Capital Project Business Case
Gilden Way Upgrading, Harlow

The template

This document provides the business case template for projects seeking funding which is made available through the **South East Local Enterprise Partnership**. It is therefore designed to satisfy all SELEP governance processes, approvals by the Strategic Board, the Accountability Board and also the early requirements of the Independent Technical Evaluation process, where applied.

It is also designed to be applicable across all funding streams made available by Government through SELEP. It should be filled in by the scheme promoter – defined as the final beneficiary of funding. In most cases, this is the local authority; but, in some cases, the local authority acts as the Accountable Body for a private sector final beneficiary. In those circumstances, the private sector beneficiary would complete this application and the SELEP team would be on hand, with local partners in the federated boards, to support the promoter.

Please note that this template should be completed in accordance with the guidelines laid down in the HM Treasury's Green Book (https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government).

As described below, there are likely to be two phases of completion of this template. The first, an 'outline business case' stage, should see the promoter include as much information as would be appropriate for submission through SELEP to Government calls for projects where the amount awarded to the project is not yet known. If successful, the second stage of filling in this template would be informed by clarity around funding and would require, therefore, a fully completed business case, inclusive of the economic appraisal which is sought below. At this juncture, the business case would therefore dovetail with SELEP's Independent Technical Evaluation process and be taken forward to funding and delivery.

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The process

This document forms the initial SELEP part of a normal project development process. The four steps in the process are defined below in simplified terms as they relate specifically to the LGF process. Note – this does not illustrate background work undertaken locally, such as evidence base development, baselining and local management of the project pool and reflects the working reality of submitting funding bids to Government. In the form that follows:

Local Board Decision

- Consideration of **long list** of projects, submitted with a short strategic level business case
- **Sifting/shortlisting process** using a common assessment framework agreed by SELEP Strategic Board, with projects either discounted, sent back for further development, directed to other funding routes or agreed for submission to SELEP

SELEP

- Pipeline of **locally assessed projects submitted to SELEP**, with **projects supported by strategic outline business cases - i.e., partial completion of this template**
- Prioritisation of projects across SELEP, following a common assessment framework agreed by Strategic Board.
- **Single priorisited list of projects is submitted by SELEP to Government** once agreed with SELEP Strategic Board.

SELEP ITE

- Following the allocation of LGF to a project, scheme promoters are required to prepare an **outline business case, using this template** together with appropriate annexes.
- Outline Business Case assessed through **ITE gate process**.
- **Recommendations are made by SELEP ITE to SELEP Accountability Board** for the award of funding.

Funding & Delivery

- Lead delivery partner to commence internal project management, governance and reporting, ensuring **exception reporting mechanism back to SELEP Accountability Board** and working arrangements with SELEP Capital Programme Manager.
- **Full Business Case** is required following the procurement stage for projects with an LGF allocation over £8m.

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1. PROJECT OVERVIEW

1.1. Project name:
Gilden Way Upgrading, Harlow

1.2. Project type:
Widening and improvement works of existing road in Harlow to provide access for new housing and the proposed new junction 7a of the M11.

1.3. Federated Board Area:
Essex

1.4. Lead County Council / Unitary Authority:
Essex County Council (ECC)

1.5. Development location:
Harlow, Essex

1.6. Project Summary:

Please note that this bid is for funding of Gilden Way Upgrading only. The complete project, including construction of the new Junction 7a, is an approved Highways England scheme, promoted by ECC. Most references in this document will apply to the complete scheme, but, where possible, specific references to Gilden Way will be highlighted.

The SELEP LGF funding award was made on the understanding that this was part of the overall package of work leading to a new motorway access to Harlow from the M11, and the necessary upgrading of Gilden Way and the principal link into the Harlow road network. Thus, the benefits of Gilden Way alone cannot be separated out from the overall package of work, except to say that, without this element, the remainder of the scheme could not go ahead. Therefore, the cost benefit analysis presented is for the entire scheme package and not just Gilden Way on its own.

The scheme consists of widening and improvements to 1.8 kms of the existing two-way, two lane, Gilden Road, Harlow to provide access for the new housing development at Harlowbury and to provide a link to the proposed new Junction 7a on the M11.

The scheme commences at the London Road roundabout and involves widening the existing two-lane road to three lanes. When completed, two of the lanes will take westbound traffic into Harlow and the third lane will take eastbound traffic out of Harlow to a new roundabout on Sheering Road. The proposed widening fits within the existing public road corridor and no part of the improvement works encroaches upon the adjoining properties, or private land.

The proposal will lead to the widening and upgrade of the existing footway along Gilden Way to accommodate both pedestrians and cyclists. To ensure the safety of all categories of road users, the proposal includes additional signalised crossings for non-motorised traffic to improve connectivity and the scheme will not close or sever any existing Public Rights of Way.

The works will include a robust drainage solution to limit peak discharges into receiving streams to a level no worse than the existing rates. Infrastructure for the drainage will utilise limited land currently in the ownership of Harlow District Council and outside of the highways corridor.

To minimise disruption, the works will tie into existing levels with no need for significant earthworks.

Works will also include reconfiguration of existing junctions, roundabouts and egress points to improve safety and traffic flow efficiency. A signage strategy aimed at preventing rat-running through the residential streets, and, in particular Mulberry Green, without impacting on existing bus

routes, will be put in operation. As part of the drive to improve safety, the scheme plans to reduce the speed limit from 60mph to 40mph on Gilden Way.

The scheme will involve replacement lighting, additional noise barriers and the upgrade of other infrastructure such as kerbs, pavement and road markings. A number of existing underground utilities will need diverting.

A plan of the overall scheme, including Junction 7a can be found at Appendix F.

1.7. Delivery partners:

Partner	Nature and / or value of involvement (financial, operational etc.)
Highways England	M11 J7a
Harlow District Council	Support for scheme
Epping Forest District Council	Support for scheme
Essex Highways	Design and Programme Management
Ringway Jacobs	Delivery Partner

1.8. Promoting Body:
Essex County Council

1.9. Senior Responsible Owner (SRO):
Andrew Cook, Director, Highways & Transportation, ECC

1.10. Total project value and funding sources:

Funding source	Amount (£m)	Constraints, dependencies or risks and mitigation
SELEP	£ 5.000	Dependent on this bid
ECC	£ 6.327	Confirmed
Housing Developer	£ 1.000	Confirmed
Gilden Way Project	**£12.327**	
Total for M11J7a including Gilden Way but excluding Phase 2B	**£52.614**	Outline Business Case approved, Full Business Case pending

1.11. SELEP funding request, including type (LGF, GPF etc.):
£5.0m capital funding is requested from SELEP in the form of a financial contribution.

The funding will not constitute State Aid.

1.12. Exemptions:
This scheme, as defined, is not subject to any Value for Money exemptions.

1.13. Key dates:
The overall scheme has been split into three phases:-

- Phase 1 includes the widening and improvement of Gilden Way

- Phase 2a comprises the construction of a new westbound carriageway linking the M11 to Sheering Road, the construction of three roundabouts (Sheering Road, East Dumbbell and West Dumbbell), a bridge over the M11 and the slip roads from the M11
- Phase 2b includes the construction of a new eastbound carriageway north of the westbound carriageway and the new Pincey Brook roundabout. However this phase will be deferred until required.

Phases 2a and 2b would be mainly off-line so traffic management needs would be reduced. A robust Traffic Management Plan will be put in place prior to commencing all necessary enabling works and widening works on Gilden Way.

Key dates for the complete scheme, including Gilden Way:-

Project milestone	**Indicative date**
Start Construction	Early 2019
Complete Phase 1 (Gilden Way – London Road to Sheering Road) Construction	Autumn 2020
Complete Phase 2a (M11 J7a and links to Gilden Way) Construction	March 2021

1.14. Project development stage:

Project development stages completed to date (M11 J7a)			
Task	**Description**	**Outputs achieved**	**Timescale**
Public Consultation	Formal	Completed	May to July 2016
Preferred Route	Announcement	Completed	December 13, 2016
Planning Submission	Full	Completed	January 26, 2017
Planning Determination	Full	Completed	June 2017
Project development stages to be completed (Gilden Way)			
Task	**Description**		**Timescale**
Outline Business Case	SELEP Bid		July 2016 - Completed
Business Case	Full Business Case – this bid		Oct 2017 to Feb 2018
Design	Detailed design		Nov 2017 to Sep 2018

A copy of the Outline Business Case for the overall scheme can be found at Appendix G.

1.15. Proposed completion of outputs:

Other Harlow related projects funded by SELEP:-

- Harlow Pinch Point Package – £10.2m funding, approved in 2015, with construction due to be completed by June 2018
- Chelmsford to Harlow RBS – £2.2m funding, to be approved at November 2017 Accountability Board, with work due to start March 2018
- M11 J8 - £2.7m funding, to be approved at November 2017 Accountability Board, with work due to start September 2018.

2. STRATEGIC CASE

2.1. Scope / Scheme Description:

- This scheme has been identified as a priority in the Essex Growth Strategy (EGS) and is also supported by SELEP.
- Harlow currently suffers from significant congestion at peak times, which will increase as new committed development is built. In addition, further development to support economic growth, through the Local Plan process, will place additional pressure on the local and strategic road network.
- Harlow currently has only one connection to the strategic network, Junction 7 on the M11, accessed via the A414, which is already subject to significant congestion in peak periods.
- Constraints have already been placed on the development of the Local Enterprise Zones, which can only be relieved by additional road improvements, primarily by improving access to the M11.
- The single access to the strategic road network (A414), to and from Harlow, leads to congestion on the network, use of less suitable minor roads and poor network resilience. This a major problem for the town and its surrounding districts, especially during peak periods.
- The repercussions of extreme congestion during the AM / PM peaks increases the likelihood of traffic related incidents, which results in further journey time delays and frustration to the general public. The bulk of the congestion occurs on, or adjacent to, the A414, which is the primary distributor that runs through the town, but congestion is also widespread across the network. The main industrial and retail sites are to the north and west of the town, while the strategic connections provided by the A414 and M11 are to the north west and the south east. High levels of traffic pass through J7, where the motorway and primary route join, and congestion at the junction is common.
- It has been identified that there is an urgent need for a new Junction on the M11 between J7 & J8 to enable economic growth within Harlow, and a bid to the Large Local Major Transport Scheme Fund for a contribution towards scheme development costs for junction 7a was submitted and approved.
- Junction 7 is included in the Route Improvements Strategy (RIS1) and HE have now agreed to transfer funds originally allocated to Junction 7 to the work required for Junction 7a. The scheme is essential to enable Harlow and the surrounding districts to meet their collective growth objectives.
- This scheme, Gilden Way Upgrading, acts as enabling works for the new M11 junction and will also provide capacity for committed developments along the corridor and across the town.
- Current growth in Harlow is curtailed by the existing capacity issues at M11 J7. Traffic modelling indicates an urgent need to provide additional capacity to / from Harlow on to the M11.
- Local Plans are being progressed with significant growth expected in the wider Harlow area, including up to 15,000 new homes and 12,000 new jobs.
- The scheme will support the growth of the Enterprise Zone which have the potential to provide a total of 5,000 new jobs.

