covers alien invasive species, including aquatic and marginal plants, invertebrates and fish. Nearly all inland and coastal waters are required to reach 'good' status by 2015.
European Climate Change Programme (2000)	Programme aiming to identify and develop all the necessary elements of an EU strategy to implement the Kyoto Protocol. Key objectives by 2020: · A 20% reduction in EU greenhouse gas emissions from 1990 levels; · Raising the share of EU energy consumption produced from renewable resources to 20%; · A 20% improvement in the EU's energy efficiency.
Kyoto Protocol (1997)	The Protocol came into force in February 2005. Developed countries that have ratified the protocol are committed to reducing their emissions of greenhouse gases.
EU Habitats Directive (92/42/EU)	Aims to ensure biodiversity by conserving natural habitats of wild fauna and flora. It requires Special Areas of Conservation (SACs) to be identified.
Nitrates Directive (91/676/EEC)	Aims to reduce and prevent water pollution caused by nitrates from agricultural sources.
Directive on Conservation of Wild Birds (79/409/EEC)	Provides a framework for the conservation of wild birds in Europe. The Directive requires the identification of Special Protection Areas (SPAs) to conserve rare or vulnerable species which, together with SACs, form a network of protected areas called Natura 2000.
World Heritage Convention (UNESCO) (1972)	Parties to the Convention undertake to identify, protect, conserve and present national cultural and natural heritage that contribute to the world heritage of mankind as a whole.
National	

UK Climate Change Risk Assessment (2012)	Identifies the main priorities for adaptation in the UK under five key themes: Natural Environment; Buildings & Infrastructure; Health & Wellbeing; Business & Services; and Agriculture & Forestry.
Biodiversity 2020: A strategy for England's wildlife and ecosystem services (aka England Biodiversity Strategy) (2012)	National targets in the framework of the CBD Aichi biodiversity targets. Stresses that biodiversity needs should be integrated in the development of sustainable communities, urban green space and the built environment.
National Planning Policy Framework (2012)	Replacing previous planning policy guidance and statements, the NPPF aims to ensure sustainable development.
UK National Ecosystem Assessment (2011)	Assessment of the state and value of the UK's natural environment and ecosystem services. Includes an investigation into the monetary and non-monetary value to the economy, society and individuals from various ecosystem services, including how some of these may change in future.
Natural Environment White Paper (2011)	Statement outlining the Government's vision for the natural environment over the next 50 years, together with proposals for practical action to deliver that ambition. Informed by the Lawton Review (2010) that considered England's ecological network and concluded that what is needed is: more, bigger, better and joined.
Government Review of Waste Policy in England (2011)	Describes the Government's vision for managing waste better and decoupling the link between economic growth and increased waste.
Planning and the Historic Environment: Practice Guide (2010)	Guidance on recognising and appropriate means by which to consider heritage assets in the planning system.
The Conservation of Habitats and Species Regulations (2010)	Transposition of The Habitats (92/43/EEC) and Wild Birds (79/409/EEC) Directives into UK law.

Marine and Coastal Access Act (2009)	Seeks to improve management and increase protection of the marine environment and improve recreational access to England's coasts.
Climate Change Act (2008)	Makes provision for the development and promotion of a sustainable energy policy.
Natural Environment and Rural Communities Act (2006)	Establishes 'Biodiversity Duty' for all public authorities in the exercise of their functions. Requires the Secretary of State to publish a list of habitats and species of principal importance for the conservation of biodiversity (section 41 list)
Securing the Future: Delivering UK Sustainable Development Strategy (2005)	Strategy to enable the UK to move towards the goal of sustainable development. The five targets are: · Living within environmental limits; · Ensuring a strong, healthy and just society; · Achieving a sustainable economy; · Promoting good governance and; · Using sound science responsibly.
UK Geodiversity Action Plan	A framework for enhancing the importance and role of geodiversity across the UK. Targets are set out under six themes: · Furthering our understanding of geodiversity; · Influencing planning policy, legislation and development design; · Gathering and maintaining geodiversity information; · Conserving and managing our geodiversity; · Inspiring people to value and care for geodiversity; · Sustaining resources for our geodiversity.
Countryside and Rights of Way Act (2000)	Legislates for public access to the countryside, amends protected site and species provisions within the Wildlife & Countryside Act, and strengthens requirements relating to AONBs.
Wildlife and Countryside Act (as amended) (1981)	Principal legislative mechanism for the protection of wildlife in Great Britain. Protects specific species and Sites of Special Scientific Interest.
Local	

Kent Joint Strategic Needs Assessment and Sustainability Assessment (KCC) (2014)	The improvement of health outcomes through taking a sustainable, integrated approach that considers the economic, social and environmental impacts of decisions.
Renewable Energy Action Plan for Kent (KCC & partners) (2013)	A suite of work packages with actions to be delivered over the course of the plan period (5 years). Covering renewable energy aims including skills and training; planning and development; business and innovation; community energy; wind energy and bioenergy.
Thames River Basin Management Plan (EA) (2009) –updated version currently in progress (2015)	Prepared under the Water Framework Directive, a strategic plan for the long term management of the Thames river basin, setting out objectives for water bodies and broad measures to meet these objectives by catchment area, e.g. Darent & Cray catchment – monitoring and field work into the origins of, causes of and solutions to pollution and sedimentation.
South East River Basin Management Plan (EA) (2009) – updated version currently in progress (2015)	Prepared under the Water Framework Directive, a strategic plan for the long term management of the South East river basin, setting out objectives for water bodies and broad measures to meet these objectives by catchment area, e.g. Stour catchment –modification of abstraction licenses, reducing nutrient input from point sources and agricultural and urban diffuse pollution, improve fish passage and flow, protect and enhance water body ecology.
Catchment Abstraction Management Strategies (EA)	Describes the water resource availability in the area and the way the resources will be managed through abstraction licensing.
Catchment Flood Management Plans (EA)	Give an overview of the flood risk across each river catchment, considering inland flooding from rivers, ground water, surface water and tidal flooding.
National Character Area profiles (2014)	Descriptions of the key ecosystem services provided in each character area, how these benefit people, wildlife and the economy and identifying potential opportunities for positive environmental change.
Kent Biodiversity Action Plan (2004)	The Kent BAP sets out strategic objectives, activities and a spatial vision in order to guide wildlife and ecosystem conservation.
Kent Biodiversity Opportunity Areas (2009) – *updates currently in development (2015)*	Developed by the Kent Biodiversity Partnership, the BOAs indicate where the delivery of Kent BAP targets should be focused to secure maximum biodiversity benefits.

Parish/neighbourhood plans	Under the Localism Act 2011, local communities can prepare neighbourhood plans to establish general planning policies for the development and use of land in a neighbourhood.
Local Authority Local Plan / Local Development Frameworks	Strategic plans setting out development allocations and planning policies.

Appendix E Assessment Matrices – Options

Plan Options	Biodiversity	Air Quality	Health	Climate	Population	Water	Heritage	Landscape	Noise	Materials	Technology & Innovation	Overall	Comments
	Protect and enhance the county's habitats, biodiversity levels, and species of international, national, regional and local importance.	Improve air quality in urban areas and achieve the NAQS and AQMA objectives across the county.	Support transport solutions that promote positive health outcomes through active and sustainable travel choices and improved road safety.	Reduce vulnerability to climate change-related extreme weather events by creating a resilient transport infrastructure and identifying appropriate adaptation and mitigation measures.	Promote accessible, integrated and sustainable transport networks that support the needs of the economy and local communities	Coordinate across the county in parallel with other planning policy, in order to address water catchment quality and resource issues.	Protect and enhance cultural heritage, and access to areas and features of historic, architectural or archaeological importance.	Enhance and protect the character and diversity of all landscape assets through planning and policy decisions and ensure development does not decrease visual and recreational amenity	Seek to reduce noise at source, particularly in existing Noise Important Areas, and to prevent the creation of new Noise Important Areas; protect tranquil areas from impact, including cumulative impact.	Maximise resource efficiency in materials, energy, waste and water use by utilising sustainable construction and procurement methods, and ensuring appropriate ongoing maintenance of	Apply innovative and technological approaches to achieving sustainable outcomes.		
What will be the situation without LTP4 - Option 1: Business as usual – i.e. retain existing prioritisation methodology from LTP3 and keep the funding prioritised on growth points and growth areas as well as being unequally allocated among themes (in the context of LTP4: outcomes). GWG 45%; 15 others; 10 life in Kent	-	-	+	0	0	-	0	-	-	+	++	-2	Option 1's emphasis is housing and employment within the county to support GWG. Having this as a key independant theme by-passes the opportunity to develop sustainable solutions to support GWG (other than by CBA). The funding assessment methodology provides for spatial analysis, although this is based on the theme of LTP3 and therefore is not holistic. The CBA provides very limited ability for consideration of the environment. Funding to key growth points in the county will lead to increased environmental pressures on all areas of the environment will increase. The option does address wider social and commnuity needs in the improved access to non-vehicular travel. The theme for the environment relates primarily to climate change - which is a far-reaching subject in terms of the schemes that could support it. The main issue is the limited spatial distribution of the schemes, leading to an all or nothing outcome for areas. Top slicing of the budget for safety related schemes means that less budget is available for other themes as a wholes. This is despite there being a dedicated theme for safety.
What will be the situation with LTP4 - Option 2: Use the revised prioritisation methodology and make all outcomes equally weighted and of equal priority – i.e. equal allocation of funding. 20% each	+	+	++	+	++	+	+	+	+	+	++	14	Option 2 is a progression from Option 1, developing the issues found into solutions. Because the assessment scheme uses the themes in LPT4, each area is addressed. Funding is allocated to schemes based on their theme. Funding allocation is equalised - the environment based schemes benefits from a 5% increase (20% total) in allocation.Additionally, Outcome 2 has strong environmental and social benefits and so a 20% funding allocation to outcome 2 benefits outcome 4. Revised assessment scheme allows for consideration of the environment for each scheme. The impact of increased funding for economic growth may or may not have a residual negative impact - this will depend on the scoring for Outcome 4, whch may well be high. Scheme design will play a role in deciding the Outcome scores.
What will be the situation with LTP4 - Option 3 [preferred by KCC & captured in the LTP4 Draft for Cabinet Cttee] : Use the revised prioritisation methodology and give a priority order to the outcomes and weight them differently – i.e. more available funding for some outcomes (an alternative funding allocation). 40% ec; 15 others.	0	+	+	+	+	0	0	0	0	0	++	6	Option 3 is a progression from Option 2, developing the issues found into solutions. Because the assessment scheme uses the themes in LPT4, each area is addressed. Funding is allocated to schemes based on their theme. Funding allocation is equalised - the environment based schemes benefits from a 15% funding allocation. Revised assessment scheme allows for consideration of the environment for each scheme. The impact of increased funding for economic growth may or may not have a residual negative impact - this will depend on the scoring for Outcome 4, whch may well be high. Scheme design will play a role in deciding the Outcome scores.
What will be the situation with LTP4 - Option 4: Use the revised prioritisation methodology and give a priority order to the outcomes and weight them differently – i.e. more available funding for some outcomes (an alternative funding allocation). 55% ec; 15 others; 0 safety (as CRM already top sliced)	-	-	0	-	0	-	-	-	-	+	++	-5	Option 4 is a progression from Option 2, developing the issues found into solutions. Because the assessment scheme uses the themes in LPT4, each area is addressed. Funding is allocated to schemes based on their theme. Funding allocation is equalised - the environment based schemes benefits from a 5% increase in allocation. Revised assessment scheme allows for consideration of the environment for each scheme. The impact of increased funding for economic growth may or may not have a residual negative impact - this will depend on the scoring for Outcome 4, whch may well be high. Scheme design will play a role in deciding the Outcome scores. Outcome 3 'Safety' delivers little in environmental benefits and therefore a reduction in the funding allocation for Outcome 3 raises the amount available for Outcome 4 'Environment'. However, the allocation for Outcome 1 'Growth' has benefited directly from the lack of funding for Outcome 3 and this has the strongest negative effect on environmental outcomes.

Appendix F Assessment Matrices - VFM Prioritisation

F1 – Original Matrix as per Options Report v2

Biodiversity, flora & fauna: Protect and enhance the county's habitats, biodiversity levels, and species of international, national, regional and local importance.				
Plan Outcomes	**Plan Policies**	**VFM Indicators**	**Effect**	**Assessment vs SEA Objectives - Biodiversity**
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	Is the scheme directly connected with delivering development?	0	
		Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?	0	
		Congestion – what impact will the scheme have on congestion and journey time?	0	
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?	0	
		Connectivity – what impact will the scheme have on creating connected door-to-door journeys?	0	
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	Safety – are there any secondary benefits to safety (road, cycleway, footway)?	0	
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?	0	
		Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?	0	
		Environment – what impact will the scheme have on the natural environment?	++	Ensures early preliminary assessment of potential biodiversity impacts. **[Potentially ++ however, this is huge in scope, and the impacts will vary between topics it needs to be broken down to get an overview of likely impacts on the SEA Objectives. Query also the qualifications/experience required to make this judgement - will this be assessed by an appropriately qualified expert for each project? If not, the methodology to be used to undertake this preliminary assessment needs to be established and robust.]**
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	Air quality – what impact will the scheme have on air quality?	+	Poor AQ negatively impacts on flora and fauna, so any measures intended to improve AQ have potential to positively impact biodiversity.
		Active travel – what impact will the scheme have on promoting active travel?	0	

Assessment key
++ Major positive
+ Minor positive
0 None /unknown
- Minor negative
- - Major negative

Air Quality: Improve air quality in urban areas and achieve the NAQS and AQMA objectives across the county.				
Plan Outcomes	**Plan Policies**	**VFM Indicators**	**Effect**	**Assessment vs SEA Objectives - Air Quality**
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	Is the scheme directly connected with delivering development?	0	
		Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?	+	Areas of deprivation often coincide with areas of poor environmental quality, therefore schemes in such locations have potential to reduce environmental inequality.
		Congestion – what impact will the scheme have on congestion and journey time?	+	Reduced congestion and therefore more free-flowing traffic can be beneficial to air quality.
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?	0	
		Connectivity – what impact will the scheme have on creating connected door-to-door journeys?	0	
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	Safety – are there any secondary benefits to safety (road, cycleway, footway)?	0	
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?	++	Modal shift away from motorised vehicles reduces emissions and therefore can contribute to locally improved air quality.
		Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?	+	Poor air quality can negatively affect some building materials, therefore improving air quality can assist in maintaining the built environment.
		Environment – what impact will the scheme have on the natural environment?	0	As air quality, below. [See also Biodiversity, above]
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	Air quality – what impact will the scheme have on air quality?	++	Ensures early preliminary assessment of potential air quality impacts.
		Active travel – what impact will the scheme have on promoting active travel?	++	As sustainable travel, above.

Human Health: Support transport solutions that promote positive health outcomes through active and sustainable travel choices and improved road safety.				
Plan Outcomes	**Plan Policies**	**VFM Indicators**	**Effect**	**Assessment vs SEA Objectives - Human Health**
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	Is the scheme directly connected with delivering development?	0	
		Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?	++	Deprived areas are associated with health inequalities, as well as environmental inequality which contributes to the wider determinants of health, therefore schemes in such locations have potential to reduce health inequality and improve human health outcomes.
		Congestion – what impact will the scheme have on congestion and journey time?	+	Reduced congestion has potential to result in reduced noise and air pollution, which in turn can improve health and wellbeing. Improved journey time can have wellbeing benefits.
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?	+	Access to services forms part of the wider determinants of health, and as such can affect health and wellbeing.
		Connectivity – what impact will the scheme have on creating connected door-to-door journeys?	0	
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	Safety – are there any secondary benefits to safety (road, cycleway, footway)?	++	Early preliminary assessment of potential safety benefits will result in improved human health outcomes.
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?	+	Increasing cycling and walking has direct health benefits; reducing vehicle emissions has indirect health benefits by improving noise and air quality.
		Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?	+	Reducing severance encourages travel by cycling and walking, and helps to eliminate food deserts; both of which potentially improve health outcomes.
		Environment – what impact will the scheme have on the natural environment?	++	Environmental factors are the wider determinants of health, therefore early preliminary assessment of potential impacts can result in improved human health outcomes. [See also Biodiversity, above]
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	Air quality – what impact will the scheme have on air quality?	+	Early preliminary assessment of potential air quality impacts may result in improved human health outcomes.
		Active travel – what impact will the scheme have on promoting active travel?	++	Early preliminary assessment of potential active travel opportunities will result in improved human health outcomes.

Climatic factors: Reduce vulnerability to climate change-related extreme weather events by creating a resilient transport infrastructure and identifying appropriate adaptation and mitigation measures.				
Plan Outcomes	**Plan Policies**	**VFM Indicators**	**Effect**	**Assessment vs SEA Objectives - Climatic factors**
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	Is the scheme directly connected with delivering development?	0	Outcome 1 includes climate resilience but this isn't reflected in the VFM indicators - this is a significant omission, although other indicators form a proxy as detailed below.
		Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?	0	
		Congestion – what impact will the scheme have on congestion and journey time?	0	
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?	++	Early preliminary assessment of accessibility impacts will allow sustainable design to be maximised and the least climate-impacting and the most climate-resilient options to be selected. Work needs to be undertaken with colleagues in the County and District Local Planning Authorities, to ensure that new developments come with a presumption of provision of all necessary services within reasonable walking distance, in order to reduce journey numbers.
		Connectivity – what impact will the scheme have on creating connected door-to-door journeys?	+	Early preliminary assessment of connectivity impacts will allow sustainable design to be maximised and the least climate-impacting and the most climate-resilient options to be selected.
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	Safety – are there any secondary benefits to safety (road, cycleway, footway)?	0	
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?	++	Early preliminary assessment of sustainable travel options will allow sustainable design to be maximised and the least climate-impacting and the most climate-resilient options to be selected.
		Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?	+	Severance can result in greater reliance on vehicular transport - early preliminary assessment of this will allow sustainable design to be maximised and the least climate-impacting and the most climate-resilient options to be selected.
		Environment – what impact will the scheme have on the natural environment?	0	
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	Air quality – what impact will the scheme have on air quality?	++	Early preliminary assessment of potential air quality impacts will allow sustainable design to be maximised and the least climate-impacting option to be selected.
		Active travel – what impact will the scheme have on promoting active travel?	+	Early preliminary assessment of active travel options will allow sustainable design to be maximised and the least climate-impacting and the most climate-resilient options to be selected.

Population: Promote accessible, integrated and sustainable transport networks that support the needs of the economy and local communities				
Plan Outcomes	**Plan Policies**	**VFM Indicators**	**Effect**	
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	Is the scheme directly connected with delivering development?	0	
		Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?	++	Deprived areas are associated with health, environmental and economic inequalities; early preliminary assessment to identify such locations will enable schemes to provide appropriate assistance to the local economy and communities in these areas.
		Congestion – what impact will the scheme have on congestion and journey time?	++	Early preliminary assessment of congestion and journey time will allow sustainable design to be maximised and the options best suited to the local economy and communities to be selected.
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?	+	Early preliminary assessment of accessibility impacts will allow sustainable design to be maximised and the options best suited to the local economy and communities to be selected.
		Connectivity – what impact will the scheme have on creating connected door-to-door journeys?	++	Early preliminary assessment of connectivity impacts will allow sustainable design to be maximised and the options best suited to the local economy and communities to be selected.
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	Safety – are there any secondary benefits to safety (road, cycleway, footway)?	+	Early preliminary assessment of safety benefits will allow sustainable design to be maximised and the options best suited to the local economy and communities to be selected.
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?	++	Early preliminary assessment of sustainable travel options will allow sustainable design to be maximised and the options best suited to the local economy and communities to be selected.
		Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?	0	
		Environment – what impact will the scheme have on the natural environment?	0	
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	Air quality – what impact will the scheme have on air quality?	0	
		Active travel – what impact will the scheme have on promoting active travel?	+	Early preliminary assessment of active travel options will allow sustainable design to be maximised and the options best suited to the local economy and communities to be selected.

Water: Coordinate across the county in parallel with other planning policy, in order to address water catchment quality and resource issues.				
Plan Outcomes	**Plan Policies**	**VFM Indicators**	**Effect**	
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	Is the scheme directly connected with delivering development?	0	
		Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?	0	
		Congestion – what impact will the scheme have on congestion and journey time?	0	
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?	0	
		Connectivity – what impact will the scheme have on creating connected door-to-door journeys?	0	
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	Safety – are there any secondary benefits to safety (road, cycleway, footway)?	0	
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?	+	Sustainable travel requires less fuel and oil to be transported than in conventional motorised road transport, and its promotion therefore potentially reduces the likelihood of spillage and consequent pollution incidents, with consequent benefits to water quality.
		Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?	0	
		Environment – what impact will the scheme have on the natural environment?	++	Ensures early preliminary assessment of potential water quality and resource impacts. [See also Biodiversity, above]
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	Air quality – what impact will the scheme have on air quality?	0	
		Active travel – what impact will the scheme have on promoting active travel?	+	Active travel does not require fuel or oil to be transported, and its promotion therefore potentially reduces the likelihood of spillage and consequent pollution incidents, with consequent benefits to water quality.

Cultural Heritage: Protect and enhance cultural heritage, and access to areas and features of historic, architectural or archaeological importance.				
Plan Outcomes	**Plan Policies**	**VFM Indicators**	**Effect**	**Assessment vs SEA Objectives - Cultural Heritage**
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	Is the scheme directly connected with delivering development?	0	
		Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?	0	
		Congestion – what impact will the scheme have on congestion and journey time?	0	
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?	+	Availability of access to cultural heritage resources is as important as their protection – early preliminary assessment will permit this to be taken into account.
		Connectivity – what impact will the scheme have on creating connected door-to-door journeys?	0	
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	Safety – are there any secondary benefits to safety (road, cycleway, footway)?	0	
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?	0	
		Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?	++	Ensures early preliminary assessment of potential cultural heritage impacts.
		Environment – what impact will the scheme have on the natural environment?	+	Landscape and cultural heritage contexts are not easily disentangled, therefore early preliminary assessment of potential landscape-level impacts (natural and archaeological) is vital to allowing mitigation and enhancement of individual features and wider settings. [See also Biodiversity, above]
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	Air quality – what impact will the scheme have on air quality?	+	Poor air quality can negatively affect some building materials, therefore improving air quality can assist in maintaining the built environment.
		Active travel – what impact will the scheme have on promoting active travel?	0	

Landscape: Protect and enhance the character and diversity of all landscape assets through planning and policy decisions and ensure development does not decrease visual and recreational amenity.				
Plan Outcomes	**Plan Policies**	**VFM Indicators**	**Effect**	
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	Is the scheme directly connected with delivering development?	0	
		Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?	0	
		Congestion – what impact will the scheme have on congestion and journey time?	0	
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?	0	
		Connectivity – what impact will the scheme have on creating connected door-to-door journeys?	0	
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	Safety – are there any secondary benefits to safety (road, cycleway, footway)?	0	
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?	0	
		Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?	0	
		Environment – what impact will the scheme have on the natural environment?	++	Ensures early preliminary assessment of landscape and visual impacts of a scheme. [See also Biodiversity, above]
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	Air quality – what impact will the scheme have on air quality?	0	
		Active travel – what impact will the scheme have on promoting active travel?	0	

Noise & Tranquility: Seek to reduce noise at source, particularly in existing Noise Important Areas, and to prevent the creation of new Noise Important Areas; protect tranquil areas from impact, including cumulative imp				
Plan Outcomes	**Plan Policies**	**VFM Indicators**	**Effect**	**Assessment vs SEA Objectives - Noise & Tranquility**
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	Is the scheme directly connected with delivering development?	0	
		Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?	+	Areas of deprivation often coincide with areas of poor environmental quality, therefore schemes in such locations have potential to reduce environmental inequality.
		Congestion – what impact will the scheme have on congestion and journey time?	+	Reduced congestion and therefore more free-flowing traffic can be beneficial to noise levels.
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?	0	
		Connectivity – what impact will the scheme have on creating connected door-to-door journeys?	0	
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	Safety – are there any secondary benefits to safety (road, cycleway, footway)?	0	
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?	++	Modal shift away from motorised vehicles reduces noise emissions and therefore can contribute to locally reduced noise levels.
		Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?	0	
		Environment – what impact will the scheme have on the natural environment?	++	Ensures early preliminary assessment of potential noise impacts. [See also Biodiversity, above]
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	Air quality – what impact will the scheme have on air quality?	0	
		Active travel – what impact will the scheme have on promoting active travel?	++	As sustainable travel, above.

Material Assets: Maximise resource efficiency in materials, energy, waste and water use by utilising sustainable construction and procurement methods, and ensuring appropriate ongoing maintenance of assets.				
Plan Outcomes	**Plan Policies**	**VFM Indicators**	**Effect**	**Assessment vs SEA Objectives - Material Assets**
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	Is the scheme directly connected with delivering development?	0	
		Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?	0	
		Congestion – what impact will the scheme have on congestion and journey time?	0	
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?	0	
		Connectivity – what impact will the scheme have on creating connected door-to-door journeys?	0	
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	Safety – are there any secondary benefits to safety (road, cycleway, footway)?	0	
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?	++	Modal shift away from motorised vehicles reduces energy consumption (oil and fuel use) and therefore can contribute to the sustainable use of material assets.
		Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?	0	
		Environment – what impact will the scheme have on the natural environment?	++	Early preliminary assessment will allow maximised resource efficiency in materials, energy, waste and water use by utilising sustainable construction and procurement methods, and ensuring appropriate ongoing maintenance of assets. [See also Biodiversity, above]
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	Air quality – what impact will the scheme have on air quality?	0	
		Active travel – what impact will the scheme have on promoting active travel?	++	As sustainable travel, above.

Technology & Innovation: Apply innovative and technological approaches to achieving sustainable outcomes.				
Plan Outcomes	**Plan Policies**	**VFM Indicators**	**Effect**	**Assessment vs SEA Objectives - Technology & Innovation**
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	Is the scheme directly connected with delivering development?	0	Outcome 1 seeks to deliver economic growth and development and Outcome 2 seeks accessibilty of employment and services, but there is no mention of the role of technology and innovation in the VFM indicators - this is an omission, as the early consideration of opportunities for technology and innovation can promote a range of sustainable outcomes such as better access to jobs in related industries, use of new technology in sustainable travel and in engineering materials and techniques.
		Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?	0	
		Congestion – what impact will the scheme have on congestion and journey time?	0	
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?	0	
		Connectivity – what impact will the scheme have on creating connected door-to-door journeys?	0	
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	Safety – are there any secondary benefits to safety (road, cycleway, footway)?	0	
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?	+	See above
		Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?	0	
		Environment – what impact will the scheme have on the natural environment?	++	Much of the potential for technology and innovation will come out of discussions between design engineers and environmental consultants, in discussing emission reduction technology, innovations in ecological survey techniques, developments in low noise road surfaces, equipment and machinery, smart use of asset management systems and software, and so forth. Early preliminary assessment of this potential will permit early identification of such approaches.
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	Air quality – what impact will the scheme have on air quality?	0	
		Active travel – what impact will the scheme have on promoting active travel?	+	See above

F2 – Amended Matrix as per Options Report v3

Biodiversity, flora & fauna: Protect and enhance the county's habitats, biodiversity levels, and species of international, national, regional and local importance.				
Plan Outcomes	**Plan Policies**	**Proposed VFM Indicators**	**Effect**	**Assessment vs SEA Objectives - Biodiversity**
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	Is the scheme directly connected with delivering development?	0	
		Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?	0	
		Congestion – what impact will the scheme have on congestion and journey time?	0/+	Reduced congestion and therefore more free-flowing traffic can be beneficial to air quality, which in turn can positively impact biodiversity.
		Climate resilience - how will the scheme contribute to improved climate resilience in Kent?	+	Climate resilience and the impacts on biodiversity are linked. Resilience is important to reduce the impact on flooding, which can have a significant impact on biodiversity. Also planting can have a positive impact on resilience to flooding but also impacts on biodiversity.
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?	0	
		Connectivity – what impact will the scheme have on creating connected door-to-door journeys?	+	Connected door to door journeys should result in increased use of public transport which means lower emissions and decreased requirement for future congestion-relief schemes, having positive impacts on biodiversity.
		Local Masterplanning - has accessibility and reduced journey time been designed into the overall plan for the scheme area?	0	
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	Safety – are there any secondary benefits to safety (road, cycleway, footway)?	0/+	Safety improvements in relation to cycleways and footways could result in increased uptake of active modes. This would reduce single car occupancy, reduce emissions and reduce demand/congestion, all of which may be beneficial to biodiversity.
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?	+	Increased use of public transport which means lower emissions and decreased requirement for future congestion-relief schemes, having positive impacts on biodiversity.
		Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?	0	
		Environment – what impact will the scheme have on...		
		Biodiversity?	++	Ensures early preliminary assessment of potential biodiversity impacts.
		Carbon Emissions?	+	Climate change negatively impacts on flora and fauna, so any measures intended to improve carbon emissions have potential to positively impact biodiversity.
		Water quality and resources?	+	Poor water quality and lack of water resources negatively impacts on flora and fauna, so any measures intended to improve these have potential to positively impact biodiversity.
		Natural & Cultural Heritage Landscape & Visual Impact?	+	Landscape-scale impacts have potential to negatively impact on flora and fauna, so any measures intended to reduce landscape and visual impact have potential to positively impact biodiversity.
		Noise & Tranquility?	+	Increased noise negatively impacts on flora and fauna, so any measures intended to improve noise levels have potential to positively impact biodiversity.
		Material assets (i.e. materials, energy, waste & water resource use in construction & maintenance)?	0	
		Technology & Innovation (i.e. approaches to achieving sustainable outcomes)?	+	Ensures consideration of potential to use (for example) innovative survey techniques such as eDNA (for Great Crested Newts) and new technology (such as EchoMeter Touch bat detector).
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	Air quality – what impact will the scheme have on air quality?	+	Poor AQ negatively impacts on flora and fauna, so any measures intended to improve AQ have potential to positively impact biodiversity.
		Active travel – what impact will the scheme have on promoting active travel?	+	Increased use of active modes means lower emissions and decreased requirement for future congestion-relief schemes, having positive impacts on biodiversity.