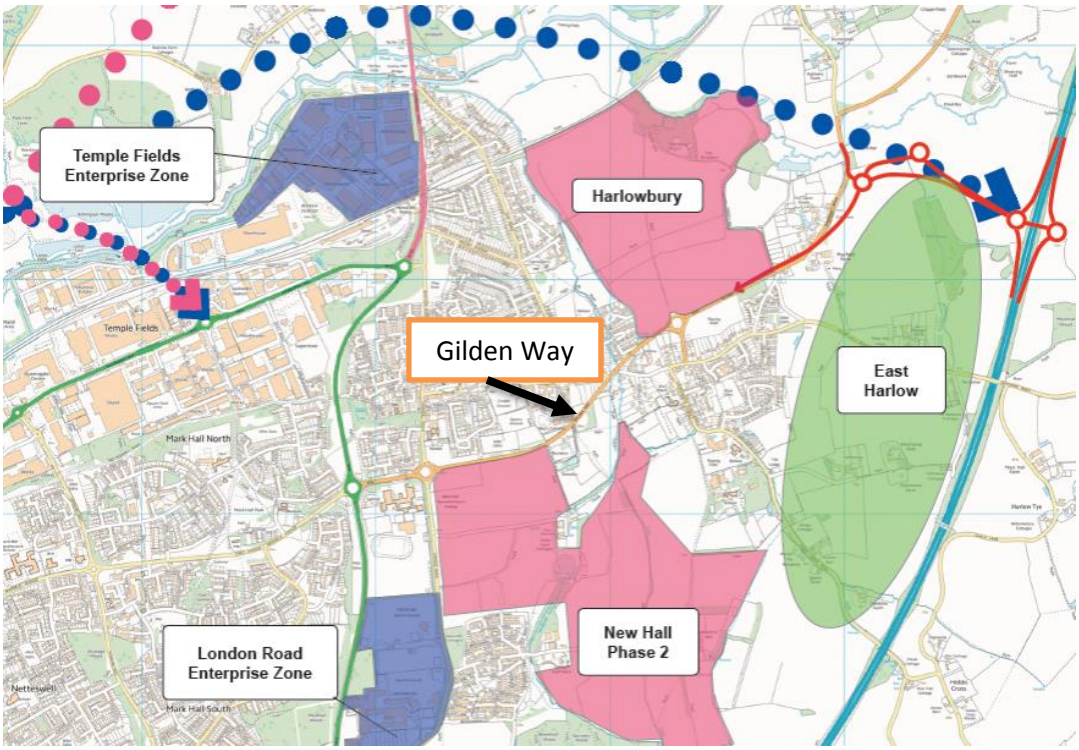

Figure 1: Gilden Way area showing committed developments (pink and purple) and emerging developments in green

Significant Developments in Harlow

There are some significant developments already underway, or recently established, which will drive change over the next few years. These include:

- Expansion and completion of Newhall housing development
- Expansion and completion of the Enterprise Zone
- Harlowbury – development of 1,200 new homes
- Gilston – a development of 3,000 homes with a potential to expand to 10,000 in the next plan period
- Harlow East – a development of 3,000 homes
- Latton Priory – a 250 hectare site located on the southern edge of Harlow with the potential to deliver up to 2,500 dwellings over the next 15 years

Figure 2: Harlowbury, Harlow

Future Significant Transport Plans in Harlow and Essex

- A414 Widening
- M11 J8 Improvements
- Stansted Expansion

2.2. Location description:

Figure 3: Gilden Way, Harlow

2.3. Policy context:

SELEP Strategy
The Gilden Way Upgrading Scheme supports the SELEP Vision; to 'Create the most enterprising economy in England' and the single SELEP goal; to promote steady, sustained economic growth over the next two decades.

National Strategy
The National Policy Statement for National Networks dated December 2014 lays out the government's plans for policies to deliver the development of nationally significant infrastructure projects on the national road and rail networks in England. In association with this policy statement are the Highways England Road Investment Strategies (RIS) 1 and 2. RIS 2 specifically refers to the London to Leeds Route Strategy (March 2017) which includes the M11. The policy outlines enhancements to the road network which include junction improvements, new slip roads to address congestion and improved performance and resilience at junctions, all of which are a major source of congestion. Gilden Way provides the key link to this new junction improvement at M11 J7a.

Essex Strategy
Investment in this scheme and the associated M11 J7a is wholly compliant with the aspirations of the Economic Plan for Essex (EPfE) that updates and incorporates the Greater Essex Integrated County Strategy (ICS) and the ECC Economic Growth Strategy (EGS). The package of improvements proposed also supports the delivery of the Essex Local Transport Plan (LTP), and has the support of partner authorities.

Essex County Council has the stated ambition to make Essex the location of choice for business and to be a county where innovation brings prosperity:

- To grow, the Essex economy depends on the efficient movement of people, goods and information, via effective, reliable transport and communications networks to provide access to markets and suppliers. It is essential, therefore, that the infrastructure, which enables residents to travel and businesses to grow, is developed and maintained.

- Support for employment and entrepreneurship across the Essex economy is focused on ensuring a ready supply of development land, new housing and the coordinated provision of appropriate infrastructure.

This investment in Harlow is essential for the delivery of these ambitions.

The Essex County Council Corporate Outcomes Framework 2014-2018 sets out the seven high level outcomes that ECC want to achieve to ensure prosperity and wellbeing for Essex residents. Securing these outcomes will make Essex a more prosperous county; one where people can flourish, live well and achieve their ambitions.

The seven outcomes are listed below:

- Children in Essex get the best start in life
- People in Essex enjoy good health and wellbeing
- People have aspirations and achieve their ambitions through education, training and life-long learning
- People in Essex live in safe communities and are protected from harm
- Sustainable economic growth for Essex communities and businesses
- People in Essex experience a high quality and sustainable environment
- People in Essex can live independently and exercise control over their lives.

Greater Essex Growth and Infrastructure Framework (2016-2036)
This report presents an overview of growth patterns and the infrastructure projects needed to support such growth in Essex.

Growth in Greater Essex over recent decades has created a deficit in existing infrastructure.

In particular the growth in journeys by road and rail has not been matched by sufficient government investment to enhance the network. The framework has identified that major transport projects need to secure £26.5 billion (regional) and £5.5 billion (cross-boundary) funding.

Capacity within Greater Essex will also be affected by housing and economic growth in neighbouring areas. In particular, the influence and reach of the London City Region, and the overheating Cambridge economy will impact in different ways on localities within Essex. The emergence of the new London Plan is expected to displace housing and employment from London along strategic growth corridors into Essex with Harlow being a main attractor.

Essex Local Transport Plan

The *Essex Local Transport Plan (2001,)* which included the *Essex Transport Strategy (2011),* sets out the 15 year vision to improve travel in the county and underlines the importance of the transport network in achieving sustainable, long term economic growth and enriching the life of residents. It has been supplemented by delivery strategies for public transport, highways, cycling and public rights of way.

Harlow Strategic Fit

In 2011, Harlow Council carried out an issues and options consultation, as part of the new Local Development Plan, the results of which were published in the Core Strategy Issues and Options Report. The consultation was part of the first stage in developing a new Local Plan for the town, and documented some of the concerns of local residents. The top two key issues were:

- Developing a new bypass to link with a new M11 junction;
- New junction on the M11.

If Harlow is to meet its objectively assessed needs, additional new housing will be needed to support the increase in jobs, placing additional pressure on the road network. Improvements in network resilience, journey times and additional road capacity are required. This scheme will provide the impetus and ability for businesses and housing to expand across the region, enabling a much improved flow of goods and commerce through an efficient and accessible transport network, whilst, at the same time, facilitating a more strategically managed road network.

At present, Junction 7 is the only strategic access to the trunk road network resulting in poor network resilience and significant congestion during peak times and during incidents. The existing Junction 7 is currently at capacity with existing committed development and is congested in peak periods. This impacts on the attractiveness of Harlow as a place in which to invest for both homes and jobs. Further pressure on the junction will accrue as the committed developments in the town come forward.

Harlow Enterprise Zone

Figure 4: Harlow Science Park

The delivery of the Harlow Enterprise Zone (EZ) on three sites are underway, commencing with the refurbishment of the Nortel complex alongside the new Harlow Science Park. The EZ will attract companies in life sciences, advanced manufacturing and information / communications technologies

(ICT) and has capacity for over 5,000 jobs. The EZ will also be the home of one of Anglia Ruskin University's new MedTech campuses. The advanced manufacturing sector in Harlow will be supported by the development of the Harlow Manufacturing and Engineering Centre, providing state of the art facilities to meet the skills requirements of existing businesses and those investing in the corridor. In addition, the relocation of Public Health England to the GSK laboratories to the west of the town on the Pinnacles Business Park will bring some 2,500 new jobs and supporting businesses will inevitably need to relocate accordingly.

The specific objectives of the Harlow Enterprise Zone are:

- The development of three sites to provide high quality, modern business space meeting the needs of businesses in the ICT, MedTech and Advanced Manufacturing sectors.
- The location of 100 businesses and the creation of at least 2,500 jobs with the potential to create more than 5,000 jobs over a 25 year period from 2013.
- Increase the economic wealth of Harlow and surrounding areas through securing foreign direct investment.
- Enabling growth of existing companies through relocation, expansion and supply chain opportunities.
- The creation of jobs for local residents.
- Boost the MedTech industry to help reverse the UK's current £1.2bn trade deficit in MedTech.

Harlow Local Development Plan

The Harlow Local Development Plan (HLDP), once adopted, will replace the existing Adopted Replacement Harlow Local Plan (2006-2011). Development locations, amounting to 4,500 dwellings, focus around the east of New Hall (east Harlow) and infill sites in the Harlow urban area. Five scenarios were presented in a consultation period in 2014 to accommodate up to 15,000 homes and up to 12,000 jobs. The consultation also included consideration of a future Northern Bypass which will involve close working with Hertfordshire County Council.

The investment in this scheme is essential for the delivery of these ambitions.

It should be noted that Gilden Way Upgrading could be delivered without junction 7a, but 7a could not be delivered without Gilden Way Upgrading.

2.4. Need for intervention:

Harlow

Harlow is a primary economic and growth centre in the west of Essex, with up to 15,000 homes and 12,000 jobs planned for future delivery. By 2033, an increase in overall traffic volume is forecast of up to 30% across Harlow's network in peak periods, associated with new development, economic and demographic factors. Consequently, a marked deterioration in traffic conditions across the network is forecast in the future. Traffic volumes will increase across the primary routes, and especially the A414, which is a key urban distributor road and primary access point for Harlow from the east or the west.

Figure 5: Typical Harlow traffic

Currently, major improvements, funded by SELEP, are being introduced along the A414, within Harlow, at strategic junctions associated with Harlow's expanding Enterprise Zone which is based in three locations along the A414 (Harlow Science Park, Kao Park, Templefields). This will put increased pressure on the network and the A414, in particular.

Figure 6: Harlow Enterprise Zone

Harlow's population is forecast to grow over the next 20 years and more homes will be required. Evidence shows that between 12,000 and 15,000 new homes will be needed to meet the needs of Harlow. The Council is also planning the creation of between 8,000 and 12,000 new jobs and will be supporting investment from new businesses to broaden the town's employment base and to provide opportunities for the town's growing workforce.

Figure 7: Harlow

Harlow has traditionally been a good location for manufacturing and industrial businesses. Compared to the national average, Harlow has a much higher proportion of employment in Manufacturing, Wholesale and Retail Distribution, Administrative and Support Services and Health and Social Work.

Census data

- The population of Harlow District is 84,000, representing 6 percent of the Essex County (excluding the unitary authorities) population.
- Compared with the 2001 Census, the total population of Harlow District has grown by 4% (compared with an overall Essex increase of 6.3%).

2.5. Sources of funding:

If funding for this package is not secured, it would not be possible for ECC to fund all of the works without support. Also, the whole basis of the new Junction 7a is predicated on an improved and upgraded link along Gilden Way.

Highways England has already agreed funding for the principal Junction 7a work on the assumption that SELEP and ECC contribute by providing the essential link road. Full private funding is not an option, so that the only other opportunities for support are through SELEP and ECC.

A 'Do Nothing' alternative would not be viable because of the access required to the new housing development at Harlowbury. Also, the local plans of Harlow, Epping Forest and East Herts could not be delivered without this intervention. But, even more important is that there has to be a viable and efficient link to the new Junction 7a of the M11.

2.6. Objectives of intervention:

	Problems / Opportunities identified in Need for Intervention				
	Growth	Congestion	Access	Safety	Cycling
Objective 1	✓✓✓	✓✓✓	✓✓✓	✓✓	✓✓
Objective 2	✓✓✓	✓✓✓	✓✓✓		✓✓
Objective 3	✓✓✓	✓✓✓	✓✓✓		✓✓
Objective 4		✓✓✓			

Objectives

ECC and the local districts have identified the following scheme objectives:

1. To improve accessibility to and from Harlow;
2. To ensure the proposed infrastructure is at the appropriate scale for future traffic demands;
3. To facilitate future housing developments around Harlow and employment growth to the east of Harlow; and
4. To reduce congestion primarily for the A414 corridor.

The **outcomes** for the transport improvements of the intervention options will result in a range of measurable impacts on traffic and travel conditions. Impacts and measurable indicators relevant to improving conditions and sustainability include:

- Delivery of identified housing and employment growth in line with the Core Strategy – measured by the number of homes / jobs delivered / occupied by 2036.
- Reduced congestion and improved journey reliability - measured by traffic volume and relative difference in peak / off-peak journey times.
- Improved connectivity – reflected by absolute journey times on key routes.
- High quality of life and natural environment – reflected through a reduced number of collisions, carbon emissions and level of noise (dB).

2.7. Constraints:

Constraints have been placed on the development of the Local Enterprise Zone, which can only be relieved by additional road improvements, primarily by improving access to the M11 through the upgrading of Gilden Way.

Current growth in Harlow is curtailed by the existing capacity issues at M11 J7.

2.8. Scheme dependencies:

Although the plans for Harlowbury are dependent on better connections to the transport network, even more important is the fact that Junction 7a is totally dependent on improvements to Gilden Way. Through the option exercise described later in sections 3.1 and 3.2, Gilden Way was selected as the most cost effective option to link the new M11 Junction with the existing transport network. The current road could not handle the volumes of traffic predicted for Junction 7a and, therefore, it is true to say the proposed junction on the M11 is totally dependent on improvements to Gilden Way.

2.9. Expected benefits:

Scheme benefits include:-

- Providing access improvement in and out of Harlow
- Providing journey time, reliability and predictability of travel conditions improvements
- Helping relieve congestion in Harlow and on the A414
- Reducing people forced to 'rat-run' through the town centre and residential areas
- Making Harlow a more attractive location for investment, regeneration and growth
- Acting as enabling works for the new junction 7a and any future Harlow Northern Bypass.

	17/18	*18/19*	*19/20*	*20/21*	*Totals*
Jobs	*210*	*210*	*210*	*210*	*840*
Homes	*250*	*250*	*250*	*230*	*980*

The Social and Distributional Impact Appraisals for the overall scheme, including Gilden Way, can be seen at Appendix H.

2.10. Key risks:

The top key risks for the M11 J7a project are shown below:-

Risk Description	Mitigation Plan/s	Status
Negotiated land access with Harlow District Council may not be achieved in time *(unable to obtain formal agreement i.e. in writing)*	1. Escalate to ECC Senior Management to talk to their equivalent in Harlow District Council 2. LSH resolve negotiations with Harlow District Council 3. Issue CPO for required land takes	
Negotiated land access with Stakeholders may not be achieved in time	1. Settle GI works compensation with local land-owner – now completed 2. Consult with the owners of the affected properties	
Statutory landowners may object to the proposals due to the delay in examination of the local plans	1. Negotiate with stakeholders 2. Make sure that all stakeholders are aware of the issues and mitigations	
Deep drainage works on Gilden Way may not be finished prior to the commencement of main works	1. Carry out Trial Holes – now underway 2. Active liaison with Utility companies to maintain their programmes	
Section 8 agreement between Highways England and ECC may not be approved in time	1. Hold collaborative meetings with Highways England. 2. HE to continue attending Project Board Meetings. 3. Engage HE in discussion on Section 8 agreement 4. Agree the outstanding items and complete sign off	

Key Risks

3. STRATEGIC CASE

3.1. Options assessment:

The Economic (value for money) Case considers the likely benefits and dis-benefits of the scheme, in terms of user benefits, environmental and social impacts and impacts on public accounts.

The economic assessment has been carried out using standard procedures and economic parameters as defined by TAG Unit A1 and TAG data book, July 2016. The components that make up the assessment are show in Figure 8.

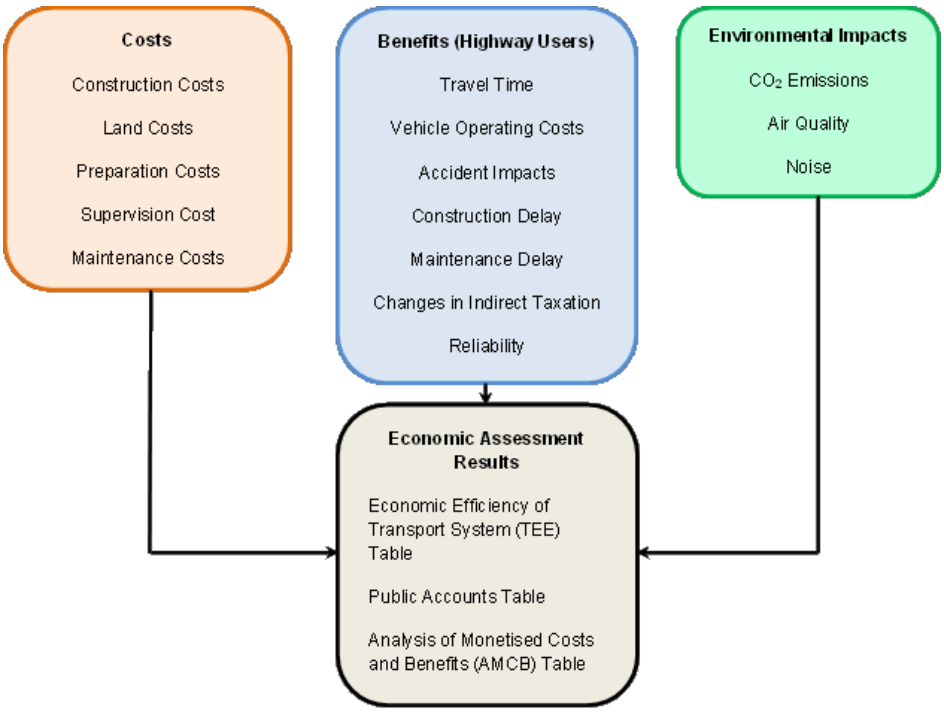

Figure 8: Economic Assessment Components

The following elements of the economic assessment have been considered:

- Road user journey time impacts – due to changes in travel time and vehicle operating costs;
- Road user safety impacts – due to changes in the future number and/or severity of accidents;
- Reliability impacts due to changes in journey time variability;
- Construction and maintenance impacts – impacts on road user travel time and vehicle operating costs during Scheme construction and future maintenance;
- Indirect tax revenue – due to changes in the amount of fuel and other direct vehicle operating costs purchased and changes in expenditure on transport offsetting changes in expenditure elsewhere in the economy; and
- Greenhouse gas, noise and air quality impacts.