Assessment key
++ Major positive
+ Minor positive
0 None /unknown
- Minor negative
-- Major negative

Air Quality: Improve air quality in urban areas and achieve the NAQS and AQMA objectives across the county.

Plan Outcomes	Plan Policies	Proposed VFM Indicators	Effect	Assessment vs SEA Objectives - Air Quality
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	Is the scheme directly connected with delivering development?	0	
		Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?	+	Areas of deprivation often coincide with areas of poor environmental quality, therefore schemes in such locations have potential to reduce environmental inequality.
		Congestion – what impact will the scheme have on congestion and journey time?	+	Reduced congestion and therefore more free-flowing traffic can be beneficial to air quality.
		Climate resilience - how will the scheme contribute to improved climate resilience in Kent?	+	Early preliminary assessment of potential air quality impacts will allow sustainable design to be maximised and the least climate-impacting option to be selected.
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?	0	
		Connectivity – what impact will the scheme have on creating connected door-to-door journeys?	+	Connected door to door journeys should result in increased use of public transport which means lower emissions.
		Local Masterplanning - has accessibility and reduced journey time been designed into the overall plan for the scheme area?	0	
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	Safety – are there any secondary benefits to safety (road, cycleway, footway)?	0	Potential disbenefit to safety in using low emission vehicles such as electric cars.
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?	++	Modal shift away from motorised vehicles reduces emissions and therefore can contribute to locally improved air quality.
		Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?	+	Poor air quality can negatively affect some building materials, therefore improving air quality can assist in maintaining the built environment.
		Environment – what impact will the scheme have on...		
		Biodiversity?	0	
		Carbon Emissions?	++	Early preliminary assessment of potential air quality impacts will allow sustainable design to be maximised and the least climate-impacting option to be selected.
		Water quality and resources?	0	
		Natural & Cultural Heritage Landscape & Visual Impact?	0	
		Noise & Tranquility?	0	
		Material assets (i.e. materials, energy, waste & water resource use in construction & maintenance)?	+	Ensures early preliminary assessment of potential indirect air quality impacts.
		Technology & innovation (i.e. approaches to achieving sustainable outcomes)?	+	Ensures consideration of potential to use (for example) innovative new technology such as NOx-'eating' paint.
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	Air quality – what impact will the scheme have on air quality?	++	Ensures early preliminary assessment of potential direct air quality impacts.
		Active travel – what impact will the scheme have on promoting active travel?	++	As sustainable travel, above.

Human Health: Support transport solutions that promote positive health outcomes through active and sustainable travel choices and improved road safety.				
Plan Outcomes	**Plan Policies**	**Proposed VFM Indicators**	**Effect**	**Assessment vs SEA Objectives - Human Health**
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	Is the scheme directly connected with delivering development?	0	
		Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?	++	Deprived areas are associated with health inequalities, as well as environmental inequality which contributes to the wider determinants of health, therefore schemes in such locations have potential to reduce health inequality and improve human health outcomes.
		Congestion – what impact will the scheme have on congestion and journey time?	+	Reduced congestion has potential to result in reduced noise and air pollution, which in turn can improve health and wellbeing. Improved journey time can have wellbeing benefits.
		Climate resilience - how will the scheme contribute to improved climate resilience in Kent?	+	Climate change resilience is important for wellbeing - access to healthcare, education and employment is important - a transport system that can cope in times of extreme weather is essential to health and wellbeing
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?	+	Access to services forms part of the wider determinants of health, and as such can affect health and wellbeing.
		Connectivity – what impact will the scheme have on creating connected door-to-door journeys?	+	Connected door to door journeys include public transport this means transport is accessible for all (accessing services etc) and reduces vehicle emissions.
		Local Masterplanning - has accessibility and reduced journey time been designed into the overall plan for the scheme area?	+	Connected door to door journeys include public transport this means transport is accessible for all (accessing services etc) and reduces vehicle emissions.
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	Safety – are there any secondary benefits to safety (road, cycleway, footway)?	++	Early preliminary assessment of potential safety benefits will result in improved human health outcomes. Outcomes as a result of fewer fatalities, but also knock on health impacts as a result of people using sustainable modes.
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?	+	Increasing cycling and walking has direct mental and physical health benefits; reducing vehicle emissions has indirect health benefits by improving noise and air quality.
		Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?	+	Reducing severance encourages travel by cycling and walking, and helps to eliminate food deserts; both of which potentially improve health outcomes.
		Environment – what impact will the scheme have on...		
		Biodiversity?	+	Environmental factors are the wider determinants of health, therefore early preliminary assessment of potential impacts can result in improved human health outcomes.
		Carbon Emissions?	+	
		Water quality and resources?	+	
		Natural & Cultural Heritage Landscape & Visual Impact?	+	
		Noise & Tranquility?	+	
		Material assets (i.e. materials, energy, waste & water resource use in construction & maintenance)?	+	
		Technology & innovation (i.e. approaches to achieving sustainable outcomes)?	+	
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	Air quality – what impact will the scheme have on air quality?	++	Early preliminary assessment of potential air quality impacts may result in improved human health outcomes.
		Active travel – what impact will the scheme have on promoting active travel?	++	Early preliminary assessment of potential active travel opportunities will result in improved human health outcomes.

Climatic factors: Reduce vulnerability to climate change-related extreme weather events by creating a resilient transport infrastructure and identifying appropriate adaptation and mitigation measures.				
Plan Outcomes	**Plan Policies**	**Proposed VFM Indicators**	**Effect**	**Assessment vs SEA Objectives - Climatic factors**
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	Is the scheme directly connected with delivering development?	+	This is important to understand in relation to pressure on the transport network - increased pressure could mean an increased impact in times of extreme weather, if the transport system cannot cope.
		Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?	+	It is especially important to understand the impacts on areas of deprivation. Car ownership is lower in deprived areas and people are often more reliant on public transport, so it is important that climate change resilient infrastructure is available during times of extreme weather.
		Congestion – what impact will the scheme have on congestion and journey time?	0	
		Climate resilience - how will the scheme contribute to improved climate resilience in Kent?	++	Early preliminary assessment of accessibility impacts will allow sustainable design to be maximised and the least climate-impacting and the most climate-resilient options to be selected.
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?	+	Early preliminary assessment of accessibility impacts will allow sustainable design to be maximised and the least climate-impacting and the most climate-resilient options to be selected.
		Connectivity – what impact will the scheme have on creating connected door-to-door journeys?	+	Early preliminary assessment of connectivity impacts will allow sustainable design to be maximised and the least climate-impacting and the most climate-resilient options to be selected.
		Local Masterplanning - has accessibility and reduced journey time been designed into the overall plan for the scheme area?	++	Work needs to be undertaken with colleagues in the County and District Local Planning Authorities, to ensure that new developments come with a presumption of provision of all necessary services within reasonable walking distance, in order to reduce journey numbers.
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	Safety – are there any secondary benefits to safety (road, cycleway, footway)?	0/+	Increased number of people taking up active modes of travel (cycling/walking) due to improved safety/safety perception - this reduces emissions.
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?	++	Early preliminary assessment of sustainable travel options will allow sustainable design to be maximised and the least climate-impacting and the most climate-resilient options to be selected.
		Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?	+	Severance can result in greater reliance on vehicular transport - early preliminary assessment of this will allow sustainable design to be maximised and the least climate-impacting and the most climate-resilient options to be selected.
		Environment – what impact will the scheme have on...		
		Biodiversity?	+	Early consideration of the potential for climatic factors to affect local biodiversity and habitat quality will allow resilience to be designed into the scheme.
		Carbon Emissions?	++	Early preliminary assessment of potential carbon emissions will allow sustainable design to be maximised and the least climate-impacting option to be selected.
		Water quality and resources?	0/+	Flooding as a result of extreme weather can affect water quality.
		Natural & Cultural Heritage Landscape & Visual Impact?	0	
		Noise & Tranquility?	0	
		Material assets (i.e. materials, energy, waste & water resource use in construction & maintenance)?	++	Early preliminary assessment of material assets will allow sustainable design to be maximised and the least climate-impacting option to be selected.
		Technology & innovation (i.e. approaches to achieving sustainable outcomes)?	++	Ensures consideration of potential to use (for example) innovative new technology such as integration of solar panels or micro wind turbines into the design solution.
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	Air quality – what impact will the scheme have on air quality?	++	Early preliminary assessment of potential air quality impacts will allow sustainable design to be maximised and the least climate-impacting option to be selected.
		Active travel – what impact will the scheme have on promoting active travel?	+	Early preliminary assessment of active travel options will allow sustainable design to be maximised and the least climate-impacting and the most climate-resilient options to be selected.

Population: Promote accessible, integrated and sustainable transport networks that support the needs of the economy and local communities				
Plan Outcomes	**Plan Policies**	**Proposed VFM Indicators**	**Effect**	**Assessment vs SEA Objectives - Population**
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	Is the scheme directly connected with delivering development?	+	Assessment of whether the need for development is in line with economic and community needs..
		Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?	++	Deprived areas are associated with health, environmental and economic inequalities; early preliminary assessment to identify such locations will enable schemes to provide appropriate assistance to the local economy and communities in these areas.
		Congestion – what impact will the scheme have on congestion and journey time?	++	Early preliminary assessment of congestion and journey time will allow sustainable design to be maximised and the options best suited to the local economy and communities to be selected.
		Climate resilience - how will the scheme contribute to improved climate resilience in Kent?	+	Early preliminary assessment of climate resilience will allow sustainable design to be maximised and the options best suited to the local economy and communities to be selected.
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?	+	Early preliminary assessment of accessibility impacts will allow sustainable design to be maximised and the options best suited to the local economy and communities to be selected.
		Connectivity – what impact will the scheme have on creating connected door-to-door journeys?	++	Early preliminary assessment of connectivity impacts will allow sustainable design to be maximised and the options best suited to the local economy and communities to be selected.
		Local Masterplanning - has accessibility and reduced journey time been designed into the overall plan for the scheme area?	+	Working with LPA, early preliminary assessment of connectivity impacts will allow sustainable design to be maximised and the options best suited to the local economy and communities to be selected.
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	Safety – are there any secondary benefits to safety (road, cycleway, footway)?	+	Early preliminary assessment of safety benefits will allow sustainable design to be maximised and the options best suited to the local economy and communities to be selected..
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?	++	Early preliminary assessment of sustainable travel options will allow sustainable design to be maximised and the options best suited to the local economy and communities to be selected.
		Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?	+	Townscape and heritage assets can be important for sense of identity and economic income. Assessment of impacts on the historic and built environment will allow for the selection of options best suited to the local economy and community.
		Environment – what impact will the scheme have on...		
		Biodiversity?	+	Rich biodiversity and access to green space is important for physical and mental wellbeing and for recreational purposes. Assessment of impacts on biodiversity will allow for the selection of options best suited to the environment and economy.
		Carbon Emissions?	+	Direct and indirect impact of this on the health of the community .
		Water quality and resources?	+	Water quality is extremely important for communities and good health. Assessment of impact on water quality will allow the options best suited to the local economy and communities to be selected
		Natural & Cultural Heritage Landscape & Visual Impact?	+	Landscape assets can be important for sense of identity and economic income. Assessment of impacts will allow for the selection of options best suited to the local economy and community.
		Noise & Tranquility?	+	Noise can have a significant negative impact on mental health, it is therefore important to identify noise sources and seek to reduce noise impacts to the benefit of the community and the economy .
		Material assets (i.e. materials, energy, waste & water resource use in construction & maintenance)?	+	It is important to understand the reduction in fuel demand (due to active travel) and increased revenue from public transport (modal shift from car) - benefiting the public and the economy .
		Technology & innovation (i.e. approaches to achieving sustainable outcomes)?	+	Use of technology to meet community and economic needs e.g. use of public transport/journey apps .
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	Air quality – what impact will the scheme have on air quality?	+	Direct impact of this on the health of the community .
		Active travel – what impact will the scheme have on promoting active travel?	+	Early preliminary assessment of active travel options will allow sustainable design to be maximised and the options best suited to the local economy and communities to be selected.

Water: Coordinate across the county in parallel with other planning policy, in order to address water catchment quality and resource issues.				
Plan Outcomes	**Plan Policies**	**Proposed VFM Indicators**	**Effect**	**Assessment vs SEA Objectives - Water**
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	Is the scheme directly connected with delivering development?	-/+	An understanding of the impact of development on water resource is important. An increasing population means an incease in water demand.
		Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?	0	
		Congestion – what impact will the scheme have on congestion and journey time?	+	Reduced congestion can mean reduced vehicle emissions and improved air quality, thereby improving water quality.
		Climate resilience - how will the scheme contribute to improved climate resilience in Kent?	+	Early preliminary assessment of climate resilience will allow sustainable drainage to be designed and flood risk to be mitigated.
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?	0	
		Connectivity – what impact will the scheme have on creating connected door-to-door journeys?	0	
		Local Masterplanning - has accessibility and reduced journey time been designed into the overall plan for the scheme area?	0	
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	Safety – are there any secondary benefits to safety (road, cycleway, footway)?	+	A shift to sustainable modes means there is reduced reliance on fuel and a reduced likelihood of spills which could contaminate water catchment areas.
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?	+	Sustainable travel requires less fuel and oil to be transported than in conventional motorised road transport, and its promotion therefore potentially reduces the likelihood of spillage and consequent pollution incidents, with consequent benefits to water quality.
		Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?	0	
		Environment – what impact will the scheme have on...		
		Biodiversity?	+	Early preliminary assessment of water catchment issues will allow protection and enhancement of local biodiversity.
		Carbon Emissions?	+	Reduction in carbon emissions to air and knock on impact on water quality.
		Water quality and resources?	++	Ensures early preliminary assessment of potential water quality and resource impacts.
		Natural & Cultural Heritage Landscape & Visual Impact?	+	Early preliminary assessment of water catchment issues will allow protection and enhancement of local biodiversity.
		Noise & Tranquility?	0	
		Material assets (i.e. materials, energy, waste & water resource use in construction & maintenance)?	+	Early preliminary assessment of material assets will allow sustainable design to be maximised and the least polluting and water resource intensive option to be selected.
		Technology & innovation (i.e. approaches to achieving sustainable outcomes)?	+	Ensures consideration of potential to use (for example) innovative technology such as Sustainable Urban Drainage Systems (SUDS).
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	Air quality – what impact will the scheme have on air quality?	0	Reduced airbourne emissions will reduce the knock on impact on water quality.
		Active travel – what impact will the scheme have on promoting active travel?	+	Active travel does not require fuel or oil to be transported, and its promotion therefore potentially reduces the likelihood of spillage and consequent pollution incidents, with consequent benefits to water quality.

Cultural Heritage: Protect and enhance cultural heritage, and access to areas and features of historic, architectural or archaeological importance.				
Plan Outcomes	**Plan Policies**	**Proposed VFM Indicators**	**Effect**	**Assessment vs SEA Objectives - Cultural Heritage**
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	Is the scheme directly connected with delivering development?	0	
		Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?	0	
		Congestion – what impact will the scheme have on congestion and journey time?	+	Congestion during busy periods may deter people from visiting such sites.
		Climate resilience - how will the scheme contribute to improved climate resilience in Kent?	+	Climate change resilience is important as the transport network provides access to areas and features of historic, architectural or archaeological importance.
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?	+	Availability of access to cultural heritage resources is as important as their protection - early preliminary assessment will permit this to be taken into account.
		Connectivity – what impact will the scheme have on creating connected door-to-door journeys?	+	Door to door journeys implies improved public transport provision which would assist in access to areas and features of historic, architectural or archaeological importance.
		Local Masterplanning - has accessibility and reduced journey time been designed into the overall plan for the scheme area?	+	Availability of access to cultural heritage resources is as important as their protection - early preliminary assessment will permit this to be taken into account.
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	Safety – are there any secondary benefits to safety (road, cycleway, footway)?	0/+	Enhanced safety means more people likely to travel and visit areas and features of historic, architectural or archaeological importance.
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?	+	If a scheme brings about an improvement in sustainable travel accessibility of areas and features of historic, architectural or archaeological importance could be improved.
		Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?	++	Ensures early preliminary assessment of potential cultural heritage impacts.
		Environment – what impact will the scheme have on...		
		Biodiversity?	+	Heritage assets may house protected species and therefore enhance biodiversity. Assessing impact on this could reduce negative impacts on biodiversity at areas and features of historic, architectural or archaeological importance.
		Carbon Emissions?	+	Reducing carbon emissions helps to slow down climate change which can have adverse impacts on heritage assets.
		Water quality and resources?	0	
		Natural & Cultural Heritage Landscape & Visual Impact?	+	Landscape and cultural heritage contexts are not easily disentangled, therefore early preliminary assessment of potential landscape-level impacts (natural and archaeological) is vital to allowing mitigation and enhancement of individual features and wider settings.
		Noise & Tranquility?	+	An increase in noise and vibration close to areas and features of historic, architectural or archaeological importance, could reduce the popularity of such sites .
		Material assets (i.e. materials, energy, waste & water resource use in construction & maintenance)?	+	Selection of low-carbon materials reducing the knock on impacts of climate change on heritage assets.
		Technology & innovation (i.e. approaches to achieving sustainable outcomes)?	0	
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	Air quality – what impact will the scheme have on air quality?	+	Poor air quality can negatively affect some building materials, therefore improving air quality can assist in maintaining the built environment.
		Active travel – what impact will the scheme have on promoting active travel?	+	Reducing direct effects of emissions and indirect impact of climate change on assets.

Landscape: Protect and enhance the character and diversity of all landscape assets through planning and policy decisions and ensure development does not decrease visual and recreational amenity.				
Plan Outcomes	**Plan Policies**	**Proposed VFM Indicators**	**Effect**	**Assessment vs SEA Objectives - Landscape**
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	Is the scheme directly connected with delivering development?	0	
		Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?	0	
		Congestion – what impact will the scheme have on congestion and journey time?	+	Identifying impacts on congestion can have a knock on impact on visual and recreational amenity. Reducing congestion is likely to have a positive impact on recreational amenity.
		Climate resilience - how will the scheme contribute to improved climate resilience in Kent?	0	
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?	+	Access to diverse landscapes and recreational amenity is important. Early preliminary assessment of this will enable access to these features to be taken into account.
		Connectivity – what impact will the scheme have on creating connected door-to-door journeys?	+	Door to door journeys implies increase use of public transport. Increased use of public transport may reduce the requirement for further largescale transport schemes which could have a significant impact on visual and recretional amenity.
		Local Masterplanning - has accessibility and reduced journey time been designed into the overall plan for the scheme area?	+	Adequate Masterplanning is essential to defining the vision for an area, and should guide scheme development by proposing land use zoning and overall appearance.
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	Safety – are there any secondary benefits to safety (road, cycleway, footway)?	+	Enhanced safety especially for pedestrians and cyclists could encourage recreation and reduce negative impacts on visual amenity as a result of car use.
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?	+	Increased use of sustainable transport modes may reduce the requirement for further largescale transport schemes which could have a significant impact on visual and recretional amenity.
		Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?	+	Understanding impact on townscape and heritage is important as this has a significant impact on visual and recreational amenity. Early consideration will preserve historic and built environment recreational sites.
		Environment – what impact will the scheme have on...		
		Biodiversity?	+	Early consideration of Landscape Ecology in conjunction with other aspects of landscape and visual impact will allow protection and enhancement of local biodiversity.
		Carbon Emissions?	+	Reducing carbon emissions helps to slow down climate change which can have adverse impacts on landscape assets.
		Water quality and resources?	0	
		Natural & Cultural Heritage Landscape & Visual Impact?	++	Ensures early preliminary assessment of landscape and visual impacts of a scheme.
		Noise & Tranquility?	+	Early assessment is important to safeguard and improve recreational amenity from impacts of noise and vibration as this could deter people from visiting these areas
		Material assets (i.e. materials, energy, waste & water resource use in construction & maintenance)?	+	Provenance and species of brought-in planting, whether watering will be required and if so how often, and the permeability of hard surfaces are examples of how the early consideration of material assets in a landscape context can increase the sustainability of scheme design.
		Technology & innovation (i.e. approaches to achieving sustainable outcomes)?	0/+	Could look at this from a sustainable energy point of view - reducing emissions and knock-on impact of climate change
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	Air quality – what impact will the scheme have on air quality?	+	Reducing emissions helps to preserve biodiversity and slow down climate change which can impact landscape assets.
		Active travel – what impact will the scheme have on promoting active travel?	+	Increased use of active transport modes may reduce the requirement for further largescale transport schemes which could have a significant impact on visual and recretional amenity.

Noise & Tranquility: Seek to reduce noise at source, particularly in existing Noise Important Areas, and to prevent the creation of new Noise Important Areas; protect tranquil areas from impact, including cumulative impact.				
Plan Outcomes	**Plan Policies**	**Proposed VFM Indicators**	**Effect**	**Assessment vs SEA Objectives - Noise & Tranquility**
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	Is the scheme directly connected with delivering development?	0	
		Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?	+	Areas of deprivation often coincide with areas of poor environmental quality, therefore schemes in such locations have potential to reduce environmental inequality.
		Congestion – what impact will the scheme have on congestion and journey time?	+	Reduced congestion and therefore more free-flowing traffic can be beneficial to noise levels.
		Climate resilience - how will the scheme contribute to improved climate resilience in Kent?	0	
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?	0	
		Connectivity – what impact will the scheme have on creating connected door-to-door journeys?	+	Increased door to door journeys implies greater use of public transport which could have a positive impact on reducing noise
		Local Masterplanning - has accessibility and reduced journey time been designed into the overall plan for the scheme area?	+	Understanding the impacts of accessibility in the context of masterplanning and impact on noise important areas could help to reduce noise impacts
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	Safety – are there any secondary benefits to safety (road, cycleway, footway)?	0/-	Potential disbenefit to safety in using low noise vehicles such as electric cars.
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?	++	Modal shift away from motorised vehicles reduces noise emissions and therefore can contribute to locally reduced noise levels.
		Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?	0	
		Environment – what impact will the scheme have on...		
		Biodiversity?	0	
		Carbon Emissions?	0	
		Water quality and resources?	0	
		Natural & Cultural Heritage Landscape & Visual Impact?	0	
		Noise & Tranquility?	++	Ensures early preliminary assessment of potential noise impacts.
		Material assets (i.e. materials, energy, waste & water resource use in construction & maintenance)?	+	Construction methods and certain materials may result in increased noise impacts during both construction and operation. It is therefore important to asses these impacts early to mitigate against negative impacts.
		Technology & innovation (i.e. approaches to achieving sustainable outcomes)?	+	Ensures consideration of potential to use (for example) innovative technology such as low noise road surfaces.
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	Air quality – what impact will the scheme have on air quality?	0	
		Active travel – what impact will the scheme have on promoting active travel?	++	As sustainable travel, above.

Material Assets: Maximise resource efficiency in materials, energy, waste and water use by utilising sustainable construction and procurement methods, and ensuring appropriate ongoing maintenance of assets.				
Plan Outcomes	**Plan Policies**	**Proposed VFM Indicators**	**Effect**	**Assessment vs SEA Objectives - Material Assets**
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	Is the scheme directly connected with delivering development?	+	It is important to understand the lifetime requirements of the asset. Assessment at an early stage presents opportunity to identify sustainable solutions.
		Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?	+	Assessment of the impact of a scheme on deprived areas could represent the opportunity to engage local business and upskill vulnerable groupd/unemployed.
		Congestion – what impact will the scheme have on congestion and journey time?	+	Reducing congestion could be beeficial for prolonging the life of an asset and reducing maintenance costs. Early assessment of this could be beneficial for reducing cost.
		Climate resilience - how will the scheme contribute to improved climate resilience in Kent?	+	The use of sustainable materials, renewables and designing for resilience.
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?	0	
		Connectivity – what impact will the scheme have on creating connected door-to-door journeys?	0/+	Provision of public transport for door to door journeys could also maximise resource efficiency eg: green buses
		Local Masterplanning - has accessibility and reduced journey time been designed into the overall plan for the scheme area?	+	Very important that sustainable design and construction is interconnected with local masterplanning to ensure accessibility.
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	Safety – are there any secondary benefits to safety (road, cycleway, footway)?	0/+	knock on impact of more people using sustainable modes a reduced need for significant schemes and reduction in fuel use.
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?	++	Modal shift away from motorised vehicles reduces energy consumption (oil and fuel use) and therefore can contribute to the sustainable use of material assets.
		Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?	0	
		Environment – what impact will the scheme have on...		
		Biodiversity?	0	
		Carbon Emissions?	+	Early preliminary assessment will allow opportunities for carbon emisison reduction to be identified by utilising sustainable construction and procurement methods, and ensuring appropriate ongoing maintenance of assets.
		Water quality and resources?	+	Early preliminary assessment will allow opportunities for reduced water use and more effective water drainage and storage, by utilising sustainable construction and procurement methods, and ensuring appropriate ongoing maintenance of assets.
		Natural & Cultural Heritage Landscape & Visual Impact?	+	It is important to understand the impact of sustainable construction on heritage, landscape and visual assets. Some methods could have increased or reduced permanent or temporary impacts.
		Noise & Tranquility?	+	It is important to understand the impact of sustainable construction on noise and tranquility. Some methods could have increased or reduced permanent or temporary impacts.
		Material assets (i.e. materials, energy, waste & water resource use in construction & maintenance)?	++	Early preliminary assessment will allow maximised resource efficiency in materials, energy, waste and water use by utilising sustainable construction and procurement methods, and ensuring appropriate ongoing maintenance of assets.
		Technology & innovation (i.e. approaches to achieving sustainable outcomes)?	++	Early preliminary assessment will allow innovative approaches to construction and maintenance, such as use of ICT-based Asset Management Systems.
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	Air quality – what impact will the scheme have on air quality?	+	Sustainable design and construction should have a positive impact on air quality and early assessment will allow for the identification of methodologies to reduce impact on air quality.
		Active travel – what impact will the scheme have on promoting active travel?	++	As sustainable travel, above.