At this stage in the process, both the traffic model and TUBA software have been used to calculate the benefits for the M11 J7a scheme, where the medium growth scenario has been appraised as the core scenario. Appraisals of the low and high growth scenarios have been undertaken as part of the sensitivity analysis.

Option appraisals were conducted in stages through a series of consultations:

- Firstly, eight different options were considered in terms of where Junction 7A should be positioned on the motorway

- Then, three options were considered on how to link Gilden Way to the new Junction via differing sets of roundabouts and links along Sheering Road
- Lastly, modelling looked at whether there should be two lanes in bound, or outbound, or both, but, in the end, to ensure best value for money, the proposal was contained within current highway boundaries, and it was opted to go for a two lane inbound approach, which still allowed room for an improved cycleway alongside.

The 2016 consultation document can be seen at Appendix J, along with the ECC Outcome Report from November 2016 and the Options Assessment Report.

3.2. Preferred option:

As described above, the preferred option came out of a public consultation and resulted in the following plan:-

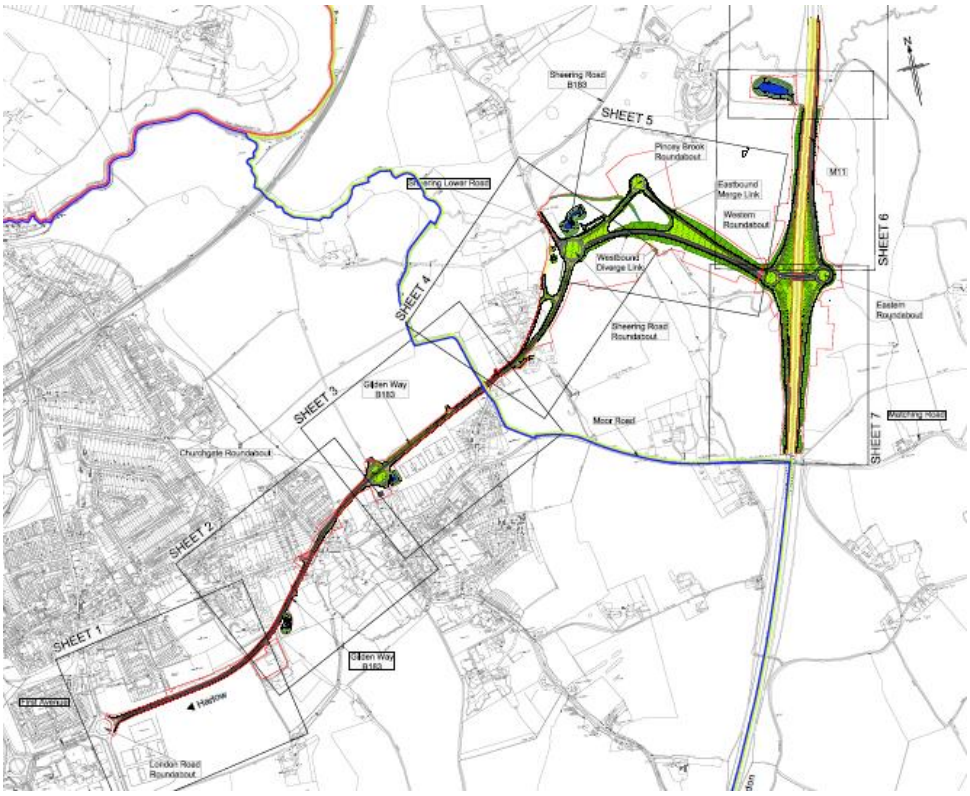

Figure 9: Overall Plan - Extract

3.3. Assessment approach:

As set out in the 'Introduction and Strategic Case', the upgrading of Gilden Way is an intrinsic part of the proposed new M11 Junction 7a and appertaining works. It was not possible, therefore, to model the Gilden Way upgrading as a standalone project and derive its benefits in isolation. It is therefore proposed that the economic case that was developed for the full scheme, and which include Gilden Way upgrading, is put forward and the metrics from the appraisal of the overall scheme used in this submission, with the funding sought from SELEP viewed as a contribution. This approach was proposed and agreed with the Independent Technical Evaluator during a telephone conference on 26th October 2017.

The appraisal followed Treasury Green Book and TAG methodology, as outlined in TAG unit A1, throughout.

3.4. Economic appraisal inputs:

The following documents appended to the submission are specifically relevant to the economic appraisal:

- Appendix L1 and L2 - M11 J7a LMVR
- Appendix L3 and L4 - M11 J7a Model Forecasting Report
- Appendix K - M11 J7a Economic Assessment Report
- Appendix M - M11 J7a Appraisal Summary Table
- Appendix G - Outline Business Case

The Harlow Transport Model uses the PTV Visum strategic transport modelling software package and has a base year of 2014. The 'Harlow Transport Model LMVR', which was last updated in January 2017, describes how the model was developed, tested and verified (Appendix L). For design purposes, a Vissim model was created and used.

3.5. Economic appraisal assumptions and results

Appraisal Assumptions	Details
WebTAG version	The latest version of TUBA at the time of the appraisal namely version 1.9.7, which contained WebTAG Data Book July 2016 values, was applied. Not re-running the full appraisal in the later version of TUBA (1.9.9) was considered proportional to the size of the current application. It is likely that the full scheme's economic appraisal will be reassessed as it develop through later stages.
Opening Year, Final Modelled Year and Appraisal Duration	The forecast models have been prepared for three years; 2021 which is the anticipated opening year of the major scheme, and two forecast years 2036 and 2041, in order to complete a full economic appraisal of the scheme. Forecast models were developed for the three alternative growth scenarios for each of the above three years for the "Do Minimum" and "Do Something" scenarios. The economic assessment was undertaken over a 60-year period.
Price Base / GDP Deflator	2016 estimates have been converted to 2010 prices using the GDP-deflator series as published in the July 2016 TAG Data book. The prices have been converted to market prices using 19% indirect tax adjustment as required by TAG Unit A1.2.
Real Growth (i.e. above CPI or below)	The construction costs used reflect construction projects of a similar size and nature and were initially estimated based on prices as at the 4th Quarter of 2016. Construction inflation has been added in order to estimate real changes in costs when compared to general inflation. The Building Cost Information Service (BCIS) General Civil Engineering Cost Index has been used to calculate inflation. The costs are given as resource costs and exclude VAT.
Discounting	Standard Green Book rates, as captured in the standard TUBA economics file were applied namely 3.5% per year for 30 years and 3.0% thereafter.
Optimism Bias	The optimism bias is linked to the project maturity, understanding of costs and business case development. Section 3.4 of the Economic Assessment Report (Appendix K) states 15% Optimism Bias uplift has been applied as recommended for DfT Stage 2 for an Outline Business Case stage (TAG A1.2 Tables 7 & 8). The figure have been reviewed and approved by Highways England.

The highway assignment model comprises three weekday time periods; an AM peak hour (08:00-09:00), an inter-peak hour (11:00-12:00) and a PM peak hour (17:00-18:00).

The modelled period benefits calculated by TUBA were converted into an estimate of annual benefits using the following peak hour to peak period factors.

- Weekday AM peak period (7am to 10am, 3 hours) – 2.82 * AM peak hour
- Weekday IP period (10am to 4pm, 6 hours) – 6.45 * IP peak hour; and
- Weekday PM period (4pm to 7pm, 3 hours) – 2.77 * PM peak hour
- over 253 normal weekdays.

Maintenance costs were calculated over the 60-year appraisal period for the Do-Minimum and Do-Something Scenario.

COBA-LT was used to appraise the impact on road collision rates with detail provided in Section 4.8 in Appendix K of the M11 J7a Economic Assessment Report.

Delays during construction and future maintenance were appraised using QUADRO version 4 revision 13.0 (v4r13) with details provided in Section 4.9 in Appendix K of the M11 J7a Economic Assessment Report.

The results of the economic appraisal are presented under 3.11 Value for Money in the form of AMCD, TTE and PA tables. Also shown in 3.11 are the split of time and vehicle operating cost benefits by trip purpose and by time period and of time savings by purpose and spread by size of benefit.

3.6. Sensitivity tests:

For the purposes of the forecasting exercise there are three growth scenarios modelled: NTEM, medium and high. The medium growth scenario is the core scenario for the economic analysis, while the NTEM and high growth scenarios are considered as sensitivity tests.

The Sensitivity Tests that were conducted for the overall scheme, including Gilden Way, are shown in detail in Section 7 - The Economic Assessment Report (Appendix K) and summarized below.

	£m PV (2010)
Sensitivity Test 1	**Medium Growth including Wider Impacts**
Present Value of Costs (PVC)	£61.43
Present Value of Benefits (PVB)	£185.37
Net Present Value (NPV)	£123.94
Benefit Cost Ratio (BCR)	3.0

	£m PV (2010)
Sensitivity Test 2	**NTEM Growth**
Present Value of Costs (PVC)	£61.43
Present Value of Benefits (PVB)	£161.79
Net Present Value (NPV)	£100.36
Benefit Cost Ratio (BCR)	2.6

	£m PV (2010)
Sensitivity Test 3	**High Growth**
Present Value of Costs (PVC)	£61.43
Present Value of Benefits (PVB)	£254.61
Net Present Value (NPV)	£193.18
Benefit Cost Ratio (BCR)	4.1

	£m PV (2010)
Sensitivity Test 4	**Medium Growth excluding Phase 2b**
Present Value of Costs (PVC)	£53.46
Present Value of Benefits (PVB)	£182.38

Net Present Value (NPV)	£128.92
Benefit Cost Ratio (BCR)	3.4

3.7. Environmental impacts:

The impacts on greenhouse gases, local air quality and noise were also monetised as described in Section 4.10, 4.11 and 4.11 in Appendix K of the M11 J7a Economic Assessment Report and included in the overall results of the appraisal.

Environmental Impact	**Assessment**
Noise	Slight Beneficial
Air Quality	Slight Adverse
Greenhouse Gases	Moderate Adverse
Landscape	Moderate Beneficial
Townscape	Moderate Beneficial
Heritage	Neutral
Biodiversity	Neutral
Water Environment	Slight Beneficial

3.8. Social impacts:

The Social Impact Appraisals for the overall scheme, including Gilden Way, can be found at Appendix H1.

Social Impact	**Assessment**
Accidents	Slight Beneficial
Physical Activity	Slight Beneficial
Security	Neutral
Severance	Slight Beneficial
Journey Quality	Moderate Beneficial
Option values and non-use values	Slight Beneficial
Accessibility	Large Beneficial
Personal Affordability	Slight Beneficial
Accidents	Moderate Beneficial

3.9. Distributional impacts:

The Distributional Impact Appraisals for the overall scheme, including Gilden Way, can be seen at Appendix H2.

3.10. Wider impacts:

Wider impacts were also assessed in line with TAG unit A12.1 and an adjusted BCR calculated as described in Section 6 of Appendix K of the M11 J7a Economic Assessment Report. It did not change the BCR of 3.0, expressed to one decimal place.

Section 4.13 in the Economic Assessment Report also show how journey time reliability was assessed and handled in the reporting, namely not being included in the TEE or AMCB tables, or in the BCR, but shown in the Appraisal Summary Table.

3.11. Value for money:

The Appraisal Summary Table for the overall scheme can be found at Appendix M.

Analysis of Monetised Benefits (£000's) for Medium Growth	
Noise (12)	£ 903
Local Air Quality (13)	- £586
Greenhouse Gases (14)	-£ 5,605
Accidents (17)	£ 200
Economic Efficiency: Consumer Users (Commuting)	£ 62,929
Economic Efficiency: Consumer Users (Other)	£ 69,894
Economic Efficiency: Business Users and Providers	£ 53,720
Wider Public Finances (Indirect Taxation Revenues)	£ 916
Present Value of Benefits (PVB)	**£ 182,371**
Broad Transport Budget	£ 61,430
Present Value of Costs (PVC)	**£ 61,430**
OVERALL IMPACTS	
Net Present Value (NPV)	**£ 120,941**
Benefit to Cost Ratio (BCR)	**3.0**

Public Accounts (£000's) for Medium Growth		
Local Government Funding	**All modes**	**Road**
Revenue	-	-
Operating Costs	£ 8,264	£ 8,264
Investment Costs	£ 28,324	£ 28,324
Developer Contributions	-£ 651	-£ 651
Grant/Subsidy Payments	-	-
NET IMPACT (7)	**£35,936**	**£35,936**
Central Government Funding – Transport		
Revenue	-	-
Operating costs	-	-
Investment costs	£ 25,494	£ 25,494
Developer Contributions	-	-
Grant/Subsidy Payments	-	-
NET IMPACT (8)	**£25,494**	**£25,494**
Central Government Funding- Non Transport		
Indirect Tax Revenues (9)	-£ 916	-£ 916
TOTALS		
Broad Transport Budget (10)	£ 61,430	£ 61,430
Wider Public Finances (11)	-£ 916	-£ 916

TEE Table (£000's) for Medium Growth				
	Type	**All Modes**	**Road, Private Cars and LGVs**	
Commuting User Benefits	Travel Time	£ 63,693	£ 63,693	
	Vehicle Operating Costs	-£ 255	-£ 255	
	User Charges	-	-	
	During Construction & Maintenance	-£ 509	-£ 509	
	Net Benefits (1a)	**£ 62,929**	**£ 62,929**	
Other User Benefits	Travel Time	£ 70,416	£ 70,416	
	Vehicle Operating Costs	£ 474	£ 474	
	User Charges	-	-	
	During Construction & Maintenance	-£ 996	-£ 996	
	Net Benefits (1b)	**£ 69,894**	**£ 69,894**	
Business	**Type**	**All Modes**	**Goods Vehicles**	**Business Cars & LGVs**
	Travel Time	£ 54,732	£ 24,460	£ 30,272
	Vehicle Operating Costs	£ 1,139	-£ 1,321	£ 2,460
	User Charges	-	-	
	During Construction & Maintenance	-£ 1,500	-£ 1,500	
	Net Benefits (2)	**£ 54,371**	**£ 21,639**	**£ 32,732**
	Type	**All Modes**	**Road**	
	Developers contributions (4)	-£ 651	-£651	
	Net Benefits (5)	**£ 53,720**	**£ 53,720**	
Present Value of Transport Economic Efficiency Benefits (TEE)		**£ 186,543**		

Medium growth TUBA benefits (Time + VOC) by purpose, £m (Table 5-2 in Economic Assessment Report)

Purpose	**Medium**	**%**
Business	£ 56	29%
Commuting	£ 63	33%
Other	£ 71	37%
Total	**£ 190**	**100%**

Medium growth time benefits by time savings by purpose, £m (Table 5-3 in Economic Assessment Report)

Medium growth	**< 2min**	**2 to 5min**	**> 5min**	**Total by purpose**
Business	-£ 13.3	£ 36.6	£ 31.5	£ 54.7
Commute	£ 13.5	£ 24.6	£ 25.5	£ 63.7
Other	£ 17.1	£ 30.7	£ 22.7	£ 70.4
Total by time band	**£ 17.3**	**£ 91.9**	**£ 79.7**	**£ 188.8**

Medium growth TUBA Benefits (Time + VoC) by Vehicle Class/ Purpose, £m
(Table 5-4 in Economic Assessment Report)

Purpose	AM	IP	PM
Car - Business	£14	£17	£3
Car - Commuting	£26	£12	£26
Car - Other	£24	£27	£17
LGV - Personal	£1	£1	£0
LGV Freight	£12	£13	£5
OGV1	-£3	£0	-£1
OGV2	-£3	£0	-£1
Total	**£71**	**£69**	**£50**
Total (AM+IP+PM)	**£190**		

4. COMMERCIAL CASE

4.1. Procurement options:

Essex County Council (ECC) is committed to providing best value in the delivery of major highways schemes across the county. ECC has undertaken numerous procurement processes for major schemes.

- Essex Highways will be the delivery partner for design of the scheme
- The construction will be subject to tender process through the Eastern Highway Alliance (EHA)
- ECC have a good track record of scheme delivery through this process
- Use of the EHA ensures a ready supply chain / Contractors.

4.2. Preferred procurement and contracting strategy:

The eastern Highways Alliance and SMARTe and the Highways Agency Framework have all been used extensively in prior major projects e.g. Sadlers Farm, Army & Navy Improvements, Chelmsford and Roscommon Way, Canvey.

Construction will be delivered through the Essex Highways Service Direct Delivery Framework using supply chain partners.

The benefits of procuring the scheme through this route are:-

- Early involvement with the contractor
- Use of Supply Chain partners who are familiar with the delivery of smaller complex projects under tight deadlines
- Flexibility and opportunity to accelerate the delivery of smaller elements through the 'Walk, Talk and Build' process, thus increasing confidence in project delivery timeframe
- The utilisation of the Framework is endorsed by the ECC procurement team and the ESH Construction Management Group.

4.3. Procurement experience:

Essex Highways / Ringway Jacobs have been responsible for delivering all non-HE highway schemes in Essex since April 2012. All schemes are run to tight budgets and timing constraints and this programme would be managed in the same way.

Since 2014, Essex County Council has, or is, in the process of delivering nearly £100m of transport improvement schemes through SELEP LGF funding.

The following schemes are operational and were delivered on programme and to budget:

- A414 Maldon to Chelmsford RBS - £3.9m
- Colchester Integrated Transport Package (ITP) - £12.7m
- Colchester LSTF - £2.0m
- Colchester Town Centre - £5.0m
- South-East LSTF - £3.0m
- Colchester Park and Ride - £7.2m
- Basildon ITP (Phase 1) - £2.0m

Under construction:

- A127 Resilience Package - £9.1m
- Mill Yard, Chelmsford - £2.9m
- A414 Harlow Pinch Point Package - £14.9m

Construction about to commence:

- Basildon ITP (Phase 2) - £8.7m
- Chelmsford to Braintree RBS - £7.3m

Approved at the November Accountability Board:

- Chelmsford to Harlow RBS - £4.3m

- Colchester to Clacton RBS - £5.5m
- M11 J8 - £9.1m

4.4. Competition issues:

The construction will be subject to tender process through the Eastern Highway Alliance (EHA).

4.5. Human resources issues:

None identified.

4.6. Risks and mitigation:

Throughout the development of the scheme, risks will be identified, recorded and actively managed. Where appropriate, risk owners will be allocated and tasked with eliminating risks, where possible, or identifying mitigation measures for residual risks. The same ethos will be taken through to the delivery stages of the scheme.

The quantified risk register will be updated as part of the procurement process to collate and cost, as accurately as possibly, construction related risk. This process will inform a more competitive tendering process.

The approach to risk transfer will be such that the management of a particular risk will rest with the party best placed to manage them.

Any cost overrun will be met by ECC.

4.7. Maximising social value*:*

During the development of the package, public consultations were held which allowed all interested parties and stakeholders to share their views on the specific schemes. This ensured that any action proposed was considered against the economic, social and environmental well-being of the residents or persons affected.

5. FINANCIAL CASE

5.1. Total project value and funding sources:

The total value of the Gilden Way Upgrading portion of the overall M11 J7A project is £12.327m.

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

This bid requests £5.0m of capital funding from SELEP.