Technology & Innovation: Apply innovative and technological approaches to achieving sustainable outcomes.				
Plan Outcomes	**Plan Policies**	**Proposed VFM Indicators**	**Effect**	**Assessment vs SEA Objectives - Technology & Innovation**
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	Is the scheme directly connected with delivering development?	0	The early consideration of opportunities for technology and innovation can promote a range of sustainable outcomes such as better access to jobs in related industries.
		Does the scheme have impacts in one of the most deprived Lower Super Output Areas using the Index of Multiple Deprivation?	0	
		Congestion – what impact will the scheme have on congestion and journey time?	0	
		Climate resilience - how will the scheme contribute to improved climate resilience in Kent?	+	
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	Accessibility – what impacts will the scheme have on access to key services (jobs, education, healthcare, etc.)?	+	Door to door journeys and public transport can be promoted through the use of technology eg: sustainable travel apps.
		Connectivity – what impact will the scheme have on creating connected door-to-door journeys?	+	
		Local Masterplanning - has accessibility and reduced journey time been designed into the overall plan for the scheme area?	+	The early consideration of opportunities for technology and innovation can promote a range of sustainable outcomes such as the use of new technology in sustainable travel and in engineering materials and techniques.
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	Safety – are there any secondary benefits to safety (road, cycleway, footway)?	+	
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	Sustainable travel – what impact will the scheme have on sustainable travel (e.g. modal shift)?	+	
		Townscape and heritage – what impacts will the scheme have on the historic and built environment (including severance)?	0	
		Environment – what impact will the scheme have on...	++	Much of the potential for technology and innovation will come out of discussions between design engineers and environmental consultants, in discussing emission reduction technology, innovations in ecological survey techniques, developments in low noise road surfaces, equipment and machinery, smart use of asset management systems and software, and so forth. Early preliminary assessment of this potential will permit early identification of such approaches.
		Biodiversity?		
		Carbon Emissions?		
		Water quality and resources?		
		Natural & Cultural Heritage Landscape & Visual Impact?		
		Noise & Tranquility?		
		Material assets (i.e. materials, energy, waste & water resource use in construction & maintenance)?		
		Technology & innovation (i.e. approaches to achieving sustainable outcomes)?		
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	Air quality – what impact will the scheme have on air quality?	+	Remote monitoring of air quality as part of transportation schemes – combining sustainable transport with technology enabling data collection.
		Active travel – what impact will the scheme have on promoting active travel?	+	See above

Appendix G Assessment Matrices – LTP4 Policies

Plan Outcomes	Plan Policy	Effects	Biodiversity, flora & fauna: Protect and enhance the county's habitats, biodiversity levels, and species of international, national, regional and local importance.
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	-	Overall, LTP4 aims to alleviate congestion in urban areas, and along major trunk roads. It also opens areas up for other types of development with potential consequent cumulative impact. Effects of reduced congestion on biodiversity will be low; impacts to biodiversity from increased land take without habitat replacement and degradation of existing habitat is possible and should be avoided where practicable. One of the key issues with transport and ecology is ecological connectivity and potential barries to habitat networks. The drive for economic growth with community and economic prosperity at its heart may be at variance with ecological protection. Opportunities for enhancement of biodiversity should be taken wherever possible.
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	0	LTP4 aims to provide affordable and accessible door to door journeys. It is assumed that this would increase the use of public transport, by the public, to gain access to services. A modal shift from car occupancy to public transport would reduce congestion and vehicle emissions and in the long term could prevent the need for future large-scale congestion-relief schemes. A reduction in emissions may slightly reduce negative impacts on biodiversity and the prevention of future schemes would reduce land-take and the associated impacts on biodiversity.
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	0/-	Improved safety does not in itself provide benefits to biodiversity. The isues in 1, above, in respect of potential negative impacts arising from schemes forming barriers to habitat connectivity and causing habitat degradation, may apply.
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	0/+	Reduction of the vehicle transport footprint will benefit natural areas from removal of the threat to individuals and threat to habitat quality. Safeguarding the land and aquatic environments is explicit in KES and can create positive benefits when enacted - however to do so these schemes will need to go beyond 'avoidance of impact' and produce significant environmental enhancement. Biodiversity is a key determinant of environmental quality and will be considered under LTP4 within the VFM decision matrix for funding individual schemes under the Integrated Transport Programme (ITP).
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	0	LTP4 is commited to promoting active travel choices and encouraging modal shift from car use to walking and cycling. The promotion of active modes may reduce car use and therefore (as 2, above) reduce emissions and the need for future congestion-relief schemes.

Assessment key
++ Major positive
+ Minor positive
0 None identified
- Minor negative
-- Major negative

Plan Outcomes	Plan Policy	Effects	Air Quality: Improve air quality in urban areas and achieve the NAQS and AQMA objectives across the county.
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	0	Air quality improvement may result from reduced vehicle congestion. Increased economic activity can however introduce increased levels of traffic to areas not previously experiencing such activity. The requirement to build climate resilience into the schemes does not in itself demonstrate that climate-affecting emissions will also be targeted. Scheme construction can increase local air pollutants if not properly managed.
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	0/+	Reduction of single occupancy car journeys and a move towards integrated transport systems with affordable journeys will have a positive impact on air quality by the reduction of PM10, NOx etc. It should be noted that most buses and some trains are associated with emissions which will in themselves contribute to the local air pollution burden - therefore clear benefit would only be seen if there is investment in these modes to improve their environmental performance (e.g. electric trains and road vehicles; hydrogen fuel cell-powered buses etc.); although normalised emissions per passenger would still be less than single car occupancy, even without investment.
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	0	Improved safety does not in itself provide benefits to air quality, although changes to traffic flow, density and average speed may affect emissions.
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	0/+	Reduction of the vehicle transport footprint may benefit air quality during scheme operation if designed to go beyond 'avoidance of impact' and produce significant environmental enhancement. There should also be a focus on emission reduction during construction phase as this can cause local increase in air pollution. Air quality is a key determinant of environmental quality and will be considered under LTP4 within the VFM decision matrix for funding individual schemes under the Integrated Transport Programme (ITP).
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	0/+	LTP4 promotes modal shift from car use to active and sustainable modes such as walking and cycling. If successful such modal shift will result in reduced emissions to air and thereby locally improved air quality. It should however be noted that achieving significant modal shift is difficult, and it is accepted within LTP4 that cars will remain a primary method of personal transportation for the duration of the plan.

Plan Outcomes	Plan Policy	Effects	Human Health: Support transport solutions that promote positive health outcomes through active and sustainable travel choices and improved road safety.
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	0	LTP4 aims to promote economic growth by improved management of the transport network. A focus of LTP4 is to promote schemes that reduce congestion, thereby having a positive impact on human health as a result of the assosiated reduction in vehicle emissions.
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	+	LTP4 promotes affordable, accessible and connected transport and recognises that transport plays a key role in access to employment, education health and other services. Access to these services has a significant impact on mental and physical wellbeing and improved affordability and connectivity of the network would result in positive health outcomes especially for those residing in areas of deprivation.
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	++	LTP4 commits to providing a safer road, footway and cycleway network to reduce the likelihood of casualties, in addition to encouraging other transport providers to improve safety on their networks. LTP4 will reduce road casualties through the Crash Remedial Measures (CRM) Programme which targets safety critical schemes. In addition, LTP4 also highlights commitment to education and enforcement activities.
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	+	Environmental factors form part of the wider determinants of health and wellbeing, and as such schemes that deliver enhanced environmental outcomes will promote positive health outcomes.
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	++	LTP4 outlines the aspiration to make active travel an attractive and realistic choice for short journeys in Kent. Walking and cycling will be encouraged by integrating active travel into planning by providing and maintaining appropriate routes for walking and cycling and supporting young people through training and building skills. A shift from car travel to active modes would result in numerous positive health impacts, including; a reduction in; obesity, cardio vascular disease and diabetes and improved mental wellbeing.

Plan Outcomes	Plan Policy	Effects	Climatic factors: Reduce vulnerability to climate change-related extreme weather events by creating a resilient transport infrastructure and identifying appropriate adaptation and mitigation measures.
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	0	It is possible that more development will simply lead to the introduction of more concrete and tarmac and therefore potentially more flooding due to increased runoff. Schemes need to consider their own resilience - i.e. whether the new or improved infrastucture will be impacted by flooding/extreme weather events - and also their impact on the resilience of surrounding areas - i.e. has their run-off and drainage been designed to protect nearby residents, infrastructure, services and habitats. Green house gas emissions are a significant direct impact of industrial and commercial activity, thus increased economic activity can introduce increased levels of emissions. Efficient transport networks will support the aim to improve efficiency but not necessarily reduce overall emissions. It is not enough to design climate resilient schemes - they need to incoporate mechanisms by which to reduce carbon emissions as well, for example by also promoting Outcomes 2 and 5.
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	0/+	LTP4 aims to provide affordable and accessible door to door journeys. It is assumed that this would increase the use of public transport, by the public, to gain access to services. A modal shift from car occupancy to public transport would reduce carbon emissions and in the long term could prevent the need for future large-scale congestion-relief schemes. It should be noted that most buses and some trains are associated with emissions which will in themselves contribute to carbon emissions - therefore clear benefit would only be seen if there is investment in these modes to improve their carbon performance (e.g. electric trains and road vehicles; hydrogen fuel cell-powered buses etc.); although normalised emissions per passenger would still be less than single car occupancy, even without investment.
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	0	In itself, safer travel networks will not provide climate change resilience, although smart design should incorporate this for all schemes irrespective of lead outcome.
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	0/+	Reduction of the vehicle transport footprint may reduce carbon emissions during scheme operation if designed to go beyond 'avoidance of impact' and produce significant environmental enhancement; this is caveated as per 2, above. Climatic factors are a key determinant of environmental quality and will be considered under LTP4 within the VFM decision matrix for funding individual schemes under the Integrated Transport Programme (ITP).
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	0/+	Promotion of health and wellbeing via the delivery of improved air quality and more walking and cycling has potential to reduce carbon emissions. It should however be noted that achieving significant modal shift is difficult, and it is accepted within LTP4 that cars will remain a primary method of personal transportation for the duration of the plan.

Plan Outcomes	Plan Policy	Effects	Population: Promote accessible, integrated and sustainable transport networks that support the needs of the economy and local communities
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	+	Access and connectivity are the key elements of the KES and will be supported by the commitment of LTP4 to deliver schemes that reduce congestion and improve journey time reliability to enable economic growth. LTP4 recognises the need to meet demand from a growing population. Slight gains may be made from access to employment opportunities as a result of network development.
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	+	LTP4 promotes affordable, accessible and connected transport and recognises that transport plays a key role in access to employment, education health and other services. Improved access to these services will have a significant positive impact on the economy and local communities.
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	++	LTP4 commits to providing a safer road, footway and cycleway network to reduce the likelihood of casualties; in addition to encouraging other transport providers to improve safety on their networks, LTP4 will reduce road casualties through the Crash Remedial Measures (CRM) Programme which targets safety critical schemes. In addition, LTP4 also highlights commitment to education and enforcement.
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	+	A slight benefit may be achieved by the protection and enhancement of the environment. Primarily this is potentially via air quality improvements but also by the provision of and access to quality open space as a result of schemes specifically designed to enhance public places.
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	+	Active travel choices, affordable sustainable travel options and a reduction in transport emissions will - if successful - have a positive impact on the mental and physical wellbeing of affected communities.

Plan Outcomes	Plan Policy	Effects	Water: Coordinate across the county in parallel with other planning policy, in order to address water catchment quality and resource issues.
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	-	LTP4 aims to promote schemes that focus on economic growth - these new schemes have potential to negatively impact water quality (e.g. by permitting run-off of contaminated water from the carriageway into surface water bodies - with possible consequences for compliance with the Water Framework Directive); and water resources (e.g. with increased impermeable surface area decreasing recharge to groundwater).
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	0	No direct link between water and accessibility - however there may be some slight indirect benefit arising from the promotion of more sustainable forms of transport and therefore fewer vehicles on the road, in terms of less pollution events occurring.
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	0	Improved safety does not in itself provide benefits to the water environment.
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	0/+	Reduction of the vehicle transport footprint may benefit natural areas from removal of the threat to habitat quality; safeguarding the aquatic environment is explicit in KES and can create positive benefits when enacted - however to do so these schemes will need to go beyond 'avoidance of impact' and produce significant environmental enhancement. Water is a key determinant of environmental quality and will be considered under LTP4 within the VFM decision matrix for funding individual schemes under the Integrated Transport Programme (ITP).
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	0/+	No clear link to KES or the SEA objectives. Minor benefits may arise from the promotion of more sustainable forms of transport in terms of fewer pollution events.

Plan Outcomes	Plan Policy	Effects	**Cultural Heritage: Protect and enhance cultural heritage, and access to areas and features of historic, architectural or archaeological importance.**
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	-	Effects of reduced congestion on cultural heritage will be low; impacts from increased land take is possible and should be avoided where practicable and otherwise mitigated. The drive for economic growth with community and economic prosperity at its heart may be at variance with cultural heritage protection. Opportunities for enhancement of cultural heritage resources and their setting should be taken wherever possible.
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	+	Some potential to improve public access to cultural heritage resources and settings, and therefore encourage their appreciation and thus preservation.
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	0	No clear impacts arise from improvements to safety, although safer networks may encourage increased access to the historic environment.
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	0/+	Reduction of the vehicle transport footprint is unlikely to benefit cultural heritage. Schemes designed solely with the aim of enhancement may achieve benefits if designed to go beyond 'avoidance of impact' and produce significant environmental enhancement. Cultural heritage is a key determinant of environmental quality and will be considered under LTP4 within the VFM decision matrix for funding individual schemes under the Integrated Transport Programme (ITP).
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	0/+	No clear impacts arise from improvements to affordability and access. Improved air quality has potential to benefit the preservation of built heritage features.

Plan Outcomes	Plan Policy	Effects	**Landscape: Protect and enhance the character and diversity of all landscape assets through planning and policy decisions and ensure development does not decrease visual and recreational amenity.**
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	-	Effects of reduced congestion on landscape will be low; impact from increased land take is possible and should be avoided where practicable and otherwise mitigated. The drive for economic growth with community and economic prosperity at its heart may be at variance with landscape protection. Opportunities for enhancement of landscape and visual impact should be taken wherever possible.
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	+	Some potential to improve public access to landscape resources, and therefore encourage their appreciation and thus preservation.
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	0	No clear impacts arise from improvements to safety.
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	0/+	Both RES and the LTP support the enhancement and protection of the landscape through planning and decision making. Reduction of the vehicle transport footprint is unlikely to significantly benefit landscape and visual impact. Schemes designed solely with the aim of enhancement may achieve benefits if designed to go beyond 'avoidance of impact' and produce significant environmental enhancement. Landscape is a key determinant of environmental quality and will be considered under LTP4 within the VFM decision matrix for funding individual schemes under the Integrated Transport Programme (ITP).
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	0	No clear impacts arise from improvements to health and wellbeing.

Plan Outcomes	Plan Policy	Effects	**Noise & Tranquility: Seek to reduce noise at source, particularly in existing Noise Important Areas, and to prevent the creation of new Noise Important Areas; protect tranquil areas from impact, including cumulative impact.**
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	-	Economic growth may add to both noise sources and receptors, however, a reduction in congestion could decrease noise and associated disturbance.
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	+	Sustainable travel can have a lower noise impact than motorised vehicles; but would require careful design to maximise this, including other measures such as excluding non-sustainable transport modes from certain location.
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	0	No clear plans to support noise reduction, although future scheme design can specify noise reduction measures.
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	0/+	Reduction of the vehicle transport footprint may benefit noise levels during scheme operation if designed to go beyond 'avoidance of impact' and produce significant environmental enhancement. There should also be a focus on noise reduction and mitigation during construction phase as this can cause local increases. Noise is a key determinant of environmental quality and will be considered within the VFM decision matrix for funding individual schemes under the Integrated Transport Programme (ITP).
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	0/+	Walking and cycling have lower noise impact than motorised vehicles; however significant modal shift - or segregation of modes to create more tranquil 'sustainable transport' locations - would be required for this to be reflected in noise monitoring results.

Plan Outcomes	Plan Policy	Effects	Material Assets: Maximise resource efficiency in materials, energy, waste and water use by utilising sustainable construction and procurement methods, and ensuring appropriate ongoing maintenance of assets.
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	0/+	Opportunity to promote the use of sustainable materials and supply chain, especially in the re-use of vacant and derelict assets. This will rely on policy direction, which at present only explicitly supports resource efficiency and not building and construction standards. Economic Growth and a growing population may however offset such gains via the generation of waste. Whole life costs are not explicitly addressed within LTP4 but are considered within the VFM matrix.
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	0/+	No direct link between material assets and accessibility - however there may be some slight indirect benefit arising from the promotion of more sustainable forms of transport and therefore fewer vehicles on the road, in terms of decreased fuel/energy demand.
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.	0/+	Potential for addressing resource efficiency in improvement schemes, although this is not explicit.
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	+	Policy outcomes are specifically to reduce the transport footprint of the county. Waste, resources and efficiency figure in the KES strongly. Material assets are a key determinant of environmental quality and will be considered under LTP4 within the VFM decision matrix for funding individual schemes under the Integrated Transport Programme (ITP).
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.	0/+	No clear route to addressing the issues material assets use, procurement and disposal create. Minor benefits may arise from the promotion of more sustainable forms of transport in terms of this leading to less reliance on cars, less demand for fuel, and knock-on impacts in terms of health benefits and less reliance on the health care sector.
Plan Outcomes	**Plan Policy**	Effects	**Technology & Innovation: Apply innovative and technological approaches to achieving sustainable outcomes.**
1. Economic growth & minimised congestion	Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.	+	The early consideration of opportunities for technology and innovation can promote a range of sustainable outcomes such as better access to jobs in related industries.
2. Affordable and accessible door-to-door journeys	Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.	+	The early consideration of opportunities for technology and innovation can promote a range of sustainable outcomes such as the use of new technology in sustainable travel and in engineering materials and techniques.
3. Safer travel	Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.		
4. Enhanced environment	Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.	+	Much of the potential for technology and innovation will come out of discussions between design engineers and environmental consultants, in discussing emission reduction technology, innovations in ecological survey techniques, developments in low noise road surfaces, equipment and machinery, smart use of asset management systems and software, and so forth. Early preliminary assessment of this potential will permit early identification of such approaches.
5. Better health and wellbeing	Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.		

Appendix H Assessment Matrices – LTP4 Priorities

Type	Scheme	Biodiversity	Air Quality	Human Health
Strategic	Port Expansion	0/+ - Potential for localised loss of habitat & connectivity due to scheme; mitigation and enhancement will be required. 0/+ Reduced congestion and therefore more free-flowing traffic can be beneficial to air quality, which in turn can positively impact biodiversity. + Climate resilience and the impacts on biodiversity are linked. Resilience is important to reduce the impact on flooding, which can have a significant impact on biodiversity. Also planting can have a positive impact on resilience to flooding but also impacts on biodiversity.	+ + Areas of deprivation often coincide with areas of poor environmental quality, therefore schemes in such locations have potential to reduce environmental inequality. + Reduced congestion and therefore more free-flowing traffic can be beneficial to air quality. + Early preliminary assessment of potential air quality impacts will allow sustainable design to be maximised and the least climate-impacting option to be selected. Scheme construction can temporarily increase local air pollutants if not properly managed.	+ ++ Deprived areas are associated with health inequalities, as well as environmental inequality which contributes to the wider determinants of health, therefore schemes in such locations have potential to reduce health inequality and improve human health outcomes. + Reduced congestion has potential to result in reduced noise and air pollution, which in turn can improve health and wellbeing. Improved journey time can have wellbeing benefits. + Climate change resilience is important for wellbeing - access to healthcare, education and employment is important - a transport system that can cope in times of extreme weather is essential to health and wellbeing.
	International Station Signalling (Ashford Spurs)	0 0/- Potential for temporary disturbance and localised loss of habitat due to scheme; mitigation and enhancement may be required.	0 - Scheme construction can temporarily increase local air pollutants if not properly managed.	0 0
	Rail & Bus Improvements	+ 0/- Potential for temporary disturbance and localised loss of habitat due to route enhancement schemes; mitigation and enhancement may be required. 0/+ Reduced congestion and therefore more free-flowing traffic can be beneficial to air quality, which in turn can positively impact biodiversity. + Climate resilience and the impacts on biodiversity are linked. Resilience is important to reduce the impact on flooding, which can have a significant impact on biodiversity. Also planting can have a positive impact on resilience to flooding but also impacts on biodiversity. *+ Connected door to door journeys should result in increased use of public transport which means lower emissions and decreased requirement for future congestion-relief schemes, having positive impacts on biodiversity.*	+ - Scheme construction can temporarily increase local air pollutants if not properly managed. + Areas of deprivation often coincide with areas of poor environmental quality, therefore schemes in such locations have potential to reduce environmental inequality. + Reduction of single occupancy car journeys and a move towards integrated transport systems with affordable journeys will have a positive impact on air quality by the reduction of PM10, NOx etc. It should be noted that most buses and some trains are associated with emissions which will in themselves contribute to the local air pollution burden - therefore clear benefit would only be seen if there is investment in these modes to improve their environmental performance (e.g. electric trains and road vehicles; hydrogen fuel cell-powered buses etc.); although normalised emissions per passenger would still be less than single car occupancy, even without investment. +/- Modal shift away from motorised vehicles reduces emissions and therefore can contribute to locally improved air quality.	++ +/+ Deprived areas are associated with health inequalities, as well as environmental inequality which contributes to the wider determinants of health, therefore schemes in such locations have potential to reduce health inequality and improve human health outcomes. + Reduced congestion has potential to result in reduced noise and air pollution, which in turn can improve health and wellbeing. Improved journey time can have wellbeing benefits. + Climate change resilience is important for wellbeing - access to healthcare, education and employment is important - a transport system that can cope in times of extreme weather is essential to health and wellbeing. *+ Access to services forms part of the wider determinants of health, and as such can affect health and wellbeing.* *+ Connected door to door journeys include public transport this means transport is accessible for all (accessing services etc) and reduces vehicle emissions.* ++ Early preliminary assessment of potential safety benefits will result in improved human health outcomes. Outcomes as a result of fewer fatalities, but also knock on health impacts as a result of people using sustainable modes. + Environmental factors form part of the wider determinants of health and wellbeing, and as such schemes that deliver enhanced environmental outcomes will promote positive health outcomes. *+ Increasing cycling and walking has direct mental and physical health benefits; reducing vehicle emissions has indirect health benefits by improving noise and air quality.*
Non-Strategic Portfolio	Road Safety	0 0/- Improved safety does not in itself provide benefits to biodiversity. The risks in 1, above, in respect of potential negative impacts arising from schemes forming barriers to habitat connectivity and causing habitat degradation; may apply. 0/+ Safety improvements in relation to cycleways and footways could result in increased uptake of active modes. This would reduce single car occupancy, reduce emissions and reduce demand/congestion, all of which may be beneficial to biodiversity.	0 0/+ Improved safety does not in itself provide benefits to air quality, although changes to traffic flow, density and average speed may affect emissions. 0/-Potential disbenefit to safety in using low emission vehicles such as electric cars.	++ ++ LTP4 commits to providing a safer road, footway and cycleway network to reduce the likelihood of casualties, in addition to encouraging other transport providers to improve safety on their networks. LTP4 will reduce road casualties through the Crash Remedial Measures (CRM) Programme which targets safety critical schemes. In addition, LTP4 also highlights commitment to education and enforcement activities. ++ Early preliminary assessment of potential safety benefits will result in improved human health outcomes. Outcomes as a result of fewer fatalities, but also knock on health impacts as a result of people using sustainable modes.
	Highways Maintenance & Asset Management	0/+ 0/+ Potential to enhance biodiversity through maintenance of landscaped areas for wildlife.	0/+ 0/+ Sustainable design and construction should have a positive impact on air quality and early assessment will allow for the identification of methodologies to reduce impact on air quality.	0 0/+ Minor benefit may arise from the promotion of more sustainable forms of transport in terms of this leading to less reliance on cars, less demand for fuel, and knock-on impacts in terms of health benefits and less reliance on the health care sector.
	Home to School Transport	+ + Increased use of active modes means lower emissions and decreased requirement for future congestion-relief schemes, having positive impacts on biodiversity. *+ Connected door to door journeys should result in increased use of public transport which means lower emissions and decreased requirement for future congestion-relief schemes, having positive impacts on biodiversity.*	+ + LTP4 promotes modal shift from car use to active and sustainable modes such as walking and cycling. If successful such modal shift will result in reduced emissions to air and thereby locally improved air quality. It should however be noted that achieving significant modal shift is difficult, and it is accepted within LTP4 that cars will remain a primary method of personal transportation for the duration of the plan. + Connected door to door journeys should result in increased use of public transport which means lower emissions. 0/+ Reduction of single occupancy car journeys and a move towards integrated transport systems with affordable journeys will have a positive impact on air quality by the reduction of PM10, NOx etc. It should be noted that most buses and some trains are associated with emissions which will in themselves contribute to the local air pollution burden - therefore clear benefits would only be seen if there is investment in these modes to improve their environmental performance (e.g. electric trains and road vehicles; hydrogen fuel cell-powered buses etc.), although normalised emissions per passenger would still be less than single car occupancy, even without investment.	++ + LTP4 promotes affordable, accessible and connected transport and recognises that transport plays a key role in access to employment, education health and other services. Access to these services has a significant impact on mental and physical wellbeing and improved affordability and connectivity of the network would result in positive health outcomes especially for those residing in areas of deprivation. ++ LTP4 outlines the aspiration to make active travel an attractive and realistic choice for short journeys in Kent. Walking and cycling will be encouraged by integrating active travel into planning by providing and maintaining appropriate routes for walking and cycling and supporting young people through training and building skills. A shift from car travel to active modes would result in numerous positive health impacts, including, a reduction in; obesity, cardio vascular disease and diabetes and improved mental wellbeing. *+ Connected door to door journeys include public transport this means transport is accessible for all (accessing services etc) and reduces vehicle emissions.* *+ Increasing cycling and walking has direct mental and physical health benefits; reducing vehicle emissions has indirect health benefits by improving noise and air quality.*
	Active Travel	+ + Increased use of active modes means lower emissions and decreased requirement for future congestion-relief schemes, having positive impacts on biodiversity.	+ + LTP4 promotes modal shift from car use to active and sustainable modes such as walking and cycling. If successful such modal shift will result in reduced emissions to air and thereby locally improved air quality. It should however be noted that achieving significant modal shift is difficult, and it is accepted within LTP4 that cars will remain a primary method of personal transportation for the duration of the plan.	++ ++ LTP4 outlines the aspiration to make active travel an attractive and realistic choice for short journeys in Kent. Walking and cycling will be encouraged by integrating active travel into planning by providing and maintaining appropriate routes for walking and cycling and supporting young people through training and building skills. A shift from car travel to active modes would result in numerous positive health impacts, including, a reduction in; obesity, cardio vascular disease and diabetes and improved mental wellbeing.

Type	Scheme	Cultural Heritage	Landscape	Noise & Tranquility
Strategic	Port Expansion	0/+ 0 Preliminary assessment of cultural heritage assets potentially impacted be the scheme must be undertaken to allow mitigation and enhancement to be incorporated into the design if necessary. + Congestion during busy periods may deter people from visiting such sites. + Climate change resilience is important as the transport network provides access to areas and features of historic, architectural or archaeological importance.	+ + Identifying impacts on congestion can have a knock on impact on visual and recreational amenity. Reducing congestion is likely to have a positive impact on recreational amenity.	+ + Areas of deprivation often coincide with areas of poor environmental quality, therefore schemes in such locations have potential to reduce environmental inequality. + Reduced congestion and therefore more free-flowing traffic can be beneficial to noise levels.
	International Station Signalling (Ashford Spurs)	0	0	0 - Scheme construction can temporarily increase local noise levels if not properly managed.
	Rail & Bus Improvements	+ + Congestion during busy periods may deter people from visiting such sites. + Climate change resilience is important as the transport network provides access to areas and features of historic, architectural or archaeological importance. + Availability of access to cultural heritage resources is as important as their protection - early preliminary assessment will permit this to be taken into account. + Door to door journeys implies improved public transport provision which would assist in access to areas and features of historic, architectural or archaeological importance. + Availability of access to cultural heritage resources is as important as their protection - early preliminary assessment will permit this to be taken into account. + If a scheme brings about an improvement in sustainable travel, accessibility of areas and features of historic, architectural or archaeological importance could be improved.	+ + Identifying impacts on congestion can have a knock on impact on visual and recreational amenity. Reducing congestion is likely to have a positive impact on recreational amenity. + Access to diverse landscapes and recreational amenity is important. Early preliminary assessment of this will enable access to these features to be taken into account. + Door to door journeys implies increase use of public transport. Increased use of public transport may reduce the requirement for further largescale transport schemes which could have a significant impact on visual and recreational amenity. + Enhanced safety especially for pedestrians and cyclists could encourage recreation and reduce negative impacts on visual amenity as a result of car use. + Increased use of sustainable transport modes may reduce the requirement for further largescale transport scheme which could have a significant impact on visual and recreational amenity.	+ + Areas of deprivation often coincide with areas of poor environmental quality, therefore schemes in such locations have potential to reduce environmental inequality. + Reduced congestion and therefore more free-flowing traffic can be beneficial to noise levels. + Sustainable travel can have a lower noise impact than motorised vehicles; but would require careful design to maximise this, including other measures such as excluding non-sustainable transport modes from certain location. + Understanding the impacts of accessibility in the context of masterplanning and impact on noise important areas could help to reduce noise impacts
Non-Strategic: Kent-wide	Road Safety	0/+ 0/+ Enhanced safety means more people likely to travel and visit areas and features of historic, architectural or archaeological importance.	0/+ 0/+ Enhanced safety especially for pedestrians and cyclists could encourage recreation and reduce negative impacts on visual amenity as a result of car use.	0 0 No clear plans to support noise reduction, although future scheme design can specify noise reduction measures. 0/- Potential disbenefit to safety in using low noise vehicles such as electric cars.
	Highways Maintenance & Asset Management	0 -/+ Likely negligible - although it is important to understand the impact of sustainable construction on heritage assets. Some methods could have increased or reduced permanent or temporary impacts.	0 -/+ Likely negligible - although it is important to understand the impact of sustainable construction on landscape and visual assets. Some methods could have increased or reduced permanent or temporary impacts.	0 -/+ Likely negligible - although it is important to understand the impact of sustainable construction on the noise climate. Some methods could have increased or reduced permanent or temporary impacts.
	Home to School Transport	0/+ 0/+ Reducing direct effects of emissions and indirect impact of climate change on assets. 0/+ If a scheme brings about an improvement in sustainable travel, accessibility of areas and features of historic, architectural or archaeological importance could be improved.	0/+ 0/+ Increased use of sustainable transport modes may reduce the requirement for further largescale transport schemes which could have a significant impact on visual and recreational amenity.	0/+ 0/+ Reduced congestion and therefore more free-flowing traffic can be beneficial to noise levels. 0/+ Sustainable travel can have a lower noise impact than motorised vehicles; but would require careful design to maximise this, including other measures such as excluding non-sustainable transport modes from certain location.
	Active Travel	0/+ 0/+ Reducing direct effects of emissions and indirect impact of climate change on assets. 0/+ If a scheme brings about an improvement in sustainable travel, accessibility of areas and features of historic, architectural or archaeological importance could be improved.	0/+ 0/+ Increased use of active modes may reduce the requirement for further largescale transport schemes which could have a significant impact on visual and recreational amenity.	0/+ 0/+ Reduced congestion and therefore more free-flowing traffic can be beneficial to noise levels. 0/+ Active travel can have a lower noise impact than motorised vehicles; but would require careful design to maximise this, including other measures such as excluding non-sustainable transport modes from certain location.