5.3. Costs by type:

	Expenditure Forecast				
Cost type (£m)	**17/18**	**18/19**	**19/20**	**20/21**	**Total**
Capital	0.793	1.983	7.002		9.778
Non-capital					
QRA	0.137	0.343	1.212		1.693
Monitoring and Evaluation	0.069	0.174	0.613		0.856
Total funding requirement	**1.000**	**2.500**	**8.827**		**12.327**
Inflation (%)	3.0	3.0	3.0		

NB: Optimism Bias has not been applied to the costs in the Financial Case.

A detailed cost summary for the overall scheme can be seen at Appendix N.

5.4. Quantitative risk assessment (QRA):

The QRA is contained within the M11 J7a Risk Register at Appendix B2.

5.5. Funding profile (capital and non-capital):

	Expenditure Forecast				
Funding source (£m)	**17/18**	**18/19**	**19/20**	**20/21**	**Total**
SELEP			5.00		5.00
ECC	1.00	2.50	2.83		6.33
Harlowbury Developer			1.00		1.00
Total funding requirement	**1.00**	**2.50**	**8.83**	**0.00**	**12.33**

5.6. Funding commitment:

ECC funding has already been approved by Cabinet.

Section 151 Officer sign-off is included at Appendix A.

5.7. Risk and constraints:

Throughout the development of the scheme, risks will be identified, recorded and actively managed. Where appropriate, risk owners will be allocated and tasked with eliminating risks, where possible, or identifying mitigation measures for residual risks. The same ethos will be taken through to the delivery stages of the scheme.

The quantified risk register will be updated as part of the procurement process to collate and cost, as accurately as possibly, construction related risk. This process will inform a more competitive tendering process.

The approach to risk transfer will be such that the management of a particular risk will rest with the party best placed to manage them.

Any cost overrun will be met by ECC.

Risk Management

A proactive risk management procedure is in operation, including a quantified risk assessment approach, which ensures that risks are continuously identified, owners assigned and mitigation measures put in place. Regular reviews check the status of each risk and regulate their control and mitigation. Project procedures also require that should the likelihood or severity of risks be identified as increasing by this process, responsibility for its mitigation is escalated upwards through the project management chain to ensure that this is achieved.

All risks are currently owned by the partner authorities. As the project develops it is expected that some of these risks will be transferred to contractors constructing the infrastructure. In addition, Essex County Council uses a proprietary online Risk Register to assess levels of risk and to track the progress of the risk management strategy for the scheme. The §151 Officer also has access to this system. Risks are categorised into five main areas, i.e.:

- Project and programme risks related to delivery;
- Consultation and stakeholder acceptance;
- Reputational risks to the project partner authorities (and ultimately the contractors and service providers);
- Statutory Processes; and
- Financial and funding risks.

Risk Allocation

ECC will bear all risk for the project as part of its role as Highways Authority.

6. MANAGEMENT CASE

6.1. Governance:

The organisation to deliver the scheme is indicated in Figure 10 below. The roles and responsibilities of the parties indicated in the figure are described in the following paragraphs.

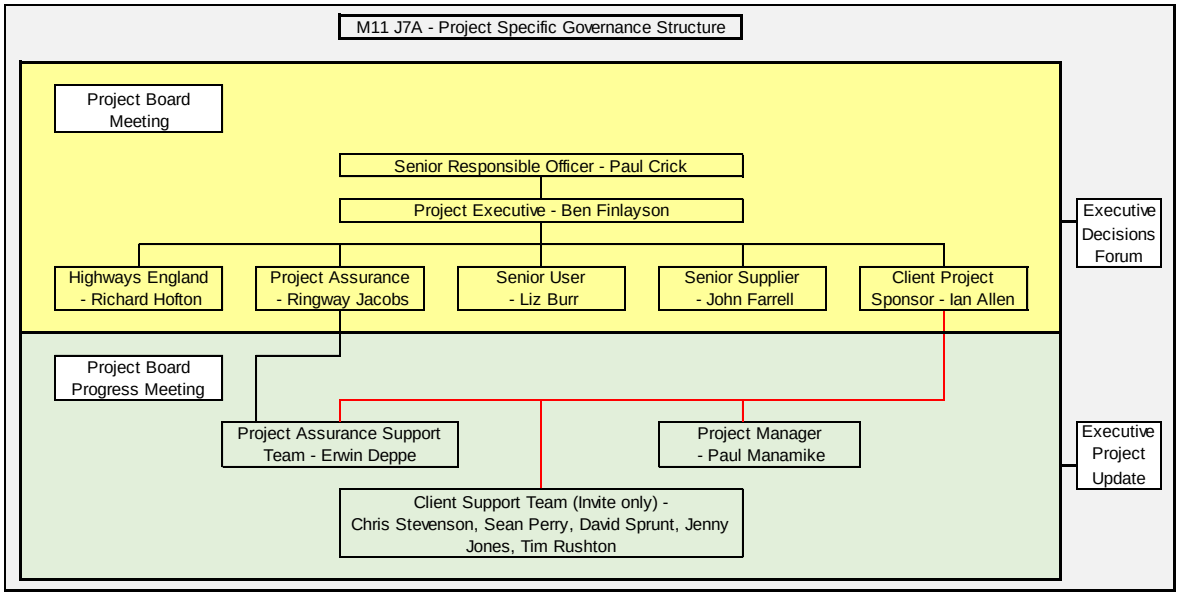

Figure 10: Arrangements for Project Governance

Roles of Key Interested Parties:

South East Local Enterprise Partnership Board (SELEP) – brings together senior officers and transport portfolio holders of the partner statutory authorities promoting the scheme. Essex County Council acts as the lead authority for the scheme and provides the project's Senior Responsible Owner.

The arrangements between the statutory authorities promoting the scheme are in the process of being formalised through a joint working partnership agreement. This sets out the basis for governance of the project and for the financial contributions to be made by each party.

The Project Board – is responsible for the direction and overall management of the scheme. The Project Board is chaired by the Senior Responsible Owner and made up of the Executive and Senior User for each of the partner statutory authorities, the Project Assurance Lead and the Business Change Lead. These roles are defined below. Project Board meetings are normally held every six weeks. The Project Manager reports regularly to the Project Board, keeping members informed of progress and highlighting any issues or concerns.

The responsibilities of the Project Board include:

- Setting the strategic direction of the project;
- Defining the scope and setting the timescales for major project milestones;
- Approving the appointment of the Project Manager;
- Providing the Project Manager with the strategy and decisions required to enable the scheme to proceed to programme and resolve any challenges;
- Securing necessary approvals through the partner statutory authorities;
- Approving the project scope of work, programme and budgets, as well as any subsequent changes;
- Signing off completion of each stage of the project and authorising the start of the next stage;
- Monitoring project risks and taking any appropriate action to mitigate risks.

Strategic Partnership Board – formed from Highways England and ECC and is responsible for managing the scheme and handling of any issues. HE will also provide technical support and advice.

Delivery Teams – reporting to the Project Manager, the Delivery Teams (one for each partner statutory authority) are responsible for organising and delivering work packages on the highways under the authority's jurisdiction. The Essex Delivery Team has the additional responsibility for common work packages.

Project Support – this team is responsible for project administration, including document control, project team communications, arranging meetings, updating plans, and chasing up the completion of actions.

Individual Roles:

Senior Responsible Owner (Andrew Cook, Director, Highways & Transportation, ECC) – has ultimate responsibility and delegated authority for ensuring effective delivery of the scheme on time and on budget.

Project Manager (Elliot Smith, Infrastructure Project Manager, ECC) – is the individual responsible for organising, controlling and delivering the scheme. The Project Manager leads and manages the project team, with the authority and responsibility to run the project on a day-today basis. They also will be assigned the task of running and updating the risk register and organising the monitoring of the delivery of the programme objectives.

Executives – represent the group in each partner statutory authority with responsibility for obtaining funding for the scheme (Chris Stevenson, Head of Connected Essex Integrated Transport, ECC) and securing resources to deliver it (Ben Finlayson, Head of Infrastructure Delivery, ECC).

Sponsor – the role of major sponsor is coordinated through the Transportation Strategy and Engagement Group (David Sprunt and Alan Lindsay, ECC).

Commissioning Delivery Manager (Gary MacDonnell, Project Manager, Commissioning Delivery, ECC) - The Commissioning Delivery Manager will provide coordinated management of projects associated with change management activities to achieve the aims and objectives associated with external funding requirements.

Senior Users (including David Forkin, Senior Manager, Head of Maintenance; Sean Perry, Head of Transportation, Planning and Development, ECC) – represent the group who will oversee the future day-to-day operation of the scheme.

Project Assurance Lead (Erwin Deppe, Client Services Director, Ringway Jacobs) – provides an independent view of how the scheme is progressing. Tasks include checking that the project remains viable, in terms of costs and benefits (business assurance), the users' requirements are being met (user assurance), and that the project is delivering a suitable solution (technical assurance).

6.2. Approvals and escalation procedures:

See above

6.3. Contract management:

A Benefits Realisation Plan has been produced (see Appendix R) and monitoring / evaluation will be undertaken at the appropriate points during scheme development. Monitoring activities will be aligned to those best placed to do so and to existing regular monitoring and evaluation work. Land use development related outputs are routinely monitored by planning authorities and this information will be tracked and linked to scheme completion where appropriate.

6.4. Key stakeholders:

Key Stakeholders	Nature of involvement
Chelmsford City Council	Support for scheme
Harlow District Council	Support for scheme
Epping Forest District Council	Support for scheme
Epping Town Council	Support for scheme
Hertfordshire County Council	Support for scheme
East Herts District Council	Support for scheme

6.5. Equality Impact:

See Appendix P.

6.6. Risk management strategy:

A proactive risk management procedure is in operation, including a quantified risk assessment approach, which ensures that risks are continuously identified, owners assigned and mitigation measures put in place. Regular reviews check the status of each risk and regulate their control and mitigation. Project procedures also require that should the likelihood or severity of risks be identified as increasing by this process, responsibility for its mitigation is escalated upwards through the project management chain to ensure that this is achieved.