Type	Scheme	Climatic Factors	Population	Water
Strategic	Port Expansion	+ + Care needs to be taken to ensure the scheme will not simply lead to the introduction of more concrete and tarmac and, therefore potentially more flooding due to increased runoff. The scheme needs to consider its own resilience - i.e. whether the new or improved infrastructure will be impacted by flooding/extreme weather events - and also its impact on the resilience of surrounding areas - i.e. runoff and drainage needs to be designed to protect nearby residents, infrastructure, services and habitats. + It is especially important to understand the impacts on areas of deprivation. Car ownership is lower in deprived areas and people are often more reliant on public transport, so it is important that climate change resilient infrastructure is available during times of extreme weather. + Reduced congestion and therefore more free-flowing traffic can be beneficial to carbon emissions. + Early preliminary assessment of potential climate impacts will allow sustainable design to be maximised and the least climate-impacting option to be selected. - Scheme construction can temporarily increase local carbon emissions if not properly planned.	+ + Access and connectivity are the key elements of the KES and will be supported by the commitment of LTP4 to deliver schemes that reduce congestion and improve journey time reliability to enable economic growth. LTP4 recognises the need to meet demand from a growing population. Slight gains may be made from access to employment opportunities as a result of network development. + Assessment of whether the need for development is in line with economic and community needs. ++ Deprived areas are associated with health, environmental and economic inequalities; early preliminary assessment to identify such locations will enable schemes to provide appropriate assistance to the local economy and communities in these areas. ++ Early preliminary assessment of climate resilience, congestion and journey time will allow sustainable design to be maximised and the options best suited to the local economy and communities to be selected.	0 - Care needs to be taken that the scheme does not negatively impact water quality (e.g. by permitting run-off of contaminated water from the carriageway into surface water bodies - with possible consequences for compliance with the Water Framework Directive); and water resources (e.g. with increased impermeable surface area decreasing recharge to groundwater). + Reduced congestion can mean reduced vehicle emissions and improved air quality, thereby improving water quality. + Early preliminary assessment of climate resilience will allow sustainable drainage to be designed and flood risks to be mitigated.
	International Station Signalling (Ashford-Spurs)	0	0	0
	Rail & Bus Improvements	+ 0/+ It is possible that route enhancement schemes simply lead to the introduction of more concrete and tarmac and, therefore potentially more flooding due to increased runoff. Design must consider its own resilience and its impact on the resilience of surrounding areas - i.e. has their run-off and drainage been designed to protect nearby residents, infrastructure, services and habitats. + It is especially important to understand the impacts on areas of deprivation. Car ownership is lower in deprived areas and people are often more reliant on public transport, so it is important that climate change resilient infrastructure is available during times of extreme weather. + Early preliminary assessment of connectivity and accessibility impacts will allow sustainable design to be maximised and the least climate-impacting and the most climate-resilient options to be selected. + Work needs to be undertaken with colleagues in the County and District Local Planning Authorities to ensure that new developments come with a presumption of provision of all necessary services within reasonable walking distance, in order to reduce journey numbers. 0/+ Reduction of the vehicle transport footprint may reduce carbon emissions during scheme operation if designed to go beyond 'avoidance of impact' and produce significant environmental enhancement.	++ + Access and connectivity are the key elements of the KES and will be supported by the commitment of LTP4 to deliver schemes that reduce congestion and improve journey time reliability to enable economic growth. LTP4 recognises the need to meet demand from a growing population. Slight gains may be made from access to employment opportunities as a result of network development. ++ Deprived areas are associated with health, environmental and economic inequalities; early preliminary assessment to identify such locations will enable schemes to provide appropriate assistance to the local economy and communities in these areas. + Early preliminary assessment of climate resilience will allow sustainable design to be maximised and the options best suited to the local economy and communities to be selected. + LTP4 promotes affordable, accessible and connected transport and recognises that transport plays a key role in access to employment, education health and other services. Improved access to these services will have a significant positive impact on the economy and local communities. ++ Early preliminary assessment of connectivity and accessibility impacts will allow sustainable design to be maximised and the options best suited to the local economy and communities to be selected. + Working with LPA, early preliminary assessment of connectivity impacts will allow sustainable design to be maximised and the options best suited to the local economy and communities to be selected. + A slight benefit may be achieved by the protection and enhancement of the environment. Primarily this is potentially via air quality improvements but also by the provision of and access to quality open space as a result of schemes specifically designed to enhance public places.	+ + Reduced congestion can mean reduced vehicle emissions and improved air quality, thereby improving water quality. + A shift to sustainable modes means there is reduced reliance on fuel and a reduced likelihood of spills which could contaminate water catchment areas.
Non-Strategic Schemes	Road Safety	0 0 In itself, safer travel networks will not provide climate change resilience, although smart design should incorporate this for all schemes irrespective of lead outcome. 0/+ Increased number of people taking up active modes of travel (cycling/walking) due to improved safety/safety perception - this reduces emissions.	++ ++ LTP4 commits to providing a safer road, footway and cycleway network to reduce the likelihood of casualties, in addition to encouraging other transport providers to improve safety on their networks. LTP4 will reduce road casualties through the Crash Remedial Measures (CRM) Programme which targets safety critical schemes. In addition, LTP4 also highlights commitment to education and enforcement. + Early preliminary assessment of safety benefits will allow sustainable design to be maximised and the options best suited to the local economy and communities to be selected.	0 0 Improved safety does not in itself provide benefits to the water environment.
	Highways Maintenance & Asset Management	+ + Early preliminary assessment will allow opportunities for carbon emission reduction to be identified by utilising sustainable construction and procurement methods, and ensuring appropriate ongoing maintenance of assets.	0/+ 0/+ No direct link between material assets and accessibility - however there may be some slight indirect benefit arising from the promotion of more sustainable forms of transport and therefore fewer vehicles on the road, in terms of decreased fuel/energy demand.	+ + Early preliminary assessment will allow opportunities for reduced water use and more effective water drainage and storage, by utilising sustainable construction and procurement methods, and ensuring appropriate ongoing maintenance of assets.
	Home to School Transport	+ + Promotion of health and wellbeing via the delivery of more walking and cycling has potential to reduce carbon emissions. It should however be noted that achieving significant modal shift is difficult, and it is accepted within LTP4 that cars will remain a primary method of personal transportation for the duration of the plan. + LTP4 aims to provide affordable and accessible door to door journeys. It is assumed that this would increase the use of public transport, by the public, to gain access to services. A modal shift from car occupancy to public transport would reduce carbon emissions and in the long term could prevent the need for future large-scale congestion-relief schemes. It should be noted that most buses and some trains are associated with emissions which will in themselves contribute to carbon emissions - therefore clear benefit would only be seen if there is investment in these modes to improve their carbon performance (e.g. electric trains and road vehicles, hydrogen fuel cell powered buses etc.), although normalised emissions per passenger would still be less than single car occupancy, even without investment.	+ + Active travel choices, affordable sustainable travel options and a reduction in transport emissions will - if successful - have a positive impact on the mental and physical wellbeing of affected communities. + LTP4 promotes affordable, accessible and connected transport and recognises that transport plays a key role in access to employment, education health and other services. Improved access to these services will have a significant positive impact on the economy and local communities.	0/+ 0/+ Sustainable travel requires less fuel and oil to be transported than in conventional motorised road transport, and its promotion therefore potentially reduces the likelihood of spillage and consequent pollution incidents, with consequent potential minor benefits to water quality.
	Active Travel	0/+ 0/+ Promotion of health and wellbeing via the delivery of more walking and cycling has potential to reduce carbon emissions. It should however be noted that achieving significant modal shift is difficult, and it is accepted within LTP4 that cars will remain a primary method of personal transportation for the duration of the plan.	+ + Active travel choices, affordable sustainable travel options and a reduction in transport emissions will - if successful - have a positive impact on the mental and physical wellbeing of affected communities. + Early preliminary assessment of active travel scheme will allow sustainable design to be maximised and the options best suited to the local economy and communities to be selected.	0/+ 0/+ Active travel requires less fuel and oil to be transported than in conventional motorised road transport, and its promotion therefore potentially reduces the likelihood of spillage and consequent pollution incidents, with consequent potential minor benefits to water quality.

Type	Scheme	Natural Assets	Innovation & Technology	Overall	Comments
Strategic	Port Expansion	+ + Reducing congestion could be beneficial for prolonging the life of an asset and reducing maintenance costs. Early assessment of this could be beneficial for reducing cost.	0 Not known	0	This scheme has potential to have minor positive impacts providing there is appropriate mitigation/enhancement following proper assessment of environmental aspects at outline design stage.
	International Station Signalling (Ashford Spurs)	0	0	0	Resignalling scheme is to permit the perpetuation of the status quo – i.e. continued international rail services at Ashford - therefore this scheme represents 'business as usual'. There is potential for temporary negative impacts during construction - these must be properly managed and mitigated through scoping assessment plus BS5228/IAQM construction assessments if deemed necessary.
	Rail & Bus Improvements	+ + Reducing congestion could be beneficial for prolonging the life of an asset and reducing maintenance costs. Early assessment of this could be beneficial for reducing cost. + The use of sustainable materials, renewables and designing for resilience. *0/+ Provision of public transport for door to door journeys could also maximise resource efficiency eg/ green buses* */ Very important that sustainable design and construction is interconnected with local masterplanning to ensure accessibility.* 0/+ Knock on impact of more people using sustainable modes a reduced need for significant schemes and reduction in fuel use.	0 0 Door to door journeys and public transport can be promoted through the use of technology eg/ sustainable travel apps	0	This Priority has potential to have minor positive impacts providing there is appropriate mitigation/enhancement of any related route enhancement schemes, following proper assessment of environmental aspects at outline design stage.
Non Strategic Road Side	Road Safety	0/+ 0/+ Knock on impact of more people using sustainable modes a reduced need for significant schemes and reduction in fuel use.	0 Not known	0	Although significantly beneficial in terms of direct impact on human health, and thus having intrinsic value for that reason alone, there are few additional benefits/ Care must be taken that schemes do not cause negative impacts to the environment during construction or operation, through proper assessment of environmental aspects at outline design stage.
	Highways Maintenance & Asset Management	+ + Early preliminary assessment will allow maximised resource efficiency in materials, energy, waste and water use by utilising sustainable construction and procurement methods, and ensuring appropriate ongoing maintenance of assets.	0/+ 0/+ Early preliminary assessment will allow innovative approaches to construction and maintenance, such as use of ICT-based Asset Management Systems.	0	Minor benefits may be achieved through lifecycle thinking and a holistic approach.
	Home to School Transport	0/+ 0/+ Minor benefits may arise from the promotion of more sustainable forms of transport in terms of this leading to less reliance on cars, less demand for fuel, and knock-on impacts in terms of health benefits and less reliance on the health care sector.	0 0 Door to door journeys and public transport can be promoted through the use of technology eg/ sustainable travel apps	0	Minor benefits may arise from the promotion of active travel modes and the provision of additional buses - there is potential for significant positive impact if this Priority focuses on the promotion of School Travel Plans and the encouragement of sustainable modes amongst school-age children and their parents/guardians. Attending school irrespective of how they get there - is a significant benefit therefore the positive impact to individuals of transport being facilitated - whether sustainable or not - must not be overlooked.
	Active Travel	0/+ 0/+ Minor benefits may arise from the promotion of more sustainable forms of transport in terms of this leading to less reliance on cars, less demand for fuel, and knock-on impacts in terms of health benefits and less reliance on the health care sector.	0 Not known	0	Minor benefits may arise from the promotion of active travel modes – there is potential for significant positive impact however this is dependent on the level of uptake by the population and consequent knock-on effects.

Assessment key

+
Minor positive

0
None /unknown

Minor negative

Appendix I HRA Screening Report

Habitats Regulations Assessment (HRA) Screening Report:

Kent County Council's Draft Fourth Local Transport Plan (LTP4)

CO04300448/HRA/REV 0

July 2016

Document Control Sheet

Project Name:	LTP4 SEA Post-Scoping
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	Name: Signature: Date:	Name: Signature: Date:	Name: Signature: Date:

Contents

1 Introduction

1.1 Overview

1.1.1 Amey have been commissioned by Kent County Council (KCC) to undertake Habitat Regulation Assessment (HRA) Screening in order to determine whether the Local Transport Plan (LTP4) will have Likely Significant Effects on the Natura 2000 sites present. If Screening deems that Appropriate Assessment is required, this will be commissioned separately by KCC and will be incorporated into the SEA's Environmental Report prior to LTP4 consultation.

1.1.2 Natural England will be a statutory consultee when the LTP4 goes for public consultation.

1.2 Scope of this Report

1.2.1 This report investigates the potential impact of the LTP4 on Natura 2000 sites in the context of the Conservation of Habitats and Species Regulations 2010 (as amended) ('the Habitats Regulations'), which transpose the European Habitats Directive 1992 and Wild Birds Directive 2009 ('the Directives') into English law and hereafter referred to as the 'Habitats Regulations'.

1.2.2 The purpose of this Habitats Regulations Assessment (HRA) Screening Report is to look at the scheme proposals in the context of the requirements of Council Directive 92/43/EEC (Ref 1) on the conservation of Natural Habitat and Wild Fauna and Flora and Council Directive 79/409/EEC on the conservation of Wild Birds. The report outlines whether the plan is likely to have a significant effect upon any Natura 2000 sites by determining if a site's conservation objectives will be compromised.

1.3 Habitats Directive – Article 6 (3)

1.3.1 Article 6(3) of the Habitats Directive requires competent authorities, before deciding to undertake, or give any consent, permission or other authorisation to any project which is likely to have a significant effect on Natura 2000 sites, either individually or in combination with other plans or projects, to undertake an appropriate assessment provided the project is not directly connected with or necessary to the management of the site.

1.3.2 Regulation 61(1) of the Habitats Regulations requires that:

A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which—

(a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects), and

(b) is not directly connected with or necessary to the management of that site. An appropriate assessment of the implications for that site in view of that site's conservation objectives must then be made.

1.4 The Habitats Regulations Assessment Process

Overview – the Four Stages

1.4.1 The European Commission Methodological guidance on the provision of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC recommends a four stage approach in carrying out a Habitats Regulations Assessment as follows:

Stage 1 – Screening:

1.4.2 Determines whether a plan or project, either alone or in combination with other plans or projects, is likely to have a significant effect upon a Natura 2000 site.

1.4.3 If the screening process identifies effects to be significant, potentially significant or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2.

1.4.4 Screening is undertaken without the inclusion of detailed mitigation, unless potential impacts clearly can be avoided though the modification or redesign of the plan or project, in which case the screening process is repeated on the altered plan or project.

Even if the project is not considered to have likely significant effects alone, the in-combination effects of other plans and projects must also be considered at the screening stage.

Stage 2 – Appropriate Assessment:

1.4.5 Considers the impact on the integrity of the Natura 2000 sites of the project or plan either alone or in combination with other plans or projects with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse impacts, it assesses the potential mitigation of those impacts.

Stage 3 – Assessment of Alternative Solutions:

1.4.6 Examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 sites.

Stage 4 – Assessment where no Alternative Solutions Exist and where Adverse Impacts Remain:

1.4.7 Assesses compensatory measures where, in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that the plan or project should proceed.

1.4.8 Each stage determines whether the next stage in the process is required. If for example, it is concluded that at the end of Stage 1 there will be no significant impacts on the Natura 2000 sites, there is no requirement to proceed to Stage 2.

1.5 Layout of the Report

1.5.1 This report is structured as follows:

- **Chapter 2: Natura 2000 Sites**. This Chapter describes each Natura 2000 site for which an HRA screening matrix is to be completed, including details on qualifying features and conservation objectives.
- **Chapter 3: Kent County Council LTP4.** This Chapter describes the policies and strategies of LTP4 and states any previous consultations with Natural England.
- **Chapter 4: Potential Effects.** Highlights the key potential effects that could arise through future projects.
- **Chapter 5 Screening Assessment.** This Chapter discusses the potential likelihood and significance of effects of the LTP4 on each Natura 2000 site.
- **Chapter 6: Conclusions and Recommendations.** This Chapter summarises the findings of the report, detailing whether there are any likely significant effects on each Natura 2000 site and whether or not the next stage of assessment is required.
- **Chapter 7: References**
- **Appendix A: Drawing.** This shows the Natura 2000 sites within Kent County Council.

1.6 Guidance and Methodology

1.6.1 The assessment has been completed using the following guidance:

- The European Commission's '*Management of Natura 2000 Sites*' (The Provisions of Article 6 of the 'Habitats' Directive 92/43/EEC) (Ref. 3);
- Natural England Habitats Regulations Assessment (HRA) Standard. (Ref. 4);
- Volume 11, Section 1, Part 1 of the Design Manual for Roads and Bridges (DMRB) (Ref. 5); and
- The Habitats Regulations Assessment Handbook. (Ref.6)

1.7 Previous LTP [LTP3]

- URS, 2011. Sustainability Appraisal and Habitats Regulations Assessment of Kent's Local Transport Plan 3 (LTP3). (Ref. 8)

Conclusions of LTP3

1.7.1 There are two possible aspects of the Integrated Transport Programme (ITP) (Implementation of Cycle routes in Sittingbourne and Sheerness area and Network Management Plan) which may produce schemes that have the potential to impact a Natura 2000 site. Any future schemes arising from these aspects of the ITP will be subject to project level HRA assessment.

1.7.2 Kent International Airport Parkway Station and the Lower Thames Crossing schemes will require project-level HRA when more detailed proposals are developed, prior to them being permitted. However, in both cases the LTP3 only identifies the Councils support for the schemes (and in the case of the Parkway Station a bid for funding to develop concepts further) rather than confirming they will proceed.

1.7.3 Although there is potential from impacts on Natura 2000 Sites from future projects there is nothing in the LTP3 proposals to suggest a likely significant effect on the Natura 2000 sites and therefore the LTP3 itself can be screened out and an 'Appropriate Assessment' will not be required at strategic level.

1.7.4 A detailed in-combination assessment was not undertaken at this stage.

2 Natura 2000 Sites

2.1 Background

2.1.1 In May 1992 European Union governments adopted legislation designed to protect the most seriously threatened habitats and species across Europe. This legislation is called the Habitats Directive and complements the Birds Directive adopted in 1979. These directives implemented the creation of a network of sites called Natura 2000. The Birds Directive requires the establishment of Special Protection Areas (SPAs) for birds. The Habitats Directive similarly requires Special Areas of Conservation (SACs) to be designated for other species and for particular habitats. Together, SPAs and SACs make up the Natura 2000 series. All EU Member States contribute to the network of sites in a Europe wide partnership. Ramsar Sites (Wetlands of International Importance) receive protection under the Ramsar convention; however as the majority of Ramsar sites are SPA's they also receive protection under the Birds Directive.

2.2 Natura 2000 Sites within Kent County

Kent contributes significantly to the value of the regional biodiversity resource, with numerous sites of European and International Importance including 14 Special Areas of Conservation (SACs), 6 Special Protection Areas (SPAs), and 6 Ramsar Sites. This is significant as the presence of these sites triggers the requirement for Habitats Regulations Assessment (HRA) Screening to be undertaken for LTP4.

2.2.1 All Natura 2000 Sites within or adjacent to the Kent County Council area were assessed as part of this HRA, and are shown in Appendix A. Table 1 provides a description of the qualifying features for each SAC and SPA.

Table 1: Summary of Natura 2000 sites qualifying features

Natura 2000 Sites	**Qualifying Features**
Sandwich Bay SAC, UK0013077	Annex I habitats that are a primary reason for selection of this site 2110 Embryonic shifting dunes 2120 "Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) 2130 "Fixed coastal dunes with herbaceous vegetation (grey dunes) 2170 Dunes with *Salix repens ssp.* argentea *Salicion arenariae* Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site 2190 Humid dune slacks
Lydden and Temple Ewell Downs SAC, UK0012834	Annex I habitats that are a primary reason for selection of this site 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) This site hosts the priority habitat type "orchid rich sites". This site consists largely of CG4 *Brachypodium pinnatum* and CG5 *Bromus erectus* – Brachypodium
Folkstone to Etchinghill Escarpment SAC, UK0012835	Annex I habitats that are a primary reason for selection of this site 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) This site hosts the priority habitat type "orchid rich sites". This site consists of extensive CG4 Brachypodium pinnatum and CG5 Bromus erectus – Brachypodium pinnatum calcareous grasslands, together with smaller areas of short-turf CG2 *Festuca ovina – Avenula pratensis* grassland. The site contains an important assemblage of rare and scarce species, including early spider-orchid *Ophrys sphegodes*, late spider-orchid *O. fuciflora* and burnt orchid *Orchis ustulata*.
Stodmarsh SAC,	Annex II species that are a primary reason for selection of this site 1016 Desmoulin`s whorl snail *Vertigo moulinsiana*

Natura 2000 Sites	Qualifying Features
UK0030283	A sizeable population of Desmoulin's whorl snail lives beside ditches within pasture on the floodplain of the River Stour, where reed sweet-grass *Glyceria maxima*, large sedges *Carex spp.* and sometimes common reed *Phragmites australis* dominate the vegetation. Stodmarsh is a south-eastern outlier of the main swathe of sites and is important in confirming the role of underlying base-rich rock (chalk) as a factor determining this species' distribution.
Blean Complex SAC, UK0013697	Annex I habitats that are a primary reason for selection of this site 9160 Sub-Atlantic and medio-European oak or oak-hornbeam forests of the *Carpinion betuli* At Blean in south-east England, hornbeam *Carpinus betulus* coppice occurs interspersed with pedunculate oak *Quercus robur* stands and introduced sweet chestnut *Castanea sativa*. Great wood-rush *Luzula sylvatica* is locally dominant in the woodland, and the characteristic greater stitchwort *Stellaria holostea* is found in more open patches. The stands have traditionally been managed as coppice, and are one of the British strongholds for the heath fritillary butterfly *Mellicta athalea*.
Queendown Warren SAC, UK0012833	Annex I habitats that are a primary reason for selection of this site 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) This site hosts the priority habitat type "orchid rich sites". Queendown Warren consists of CG3 *Bromus erectus* grassland. It contains an important assemblage of rare and scarce species, including early spider-orchid, burnt orchid and man orchid *Aceras anthropophorum*.
Peters Pit SAC, UK0030237	Annex II species that are a primary reason for selection of this site 1166 Great crested newt *Triturus cristatus* Peter's Pit is an old chalk quarry situated in the North Downs in north Kent, with large ponds situated amongst grassland, scrub and woodland. The ponds have widely fluctuating water levels and large great crested newt populations have been recorded breeding here.
Tankerton Slopes and Swalecliffe SAC,	Annex II species that are a primary reason for selection of this site 4035 Fisher's estuarine moth *Gortyna borelii lunata* Fisher's estuarine moth has a localised population distribution in the UK, due to its specific habitat requirements and is only found in two areas, the north Essex

Natura 2000 Sites	Qualifying Features
UK0030378	coast and the north Kent Coast. Tankerton slopes and Swalecliffe supports the majority of the north Kent population of this moth which is approximately 20% of the UK population. The site's north facing slopes are composed of London Clay and support a tall herb community dominated by its food plant hog's fennel *Peucedanum officinale*, together with areas of neutral grassland also required by the species for egg laying.
Wye and Crundale Downs SAC, UK0012831	Annex I habitats that are a primary reason for selection of this site 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) This site hosts the priority habitat type "orchid rich sites". Wye and Crundale Downs consists mostly of NVC types CG4 *Brachypodium pinnatum* and CG5 *Bromus erectus–Brachypodium pinnatum* grasslands, although small areas of CG2 *Festuca ovina–Avenula pratensis* grassland also occur. It has an important assemblage of rare, scarce and uncommon orchids, including early spider-orchid, late spider-orchid, burnt orchid and lady orchid *Orchis purpurea*. The site contains the largest UK colony of *O. fuciflora*, representing about 50% of the national population.
Thanet Coast SAC, UK0013107	Annex I habitats that are a primary reason for selection of this site 1170 Reefs Thanet Coast in the extreme south-east of England has been selected on account of the unusual communities that are found on this, the longest continuous stretch of coastal chalk in the UK. It represents approximately 20% of the UK resource of this type and 12% of the EU resource. This site contains an example of reefs on soft chalk along the shore. Thanet has sublittoral chalk platforms that extend into the littoral and form chalk cliffs. The sublittoral chalk reefs within the site are comparatively impoverished, owing to the harsh environmental conditions in the extreme southern area of the North Sea, but they are an unusual feature because of the scarcity of hard substrates in the area. Infralittoral kelp forests are characteristically absent, owing to the high turbidity of the water. The subtidal chalk platforms extend offshore in a series of steps dissected by gullies. Species present include an unusually rich littoral algal flora, essentially of chalk-boring algae, which may extend above high water mark into the splash zone in wave-exposed areas. Thanet remains the sole known location for some algal species. 8330 Submerged or partially submerged sea caves Thanet Coast provides the second most extensive representation of chalk caves in the UK on the extreme south-east coast of England. The site is bordered by about 23 km of chalk cliffs with many caves and stack and arch formations. Partially submerged caves around Thanet vary considerably in depth, height and

Natura 2000 Sites	Qualifying Features
	aspect and hence in the algal communities present. Some caves extend for up to 30 m into the cliffs and reach 6-10 m in height, although many are much smaller. They support very specialised algal and lichen communities containing species such as *Pseudendodonium submarinum* and *Lyngbya spp.*, some of which were first described from Thanet and have never been recorded elsewhere.
Dungeness SAC, UK0013059	Annex I habitats that are a primary reason for selection of this site 1210 Annual vegetation of drift lines The Dungeness foreland has a very extensive and well-developed shoreline, although with sparse vegetation and in places some human disturbance. It is one of two representatives of Annual vegetation of drift lines on the south coast of England. The strandline community on this site comprises Babington's orache *Atriplex glabriuscula*, which occurs mostly on the accreting eastern shoreline, although it is also present on the eroding southern shoreline. 1220 Perennial vegetation of stony banks Dungeness is the UK's largest shingle structure and represents the habitat type on the south-east coast of England. The total area of exposed shingle covers some 1,600 ha, though the extent of the buried shingle ridges is much greater. Despite considerable disturbance and destruction of the surface shingle, the site retains very large areas of intact parallel ridges with characteristic zonation of vegetation. It still has the most diverse and most extensive examples of stable vegetated shingle in Europe, including the best representation of scrub on shingle, notably prostrate forms of broom *Cytisus scoparius* and blackthorn *Prunus spinosa*. A feature of the site, thought to be unique in the UK, is the small depressions formed within the shingle structure, which support fen and open-water communities. Annex II species that are a primary reason for selection of this site 1166 Great crested newt Dungeness in south-east England has the largest shingle expanse in Europe and contains a large number of waterbodies within its 2,000 ha. This extensive site hosts a large and viable great crested newt population in a range of natural and anthropogenic habitats. These include natural pools and those resulting from gravel extraction and other activities. Terrestrial habitat of importance for feeding and shelter is provided by a range of open shingle vegetation with scrub in the vicinity of some of the waterbodies.

Natura 2000 Sites	Qualifying Features
North Downs Woodlands SAC, UK0030225	Annex I habitats that are a primary reason for selection of this site 9130 *Asperulo-Fagetum* beech forests This site consists of mature *Asperulo-Fagetum* beech forests and also yew 91J0 Yew *Taxus baccata* woods on steep slopes. The stands lie within a mosaic of scrub and other woodland types and are the most easterly of the beech woodland sites selected. 91J0 Yew woods of the British Isles Yew woodland at this site is associated with 9130 beech forests, scrub and small areas of unimproved grassland on thin chalk soils. Where the shade is not too dense dog's mercury *Mercurialis perennis* predominates in the ground flora. The site is the most easterly of those selected. Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia)
Parkgate Down SAC, UK0030338	Annex I habitats that are a primary reason for selection of this site 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) This site hosts the priority habitat type "orchid rich sites". Parkgate Down is situated on the chalk of the North Downs and consists largely of NVC type CG4 Brachypodium pinnatum grassland. The site contains an outstanding assemblage of orchids including the nationally rare monkey orchid *Orchis simia* and late spider orchid Ophrys fuciflora together with the nationally scarce musk orchid *Herminium monorchis* and lady orchid *Orchis purpurea*.
Dover to Kingsdown Cliffs SAC, UK0030330	Annex I habitats that are a primary reason for selection of this site 1230 Vegetated sea cliffs of the Atlantic and Baltic Coasts Dover to Kingsdown cliffs support a full zonation of maritime cliff communities found on chalk substrates, reflecting different levels of exposure to wind and salt spray. The most exposed, lowest parts of the cliff face support rock-crevice communities with rock samphire *Crithmum maritimum*, rock sea-lavender *Limonium binervosum* and thrift *Armeria maritima*, with the rare hoary stock *Matthiola incana* in places. On more sheltered slopes there is a community restricted to south-facing chalk cliffs characterised by wild cabbage *Brassica oleracea*. There are good paramaritime grassland transitions to chalk grassland.

Natura 2000 Sites	Qualifying Features
	The endangered oxtongue broomrape *Orobanche artemisiae-campestris*, confined in the UK to unstable coastal chalk cliffs of southern England, has a stronghold on this site. The cliffs are internationally important as a stratigraphic reference site for chalk cliff exposures. Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia)
Dungeness Romney marsh and Rye bay SPA, UK9012091	This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive: During the breeding season; Common Tern *Sterna hirundo*, 266 pairs representing at least 2.2% of the breeding population in Great Britain (5 year mean, 1993-1997)Little Tern *Sterna albifrons*, 35 pairs representing at least 1.5% of the breeding population in Great Britain (5 year mean, 1993-1997)Mediterranean Gull Larus melanocephalus, 2 pairs representing at least 20.0% of the breeding population in Great Britain (5 year mean, 1993-1997). On passage; Aquatic Warbler *Acrocephalus paludicola*, 30 individuals representing at least 44.8% of the population in Great Britain (Count as at 1997) Over winter; Bewick's Swan Cygnus *columbianus bewickii*, 179 individuals representing at least 2.6% of the wintering population in Great Britain (5 year peak mean, 1992/3-1996/7) This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species: Over winter; Shoveler *Anas clypeata*, 419 individuals representing at least 1.0% of the wintering Northwestern/Central Europe population (5 year peak mean 1991/2 - 1995/6)
Medway Estuary and Marshes SPA, UK9012031	This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive: During the breeding season; Avocet *Recurvirostra avosetta*, Little Tern *Sterna albifrons*, Over winter; Avocet This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

Natura 2000 Sites	Qualifying Features
	On passage; Ringed Plover *Charadrius hiaticula* Over winter; Black-tailed Godwit *Limosa limosa islandica*, Dunlin *Calidris alpina alpina*, Grey Plover *Pluvialis squatarola*, Pintail *Anas acuta*, Redshank *Tringa totanus*, Ringed Plover *Charadrius hiaticula*, Shelduck *Tadorna tadorna*. Assemblage qualification: A wetland of international importance. The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl Over winter, the area regularly supports 65,274 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: Little Grebe *Tachybaptus ruficollis*, Dark-bellied Brent Goose *Branta bernida bernida*, Shelduck, Pintail, Ringed Plover, Grey Plover, Dunlin, Avocet *Recurvirostra avosetta*, Redshank, Curlew *Numenius arquata*, Great Crested Grebe *Podiceps cristatus*, Cormorant *Phalacrocorax carbo*, Wigeon *Anas penelope*, Teal *Anas crecca*, Oystercatcher *Haematopus ostralegus*, Lapwing *Vanellus vanellus*, Black-tailed Godwit, Whimbrel *Numenius phaeopus*.
The Swale SPA, UK9012011	This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive: During the breeding season; Avocet, Marsh Harrier, Mediterranean Gull *Larus melanocephalus*. Over winter; Avocet *Recurvirostra avosetta*, Bar-tailed Godwit, Golden Plover *Pluvialis apricaria*, Hen Harrier. This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species: On passage; Ringed Plover *Charadrius hiaticula*, Over winter; Black-tailed Godwit, Grey Plover, Knot, Pintail, Redshank, Shoveler *Anas clypeata* Assemblage qualification: A wetland of international importance. The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl Over winter, the area regularly supports 65,390 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: White-fronted Goose Anser, Golden Plover, Bar-tailed Godwit, Pintail, Shoveler, Grey Plover, Knot, Black-tailed Godwit, Redshank, Avocet, Cormorant, Curlew Numenius arquata, Dark-bellied Brent Goose,

Natura 2000 Sites	Qualifying Features
	Shelduck, Wigeon, Gadwall *Anas strepera*, Teal, Oystercatcher, Lapwing, Dunlin, Little Grebe *Tachybaptus ruficollis*.
Thanet Coast and Sandwich Bay SPA, UK9012071	This site qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species: Over winter; Turnstone *Arenaria interpres*.
Stodmarsh SPA, UK9012121	This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive: Over winter; Bittern *Botaurus stellaris*, Hen Harrier.
Thames Estuary and Marshes SPA, UK9012021	This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive: Over winter; Avocet, Hen Harrier This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species: On passage; Ringed Plover Over winter; Ringed Plover Assemblage qualification: A wetland of international importance. The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl Over winter, the area regularly supports 33,433 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: Redshank, Black-tailed Godwit, Dunlin, Lapwing, Grey Plover, Shoveler, Pintail, Gadwall, Shelduck, White-fronted Goose *Anser albifrons*, Little Grebe, Ringed Plover, Avocet, Whimbrel.

3 Kent County Council Local Transport Plan LTP4

3.1 Introduction

3.1.1 Kent County Council (KCC) has a statutory duty under the Transport Act 2000, as amended by the Local Transport Act 2008, to produce a LTP for the administrative county of Kent. This strategy clearly identifies transport priorities for the county, as well as highlighting to national Government and the South East Local Enterprise Partnership (SELEP) the investment required to support growth. The LTP is informed by national and local policies and strategies, and is delivered through supporting strategies, policies and action plans.

3.1.2 LTP4 sets out KCC's policies to deliver strategic outcomes for transport and is accompanied by a series of implementation plans for funding streams and a methodology for prioritising funding. LTP4 is designed to deliver 'Growth without Gridlock'.

3.2 Policies and strategies

3.2.1 KCC's LTP4 consists of five key policies which are in place to *"To deliver safe and effective transport, ensuring that all Kent's communities and businesses benefit, the environment is enhanced and economic growth is supported*".

- Outcome 1: Economic growth and minimised congestion.

  Policy: Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.

- Outcome 2: Affordable and accessible door-to-door journeys.

  Policy: Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.

- Outcome 3: Safer travel.

  Policy: Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.

- Outcome 4: Enhanced environment.

  Policy: Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.

- Outcome 5: Better health and wellbeing.

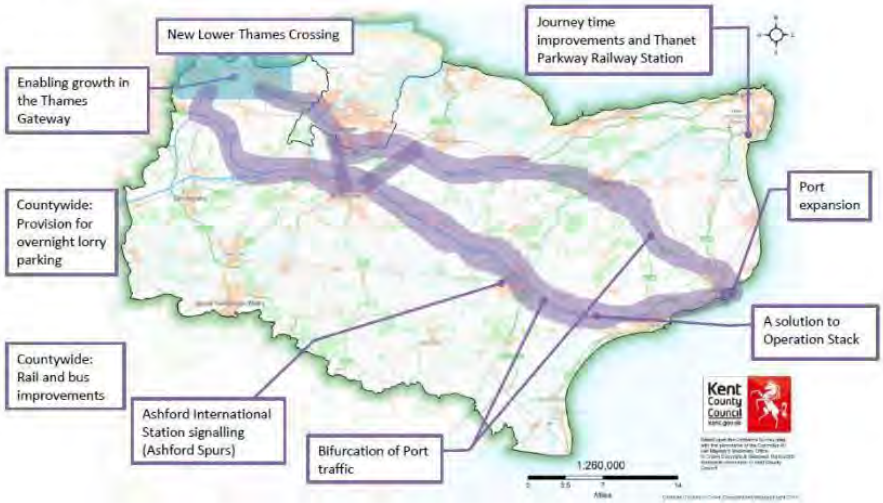
  Policy: Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.

Table 2 highlights the strategic priorities of the LTP4 and the schemes within them, which are required to deliver 'Growth without Gridlock'; Figure 1 presents these spatially.

Table 2: Strategic priorities of the LTP4

Strategic Priorities		Local
National	**Countywide**	
Enabling Growth in the Thames Gateway New Lower Thames Crossing Port Expansion A Solution to Operation Stack	Bifurcation of Port Traffic Provision for Overnight Lorry Parking Ashford International Station Signalling (Ashford Spurs) Journey Time Improvements and Thanet Parkway Railway Station Rail and Bus Improvements	District Priorities consisting of various schemes.

Figure 1: Spatial Distribution of LTP4's Strategic Priorities



4 Potential effects of LTP4's Strategic Priorities

4.1.1 Some of the potential effects which may arise as part of the strategies future schemes are highlighted in Table 3 below.

Table 3: Potential effects

Source	Effect
Road transport infrastructure construction Changes in traffic flows and volumes Greenhouse gas emissions Dust emissions from construction plant	Reduction in air quality Reduction in habitat quality and associated species due to global warming
Removal of vegetation Habitat loss or disturbance from land take	Loss, physical disturbance and/or fragmentation of habitat and species
Increase in noise levels from construction plant	Disturbance to local wildlife from noise pollution
Inadvertent movement of invasive plant species	Spread of invasive species leading to a reduction in biodiversity
Presence of chemical/oil on site – with the potential for spillages	Pollutants entering the water system resulting in a decrease in quality, degradation of ecosystems, damage to vegetation, Soil quality
Increased road traffic or introduction of traffic into new area	Increase in wildlife road mortalities

4.1.2 It should be noted that there will be opportunities for the LTP4 to improve biodiversity through habitat enhancement and as such not all impacts will be negative.

5 Screening Assessment

5.1 Screening matrix

5.1.1 Table 4 below sets out the HRA screening of the strategic priorities and identifies any likely significant effects that may undermine conservation objectives for any of the SAC/SPA qualifying species or habitats. If a likely Significant Effect cannot be ruled out (with basic mitigation) for a Natura 2000 site, an Appropriate Assessment is likely to be required.

5.1.2 Likely significant effects are identified by using the source-pathway-receptor model, where there would need to be a source of potential impact and a pathway to the European site to enable the impact to occur.

Table 4: Screening matrix

Designated Site	Approximate minimum distance of Natura 2000 site from LTP4[1]	Relevant strategic priority	Connectivity between the Natura 2000 site and the LTP4 strategy	Potential impacts	Avoidance or mitigation measures[2]	Screening in/out (with mitigation)	Project level HRA required
Sandwich Bay SAC, UK0013077	750m	Journey Time Improvements and Thanet Parkway Rail Station (countywide and district scheme)	Elements of the strategy could have both indirect and direct effects on the qualifying features due to the proximity of the site. There is the potential for other district schemes to impact upon this SAC	Pollutants entering the habitat via groundwater contamination or from surface water.	Standard pollution prevention measures in line with Environment Agency.	Out	Yes
Lydden and Temple Ewell Downs SAC, UK0012834	Adjacent	Bifurcation of port traffic , Dover's transport priorities	Elements of this countywide strategy (Specifically duelling sections of single carriageway on the A2 north of Dover along Jubilee Way to Whitfield and near Lydden) will be delivered within a close proximity of the site, which could result in a direct effect. There is the potential for other district strategies to have an indirect effect on the SAC.	Contamination from chemical/oil spills Noise and air pollution Reduction in soil quality	Standard pollution prevention measures in line with Environment Agency.	Out	Yes
Folkstone to Etchinghill Escarpment SAC, UK0012835	8km	A solution to Operation Stack, Dover transport priorities	The qualifying features of this site are unlikely to be vulnerable (indirectly or directly) from elements of the strategy	No likely significant effect predicted	None required.	Out	Yes
Stodmarsh SAC, UK0030283	1km	Canterbury's transport priorities	The SAC could be indirectly impacted by the strategy through district schemes. The Great Stour watercourse flows close to these schemes and is linked to Stodmarsh SAC.	Contamination (from pollutants entering water system) of habitat leading to detrimental effect on snail species	Standard pollution prevention measures in line with Environment Agency.	Out	Yes
Blean Complex SAC, UK0013697	1.6km	Canterbury's transport priorities	This SAC could be indirectly affected by the strategy through direct schemes. This SAC is linked to other areas via surface waterbodies.	Reduction in soil quality from pollutants entering groundwater.	Standard pollution prevention measures in line with Environment Agency.	Out	Yes
Queendown Warren SAC, UK0012833	1.9km	Swale's transport priorities	The qualifying features of this SAC are unlikely to be impacted (directly or indirectly) by the strategy due to distance and lack of potential pollution pathways.	No potential effects predicted.	None required.	Out	Yes
Peters Pit SAC, UK0030237	2km	Tonbridge and Malling's Transport Priorities	The qualifying species (GCN) are unlikely to be impacted by district schemes of the strategy (Specifically study into traffic flows on A229 Bluebell Hill). There is a lack of waterbodies in close proximity and barriers present.	No potential effects predicted.	None required.	Out	Yes
Tankerton Slopes and Swalecliffe SAC, UK0030378	5km	Canterbury's transport priorities	The qualifying features are unlikely to be affected by the strategy across this distance.	No potential effects predicted.	None required.	Out	Yes

[1] This distance is based the closest point of the Natura 2000 site to any of the strategies.
[2] Mitigation measures may need to be increased/modified when further scheme details are available.

Designated Site	Approximate minimum distance of Natura 2000 site from LTP4[1]	Relevant strategic priority	Connectivity between the Natura 2000 site and the LTP4 strategy	Potential impacts	Avoidance or mitigation measures[2]	Screening in/out (with mitigation)	Project level HRA required
Wye and Crundale Downs SAC, UK0012831	4.6km	Bifurcation of port traffic, Ashford's transport priorities	The qualifying features are unlikely to be impacted across this distance.	No potential effects predicted.	None required.	Out	Yes
Thanet Coast SAC, UK0013107	500m	Journey time improvements and Thanet Parkway Railway Station, Thanet's transport priorities	There is potential for the strategy to have an indirect impact on the SAC via district schemes (Margate junction improvements).	Damage to habitats from pollutants entering via surface water/ drains	Standard pollution prevention measures in line with Environment Agency.	Out	Yes
Dungeness SAC, UK0013059	Adjacent	Shepway's transport priorities	The strategy has the potential to impact the qualifying features (including GCN) of the SAC via district schemes (Highway improvements to support Lydd Airport). This matter has already been considered through the ecological assessments which accompanied the London Ashford Airport planning applications Y06/1647/SH and Y06/1648/SH. These conclude that, "there would be a negligible habitat impact on the SAC and the SSSI as a result of the land use change, and this change would not adversely affect the integrity of the SAC". In respect of the highways improvements, these are located at the junction formed by the B2075 (Romney Road) and the A259 (Lydd Road). The assessments state, "the land required for the proposed roundabout is not located within the SSSI and the ecological survey demonstrated that the land is of low ecological value. However, it is considered that the land (i.e. the present T-junction) is in the potential zone of influence for the SSSI. Accordingly, prior to the submission of a planning application for the roundabout, further detailed surveys would be carried out. These surveys, and any mitigation measures identified, would then be submitted in support of the planning application at the relevant time."	Disturbance/damage to habitat and species through habitat loss/fragmentation. Air/noise pollution	Modifications at design stage to ensure that GCN breeding ponds and surrounding habitat are not disturbed. Consider habitat enhancement if damage to habitat is unavoidable. Standard pollution prevention measures in line with Environment Agency.	Out	Yes
Dungeness Romney marsh and Rye bay SPA, UK9012091	1.9km	Shepway's transport priorities	The strategy has the potential to indirectly impact breeding birds.	Disturbance via noise pollution.	Standard pollution prevention measures in line with Environment Agency. Noise barriers and/or exclusion zones must be in place to reduce the disturbance to birds	Out	Yes
North Downs Woodlands SAC, UK0030225	3.4km	Tonbridge and Malling's Transport Priorities	The qualifying features are unlikely to be impacted by the strategy over this distance.	No potential effects predicted.	None required.	Out	Yes
Parkgate Down SAC, UK0030338	7.4km	Shepway's transport priorities	The qualifying features of the SAC are unlikely to be impacted across this distance.	No potential effects predicted.	None required.	Out	Yes
Dover to Kingsdown Cliffs SAC, UK0030330	170m	Port expansion, Dover's transport priorities	Despite the close proximity of the SAC, the qualifying features are unlikely to be impacted as the cliffs act as a natural barrier.	No potential effects predicted.	None required.	Out	Yes

Designated Site	Approximate minimum distance of Natura 2000 site from LTP4[1]	Relevant strategic priority	Connectivity between the Natura 2000 site and the LTP4 strategy	Potential impacts	Avoidance or mitigation measures[2]	Screening in/out (with mitigation)	Project level HRA required
Medway Estuary and Marshes SPA, UK9012031	Adjacent	Swale's transport priorities	There is potential for the strategy to affect the SPA (indirectly and directly) via district transport schemes, with the Swale acting as a pollution pathway.	Damage to habitat via pollutants entering the water system. Disturbance to breeding /wintering birds from noise. Decrease in bird populations.	Standard pollution prevention measures in line with Environment Agency. Noise barriers and/or exclusion zones must be in place to reduce the disturbance to birds.	Out	Yes
The Swale SPA, UK9012011	Adjacent	Swale's transport priorities	There is potential for the strategy to affect the SPA (indirectly and directly) via district transport schemes, with the Swale acting as a pollution pathway.	Damage to habitat via pollutants entering the water system. Disturbance to breeding /wintering birds from noise. Decrease in bird populations.	Standard pollution prevention measures in line with Environment Agency. Noise barriers and/or exclusion zones must be in place to reduce the disturbance to birds..	Out	Yes
Thanet Coast and Sandwich Bay SPA, UK9012071	Adjacent	Port expansion, Dover's and Thanet's transport priorities.	There is potential for the strategy to impact the qualifying features of the SPA due to the proximity of the site to future schemes.	Damage to habitat via pollutants entering the water system. Disturbance to turnstones from noise resulting in a decrease in their population.	Standard pollution prevention measures in line with Environment Agency. Noise barriers and/or exclusion zones must be in place to reduce the disturbance to birds.	Out	Yes
Stodmarsh SPA, UK9012121	5.7km	Port expansion, Dover's and Thanet's transport priorities.	The SPA could be indirectly impacted by the strategy through district schemes. The Great Stour watercourse flows close to these schemes and is linked to Stodmarsh SPA.	Damage to habitat via pollutants entering the water system.	Standard pollution prevention measures in line with Environment Agency. Noise barriers and/or exclusion zones must be in place to reduce the disturbance to birds.	Out	Yes

Designated Site	Approximate minimum distance of Natura 2000 site from LTP4[1]	Relevant strategic priority	Connectivity between the Natura 2000 site and the LTP4 strategy	Potential impacts	Avoidance or mitigation measures[2]	Screening in/out (with mitigation)	Project level HRA required
Thames Estuary and Marshes SPA, UK9012021	3.6km	National Strategic Priority – Lower Thames Crossing	The SPA could be indirectly impacted. The route has not yet been decided by Central Government. HRA Screening has already been undertaken by Highways England, and Appropriate Assessment will be undertaken by HE in due course. There is thus no additional value in KCC undertaking such an exercise.	Disturbance to bird species from noise pollution. Pollutants entering the water system, damaging habitat and resulting in a reduction in the bird population.	Standard pollution prevention measures in line with Environment Agency. Noise barriers and/or exclusion zones must be in place to reduce the disturbance to birds.	Out	Yes

5.2 In-combination effects

5.2.1 It has been assumed that KCC has accounted for the below plans/strategies when comprising the LTP4 and has therefore considered any major in combination effects. However at this stage a detailed in combination assessment would not be valuable at this stage and this should be reassessed as part of the project level HRA.

5.2.2 Kent LTP4 has been informed by the following national and local policies and strategies:

- Better Homes; Mind the Gap (Kent's Health Inequalities Action Plan); Productivity Strategy; Home to School Transport Policy; 16-19 Transport Policy; Development and Infrastructure Framework - Creating Quality Places; Kent Design Guide; Kent Cultural Strategy; KCC Environmental Policy; Joint Health and Wellbeing Strategy; Kent Downs AONB Management Plan; Kent Environment Strategy.

5.2.3 The LTP4 is delivered through the following supporting strategies, policies and action plans:

- Road Casualty Reduction Strategy; Congestion Strategy; Active Travel Strategy; District/Borough Cycling Strategies; Freight Action Plan; Rail Action Plan; Air Quality Action Plans; Facing the Aviation Challenge/Policy on Gatwick Airport; Winter Service Plan; Countryside and Coastal Access Improvement Plan; Rural Streets and Lanes – A Design Handbook.
- Kent Environment Strategy 2016 (Ref.9):This strategy and associated implementation plan seeks to provide support to decision makers to ensure the county of Kent remains the highly desirable location of choice for visitors, residents and businesses. Strategies include LTP3, Kent Nature Partnership Action Plan and Areas of Outstanding Natural Beauty (AONB) Management Plans.

6 Conclusions and Recommendations

6.1.1 All 20 Natura 2000 Sites have been screened (Stage1, HRA) to determine whether there are any likely significant effects as a result of the LTP4 strategies. Two LTP4 priorities were identified as potentially significant: The expansion of Lydd (London Ashford) Airport in Shepway, and the Lower Thames Crossing in Gravesham:

6.1.2 The expansion of Lydd Airport has been approved by the Secretary of State following rigorous assessment and Public Enquiry, including of the risk to Natura 2000 sites; the highway improvements form a minor part of this scheme and in themselves are unlikely to affect Dungeness SAC.

6.1.3 The Lower Thames Crossing is also a significant project and has the potential to affect the Thames Estuary and Marshes SPA. However the results of the options consultation have not yet been published and final Option selection has not yet been undertaken.

6.1.4 Considering the above all 20 Natura 2000 Sites has been screened out and an Appropriate Assessment has not been deemed necessary at LTP4 level.

6.1.5 It should be noted that at the time of writing this HRA Screening Report, it is not known exactly how and when the LTP4 Strategies assessed will be implemented. There is therefore some uncertainty in the assessment of potential significance and the precautionary approach has been applied.

6.1.6 Project level HRA Screening of 'Likely Significant Effects' for all SAC's/SPA's stated in Table 4 will also be required (in consultation with Natural England) when further details of the delivery of transport schemes (Countywide, National and District) are available, together with the details of other plans, to ensure compliance with the Habitats Regulations.

6.1.7 It is suggested that further HRA takes place at project level rather than LTP level for the following reasons;

- Many of the district schemes may not be implemented or change due to Council funding constraints;
- At present there is not enough information on many of the transport schemes to determine whether the uncertain effects in this report (Table 4) are really likely to be significant effects.

6.1.8 When it is known which transport schemes may be implemented and there is more information on what works they will entail, it will be possible to devise appropriate avoidance and mitigation measures that are scheme-specific.

7 References

1 EUROPEAN ECONOMIC COMMUNITY (EEC) *Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the Habitats Directive).*

2 EUROPEAN COMMISSION (2000) *Managing Natura 2000 Sites* (The Provisions of Article 6 of the 'Habitats' Directive 92/43/EEC).

3 Natural England (2013) *Natural England Standard: Habitats Regulations Assessment (HRA).*

4 Highways Agency (2009) DESIGN MANUAL FOR ROADS AND BRIDGES (DMRB). VOLUME 11, SECTION 4, PART 1, HD 44/09. *Assessment of implications (of highways and/or roads projects) on European sites (including Appropriate Assessment).*

5 DTA PUBLICATIONS (2014). *The Habitats Regulations Assessment Handbook.* www.dtapublications.co.uk

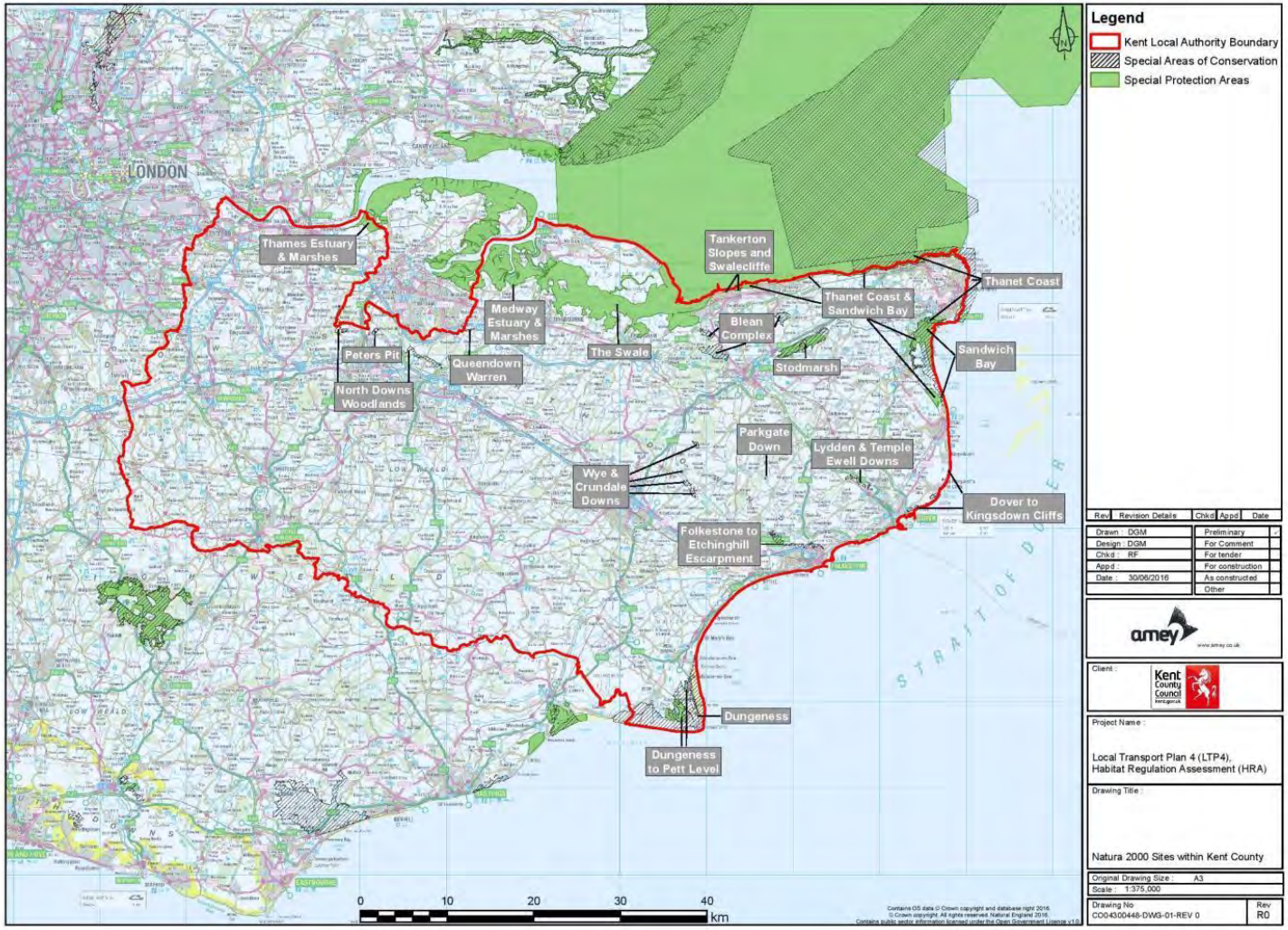
6 JOINT NATURE CONSERVATION COMMITTEE (JNCC). Website: http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?EUCode=UK0016618

7 NATURA 2000 STANDARD DATA FORM: Website: http://jncc.defra.gov.uk/protectedsites/sacselection/n2kforms/UK0016618.pdf

8 URS, 2011. Sustainability Appraisal and Habitats Regulations Assessment of Kent's Local Transport Plan 3 (LTP3).

9 Kent Environment Strategy. A Strategy for Environment, Health & Economy - March 2016

Appendix A Drawing No. CO04300448-DWG-01-REV 0



Appendix J Health Impact Assessment Report

Health Impact Assessment (HIA) of Kent County Council's Draft Fourth Local Transport Plan (LTP4)

CO04300448/HIA/REV 0

July 2016

INVESTORS IN PEOPLE | Gold

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Document Control Sheet

Project Name:	LTP4 SEA Post-Scoping
Project Number:	CO04300448
Report Title:	Health Impact Assessment (HIA) of Kent County Council's LTP4
Report Number:	CO04300448/HIA1

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Rev 0 Draft for inclusion in SEA Environmental Report for Public Consultation	Name: Helen Bresser Signature:  Date: 04/07/2016	Name: Jennifer Craig Signature:  Date: 10/07/2016	Name: Jenefer Taylor Signature:  Date: 13/07/2016
Rev 1	Name: Signature: Date:	Name: Signature: Date:	Name: Signature: Date:
Rev 2	Name: Signature: Date:	Name: Signature: Date:	Name: Signature: Date:

Contents

Introduction

Health Impact Assessment (HIA) is a process that uses a combination of procedures, methods and tools to help identify possible health impacts of a programme, policy or project. Health is determined by a combination of factors, coined 'the determinants of health' by the World Health Organisation. The determinants of health include;

- The social and economic environment;
- The physical environment, and
- A person's individual characteristics and behaviours.