All risks are currently owned by the partner authorities. As the project develops it is expected that some of these risks will be transferred to contractors constructing the infrastructure. In addition, Essex County Council uses a proprietary online Risk Register to assess levels of risk and to track the progress of the risk management strategy for the scheme. The S151 Officer also has access to this system. Risks are categorised into five main areas, i.e.:

- Project and programme risks related to delivery;
- Consultation and stakeholder acceptance;
- Reputational risks to the project partner authorities (and ultimately the contractors and service providers);
- Statutory Processes; and
- Financial and funding risks.

6.7. Work programme:

See Appendix C.

6.8. Previous project experience:

Essex Highways / Ringway Jacobs have been responsible for delivering all non-HE highway schemes in Essex since April 2012. All schemes are run to tight budgets and timing constraints and this programme would be managed in the same way.

Since 2014, Essex County Council has, or is, in the process of delivering nearly £100m of transport improvement schemes through SELEP LGF funding.

The following schemes are operational and were delivered on programme and to budget:

- A414 Maldon to Chelmsford RBS - £3.9m
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Under construction:

- A127 Resilience Package - £9.1m

- Mill Yard, Chelmsford - £2.9m
- A414 Harlow Pinch Point Package - £14.9m

Construction about to commence:
- Basildon ITP (Phase 2) - £8.7m
- Chelmsford to Braintree RBS - £7.3m

Approved at the November Accountability Board:
- Chelmsford to Harlow RBS - £4.3m
- Colchester to Clacton RBS - £5.5m
- M11 J8 - £9.1m

6.9. Monitoring and evaluation:

As part of the increasing emphasis on openness and transparency, ECC will commit to undertake detailed monitoring and evaluation on the overall programme to demonstrate the effectiveness of the spend of government money. The following actions are proposed:-

Inputs
Amount of, and details of, construction equipment and materials with appropriate levels of management and supervision.

Output
Trafficmaster plots to show congestion, speeds and flows together with collision statistics. Additionally, cycle counts will be used, along with discussions with local cycling groups, to validate the improvements in cycling.

Outcomes
Traffic flows will be monitored (as above). Also levels of new housing and businesses will be recorded. See Appendix D.

Impacts (evaluation)
As above - Traffic flows will be monitored on a regular basis and levels of new housing and businesses will be recorded on an annual basis. Cycle counts will be recorded at one year and five years later.

The A414 Pinch Point Package, along Edinburgh Way and at Cambridge Road Roundabout, together with the access improvements from the A414 to the London Road Enterprise Zone will both have an effect on the traffic flows around Harlow.

A Benefits Realisation Plan has been developed and will be refined further as part of the business case development to confirm the principal benefits of the scheme. Lessons learned from prior projects are automatically fed through to new projects on inception.

A requirement of the SELEP Assurance Framework is that each scheme will have an evaluation plan produced prior to final approval, independently reviewed, and monitored in accordance with this plan. This monitoring will be done according to government guidance and will, where appropriate, include 1 and 5 year reports.

A monitoring and evaluation plan for the scheme will be developed as an output of the full business case work. The plan would be informed by the quantitative and qualitative analysis undertaken for the key performance metrics and wider benefits anticipated.

ECC is mindful of the need to review and monitor highway network performance at various stages of scheme implementation to manage and minimise any potential negative scheme impacts. A process of monitoring and evaluation will be implemented to support and inform ongoing wider monitoring activities that are in place, utilising where possible survey data which is already collected.

Surveys will need to capture volumes, patterns of movement and journey times for all modes of transport including private vehicles, public transport, and non-motorised users. Traffic volumes, speeds and journey times will be monitored at key locations within the area affected by the scheme.

Road safety impacts will be monitored as part of routine county-wide annual monitoring programmes to verify future accident incidences, numbers and locations.

The process evaluation will be ongoing throughout the life of the project and will be managed by the Project Executives and reported through the Project Board. Lessons learned as part of the development of the scheme will be reported.

Process Evaluation Monitoring reports will be produced at key milestones. Impact Evaluation Reports will be produced in line with key scheme progression and delivery milestones.

The management of risk in delivering to the monitoring and evaluation requirements will also been taken into account and mitigation measures set out in the risk register.

6.10. Benefits realisation plan:

A Benefits Realisation Plan has been produced (see Appendix R) and monitoring / evaluation will be undertaken at the appropriate points during scheme development. Monitoring activities will be aligned to those best placed to do so and to existing regular monitoring and evaluation work. Land use development related outputs are routinely monitored by planning authorities and this information will be tracked and linked to scheme completion where appropriate.

7. DECLARATIONS

Has any director/partner ever been disqualified from being a company director under the Company Directors Disqualification Act (1986) or ever been the proprietor, partner or director of a business that has been subject to an investigation (completed, current or pending) undertaken under the Companies, Financial Services or Banking Acts ?	No
Has any director/partner ever been bankrupt or subject to an arrangement with creditors or ever been the proprietor, partner or director of a business subject to any formal insolvency procedure such as receivership, liquidation, or administration, or subject to an arrangement with its creditors	No
Has any director/partner ever been the proprietor, partner or director of a business that has been requested to repay a grant under any government scheme?	No

I am content for information supplied here to be stored electronically, shared with the South East Local Enterprise Partnerships Independent Technical Evaluator, Steer Davies Gleave, and other public sector bodies who may be involved in considering the business case.

I understand that a copy of the main Business Case document will be made available on the South East Local Enterprise Partnership website one month in advance of the funding decision by SELEP Accountability Board. The Business Case supporting appendices will not be uploaded onto the website. Redactions to the main Business Case document will only be acceptable where they fall within a category for exemption, as stated in Appendix E.

Where scheme promoters consider information to fall within the categories for exemption (stated in Appendix E) they should provide a separate version of the main Business Case document to SELEP 6 weeks in advance of the SELEP Accountability Board meeting at which the funding decision is being taken, which highlights the proposed Business Case redactions.

I understand that if I give information that is incorrect or incomplete, funding may be withheld or reclaimed and action taken against me. I declare that the information I have given on this form is correct and complete. Any expenditure defrayed in advance of project approval is at risk of not being reimbursed and all spend of Local Growth Fund must be compliant with the Grant Conditions.

I understand that any offer may be publicised by means of a press release giving brief details of the project and the grant amount.

Signature of applicant	
Print full name	
Designation	

8. List of Appendices

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9. APPENDIX A - FUNDING COMMITMENT

Dear Colleague,

In submitting this project Business Case, I confirm on behalf of Essex County Council that:

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

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

Yours Sincerely,

SRO (Director Level) ……

S151 Officer ……

10. APPENDIX B – RISK MANAGEMENT STRATEGY

Appendix B1 – Risk Summary

Type	Description	Respons-ibility	Mitigation / Proposed Resolution	Prob-ability	Impact
Design	Design and construction scope changes	Essex Highways / ECC	Clear communication and early confirmation of scope	Low	Medium
Utilities	Discovery of undetected utilities during construction	Essex Highways	Undertake early surveys with trial holes	Medium	Medium
Ground Conditions	Unforseen soft spots and voids requiring redesign	Essex Highways	Undertake early surveys with trial holes	Low	Medium
Traffic Management	Potentially complex and costly with approvals required	Essex Highways	Consult early and work closely with Network Management	Low	Medium
Tender Prices	Tender prices at variance with estimates and client budget	Essex Highways	Obtain early estimates, compare with other recent information and work with suppliers	Low	Medium
Costs	Construction costs escalation	Essex Highways	Monitor regularly and develop alternative actions as necessary	Low	Medium
Stats Costs	C3 Prices at variance with estimates	Essex Highways	Timely requests, utility mapping and trial holes	Low	Medium
Approvals	Time consuming processes with legal and cost implications	Essex Highways	Commence approval process early	Low	Low
Weather	Adverse conditions could jeopardize programme timing	Essex Highways	Plan programme taking account of likely weather conditions and provide programme float	Low	Low
Project	Lack of capacity to deliver the programme in full	ECC	Ensure resources are allocated and identify potential contingency support	Medium	Medium

Appendix B2 – M11 J7a Risk Register

highways england | RINGWAY JACOBS | Essex County Council

M11 J7A Project Risk Register

Risk Identification				Rigation Qualitative Risk Impact Asses					Pre-Mitigation Quantitative Risk Impact Assessment					Risk Mitigation Plan		
Risk ID	Risk Cause 'The Risk is caused due to.....'	Risk Event 'There is a Risk that ..... will happen'	Risk Impact 'The impact of the Risk is ....'	Likelihood	Cost Impact	Schedule Impact	Quality Impact	Reputation Impact	Risk Rating	Probability	Minimum Cost Impact	Most Likely Cost Impact	Maximum Cost Impact	Price Build Up Notes & Comments	Mitigation Owner & Organisation	Risk Mitigation Plan	Target Date for Closeout of Action
M11J7A - 019	Unable to get formal agreement (ie. In writing) for land access	Negotiated land access with Harlow District Council may not be achieved in time	Delay to advance works	4	3	5	4	4	Critical Threat	60%	£ -	£ 500,000	£ 3,000,000	Prolongation costs of main works	Ian Allen (ECC)	1) Instruct LSH to commence land negotiations - COMPLETED 2) Escalate to ECC Senior Management to talk to their equivalent in Harlow District Council 3) LSH resolve negotiations with Harlow District Council 4) Issue CPO for required land takes	1) Completed 2) 10/11/2017 3) 30/11/2017 4) 30/11/2017
M11J7A - 023	Land needed in advance of the CPO's	Negotiated land access with Stakeholders may not be achieved in time	Unable to carry out the high pressure gas main (HPGM) diversion *(Potentially stops the scheme)*	4	1	5	5	4	Critical Threat	60%	£ 50,000	£ 100,000	£ 250,000	Cost to pay for the land access	Roger Moore (LSH)	1) Settle GI works compensation with local land-owner - PAYMENT AGREED 2) Seek agreement with affected landowners	30/11/2017
M11J7A - 026	Statutory diversions delayed	Deep drainage works on Gilden Way not finished prior to the commencement of main works	Extension or change of methodology to the main works	4	3	4	2	3	High Threat	60%	£ 500,000	£ 1,000,000	£ 1,500,000	Prolongation costs of main contract	Albert Kontoh (Jacobs)	1) Carry out Trial Holes 2) Active liaison with Utility companies to maintain their programmes - ONGOING	30/11/2017
M11J7A - 006	Dual Governance Process- i.e. ECC and Highways England (HE)	Section 8 agreement may not be approved in time	Delay to the programme *("Published Orders" can not be issued until the agreement has been signed)*	3	3	4	2	5	High Threat	30%	£ -	£ 500,000	£ 1,000,000	Costs associated with delay and approval. Delay appointment of main contractor. Cost of inflation for 1 year included	Ian Allen (ECC) & Lorraine Bennetts (HE)	1) Meet with Highways England to agree responsibilities and programme for Section 6 Agreement process, including in relation to Planning application - COMPLETED 2) Obtain view from ECC Legal on whether it is legally possible for ECC to promote entire scheme, including line orders, under Section 6 - COMPLETED 3) Escalate with Project Board and Jacobs Programme Board as a matter of urgency 4) Hold collaborative meetings with Highways England - ONGOING 5) HE to attend Project Board Meeting - COMPLETED 6) HE to continue attending Project Board Meetings - ONGOING 7) Engage HE in discussion on Section 8 agreement - ONGOING 8) Agree the outstanding items and complete sign off - by 17/11/2017 JOINT ECC & HE RISK Needs to be in place to before the orders are submitted to PINS	30/11/2017