HIA can contribute to improved health by:

- Raising awareness among decision makers of the relationship between health and the physical, social and economic environments;
- Demonstrating how a proposal may affect the health of a population;
- Providing recommendations on how a proposal could be modified to maximise opportunities for health gain and minimise chances of health loss.

This HIA forms part of the Strategic Environmental Assessment (SEA) of Kent's Local Transport Plan (LTP) 4: Delivering Growth without Gridlock. The assessment considers the relationship between transport and human health and the likely positive and negative effects of LTP4 on human health.

Kent's LTP4: Delivering Growth without Gridlock

The Local Transport Plan for Kent (LTP4) details the overarching transport strategy for Kent from 2016 to 2021. This HIA assesses Kent-wide priorities and each of the five 'outcomes for transport' detailed within the Plan, which are as follows:

Outcome 1: Economic growth and minimised congestion

Policy: Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.

Outcome 2: Affordable and accessible door-to-door journeys

Policy: Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.

Outcome 3: Safer travel

Policy: Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.

Outcome 4: Enhanced environment

Policy: Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.

Outcome 5: Better health and wellbeing

Policy: Promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.

Report Structure

The report is presented in the following key sections:

Section 1: Transport and Human Health - Policy Context

This section outlines the key national and local policies and guidance that relate to transport and human health.

Section 2: Transport and Human Health - Evidence

This section analyses the Kent community profile against secondary research in relation to the impact of transport and human health.

Section 3: Assessment Scope, Methodology and Limitations

This section summarises the scope of the health impact assessment of LTP4, the methodology used and limitations associated with the approach.

Section 4: The Assessment

This section provides the assessment of LTP4 against the SEA objectives, relevant to health.

Section 5: Recommendations for Mitigation and Enhancement

This section provides recommendations for mitigation and enhancement based on the findings of the research and the assessment.

Section 1: Transport and Human Health - Policy Context

This section outlines the national and local context in relation to the impact of transport on health.

1.1. National

The Health and Social Care Act 2012 provides a new focus on Public Health and related inequalities and wider determinants, with transport being explicitly identified as such: Transport policy can have considerable input with regards to tackling obesity, promoting healthy and active lifestyles, supporting independent living and reducing death/injury from road accidents, as well as reducing polluting emissions. Local Authorities are given responsibility for improving health and wellbeing in their areas by the Act.

Adult physical inactivity is ranked as the fourth leading risk factor for global mortality and claims more lives worldwide annually than being overweight or obese (WHO, 2010). Physical inactivity has been directly linked with causing a range of non-communicable disease (NCD) conditions and has been identified as the cause of 10.5% of UK coronary heart disease burden, 13% of Type II diabetes, 18% of breast cancers and 19% of colon cancers (Lee et al., 2012). There is clear evidence that increasing levels of physical activity can be effective in preventing the development of conditions as well as managing existing chronic NCD conditions (Kent County Council (KCC), 2015c).

The Public Health Outcomes Framework Policy (Public Health England (PHE), 2013a) sets out the desired outcomes for public health, with indicators to help understand how well public health is being improved and protected. Two of these indicators relate to physical activity:

- 2.13(i) number of physically active adults (defined by recommended level of 150 minutes of activity per week) and
- 2.13(ii) number of physically inactive adults (defined by managing 30 minutes of activity in one week)

Public Health England's '*Everybody Active, Every Day*' published in 2014, sets out a framework to address the physical inactivity problem using an evidence-based approach. The solution to the epidemic is for everybody to become more active, every day, with the four key aims being *active society*, *moving professionals*, *moving at scale* and *active environments*. In promoting physical activity, the Framework places emphasis on creating environments and cultures that can sustain physical activity including; active travel and opportunities to walk and cycle, based on locally-identified demand.

Obesity is regarded as one of the most serious public health problems facing the UK, with obese people dying on average 9 years earlier than those of normal weight (KCC, 2015e). Obesity is also associated with increased mortality and morbidity as a result of circulatory disease, as well as several cancers. The Marmot Review (Marmot, 2010) looked at health inequalities in England and found that obesity is more common in those with a social disadvantage.

In order to tackle the issue of obesity, a holistic approach to the problem is required including transport, the built environment, housing, education and leisure facilities. Prevention is the main priority in the NHS England's Five Year Forward View (October 2014).

The National Institute for Health and Care Excellence (NICE) implement a range of public health publications for the promotion of active transport and travel including:

- PH41 Walking & Cycling (2012): guidance on how people can be encouraged to increase the amount they walk or cycle for travel or recreation purposes;
- PH8 Physical activity and the environment (2008a): guidance with evidence-based recommendations on how to improve the physical environment to facilitate physical activity;
- PH13: Physical activity in the workplace (2008b): guidance on encouraging employees to be more physically active, either through supporting physical activity when travelling to work and/or during the working day.

The Department for Transport has published a range of policy documents which put a focus on active and sustainable travel:

- *Cycling and Walking Investment Strategy (Draft; 2016)*: a long term vision for walking and cycling to become the preferred option for shorter commutes in everyday life, with a transformative change in the way these activities are part of everyday life.
- *Door to Door Strategy (2013)*: a strategy for improving sustainable transport and connecting people from A to B more efficiently with an overall smaller carbon footprint. Takes into account convenience, price, safety, accuracy and accessibility
- *Creating Growth, Cutting Carbon (2011)*: The Government's vision for a sustainable local transport system that supports the economy and reduces carbon emissions.

The Department of Health has published guidance: *Start Active, Stay Active (2011a)*, which puts a focus on the services needed to promote regular physical activity, with guidelines on the volume, duration, frequency and type of physical activity required to achieve general health benefits.

With a particular focus on children, the Department for Education's: *Home to school travel and transport guidance (2014)* places a duty on Local Authorities to deliver Home to School travel and transport, and sustainable travel for children living within each Local Authority.

In relation to people's safety on the roads, the Road Traffic Act 1988 focuses on road safety and reducing the likelihood of road casualties occurring through the offences it places on all drivers for careless and reckless driving.

One of the objectives of the Department of Health's: *No Health without Mental Health (2011b)* is to ensure more people with mental health problems achieve good physical health. Their aim is to improve outcomes for people with mental health problems and build individual and community resilience and wellbeing in order to prevent mental ill health.

1.2. Local

KCC implement a range of local policy documents to address some of the health issues encountered within the county, and those relating to transport are acknowledged below. These inevitably will have an impact on the LTP4 and the future direction taken.

The *Active Travel Strategy (Draft; 2016a)* aims to make the use of non-motorised transport more attractive, safer and ultimately the preferred choice for short journeys in Kent, thereby increasing physical activity across the population.

There is also a *Strategic Framework for Sport and Physical Activity in Kent (2012)* which provides direction for sport and physical activity.

KCC's strategic statement *Increasing Opportunities, Improving Outcomes (2015)* sets out their 5 year vision from 2015 to 2020 to improve outcomes for residents, businesses and communities in Kent.

In relation to health and health inequalities, the Kent Health and Wellbeing Board *Joint Health and Wellbeing Strategy (2014a)* sets out Kent's direction for improving health care across the NHS, social care and public health services as well as reducing the health inequalities that exist in the county. Kent's Public Health Board have also produced *Mind the Gap* which is an action plan to reduce the gap in health status between the least deprived and most deprived communities in the county.

The *Kent Environment Strategy (2016b)* covers three themes; living well within environmental limits, rising to the climate change challenge and valuing our natural, historic and living environment. The two business plans in relation to growth, environment and transport and social care, health and wellbeing set the key priorities for the year ahead including support for residents, communities and businesses, and the focus to improve lives through delivering better outcomes.

The Road Casualty Reduction Strategy (2014b) is a Strategy aimed at reducing road casualties in Kent, including targets relating to the number of people killed or seriously injured (KSI) in road collisions. The Crash Remedial Measures (CRM) Programme targets safety critical schemes, which are locations where there is a statistically higher than expected number of KSI casualties.

Kent also implement a range of other policies/guidance aimed at enhancing the community within which residents live, work and enjoy life, including:

- Kent Design Guide (2000)
- Unlocking Kent's Cultural Potential (2010-2015)
- Development and Infrastructure, Creating Quality Places
- Kent Better Homes - Better homes: localism, aspiration and choice (2011a)
- KCC's Countryside and Coastal Access Improvement Plan (2013)

Across Kent there are local cycling strategies to promote physical activity. Kent also implement local air quality action plans to address exceeding pollution levels, the outcomes of which will have an influence on transport and consequently health. These impacts are discussed in further detail in Section 2.

Section 2: Transport and Human Health - Evidence

2.1. Introduction

This section explores the relationship between transport and health by providing an analysis of secondary research findings and applying these to Kent's community profile.

A large proportion of the Kent population are in very good health, with figures similar to the England and Wales average. Only 5.1% of the population class themselves as being in bad or very bad health (KCC, 2011b).

Transport planning can impact upon human health in a number of ways from air and noise pollution to mental health and community severance. Outcomes of LTP4 will have an impact on people's travel behaviour, with factors including cost, practicality and individual preference all having an influence on the decisions people make with regard to transport.

Transport has a significant impact on physical activity and obesity, with the health implications of travel choices being considerable. Table 2.1 indicates the modes of travel to work by residents aged 16 to 74 years in Kent, taken from the census of 2011. Driving a car or van to work is the most common mode of transport at 39.7% of the population, which is slightly higher than the national average at 37.1%. This mode of transport is generally the mode of transport which results in the least physical activity.

2.2. Physical activity

Currently 28.1% of adults in Kent are classed as physically inactive, meaning 3 out of 10 adults do not manage 30 minutes of physical activity in one week. This figure is comparable to the national average of 27.73%, and the Kent trend appears to show a net increase in the number of physically inactive people since 2012 (KCC, 2015c). 57.1% of the adult population meet the recommended level of 150 minutes per week of physical activity in order to improve or maintain health, which is slightly higher than the national average of 56.0% (PHE, 2015). Kent is therefore performing at level close to the national average, however the trends show that inactivity is increasing.

Thanet has the highest percentage of physically inactive people and the lowest number of physically active people, whilst Sevenoaks has the highest percentage of physically active people and the lowest percentage of physically inactive people (KCC, 2015c). There is a strong correlation between levels of physical inactivity and socio-economic status (PHE, 2013b), with research showing that people living in the most deprived regions are twice as likely to be physically inactive as those living in the least deprived regions (UK Active, 2014).

The benefits of increased levels of physical activity include the prevention and management of the symptoms associated with additional disease burden that are often linked to people from highly deprived areas, e.g. excess weight, hypertension and mild to moderate depression (KCC, 2015c). Analysis suggests that physically inactive people from populations in areas of high deprivation should be considered as a primary target group for increasing levels of physical activity.

KCC recognise that increasing physical activity is necessary and action is required to integrate physical activity into transport and environmental planning and other services (KCC, 2015c).

Table 2.1: 2011 Census: Method of Travel to Work (KCC, 2011)

	Work mainly at or from home	Underground, metro, light rail, tram	Train	Bus, minibus or coach	Taxi	Motorcycle ,scooter or moped	Driving a car or van	Passenger in a car or van	Bicycle	On foot	Other method of travel to work	Not in employment
Kent	**41,072**	**1,884**	**63,247**	**25,917**	**2,756**	**5,991**	**419,206**	**35,285**	**11,948**	**77,057**	**4,071**	**366,963**
Ashford	3,995	95	3,755	1,507	151	377	36,833	3,134	1,465	5,920	314	26,706
Canterbury	4,165	186	3,384	3,279	196	446	38,249	3,201	1,803	10,363	348	46,247
Dartford	1,786	362	8,537	2,563	327	691	28,785	2,184	535	3,609	232	20,877
Dover	2,685	89	1,883	1,830	245	439	32,435	3,100	1,086	6,227	427	30,390
Gravesham	1,837	214	5,187	3,177	198	536	28,875	3,021	463	3,864	267	25,552
Maidstone	4,705	120	5,257	2,945	222	538	50,131	3,819	935	9,023	395	35,141
Sevenoaks	4,470	258	11,172	873	214	558	31,387	2,016	471	4,214	382	26,083
Shepway	2,705	94	1,905	2,358	250	362	30,422	2,654	893	6,261	376	29,658
Swale	3,165	101	4,329	1,258	242	588	40,843	3,455	1,385	7,086	358	35,797
Thanet	2,940	102	2,168	3,502	364	575	33,109	3,793	1,395	6,890	362	39,252
Tonbridge and Malling	3,768	134	7,295	1,293	168	526	37,883	2,630	855	5,151	290	26,442
Tunbridge Wells	4,851	129	8,425	1,332	179	355	30,254	2,278	662	8,449	320	24,818
UA Medway	4,615	283	11,252	5,903	444	1,416	80,403	7,778	1,449	12,461	685	67,469

2.3. Obesity

It is estimated that approximately 21% of the Kent adult population is obese (KCC, 2015e), and over 18% of school children aged 10-11 (PHE, 2015), both figures of which are below the national averages of 23% and 19% respectively. Swale, Shepway and Dartford have the highest levels of adult obesity in Kent. Swale is above the national average and Canterbury and Tunbridge Wells are below the national average.

2.4. Healthy living

The Kent Joint Strategic Needs Assessment (JSNA) identifies that projections signal a clear decline in the prevalence of healthy weight with a simultaneous significant increase in the prevalence of obesity and severe obesity (KCC, 2015e). In a consultation questionnaire on people's lifestyles, of which 602 responses were received from the Kent population, over 40% said they wanted to live healthier lifestyles, were concerned about their health or wanted to change how they looked. When questioned about the helpful aids to weight loss, the top 3 that people strongly agreed with included; available and affordable fresh fruit and vegetables (64.4%), being able to cycle or walk near to where to you live (53.5%) and having advice on healthy eating (52%). The responses were similar across gender, age and white and other ethnic groups.

Cardiovascular disease (CVD) includes all diseases of the heart and circulation and kills one in three people in the UK. It is the main cause of death and premature death (under 75 years) and is more common in deprived communities (KCC, 2015d). CVD was responsible for 26% of all deaths in Kent in 2015 and is the most significant contributor to the inequality gap in life expectancy in the county.

Coronary Heart Disease (CHD) prevalence in Kent appears to be increasing in line with national trends, largely due to increased awareness and effective diagnosis. Thanet district appears to experience relatively higher CHD mortality rates compared to the rest of Kent while Tonbridge and Malling see relatively lower levels (Figure 2.1).

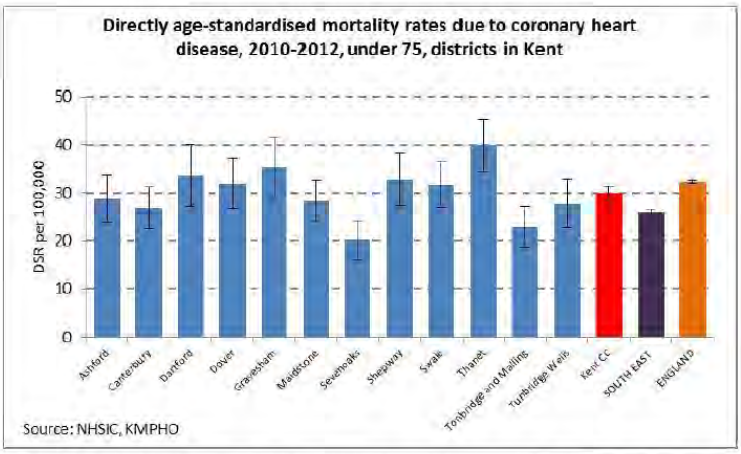

Figure 2.1: Directly age standardised mortality ratio due to CHD 2010-2012 in those aged less than 75 (KCC, 2015a)

Thanet is the most deprived district, and figure 2.1 illustrates that deprivation is strongly linked to CHD, as well as lower life expectancy. Analysis of life expectancy across Kent shows that there are stark differences between the most deprived and least deprived areas.

A poor diet high in fat and cholesterol, excess weight and a sedentary lifestyle are some of the risk factors of CHD. Only 28% of Kent residents consume at least 5 portions of fruit and vegetables a day with only 21% in Swale and Dartford (KCC, 2015e). Promotion of physical activity is required to reduce the burden and impact of CVD on the population through local planning of health and wellbeing services.

2.5. Respiratory diseases

15% of all deaths in Kent in 2015 were due to respiratory illness. Figure 2.2 shows that, in 5 districts, mortality rates are higher than the Kent and national average (31.9), with Thanet having the highest rate. There are clear social class gradients in respiratory disease mortality (KCC, 2015a).

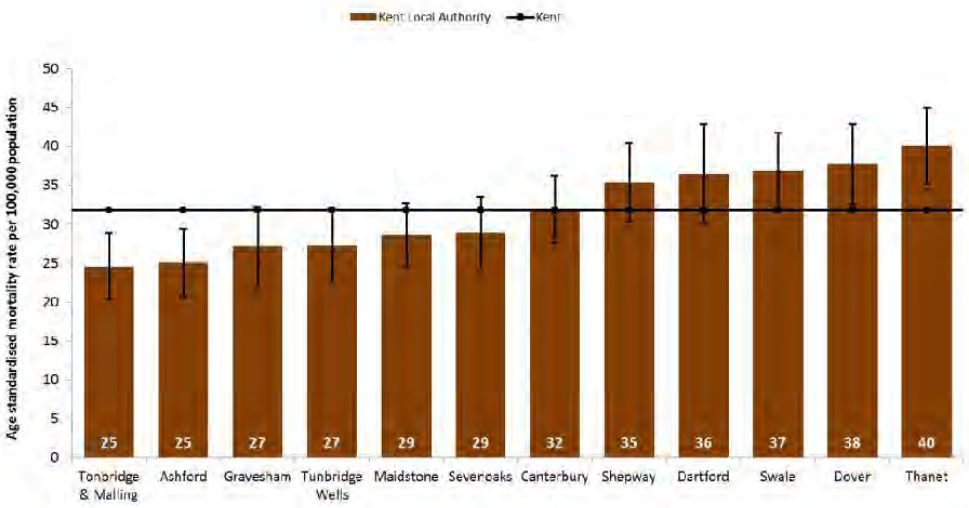

Figure 2.2: Age standardised mortality rate from respiratory causes (under 75 years' persons), 2011 to 2015

2.6. Mental health and wellbeing

Poor mental health is the largest single cause of disability and accounts for 23% of the national disease burden in the UK (Department of Health, 2013) with significant morbidity and mortality rates. Health inequalities are also evident in the case of mental illness, with those at a disadvantage within a community, e.g. with a lower socioeconomic status, often affected the most.

There are many mental health and wellbeing risk factors which can increase the likelihood of experiencing mental health problems, such as; low income, poor education, poor housing, unemployment and family breakdown (Bird, 2011).

The estimated prevalence of common mental illnesses (any neurotic disorder, e.g. anxiety) in Kent in 2013/14 was 144,558 people, which is 12.5% of the total registered population of Kent (aged 18-64) (KCC, 2015b).

Transport can impact upon mental health in a number of ways with access to a car having a positive impact (Health Scotland, 2007). Regular physical activity is important for sound mental health, with the two being interconnected. People who are physically impaired have a higher risk of suffering from a mental illness (King's Fund, 2012).

Traffic noise has the potential to impact a person's mental health through inducing nervousness, depression, elevated blood pressure, sleeplessness, undue irritability and in some cases long-term physiological effects. This is more prevalent in vulnerable groups such as children, the elderly, shift workers, those vulnerable to physical/mental disorders and in areas with low background noise levels. People can demonstrate aggressive behaviour when faced with congested traffic situations; increasing the likelihood of involvement in a car accident (OCC, 2015).

A child's mental health can be positively influenced through physical exercise, with benefits to development, cognition, concentration and academic performance (OCC, 2015). Greater participation in walking and cycling can also be advantageous to a child's self-confidence. However, traffic build up is a major hindrance to a child's ability to access infrastructure for physical activity, e.g. walking and cycling for short distances, as parents can perceive the danger is too high to allow participation. Sustrans illustrated this cycle of the restricted movement of children, as shown in figure 2.3.

Figure 2.3: The effect of ever increasing traffic on Children's freedom of movement (Source: Sustrans)

In addition to fears of road traffic preventing the use of sustainable modes, fear of crime can also act as a deterrent. Fears about crime-related personal safety when travelling on or waiting for public transport can have a significant impact on the number of people choosing to use sustainable modes. Personal safety perceptions vary according to many different factors this can include individual factors such as age and gender and external factors such as location of infrastructure (e.g. bus stops) and time of day .

2.7. Community severance

Community severance, or the 'barrier effect', can occur when the transport system limits people's mobility, instead of facilitating it. Transport can have a wide range of beneficial and detrimental effects on health. Positive effects include recreation, exercise; and access to employment, education, shops, social support networks and health services.

A study carried out into the barrier effect showed that the elderly (65+) are many times more susceptible to barrier effects than other adults (Hine and Russell, 1996), with the UK and Kent experiencing an aging population; this suggests that access to public transport for the 65+ age group is of great importance.

2.8. Inequalities and vulnerable groups

The health effects of transport will impact certain areas of the county and certain groups of people more so than others. KCC recognise the health inequalities across the county and are taking action to tackle the impact of social disadvantages on the population's health. Location and socio-economic factors influence these inequalities.

Deprivation

Kent is within the least deprived 50% of all counties and unitary authorities in England. The level of deprivation in eight out of twelve Kent local authority districts has increased since 2010 relative to other areas in England, with the north Kent coastal areas having some of the highest levels of deprivation across the county, with Thanet District being the most deprived district (KCC, 2015b). The east of Kent also has high levels of poverty, but there are localised areas of high affluence amongst these areas. Parts of central and south west Kent have the lowest levels of deprivation. Life expectancy and relative deprivation levels are strongly correlated across the county as a whole, as well as by district, illustrating the health inequalities within Kent. The gap between the most deprived 20% of the population and the two most affluent areas appears to show no sign of narrowing.

Poverty

Using the Children in Low-Income Families Local Measure, 16.5% of children (53,295 children) in Kent are living in poverty. This is above the regional average of 13.2% but below the England average of 18.0%. Child poverty has decreased in Kent by 1.0% since 2014 (565 fewer children living in poverty) (KCC, 2015).

Location

The negative impacts of transport on health are more pronounced in inner cities and along busy roads where people live and work as traffic density is significantly higher. Within urban areas there is greater severance within the community, an increased risk of injury and death for pedestrians and cyclists as well as the exacerbated emission levels and poor air quality in

comparison to suburban and rural areas (Croxford et al., 1996). The most deprived communities reside in these areas and figure 2.4 illustrates the strong correlation between area deprivation and accident rates for child pedestrians.

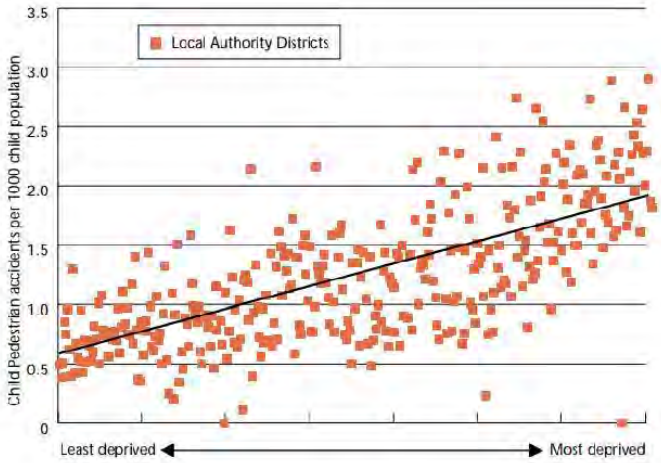

Figure 2.4: Child pedestrian accident rates in local authority districts, by index of multiple deprivation (Source: Centre for Transport Studies) SEU, 2002

Despite overall traffic volumes on rural roads being lower than that found on urban roads, traffic speeds on rural roads result in a disproportionate number of accidents which are fatal when compared with urban road accidents (OCC, 2015). Travelling at high speed and the sinuosity of rural roads can result in loss of control (Department for Transport, 2015). In 2014, approximately 59% of all fatal accidents in Great Britain occurred on rural roads, with 38% occurring on rural A-roads and a further 21% on other rural roads. The South East includes 39 of the worst 20% of deprived rural areas in England – 24 (62%) of these are in Kent (Rural Community, No date).

Drivers from the most socially deprived areas are more likely to have road collisions with causes being linked to driving at excessive speed, driver intoxication, failure to wear seat-belts and unlicensed/uninsured driving (Clarke et al., 2009).

Disabled People

There are 257,038 disabled people within Kent, which accounts for approximately 17.6% of the population (KCC, 2011). This is only marginally less than the national average at 17.9%. It is imperative that this group of the population have affordable access to healthcare, for which the transport network is vital.

Age

Life expectancy for both males and females born in 2015 in the county is higher than the national average at 79.4 and 83.1 respectively (PHE, 2015). The number of deaths in Kent has been falling steadily over recent years, with Kent having an older age profile than the national average. Age statistics and transport related death rates are detailed below:

- The greatest number of pedestrian deaths is within the age group 18-59 (48%), but there is a disproportionate amount of 60+ year old pedestrians (43%) being killed on the road (Department for Transport 2014).
- Approximately one third of all drivers who are killed or seriously injured on the road are under 29, but license holders are only a percentage of this age bracket.
- A third of accidental deaths amongst children aged 0-14 year olds is accounted for by road accidents, and over half of accidental deaths for 5-14 year olds (CAPT, 2012). This is a greater percentage than other causes of accidental death in children including drowning, asphyxia and falls.

Pedestrians and Cyclists

Pedestrians and cyclists are vulnerable road users. Their incident rate for crashes is particularly high given the duration of time spent on the road and distance generally travelled. In comparison to other road users, children are most at risk of being killed or seriously injured on the roads when they are on foot. In 2014 1,379 pedestrians under 16 years old were killed or seriously injured whilst on foot (Department for Transport, 2015), in comparison to 279 under 16 year old cyclists in the UK.

The severity of pedestrian and cyclist casualties is exacerbated when collisions occur with vehicles travelling at more than 20 miles per hour (OCC, 2015). In 2014, after car occupants, pedestrians were the second largest causality killed in reported accidents (25%) in Great Britain, followed by motorcyclists (19%) and pedal cyclists (3.5%) (Dft, 2015).

Although pedal cyclist deaths have seen a long-term decline (Dft, 2013), cyclists are still 12 times more likely to be killed on the road than people in cars. HGVs are the biggest threat to pedal cyclists on the roads; between 2009 and 2013 they were involved in around a quarter of fatal collisions despite comprising only 5 per cent of traffic in GB.

Transport-related injury and death

Road traffic, by 2030, will be accountable for nearly 5% of the global disease burden, and be the third highest cause of death overall (WHO, 2011). Young people are most at risk with road traffic injury being the second highest cause of death between ages 5 and 29 years. Children are vulnerable road users; however, a reduction in traffic density has previously been accompanied by falling child pedestrian deaths (WHO, 2011).

Pedestrians and cyclists are vulnerable road users with a higher fatality rate per distance travelled in comparison to other road uses, excluding motorcyclists. Personal safety is a cause for concern and may be a barrier to people participating in active transport (OCC, 2015). People from areas of a low deprivation are also at risk as walking is sometimes the only mode of transport available.

Figure 2.5 below shows that over time the number of people killed or seriously injured (KSI) on Kent roads has significantly decreased, however, there was an 11% increase between 2013 and 2014. The 2020 target figure is 495 casualties and in 2014 there were 658 (33% above target). The number of cyclist collisions has increased from 441 in 2013 to 480 in 2014, with a similar trend shown in the number of cyclist KSI casualties, with the 2014

figure now 126% above the 2004 to 2008 average. The number of pedestrian KSI casualties has also increased by 20 in 2014 and total pedestrian casualties by 42 in 2014.

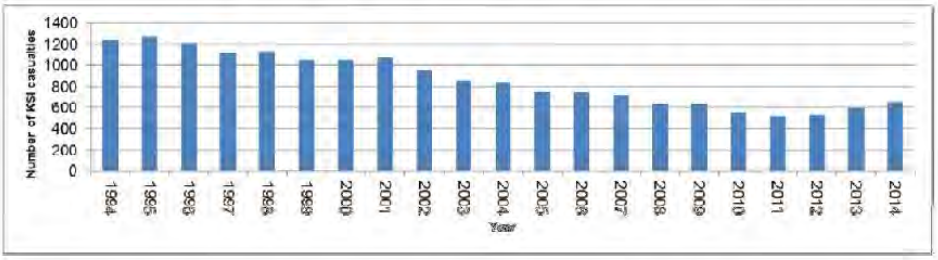

Figure 2.5: KSI casualties in Kent from 1994 to 2014 (KCC, 2014)

Figure 2.6 shows KSI by district with Ashford having the highest proportion, and Gravesham having the lowest.

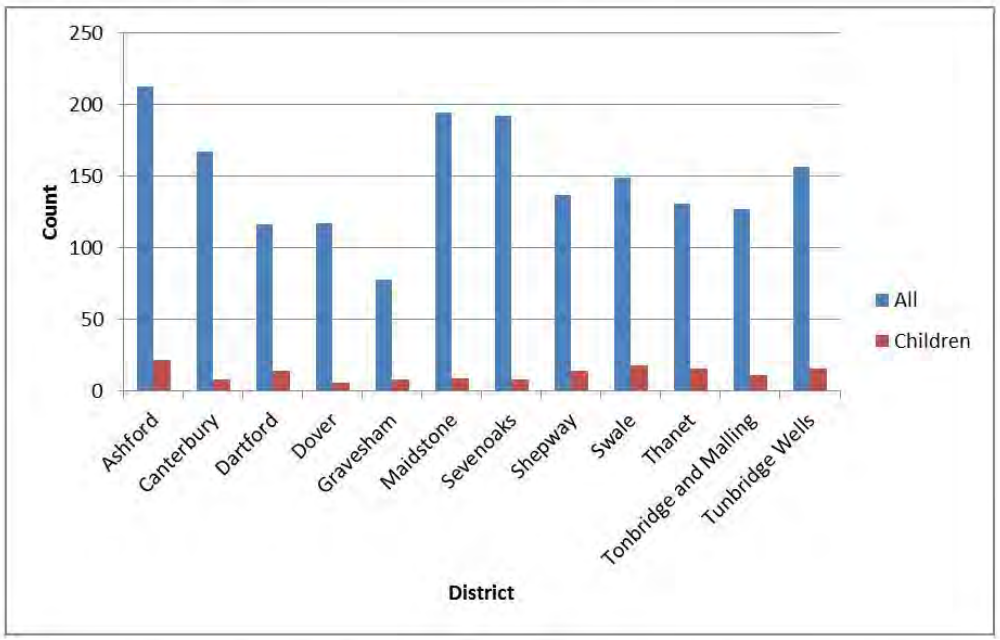

Figure 2.6: People killed or seriously injured on Kent's roads, 2012-2014 (pooled) by District (Source: Department for Transport) (KCC, 2015a)

2.9. Transport-related air pollution

Outdoor air pollution in the UK is believed to cause 40,000 premature deaths each year (RCP, 2016) and road transport is the largest source of urban air pollution. Transport-related air pollutants are linked to a range of ill health problems including asthma, chronic bronchitis, heart and circulatory disease and cancer (Krzyzanowski et al., 2005), see table 2.2. Overall, UK air pollution levels are low in comparison to many other countries; however, pollution levels in some major cities are close to/above recommended levels.

Living near a busy road, and areas of high traffic flow and density is associated with poorer child and adult health, and higher death rates (Brugge et al., 2007, Health Effects Institute, 2010).

Table 2.2: Transport-related air pollutants and their associated health outcomes

Transport-related pollutant	Health outcome
Black smoke, ozone, $PM_{2.5}$	Mortality
Black smoke, ozone, nitrogen dioxide, VOCs, CAPs, diesel exhaust	Respiratory disease (non-allergic)
Ozone, nitrogen dioxide, PM, VOCs, CAPs, diesel exhaust	Respiratory disease (allergic)
Black smoke, CAPs	CVD
Nitrogen dioxide, diesel exhaust	Cancer
Diesel exhaust; also equivocal evidence for nitrogen dioxide, carbon monoxide, sulphur dioxide, total suspended particles	Adverse reproductive outcomes

Adapted from Krzyzanowski et al., 2005

Pollutants of most concern to human health are particulate matter $PM_{2.5}$ and PM_{10}. Due to their microscopic size they can infiltrate deep inside the respiratory system and cumulative, long-term exposure to these particles is linked to reduced lung function, increased frequency of respiratory disease and reduced life expectancy (WHO, 2011). Oxides of nitrogen, VOCs and carbon monoxide are also particularly harmful to health. Short term exposure is also known to increase rates of daily mortality and hospital admissions (WHO, 2011).

Many areas of the UK are failing to comply with European air quality limits, particularly in relation to nitrogen dioxide (NO_2), and health based national air quality objectives. As part of Local Air Quality Management, Local Authorities are required to assess air quality within their area for a number of key pollutants, defined by the National Air Quality Strategy. Where air quality objectives are not met, the Local Authority must declare an Air Quality Management Area (AQMA) for the area, along with action plans for improvement. Of the 513 AQMAs in England, 487 are due to a range of road transport sources. Transport emissions contribute approximately 30% of total nitrogen oxide (NO_x) emissions and 20% of total PM emissions (RAC Foundation, 2014). In Kent, there are currently 44 AQMAs in council areas of Canterbury (2), Dartford (4), Dover (3), Gravesham (7), Maidstone (1), Medway (3), Swale (4), Sevenoaks (11), Thanet (1), Tonbridge and Malling (7) and Tunbridge Wells (1), these however are not all designated for road transport, some are for industrial monitoring.

Improved emission standards within new cars, to reduce emissions per vehicle has not taken place as expected, and new diesel cars appear to be generating higher direct emissions of nitrogen dioxide into vehicle exhausts (OCC, 2015). Although air quality monitoring takes place, there are still ten towns and cities in the UK, where PM_{10} levels have exceeded safe levels, and a further 39 urban areas which have breached safe levels for $PM_{2.5}$ (Johnston, 2016)). Some public health professionals believe that current air pollution levels within the UK are a public health crisis, despite European levels showing slight improvements, the recorded levels are still dangerously high.

Improvements in technology may be offset by traffic growth, with emission levels likely to increase further if congestion levels increase. The transport network needs to accommodate additional vehicle loads to avoid congestion. With cars being the main mode of transport in urban areas for relatively short journeys, traffic pollution has increased. A cumulative impact occurs within urban areas as a result of the shorter distances that vehicles travel. In order for catalytic converters to function effectively, the engine needs to be operational for some time; therefore, the shorter distances travelled in urban areas lead to higher levels of pollution (Krzyzanowski et al., 2005).

Air pollution is closely linked with climate change, and it is thought that the impacts of climate change on health will increase, in relation to changing temperatures, ground level ozone levels and sunlight. The National Planning Policy Framework (NPPF) requires 'preventing both new or existing development from contributing to...unacceptable levels of soil, air, water or noise pollution'; the LTP4 should therefore take into account road related emissions and ensure targets are in place to reduce, control or mitigate these. A reduction in average particulate concentrations from 75µg/m^3 for PM_{10} (a level common in many cities) to 20µg/m^3 for PM_{10} (the WHO guidelines) could potentially result in mortality rates falling by 15% (WHO, 2011).

2.10. Transport-related noise pollution

Road traffic is the largest source of community noise in towns and cities and can cause a range of health issues (WHO, 2011). Exposure to noise for long periods can cause annoyance, disruption, sleep disturbance and increased aggression, with negative impacts for mental health. Noise can be a subjective matter, but when levels constantly exceed 30dbLAeq people can struggle to sleep, and most people would appear 'moderately annoyed' at 50dbLAeq (OCC, 2015).

Noise is also linked to higher stress levels, heart disease and hypertension. There may be other contributing factors to transportation noise, e.g. proximity to airports and railway lines but road traffic is the largest concern (Dora and Phillips, 2000). Amongst children living in areas with high levels of road traffic noise, impaired reading and mathematics performance can be more prevalent (Ljung et al., 2009).

Proximity of people to noise, traffic volumes and high traffic speeds can all affect noise level exposure. Reductions in these 3 factors can reduce community noise levels and emissions, thus decreasing the impact on health, as well as removing some of the barriers for active transport (WHO, 2011).

Section 3: Assessment Scope, Methodology and Limitations

3.1. Scope of Assessment

Based upon the evidence discussed in Section 2, this assessment focuses on the following 'relevant' SEA objectives; relevance has been established as those objectives which are most closely associated with human health:

- Promote accessible, integrated and sustainable transport networks that support the needs of the economy and local communities.
- Support transport solutions that promote positive health outcomes through active and sustainable travel choices and improved road safety.
- Improve air quality in urban areas and achieve the NAQS and AQMA objectives across the county.
- Seek to reduce noise at source, particularly in existing Noise Important Areas, and to prevent the creation of new Noise Important Areas; protect tranquil areas from impact, including cumulative impact.
- Reduce vulnerability to climate change related extreme weather events by creating a resilient transport infrastructure and identifying appropriate adaptation and mitigation measures.

For further detail in relation to how the SEA objectives were developed, see section 3.2 of the Environmental Report.

3.2. Methodology

The following section 4 provides the assessment of Kent's LTP4 outcomes and Kent-wide priorities against the SEA objectives, outlined above, to determine the potential positive and negative health impacts of LTP4.

Potential impacts were considered in relation to whether they were likely to be (in the context of Kent):

- Major positive
- Minor positive
- None/unknown
- Minor negative
- Major negative

3.3. Limitations and Assumptions

This assessment focuses on the Kent-wide priorities and the 'outcomes of transport' contained within LTP4 rather than individual schemes or projects. Without assessing individual schemes it is difficult to estimate the population likely to be affected as a result of LTP4.

Section 4: The Assessment

Table 4.1: Health Impact Assessment of LTP4 against SEA objectives

SEA Objectives	Link to Human Health	Relevant LTP4 Outcome	Impact	Reason
Promote accessible, integrated and sustainable transport networks that support the needs of the economy and local communities.	Transport plays a key role in access to employment, education, shops, social support networks, health services. There is a strong correlation between levels of physical inactivity and socio-economic status (PHE, 2013b), with research showing that people living in the most deprived regions are twice as likely to be physically inactive as those living in the lease deprived regions (UK Active, 2014). Therefore, access to affordable public transport and walking/cycling infrastructure is especially important for those living in deprived areas.	Affordable and accessible door to door journeys Economic growth and minimised congestion	Minor positive	A key outcome of LTP4 is to promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services. Affordable transport will have a positive health impact on the Kent community due to access to essential services. A key outcome of LTP4 is to deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population. Home to school transport is treated as a priority in LTP4. Where transport to school is a barrier KCC aim to get pupils home safely and on time. This can take the form of advice or the provision of free or subsidised transport where the child is eligible under Section 509 of the Education Action 1996. Ensuring that school transport is affordable is likely to have a positive health impact across Kent, especially for those in areas of deprivation, however LTP4 provides limited detail on how affordable transport will apply to those not in education.

Support transport solutions that promote positive health outcomes through active and sustainable travel choices and improved road safety.	Improved health and wellbeing is associated with modal shift to cycling, walking and public transport. Those leading active lifestyles are at a reduced risk of suffering from; obesity, cardio vascular disease and diabetes. In addition to this, access to transport can also impact mental health. Regular physical activity is important for sound mental health. People who are physically impaired have a higher risk of suffering from a mental illness (King's Fund, 2012). Pedestrians and cyclists are vulnerable road users with a higher fatality rate per distance travelled in comparison to other road uses, after motorcyclists. Fear for personal safety can act as deter people from participating in active transport (OCC, 2015). In comparison to other road user types, children are most at risk of being killed or seriously injured on the roads when they	Affordable and accessible door to door journeys Better health and wellbeing Safer travel	Major Positive	A key outcome of LTP4 is better health and wellbeing by promoting active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality. LTP4 encourages the use of public transport and the commercial running of these services. However, KCC state that they must take a pragmatic approach to funding commercially unviable bus services and will seek to support other means of provision that can achieve the same aims, such as community bus services. KCC work with operators through Quality Bus Partnerships (QBP) and Punctuality Improvement Partnerships (PIP), and invest in infrastructure improvements that can enhance the attractiveness of these services. Working in close partnership with both the principal rail franchise operator in the county and Network Rail continues to be important. KCC will seek to ensure that the specification for the new franchise, together with Network Rail's plans for investment in Kent's rail network, meet the growing travel needs of residents and visitors alike. LTP4 outlines KCC's aspiration to make active travel an attractive and realistic choice for short journeys in Kent. KCC will encourage walking and cycling as a means of transport by integrating active travel in to planning, providing and maintaining appropriate routes for walking and cycling and supporting young people through training and building skills. KCC plan

	are on foot. Cyclists are 12 times more likely to be killed on the road than people in cars. HGVs are the biggest threat to pedal cyclists on the roads; between 2009 and 2013 they were involved in around a quarter of collisions despite comprising only 5 per cent of traffic in Great Britain.			to establish Kent as a pioneering county for active travel in line with KCC's Active travel Strategy. Safer travel is a key outcome in LTP4. KCC are committed to providing a safer road, footway and cycleway network to reduce the likelihood of casualties, in addition to encouraging other transport providers to improve safety on their networks. In LTP4 KCC outline their duty, moral and financial imperative to promote road safety and act to reduce the likelihood of road casualties occurring. One way KCC will reduce casualties is through the Crash Remedial Measures (CRM) Programme which targets safety critical schemes. At least 50% of the Integrated Transport block funding is top sliced for CRM schemes. Therefore, at least 50% of transport scheme funding is prioritised for the Safer travel outcome. In addition to allocating funding to the CRM schemes, KCC also carry out educational and enforcement activities and are implementing a Road Casualty Reduction Strategy. It is likely that by; enhancing public transport provision, encouraging active modes of travel and driving safety improvements, major positive health impacts will be achieved.

Improve air quality in urban areas and achieve the NAQS and AQMA objectives across the county.	Outdoor air pollution in the UK is believed to cause 40,000 premature deaths a year (RCP, 2016) and road transport is the largest source of urban air pollution. Transport-related air pollutants are linked to a range of ill health problems including asthma, chronic bronchitis, heart and circulatory disease and cancer (Krzyzanowski et al., 2005). Living near a busy road, and areas of high traffic is associated with poorer child and adult health, and higher death rates (Brugge et al., 2007, Health Effects Institute, 2010).	Enhanced environment Better health and wellbeing	Unknown	A key outcome of LTP4 is an enhanced environment. KCC aim to deliver schemes to reduce the environmental footprint of transport and enhance the historic and natural environment. LTP4 places focus on encouraging active travel (cycling and walking) and public transport, greater up-take of these modes of travel would reduce single-car occupancy and reduce associated emissions. Another outcome of LTP4; to achieve economic growth and minimise congestion will also have a positive impact on air quality. Numerous studies have shown that reduced vehicle speeds and frequent braking during congestion leads to an increase in vehicle emissions, thereby resulting in negative air quality impacts. Positive impacts will be seen where congestion is reduced and active travel is taken up by communities. Negative impacts could be seen as a result of new transport infrastructure, both during construction and/or operation. Due to the possibility of both positive and negative impacts and the need to asses this on a scheme by scheme basis, it is suggested that the impact, at present, is unknown.
Seek to reduce noise at source, particularly in existing Noise	Traffic noise has the potential to impact a person's mental health through inducing nervousness, depression, elevated blood	Enhanced environment Better health	Unknown	Whilst there is no specific mention of reducing noise within LTP4, noise reduction is implied as a result of reducing congestion, delivering schemes to reduce the environmental footprint of transport and enhance the

Important Areas, and to prevent the creation of new Noise Important Areas; protect tranquil areas from impact, including cumulative impact.	pressure, sleeplessness, undue irritability and in some cases long-term physiological effects. This is more prevalent in vulnerable groups such as children, the elderly, shift workers, those vulnerable to physical/mental disorders and in areas with low background noise levels.	and wellbeing		historic and natural environment and by encouraging active modes of travel. Positive and negative health impacts are likely to be localised as a result of specific schemes. Due to a lack of information around noise reduction within LTP4, it is suggested that the impact at present is unknown.
Reduce vulnerability to climate change related extreme weather events by creating a resilient transport infrastructure and identifying appropriate adaptation and mitigation measures	Air pollution is closely linked with climate change, and it is thought that the impacts of climate change on health will increase, in relation to changing temperatures, ground level ozone levels and sunlight. The NPPF requires 'preventing both new or existing development from contributing to...unacceptable levels of soil, air, water or noise pollution'. A reduction in average particulate concentrations from 75µg/m^3 for PM_{10} (a level common in many cities) to 20µg/m^3 for PM_{10} (the WHO guidelines) could potentially result in mortality rates falling by 15% (WHO, 2011).	Enhanced environment	Unknown	A key outcome of LTP4 is an enhanced environment. KCC aim to deliver schemes to reduce the environmental footprint of transport and enhance the historic and natural environment. The reduction of emissions as a result of encouraging the use of public transport and walking and cycling (discussed in more detail previously in air quality, above) will reduce KCC's greenhouse gas emissions footprint and contribution to climate change; likely resulting in a positive impact. LTP4 does not, however, include detail around how resilient infrastructure will be created and mitigation measures identified. It is therefore concluded that the impact is unknown.

Section 5: Recommendations for Mitigation and Enhancement

This HIA has explored the relationship between transport and health and has assessed KCC's LTP4 against SEA objectives and research evidence. In summary, the outcome of the assessment demonstrates that some of the strategic outcomes and Kent-wide priorities within LTP4 will lead to positive health impacts for the Kent population; however, in some instances the health impacts at this stage are unknown. To ensure positive benefits are maximised, the following recommendations for mitigation and/or enhancement are proposed:

- Prioritise the allocation of funding to schemes with the least impact or positive impact on health.
- Asses each scheme/proposal for health impacts in order to maximise the positive health impacts of each scheme.
- Plan construction activities to minimise disturbance to pedestrians, residents, tourists and workers within affected areas, for example through the use of temporary acoustic screening, low emission equipment and sound on site practices.
- Continue to encourage people to use sustainable modes of transport, prioritising walking and cycling and educating people in the health benefits of doing so, focusing on the most deprived areas of the county.
- Communicate with schools and health care providers to establish the most appropriate method for encouraging the young and physically inactive to cycle and walk in addition to raising awareness around safety.
- Consider investment in cycle infrastructure and awareness for cyclists and other motorists (including HGVs), due to the vulnerability of cyclists.
- Consider investment in public transport provision in deprived areas.
- Carefully plan schemes in terms of location, scale and design at the project level to ensure air quality reductions are realised.
- Seek to implement measures to counteract traffic growth (e.g. by continuing to improve opportunities for sustainable transport).
- Consider the use of trees in appropriate locations to filter out pollution.
- Ensure that schemes are designed and implemented in line with other KCC policies and guidance concerned with improving public health.

5.1. Recommendation for Further Assessment

Many of the effects of LTP4 are cumulative; meaning that a number of effects will impact on each other. For example, there is likely to be a cumulative positive health impact as a result of proposals to make active travel more attractive by integrating active travel in to planning, providing and maintaining appropriate routes for walking and cycling and reducing congestion. Human health in this instance would be improved by increased physical activity and a reduction in pollutant emissions. It is suggested that these cumulative impacts should be assessed when making decisions in relation to allocation of funding.

APPENDIX A: Abbreviations

CAPs: Concentrated Ambient Particles

CVD: Cardiovascular diseases

CHD: Coronary Heart Disease

Dft: Department for Transport

JSNA: Joint Strategic Needs Assessment

KCC: Kent County Council

KSI: Killed or seriously injured

KHPO: Kent Health Public Observatory

NPPF: National Planning Policy Framework

PM: Particulate matter

PHE: Public Health England

NCD: Non-communicable disease

RCP: Royal College of Physicians

VOC: Volatile Organic Compound

WHO: World Health Organisation

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Appendix K Equality Impact Assessment Report

KENT COUNTY COUNCIL
EQUALITY ANALYSIS / IMPACT ASSESSMENT (EqIA)

This document is available in other formats, Please email alternativeformats@kent.gov.uk or telephone on 03000 421553 (text relay service 18001 03000 421553).

Directorate: Growth, Environment and Transport (GET)

Name of policy, procedure, project or service
Local Transport Plan 4: Delivering Growth without Gridlock (2016 – 2031)

What is being assessed?
An updated Local Transport Plan.

Responsible Owner/ Senior Officer
Joe Ratcliffe

Date of Initial Screening
12/11/2015

Date of Full EqIA:

Version	Author	Date	Comment
1	Bhalraj Singh	12/11/2015	
2	Clive Lever	23/11/2015	Equality and Diversity Team comments supplied
3	J Hill	13/4/2016	Equality and Diversity Team comments supplied
4	Akua Agyepong	23/06/2016	Equality and Diversity Team comments supplied
5	Lucy Campbell	04/07/2016	Consultation draft
6	Nola Cooper	10/02/2017	First review following consultation revisions
7	Akua Agyepong	13/02/2017	Comments for review
8	Katie Pettitt	13/02/2017	Revised following Equality and Diversity Team comments

Screening Grid

Characteristic	Could this policy, procedure, project or service affect this group less favourably than others in Kent? YES/NO If yes how?	Assessment of potential impact HIGH/MEDIUM LOW/NONE UNKNOWN		Provide details: a) Is internal action required? If yes what? b) Is further assessment required? If yes, why?	Could this policy, procedure, project or service promote equal opportunities for this group? YES/NO - Explain how good practice can promote equal opportunities
		Positive	Negative	Internal action must be included in Action Plan	If yes you must provide detail
Age	No	Medium	None	No further assessment required. However, any specific schemes and policies that achieve LTP4 outcomes would be subjected to their own EqIA.	Yes. LTP4 commits KCC to promoting affordable, accessible and connected transport to enable access for all to jobs, education, health, and other services. This will benefit all age groups, but particularly those who are less likely to have access to a private car, such as the elderly and the young, and supports independence. Statistically, more road casualties are young men[2], providing a safe road network (including through education and training) will mitigate this. Other LTP4 outcomes will also benefit all age groups.
Disability	No	Medium	None	No further assessment required. However, any specific schemes and policies that achieve LTP4 outcomes will be subjected to their own EqIA.	Yes. As above, accessible transport will support independence, more notably providing wider benefits for those whose impairments prevent them from driving. Other LTP4

[2] http://www.brake.org.uk/safedrivingreports/15-facts-a-resources/facts/488-young-drivers-the-hard-facts

					outcomes will also benefit those with disabilities – such as better health and wellbeing and safer travel.
Gender	No	Medium	None	No further assessment required. However, any specific schemes and policies that achieveLTP4 outcomes will be subjected to their own EqIA	Yes. Affordable and accessible transport for all will benefit specific groups, such as women with children and single mothers. Safer travel will improve opportunities for travel for women, as they are likely to use public transport more than men but drive less than men. Personal safety amongst women should improve, as they are more vulnerable when travelling at night[3]. Men are more likely to be road casualties and providing a safer road network (including through education) will help mitigate this.
Gender identity	No	None	None	No	No
Race	No	Medium	None	No further assessment required. However, any specific schemes and policies that achieve LTP4 outcomes will be subjected to their own EqIA	Yes. Certain ethnic groups are in lower than average income groups and promoting affordable travel will promote equality for them in enabling access to greater employment and education opportunities.
Religion or belief	No	None	None	No	No
Sexual orientation	No	None	None	No	No
	No	Medium	None	No further assessment required. However, any	Yes. Women with children will benefit

[3] http://content.tfl.gov.uk/women.pdf

Pregnancy and maternity				specific schemes and policies that achieve LTP4 outcomes will be subjected to their own EqIA	from improved accessibility connectivity within transport, as well as it being more affordable.
Marriage and Civil Partnerships	No	None	None	No	No
Carer's responsibilities	No	Medium	None	No further assessment required. However, any specific schemes and policies that achieve LTP4 outcomes will be subjected to their own EqIA	Yes. Safer, affordable, accessible and connected travel will promote equality for this group. In some instances, those who they care for may benefit, particularly for people needing to travel by bus through the Kent companion bus pass scheme. Schemes to ease congestion will make travelling between clients more reliable in terms of journey time.

PART 1: INITIAL SCREENING

Proportionality – From the Risk Matrix which has been completed above, the initial screen suggests that the potential for a negative impact on certain protected characteristics as a result of the implementation of the Local transport plan update delivery plan document is low.

Low	Medium	High
Low relevance or Insufficient information/evidence to make a judgement.	Medium relevance or Insufficient information/evidence to make a Judgement.	High relevance to equality, /likely to have adverse impact on protected groups

Context

The document is the successor to Local transport Plan 3, which was due to expire at the end of 2016. The new *Local Transport Plan 4: Delivering Growth without Gridlock* (LTP4) also incorporates the 2010 document *Growth without Gridlock: A Transport Delivery Plan for Kent*, which acted as a lobbying document to the government for infrastructure improvements. Therefore, LTP4 is both a policy document and sets KCC's priorities for transport at strategic, countywide and local levels. LTP4 has five outcomes for transport supported by five policies that have been based on the Government's National Transport Goals as set out in the 2009 guidance for Local Transport Plans.

It has been made clear within LTP4 that all schemes listed as a priority will undergo their own Equality Impact Assessment (and likewise environmental assessments, as well as planning, etc.) as the schemes are progressed.

Aims and Objectives

The key ambition of LTP4 is "To deliver safe and effective transport, ensuring that all Kent's communities and businesses benefit, the environment is enhanced and economic growth is supported." This is so as to facilitate the safe transport of people and goods within and through Kent, providing a transport network of all modes, which enables access to the best employment, education, retail, leisure and health services in the county. This ambition will be realised through five overarching policies that are targeted at delivering specific outcomes:

Outcome 1: Economic growth and minimised congestion
Policy: Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population

Outcome 2: Affordable and accessible door-to-door journeys
Policy: Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.

Outcome 3: Safer travel
Policy: Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks.

Outcome 4: Enhanced Environment
Policy: Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment.

Outcome 5: Better health and wellbeing
Policy: Provide and promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.

Beneficiaries

The delivery of the outcomes outlined in LTP4 will generally have a positive impact for all Kent residents, commercial operations and also tourists as transport network improvements will improve their experience of Kent. The delivery of improved transport infrastructure and public transport will increase accessibility to key services, jobs and education. The schemes will also support economic growth in the county by unlocking housing and commercial development allowing for job creation in Kent. This will be particularly beneficial to resident within East Kent where particularly high unemployment rates occur. Overall, carrying out the screening grid has identified that a number of groups will benefit from the aims of the policy. For example, it is clear that individuals with less access to a private car (such as the elderly and young people) will benefit from promotion of modes of transport that are different from a car in terms of affordability and accessibility. Those residents who are unable to drive (such as those with a disability), will benefit from improved travel options and this will also benefit carers across Kent. Due to the nature of their travels and independence from a car, women will also gain from affordable and improvement transport. Some of the benefits will be greater within some protected characteristic groups due to their greater use of certain transport systems.

Information and Data

As of 2014, the current estimated population for Kent is 1,510,400[4]. Going forward the population growth for Kent is expected to rise due to natural increase (more births than deaths) and addition more people moving into Kent than leaving. Analysis of 2011 census data about equality and diversity in Kent has been undertaken to better understand the demographics of the Kent population and the impact the Local Transport Plan will have. Focus has been made on groups that tend to rely on public transport, with the access of a car being limited.

[4] http://www.kent.gov.uk/about-the-council/information-and-data/Facts-and-figures-about-Kent/population-and-census

Equality and diversity data from 2011[5] shows that:

- Kent has an ageing population, as estimates indicate the number of 65+ year olds is forecast to increase by 55% between 2013 – 2033, however the proportion of population aged under 65 is only forecasted to increase by 6.9%.
- There are more female residents in Kent than male. In 2014, this equated to 51% and 49% (770,300 females and 740,100 males).
- 93.7% of Kent residents are white, compared to 6.3% BME residents.
- The 2011 office labour market statistics census data for Kent has the following statistics[6]:
    A. The number of males and females (16+) owning a car or van, or having access to these within households, (including company vehicles that are available for private use): 91% of males vs 88% of females.
    B. The car or van availability by gender and for those who consider they have a long-term health problem or disability: 86% of males vs 83% of females.
    C. The number of females (16+) with a disability of which there are no cars or vans in the household: 17% compared to 12% of males.

- KCC Road Casualties in Kent (Annual Review 2014)[7] – there was an increase in the number of people killed or seriously injured (KSI) compared to 2013 of 11% (594 KSIs increasing to -658 KSIs).
- Casualty data for Kent roads between 2012-2014, shows there are generally more male casualties than females across all age groups[8]:

    A. 0-16, there were 1,861 casualties of which 57% were male and 43% female.
    B. 17-24, there were 4,126 casualties of which 58% were male and 42% were female.
    C. 25-64, there was a total of 10,029 causalities, which is the largest out of all age sets of which 58% were male and 42% female.

- According to the Kent Public Health Observatory,[9] the percentage of adults in Kent currently classed as physically inactive is 28.1%. Currently 56.3% of

[5] http://www.kent.gov.uk/about-the-council/information-and-data/Facts-and-figures-about-Kent/equality-and-diversity-data
[6] DC3407EW - Long-term health problem or disability by car or van availability by sex by age https://www.nomisweb.co.uk/census/2011/dc3407ew
[7] http://www.kent.gov.uk/__data/assets/pdf_file/0020/11819/Personal-injury-crashes-in-Kent.pdf
[8] Transport Intelligence Team: Casualty data 2012-2014 against age and gender
[9] http://www.kpho.org.uk/joint-strategic-needs-assessment/jsna-behaviour-and-lifestyle/jsna-physical-activity

the adult population meet the physical activity guidelines of 150mins per week to improve or maintain health.

- In addition, the Kent Joint Strategic Needs Assessment (Kent JSNA) showed that obesity is at 64.6%, which translates into 771,476 individuals who are 16+. This is particularly relevant as one of the outcomes of LTP4 is to provide and promote active travel choices, therefore, helping to tackle a national issue.
- The ONS 2011 Census Analysis - Method of Travel to Work in England and Wales Report[10] - found that in the South East 66.8% use road vehicles as a method of travelling to work, however only 12.1% use public transport and 13.9% choose to walk or cycle.
- Using the ONS 2011 Census to break down method of travel to work by age (Age 16 – 65+) and gender shows in Kent that[11]:

    A. 14% of females travel to work using active travel compared to 10% of males in the county choosing to travel by bicycle or foot, thereby males will further benefit from outcome five of the policy as it's promoting active travel.

    B. 13% of males choose to travel by rail, bus, minibus or coach. The female population comes out slightly lower with 12%.
    C. 62% of males either use a car or van to travel to work or are a passenger. The number of females under the same criteria comes to 63%. This data is particularly relevant bearing in mind the Local Transport Plan promotes improvements to road journeys and public transport, but also the cycleway network.

- For 2015-2016, September Quarter 2 the number of[12]:
    - Older person's bus passes were 266,949
    - Disabled person's bus passes were 20,312
    -Disabled Person companion bus passes were 5,133

- According to a study conducted by Transport for London (TfL)[13], women are more likely to travel with buggies than men. This can therefore affect transport choices and so women may choose to travel by public transport to and from Kent. In addition, women tend to be more concerned than men about their personal safety are when travelling after dark. This could be relevant to Kent as some female Kent residents may choose to commute to London for work or simply may want to travel into London for leisure purposes.

[10] http://www.ons.gov.uk/ons/dcp171766_299766.pdf
[11] DC7101EWla - Method of travel to work (2001 specification) by sex by age https://www.nomisweb.co.uk/census/2011/dc7101ewla
[12] Revenue and Capital Budget Monitoring for 2015-2016, Quarter 2 paper. Page 136
[13] http://content.tfl.gov.uk/women.pdf

- According to a study conducted by Transport for London (TfL)[14], BME individuals are more likely to use buses than white individuals (although they are less likely to travel by bicycle). In addition they are more likely to express concerns for their safety and more likely to be injured in road accidents.

Involvement and Engagement

As part of a pre-consultation exercise, the Transport Strategy Team liaised and consulted with various officers across KCC, such as Education, Highways, Transportation and Waste in order to get their views about the proposed Local Transport Plan. Alongside this, an informal Member Task and Finish Group was set up, which consisted of one representative from each political party sitting on the Environment and Transport Cabinet Committee. District councils were extensively consulted regarding their own transport priorities and the presentation of information on their specific areas. In addition, the views of the Kent and Medway Economic Partnership (KMEP) were taken into account. KMEP is a federated area of the South East Local Enterprise Partnership (SELEP) consisting of district council, local business, and local educational representatives designed to drive forward economic growth.

The final draft of LTP4 was available for public consultation for a twelve-week period between Monday 8th August and Sunday 30th October 2016. During this period, a range of stakeholder groups were invited to respond to the consultation, including voluntary and community organisations such as Ashford Youth Hub, Dartford BME Community, Polish Association in Kent, and Royal National Institute for the Blind.

The consultation sought to gather the views and opinions of a range of stakeholders on the draft Local Transport Plan 4, including whether they agree with the priorities or think additional priorities should be included, and whether they have any comments on the EqIA and SEA.

Consultation Feedback

The consultation asked for feedback on the content of the draft LTP, including views on the proposed Ambition, Outcomes, Supporting Policies and transport priorities for the county. Overall, the consultation received over 500 responses.

The consultation responses showed general agreement with the draft LTP4, particularly the strategy parts of the document. The named transport priorities in the plan at all levels (strategic, Kent-wide and district) received a mix of responses but nevertheless there was a greater extent of agreement than disagreement. A number of amendments were also proposed by stakeholders including the district councils.

Following the close of the consultation, responses were reviewed and considered, with appropriate amendments made to the LTP4. A final version of

[14] http://content.tfl.gov.uk/BAME-summary.pdf

LTP4 will be submitted to Environment and Transport Cabinet Committee and Cabinet in March 2017, and then full County Council for adoption in July 2017. A full summary of the amendments can be found in the "You Said, We Did" document accompanying LTP4 but the key changes are:

- The strategic priorities map has been updated so the bifurcation of the M2/A2 and M20/A20 is clearer and the labels match the revisions later on in the document.

- The supporting policy for Outcome 5 (Better health and wellbeing) has been changed to include a commitment to "provide", as well as "promote", active travel choices in line with the Active Travel Strategy.

- The splitting of the previous priority "Rail and Bus Improvements" into two separate priorities, one for rail and one for bus. Many respondents wanted more information on both the rail and bus networks and felt more emphasis on public transport provision was needed.

- The 'Enabling Growth in the Thames Gateway' has been amended to reflect the geography of the Thames Estuary Commission, including the whole of the north Kent coast.

- The cross-district priorities were previously displayed on a map but the consultation showed that the public did not fully understand what the schemes were without a description. Separately, respondents felt that there was a general lack of sustainable transport schemes in the draft LTP4. These cross-district priorities are targeted at sustainable transport and include initiatives to encourage modal shift. Therefore, they have been moved to a new section on Sustainable Transport in the 'Countywide Priorities' section. Additionally, a section has been added to explain the importance of travel within Kent and the schemes that will deliver benefits across district boundaries.

- The transport priorities section in the consultation draft was divided into 'Strategic', 'Kent-wide' and 'District' level schemes. In the consultation respondents questioned whether these were in a priority order, and the use of the term 'Kent-wide' for priorities such as highway maintenance was confusing when also categorising some of the strategic priorities as 'countywide'. Consequently, in this section the first page has been amended to introduce the three geographical levels of transport priorities (which are now called 'Strategic', 'Countywide' and 'Local') Some of the 'Strategic' priorities have also been highlighted as being of national importance, reflecting feedback from key stakeholders including the Port of Dover.

- A new section on Public Rights of Way has been added as a countywide priority. This was requested in the consultation and now the links between highways, Public Rights of Way, public transport and active travel are better reflected.

- There were many suggestions for new priorities, which have all have been considered. Potential schemes that are feasible have been added to the district maps.

- A new section has been added to signpost the Strategic Environmental Assessment and Equalities Impact Assessment to explain what they are.

This EqIA has been reviewed and updated following the feedback received during the consultation and taking into account the changes made to LTP4.

Feedback on the EqIA from the consultation

The consultation included a question asking for views and comments on the draft EqIA. A total of 26% of respondents gave a view on the EqIA, and much of the feedback was regarding the principle of the assessment. This includes positive comments, such as one Sevenoaks district resident stating:

"An excellent document, which in my opinion addresses all of the issues."

Comments relating to specific protected characteristics included that:

- Paid carers are increasingly unable to get to their clients owing to traffic congestion.
- Air pollution disproportionately impacts on the health of residents in the lower socio-economic bands/children/pregnancy.
- More consideration needs to be given to those without access to the private car.
- Cycling is the most viable alternative to the car, and requires more recognition in the EqIA.

There were also concerns about issues such as pavement parking, disabled access to railway stations, and footway maintenance. Following these comments, and similar comments received elsewhere in the consultation, it was deemed appropriate to strengthen commitments in LTP4 to active travel, and make clear reference to the 'Access for All' programme that facilitates disabled access at railway stations.

LTP4 has taken a holistic approach to transport in Kent and so whilst there is an emphasis on economic growth there is also a commitment to promote affordable and accessible transport, as well as providing opportunities for active travel. LTP4 commits to ensuring the required assessments, including EqIA and environmental assessments, are completed for each scheme as they progress. This will ensure that assessment of impacts on protected characteristics occurs when the scheme is at an appropriate level of development. It is in this way that the impacts commented on in the consultation will be mitigated. Likewise, any changes to daughter documents of LTP4 (such as footway resurfacing policy) would have an EqIA too.

Initial Screening

Potential Impact

After completing an initial assessment, it was clear the new Local Transport Plan and its infrastructure proposals will have an impact on Kent Residents.

Adverse Impact:
After completing the initial screening grid, it indicated that LTP4 will not have a significant negative impact on any of the protected characteristics. As stated earlier, individual schemes (example two of the strategic priorities in the Plan are a new Lower Thames Crossing and solution to Operation Stack) will be subject to an individual Equalities Impact Assessment as the schemes are developed and taken forward for delivery to ensure that no protected characteristics are adversely impacted.

The consultation was tailored to ensure that a range of people with protected characteristics, and groups representing them, had the consultation specifically promoted to them. This is so we could take their views into account and revise LTP4 and this EqIA accordingly. KCC's Inclusive Communication Policy was followed so that those members of the public that have a disability, for example visual impairments or learning disabilities, were able to access the information in alternative formats.

Positive Impact:
The objectives and aims of LTP4 through the delivery of schemes will promote a better quality life for all residents in Kent by providing a transport network of all modes that enables access to jobs and services within the county. Therefore, it will benefit the overall needs of residents within Kent.

The older generation and families with younger children tend to rely on public transport, and therefore will benefit from more affordable and accessible transport solutions (bus and rail) that will enable them to enjoy their journeys throughout Kent, for example through accessing jobs and education services. The provision and promotion of active travel choices will potentially benefit all residents' health and well-being, but equally reducing congestion and pollution will benefit road users. Disabled people, who rely on public transport, will also be a beneficiary.

JUDGEMENT

Option 2 Full EqIA
The revised LTP4 will be adopted in July 2017 by County Council, subject to comments by Environment and Transport Cabinet Committee and Cabinet in March 2017.

Action Plan
This EqIA assesses the impact of LTP4 in its own right. EqIAs have not been completed for the individual schemes detailed within LTP4 but will be carried out as those schemes progress towards delivery, ensuring that they are at an appropriate stage of development so that an EqIA is meaningful and changes can be made to the design in response to the assessment. Likewise, any changes to existing policies that sit below LTP4 and aid its delivery (such as the Freight Action Plan) will be subject to their own EqIA.

The Action Plan (see overleaf) addresses how to meet the needs of protected characteristic groups during the lifetime of LTP4.

Protected Characteristic	Observations made	Action to be taken	Expected outcomes	Owner	Time Scales	Cost Implications
Age	• Kent has an ageing population. • Older Kent residents are: less mobile; less likely to use independent travel; have greater concerns with safety.	• Ensure the elderly and young can access future consultations. • Ensure there are alternative formats of new transport information. • Include design features for those with limited mobility (e.g. dropped curbs). • Include design features for those with safety concerns (e.g. well-lit pedestrian paths).	The LTP's five outcomes deliver a net benefit for all members of the community: Outcome 1) Economic growth and minimised congestion Outcome 2: Affordable and accessible door-to-door journeys Outcome 3: Safer travel Outcome 4: Enhanced Environment Outcome 5: Better health and wellbeing All schemes and policies are expected to have	Director of Highways, Transportation and Waste – Roger Wilkin Director of Environment, Planning and Enforcement – Katie Stewart	Ongoing	Will vary dependent on the individual scheme or policy.
Disability	• Disabled Kent residents are: less mobile; less likely to use independent travel.	• Ensure the disabled can access future consultations and developments • Ensure there are alternative formats of new transport information • Include design features for those with limited				

		mobility (e.g. dropped curbs) • Work with other transport operators to ensure they accommodate disabled users. For example, in January 2017, the Supreme Court ruled that bus drivers must try to persuade other passengers to make room for wheelchair users[15].	regard to achieving these outcomes.			
Race	• BME Kent residents are more likely to: be dependent on public transport systems; be concerned with safety.	• Ensure BME communities can access future consultations and developments • Ensure there are alternative formats of new transport information (including other languages)				

[15] https://www.theguardian.com/society/2017/jan/18/court-backs-wheelchair-user-who-was-stopped-from-boarding-bus-yorkshire-leeds

Gender	• Female residents are: less likely to use independent travel by car; be concerned with safety; make journeys with additional dependents; have multiple stages to their journeys. • Male residents are more likely to suffer injuries or fatalities in a car accident; statistically undertake longer journeys.	• Ensure all genders can access future consultations and developments • Ensure alternative formats of new transport information • Include design for those with safety concerns (e.g. well-lit pedestrian paths)				

Monitoring and Review

This EqIA has been reviewed and updated following the public consultation. The Local Transport Act 2008 affords Local Transport Authorities (including KCC) the ability to review their Local Transport Plans when deemed necessary, rather than the strict 5-year periods as previously specified. Therefore, if it is appropriate to update or revise LTP4 during the time period 2016 – 2031 this EqIA will also be reviewed and updated.

Sign Off

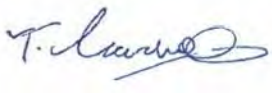
I have noted the content of the Equality Impact Assessment and agree the actions to mitigate the potential adverse impacts that have been identified.

Senior Officer

Signed:  Name: Joseph Ratcliffe

Job Title: Transport Strategy Manager Date: 14 February 2016

Head of Service

Signed:  Name: Tom Marchant

Job Title: Head of Strategic Planning & Policy Date: 14 February 2017

Appendix L Summary of consultation responses

Scoping Report

The Scoping Report was the subject of consultation from January to February 2016. The report detailed comments received from the Scoping Report consultation are summarised below:

Author	Comment	KCC response
Swale	It would be useful here to explain the relationship between LTP4 and Local Transport Strategies as well as the relationship with Local Plans themselves and the and the SA processes for those plans	Response sent through email
Swale	Define NO2 and PM10 here	Changed
Swale	Figures 3 and 4 completely miss the AQMAs for Swale. This needs to be corrected and any consequent adjustments to 2.2.3 made. Are AQMAs from other LAs also missing?	Query resolved with Amey – scale of drawing means AQMAs not visible but are included
Swale	Isn't increasing population and more road vehicles likely to mean that this level will go up?	Changed
Swale	Does this include the A2 in Swale?	Accepted comment – no change required
Swale	This sentence seems a little vague – more than what?	Changed
Swale	I think 3 SMPs are relevant – 1. Medway Estuary and Swale 2. Isle of Grain to South Foreland and 3. South Foreland to Beachy Head Font size is smaller in this paragraph	Changed Changed
Swale	Should another objective be to repair pot holes etc, caused by extreme weather events etc, more quickly?	Disagree – All potholes regardless of cause have SLA
Swale	2.5.5 Addition: "and between the County, Local Planning Authorities and other agencies and organisations".	Accepted
Swale	The issues of Best and Most Versatile Agricultural Land is not addressed in the section, but is a big issue for Swale in allocating sites for development and it would be appropriate to make reference to it here, including the economic value of this land and soils in general.	Safeguarding our Soils added as a data source and reference to agricultural land added in 2.6.3.
Swale	The CPRE may have more up to date data on this – may be worth checking? A section seems to be missing here	Email sent to CPRE - Up to date maps not available yet Under drawing

Author	Comment	KCC response
Swale	Are the economic impacts of adequate transport infrastructure or lack of them adequately covered in this report?	Disagree – This is purely about the environmental impacts and not the economy
Kent Downs AONB unit	It is amended to include reference to the Countryside and Rights of Way Act 2000, which at Section 85 requires all statutory undertakers in carrying out their duties to have regard to the purpose of conserving and enhancing Areas of Outstanding Natural Beauty. This is applicable to Kent County Council as highways authority.	Included in section 2.9.2 - Section 85 of the Countryside and Rights of Way Act 2000 requires all statutory undertakers in carrying out their duties to have regard to the purpose of conserving and enhancing Areas of Outstanding Natural Beauty. This is applicable to Kent County Council as Highway Authority.
Kent Downs AONB unit	In addition, it would also be appropriate to include reference to the Kent Downs AONB Management Plan 2014 to 2019 and the Kent Downs AONB Rural Streets and Lanes – a Design Handbook, both of which have been adopted by Kent County Council. These documents could be included under either the Data Source Section at Section 2.9 or the Policy Section at 2.9.2.	In order to support the conserving and enhancement of areas of outstanding natural beauty within the county, supporting policy has been created through the Kent Downs AONB Management Plan 2014 to 2019 and the Kent Downs AONB Rural Streets and Lanes.
Natural England	We support your recognition that "it is important to retain connectivity of existing habitats within the LTP area and reduce fragmentation of habitats where possible".	Comment noted
Natural England	The recognition that the "main ways in which the existing transport network may impact on biodiversity and wildlife are pollution in the form of noise, air and water contaminants" is welcomed. It would be helpful to map existing conditions for these tree themes where this is possible.	Noted
Natural England	The Kent Minerals and Waste Local Plan HRA seemed to be based on good data. It would be helpful if some of that data on traffic levels, pollutant deposition rates and critical loads – particularly for sensitive sites approaching their critical levels and loads -could be used to inform consideration of the air quality implications of changes outlined in the LTP. Similarly for water, noise, light etc.	Noted
Natural England	Seems pessimistic. The challenges are significant, however the condition and direction of travel of SSSIs is generally heartening and plans, land managers and partners should respond to the challenge set out in NPPF - to halt the decline in biodiversity	Noted
Natural England	The opportunities set out here are supported. In practice, the key route (for the first bullet point) would be through measures such as avoiding areas rich in habitats and the stepping stones and corridors that link them. Where the best alternative is likely to result in losses, early consideration of adequate mitigation and compensation is essential. Good data (as recognised by para 2.1.6) is essential.	Noted

Author	Comment	KCC response
Natural England	Focuses on air quality and human health, however there are clear threats to the natural environment arising from airborne pollution (noted earlier in the SEA scoping document). The APIS website provides a wealth of data on this matter.	Noted
Natural England	Landscape considerations and the use of NCAs are welcomed (section 2.9). Some use of Landscape Character Assessment and Landscape and Visual Impact Assessment is important in the early stages of considering any new significant infrastructure Para 2.9.3 indicates that any type of new transport infrastructure or expansion of existing infrastructure "has the ability to significantly affect the landscape through many different ways such as land take, visual intrusion, light pollution and loss of tranquillity". We welcome commitment in para 2.9.5 that LTP4 should aim to value, enhance and protect natural environmental assets including AONBs, historic landscapes, open spaces, parks and gardens and their settings.	Noted
Maidstone Borough Council	The LTP4 SEA Scoping Report sets out the data sources and background information for each of the 11 environmental topics, and this provides the evidence to take forward 10 of these topics for assessment in the SEA's Environmental Report. Opportunities for LTP4 to positively impact the situation for each topic are also concisely presented.	Noted

Author	Comment	KCC response
Maidstone Borough Council	Section 1.2.2 sets out the questions which will be used in assessing the effects of LTP4 on each environmental topic. These questions are sensible but the desired Outcomes and Options for LTP4 are not presented. Without these, it is not clear what the SEA objectives, criteria and indicators (linking to the quoted data sources) actually are, or if they are intended to be defined at all. This would be beneficial to ensure that the impact of LTP4 is transparently and robustly measured. It is important that the SEA and draft LTP4 documents inform one another and are not produced in isolation. On the theme of integration with other policy documents and strategies, it is assumed that the desired Outcomes and Options identified for LTP4 will be informed by the priorities established in the Kent Environment Strategy 2015.	Noted
	It is noted that there is a requirement for Habitats Regulations Assessment Screening to be undertaken for the LTP4. This has recently been undertaken as part of the evidence base supporting the Maidstone Borough Council Local Plan. Therefore it will be appropriate that the methodology remains consistent between these documents to ensure robust recommendations are also consistent.	Noted
Tonbridge & Malling Borough Council	Some recognition of the AQMAs in Tonbridge Town Centre and the A20/A25 corridor in TMBC is included in paragraph 2.2.1.	CHANGED TO: Transport is a significant contributor to poor air quality and its associated health problems in Kent, as evidenced by Kent's 39 declared Air Quality Management Areas (AQMAs); the majority of which are located on main roads or motorways. They have additionally been declared in town centres of Canterbury and Tunbridge Wells, the docks at Dover, Tonbridge Town centre, A20/A25 corridor in Tonbridge and Malling and areas of Maidstone and Thanet (see Figures 3 & 4). The M25, M20, M2 and A299 are major transport corridors with the heaviest traffic flows between Kent's town centres.

Environment Report

The Draft Environmental Report and Draft LTP4 were the subject of public consultation from August 2016 until October 2016. The Draft Environmental Report, which included the information contained in the Scoping Report, presented the assessment of effects of the LTP4 strategic alternatives and of the LTP4 preferred strategy, proposed mitigation measures and recommendations to improve the environmental performance of the LTP4, and proposed a preliminary monitoring programme for the significant effects identified by the SEA. The following stakeholders were consulted on the Draft Environmental Report and Draft LTP4

- Natural England
- The Environment Agency
- English Heritage
- Highways Agency
- Neighbouring local authorities
- British Waterways

Summary of Comments	Action Taken
One of the major issues with the transport corridors that cross the County is that they act as significant barriers to the movement of many species and as result causes fragmentation of their range.	In LTP4 not SEA
We would recommend that consideration is given to the installation of habitat bridges e.g. such as the one on the A21 at Lamberhurst, and other measures that assist in the movement of species.	In LTP4 not SEA
The aims of an enhanced environment could be better illustrated in the sections on specific proposals e.g. New Lower Thames Crossing. Reference is made to minimising impacts but a more ambitious outcome would be to aim for a net biodiversity gain and no fragmentation.	In LTP4 not SEA
2.1. Biodiversity, flora and fauna, The baseline refers to: - Five Ramsar Wetland Sites but there are now six following the designation of the Dungeness, Romney Marsh and Rye Bay Ramsar Site. It is noted that six are mentioned in the HRA in Appendix I;	Now corrected in both the body text p.24. The number of SPAs has also been updated to 6 in line with JNCC guidance.
2.1. Biodiversity, flora and fauna, The baseline refers to: - 101 Sites of Special Scientific Interest (SSSIs) but the number of SSSIs wholly or partly within Kent is 98 with an area of 34,364.22ha	Now corrected and % cover recalculated as to 8.8%

2.1. Biodiversity, flora and fauna, The baseline refers to: - The statistics on the condition of SSSIs are based on June 2010. This is now 6 years out of date. The statistics on 8 September 2016 were: favourable 67.45%, Unfavourable Recovering 29.87%, Unfavourable No Change 1.74%, Unfavourable Declining 0.88%, and Destroyed 0.07%	Now corrected - % meeting PSA targets is very marginally improved to 97.3%
2.2. Air - The section on air quality concentrates on the human health issues. However, many vegetation types are very much more sensitive to air pollution and some designated sites are already in exceedance of their critical loads or levels for nitrogen deposition or NOx. It is therefore necessary for any transport schemes to assess the impact of additional vehicle movement son habitats within 200m of a road. For sites that are already in exceedance, new schemes should consider how this could be improved.	AQMAs are focussed on the highest areas of air pollution in the county, where exceedances occur, with targets set to manage and reduce the impact on all sensitive receptors. Continuous air quality monitoring sites tend to be at roadside locations and therefore data for rural locations is less readily available. We would look to designated site condition and any specific information to determine any direct links to condition status falling due to air quality and N deposition. Also, the full impact on each SSSI is outside the scope of the SEA and would fall into the realms of an Env Impact Assessment for any works commissioned.
2.2. Air - Table 14 - The objectives for Air quality focus on urban areas and the achievement of National Air Quality (NAQ) objectives and the objectives in Air Quality Management Areas (AQMA). Could these be widened to encompass targets on improving air quality on sites currently in exceedance?	AQMAs are focussed on the highest areas of air pollution in the county, where exceedances occur, with targets set to manage and reduce the impact on all sensitive receptors. Continuous air quality monitoring sites tend to be at roadside locations and therefore data for rural locations is less readily available. We would look to designated site condition and any specific information to determine any direct links to condition status falling due to air quality and N deposition. Also, the full impact on each SSSI is outside the scope of the SEA and would fall into the realms of an Env Impact Assessment for any works commissioned.
Habitats Regulations Assessment (HRA) Screening Report: The six Ramsar Sites have not been included within Table 1: Summary of Nutura 2000 sites and qualifying features, or Table 4: Screening Matrix. Under government policy Ramsar Sites are given the same protection as Nutura 2000 sites and therefore should be included within the tables.	Although not explicitly listing the SPAs as Ramsar sites, the HRA does note in section 2.1.1, p. 6 that as the majority of Ramsar sites are SPA's they also receive protection under the Birds Directive.

Comments and suggestions received from the public and private organisations on the draft LTP4 have helped KCC to make changes to the Plan, including strengthening the links to other KCC policies and the policies of other organisations, and making some sections clearer. KCC also had many suggestions for new priorities and have been able to incorporate some of those into the revised Plan. An overview of the comments and subsequent changes are set out in table below:

Comment	Action carried out
There should be more links to London made.	We have included reference to The London Plan and acknowledged the importance of London as a destination, particularly for rail commuters.
There needs to be more emphasis on sustainable transport.	We have strengthened links to existing policies, such as the Active Travel Strategy, and included the Public Rights of Way network centrally within the Plan. We have also provided more detail on the bus and rail networks.
It is unclear if the transport schemes are in a priority order, particularly the strategic schemes.	We have made it clear that they are presented in a way that links the different priorities, not in an order of importance.
'Enabling Growth in the Thames Gateway' should recognise the geography of the Thames Estuary Commission.	We have broadened the geographical scope of this page to include all districts in the Thames Estuary.
'Port Expansion' should recognise the role of other ports in the county.	We have included the Port of London, Port of Sheerness and Port of Ramsgate in this page, recognising the role of all Kent's ports.
There should be more information on bus and rail transport and how KCC will influence the services.	We have separated the strategic transport priority 'Rail and Bus Improvements' into two individual priorities to fully explain KCC's role.
You should clearly support international rail services in Kent.	We have included more support for international rail services in Kent and welcomed future opportunities for new international destinations.
There needs to be more for rural areas, particularly in relation to buses.	We have expanded the information on buses and community bus services, recognising that these may be the only alternative to the car in rural areas.
The terms 'Kent-wide' and 'Countywide' are confusing.	We have removed the 'Countywide Priority' label from the 'Strategic Priorities' section but retained the identification of 'National Priorities'. This means we can remove the term 'Kent-wide' and identify those schemes as 'Countywide' instead. Priorities in each district/borough have been identified as 'Local Priorities' so there is a clear distinction between 'Strategic',

	'Countywide' and 'Local' levels in the Plan.
You should make the scale of the reductions in highway maintenance budgets clear.	We have stated how the scale of reductions makes an impact on service unavoidable.
The aviation policy section needs updating.	This has been updated following the Government's announcement of a preference for a third runway at Heathrow. It also includes support for improved rail access from Kent to the London airports.
We should not refer to any future use on the Manston Airport site until this is determined in the planning process.	We have made it clearer that the future of the site is yet to be determined.
There needs to be more emphasis on Public Rights of Way.	We have included the Public Rights of Way network as a 'Countywide Priority'.
The map for 'Cross-District Transport Priorities' is unclear.	We have changed this page so each project is clearly explained with examples of what they are delivering.
You should have more information on funding for sustainable transport.	We have updated the funding page to show that the Department for Transport occasionally offer specific funds for sustainable transport, and updated the cross-district priorities to clearly show how we are using funding for sustainable transport.
The 'District Priorities' should show they are KCC's priorities rather than the District or Borough Councils' priorities.	We have reworded the title on each page to be 'Transport Priorities for Sevenoaks' rather than 'Sevenoaks' Transport Priorities', and so on.
Some of the wording introducing each district/borough needs updating.	We have reviewed the wording on each page and included suggestions from the consultation, for example information on rural areas and particular transport difficulties in each district.
There are many suggestions for new transport priorities that should be considered in the Plan at strategic, countywide and local level.	We have considered each of your suggestions and incorporated them into the revised LTP4 where appropriate.
Will the Integrated Transport Programme schemes be assessed against all criteria if they are only targeting one outcome?	We have made it clear that all schemes will be assessed against all criteria so all impacts are scored.

In the Integrated Transport Programme prioritisation methodology the environmental impact should include specific categories.	We have listed the landscape quality and impact on protected landscapes (such as Area of Outstanding Natural Beauty) as guidance.
In the Integrated Transport Programme prioritisation methodology the air quality impact should include where any traffic is relocated by a scheme.	We have specifically listed this possible effect to make sure it's considered in the assessment.
The Plan should include reference to the Equalities Impact Assessment and Strategic Environmental Assessment.	We have included a final statement in the Plan that explains what these assessments are and where they can be found.
Other things need to be considered in the Equalities Impact Assessment and Strategic Environmental Assessment.	All the comments raised have been considered in updating the Equalities Impact Assessment and Strategic Environmental Assessment.

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