M11 J7A Project Risk Register (HE v12 template) v37 — Page 1 of 6 — 08/11/2017:17:11

Risk Identification				Rigation Qualitative Risk Impact Asses					Pre-Mitigation Quantitative Risk Impact Assessment					Risk Mitigation Plan		
Risk ID	Risk Cause 'The Risk is caused due to.....'	Risk Event 'There is a Risk that ..... will happen'	Risk Impact 'The impact of the Risk is ....'	Likelihood	Cost Impact	Schedule Impact	Quality Impact	Reputation Impact	Risk Rating	Probability	Minimum Cost Impact	Most Likely Cost Impact	Maximum Cost Impact	Price Build Up Notes & Comments	Mitigation Owner & Organisation	Risk Mitigation Plan	Target Date for Closeout of Action
M11J7A - 012	The highway orders process provides additional routes for objections	There may be significant objections to the scheme	Delay and reputational damage for ECC & HE	3	3	5	4	3	High Threat	25%	£ -	£ 1,000,000	£ 1,000,000	Cost of responding to legal challenge	Ian Allen	1) Robust orders submission - by 30/11/2017 2) Open and effective engagement with local stakeholders and local Highways Authority - ONGOING	30/11/2017
M11J7A - 018	The future proofing in the design	The land take may be challenged during CPO	Delay to the programme	3	1	5	1	3	High Threat	25%	£ -	£ 1,000,000	£ 1,000,000	Cost of responding to legal challenge	Ian Allen (ECC)	1) Robust orders submission 2) Provide details of the scheme to justify CPO during Public Inquiry	1) 30/11/2017 2) 31/12/2017
M11J7A - 022	HE and ECC are unable to agree terms	Section 8 agreement may not be signed by 31/10/2017	Re-baseline the project	4	5	5	4	5	High Threat	30%				Linked to Risk 006 - Not costed here	Ian Allen (ECC)	1) Legal team to agree terms with HE - ONGOING 2) Project board meeting to discuss any disagreed terms - COMPLETED 3) Hold meeting between Chief Executive of HE and ECC Executive Director	31/10/2017
M11J7A - 025	Cost of project increases *(i.e.tender returns are higher than expected)*	Insufficient funding *(delivery cost will not be robust until out-turn of procurement process)*	Additional funding required by ECC	3	5	4	3	4	High Threat	30%	£ -	£ 5,000,000	£ 10,000,000	Assumption of market forces	Ian Allen (ECC)	1) Carry out enabling works to de-risk the main works contract 2) Procurement process using OJEU 3) Review the tender returns	1) 30/04/2018 2) 30/06/2018 3) 30/11/2018
M11J7A - 021	Need the results from the trial holes to inform the enabling works	Trial holes may not be completed in time	Enabling works tender is delayed which will impact the main works	4	1	4	1	4	High Threat	60%	£ -	£ 150,000	£ 250,000	Cost of delay to enabling works	Ian Allen (ECC) & Erwin Deppe (RJ)	1) Confirm whether Ringway Jacobs can carry out the works - COMPLETED 2) Confirm there is a road space booked to accommodate the works [Marcus replies] - COMPLETED 3) Review Ringway Jacobs' costs and agree with ECC - COMPLETED 4) Mobilise Ringway Jacobs - COMPLETED 5) Monitor Ringway Jacobs trial hole works	3) COMPLETED 4) COMPLETED 5) 15/12/2017
M11J7A - 002	High profile scheme in Green Belt that enables the regeneration of Harlow	Protestor action on site	Delay to construction and additional cost	3	1	4	1	3	High Threat	25%	£ -	£ 100,000	£ 1,000,000	Maximum - Court orders, eviction notices etc.	David Silvey (Jacobs)	1) Continuous engagement - ONGOING 2) Make sure that all stakeholders and local residents are aware of the issues and mitigations - ONGOING 3) Prepare stakeholder engagement plan - COMPLETED	Life of Project

M11 J7A Project Risk Register (HE v12 template) v37 — Page 2 of 6 — 08/11/2017:17:11

Risk Identification				Rigation Qualitative Risk Impact Asses					Pre-Mitigation Quantitative Risk Impact Assessment					Risk Mitigation Plan		
Risk ID	Risk Cause 'The Risk is caused due to.....'	Risk Event 'There is a Risk that ..... will happen'	Risk Impact 'The impact of the Risk is ....'	Likelihood	Cost Impact	Schedule Impact	Quality Impact	Reputation Impact	Risk Rating	Probability	Minimum Cost Impact	Most Likely Cost Impact	Maximum Cost Impact	Price Build Up Notes & Comments	Mitigation Owner & Organisation	Risk Mitigation Plan	Target Date for Closeout of Action
M11J7A - 003	Delayed engagement with Highways England	Departures from Standard may not be approved by Highways England	Redesign and/or additional construction cost	2	5	5	3	3	Medium Threat	20%	£ 25,000	£ 250,000	£ 20,000,000	The worst case departures if not approved would require more land for the merge and diverge. This would surpass the DCO threshold. The total costs would include costs of redesigning, the application for the new planning consent which could include Barrister costs for DCO	Ian Allen (ECC)	1) Liaise with Highways England / Essex from early stage to see what is acceptable - COMPLETED 2) Chase Andy Joblin for consultee at HE - COMPLETED 3) Address in the scheme safety plan - COMPLETED 4) Hold collaborative meetings with HE *(HE are attending Project Board meetings)* - ONGOING 5) Chase HE to obtain expert opinion of design - ONGOING 6) Submit departures 7) Obtain approval for departures	6) 17/11/2017 7) 15/05/2018
M11J7A - 004	1) Uncharted 2) Outside survey areas	Significant services may be found	Cost and programme delay	2	3	5	3	4	Medium Threat	20%	£ 150,000	£ 1,000,000	£ 1,500,000	Maximum - Cost of process for moving/ removing a military line and out of sequence working	D&B Contractor	1) Undertake GPR survey - COMPLETED 2) Review results of GPR survey - COMPLETED 3) Contact utility companies for further discussions - COMPLETED 4) Identify critical path diversions - COMPLETED	TOLERATE RISK
M11J7A - 007	Unable to carry out sampling until the land is owned	Unexpected significant archaeological remains identified during construction	Most likely to occur during monitoring of the topsoil strip ('watching brief'). Depending on the complexity of the remains, a delay to the topsoil strip could occur while mitigation works are undertaken. Delay to the programme.	2	5	4	3	2	Medium Threat	20%	£ 25,000	£ 3,000,000	£ 5,000,000	Cost of dig and delay to the programme	1) Maria Meldicot (ECC) 2) Helen Kemm (Jacobs)	1) Review / observe trenches dug for HP Gas Main - by 30/05/2018 2) Create a written scheme of archaeological investigation for the main works contract - by 30/04/2018	1) 30/05/2018 2) 30/04/2018
M11J7A - 008	The delay to the examination of the local plans	Statutory landowners may object to the proposals	Could disrupt the CPO process and lead to a Public Enquiry	4	3	5	3	3	Critical Threat	70%	£ -	£ 1,000,000	£ 1,000,000	Cost of responding to legal challenge	1) Roger Moore (LSH) 2) David Silvey (Jacobs)	1) Negotiate with stakeholders - ONGOING 2) Make sure that all stakeholders are aware of the issues and mitigations - ONGOING 3) Prepare stakeholder engagement plan - COMPLETED	31/08/2018
M11J7A - 014	Design and/or Contruction Methodology challenged by HE	HE may not grant technical approvals	Design might need to change, worst case the resubmission of planning application	2	5	5	4	5	Medium Threat	15%	£ 10,000	£ 2,500,000	£ 20,000,000	ML: Redesign with additional infrastructure e.g. an extra gantry, etc. Maximum: Significant extended maintenance and/or Planning re-submission	Paul Manamike	1) Seek to contact HE technical experts separately from section 6 agreement but still through NDD - COMPLETED 2) Follow up on the communication to HE on technical experts approval - ONGOING 3) Obtain HE technical experts approvals - ONGOING	31/05/2018
M11J7A - 026	Going out to tender before orders are confirmed by SoS	Contractors sue for cost of abortive work	Reputational damage if the SoS doesn't approve the scheme	2	3	3	1	5	Medium Threat	10%	£ -	£ -	£ 300,000	Contractors assumed cost to submit tender return	Ian Allen (ECC)	1) Monitor the outcome of each step of the Public Equiry 2) Don't award D&B contract until after the SoS decision	31/01/2019

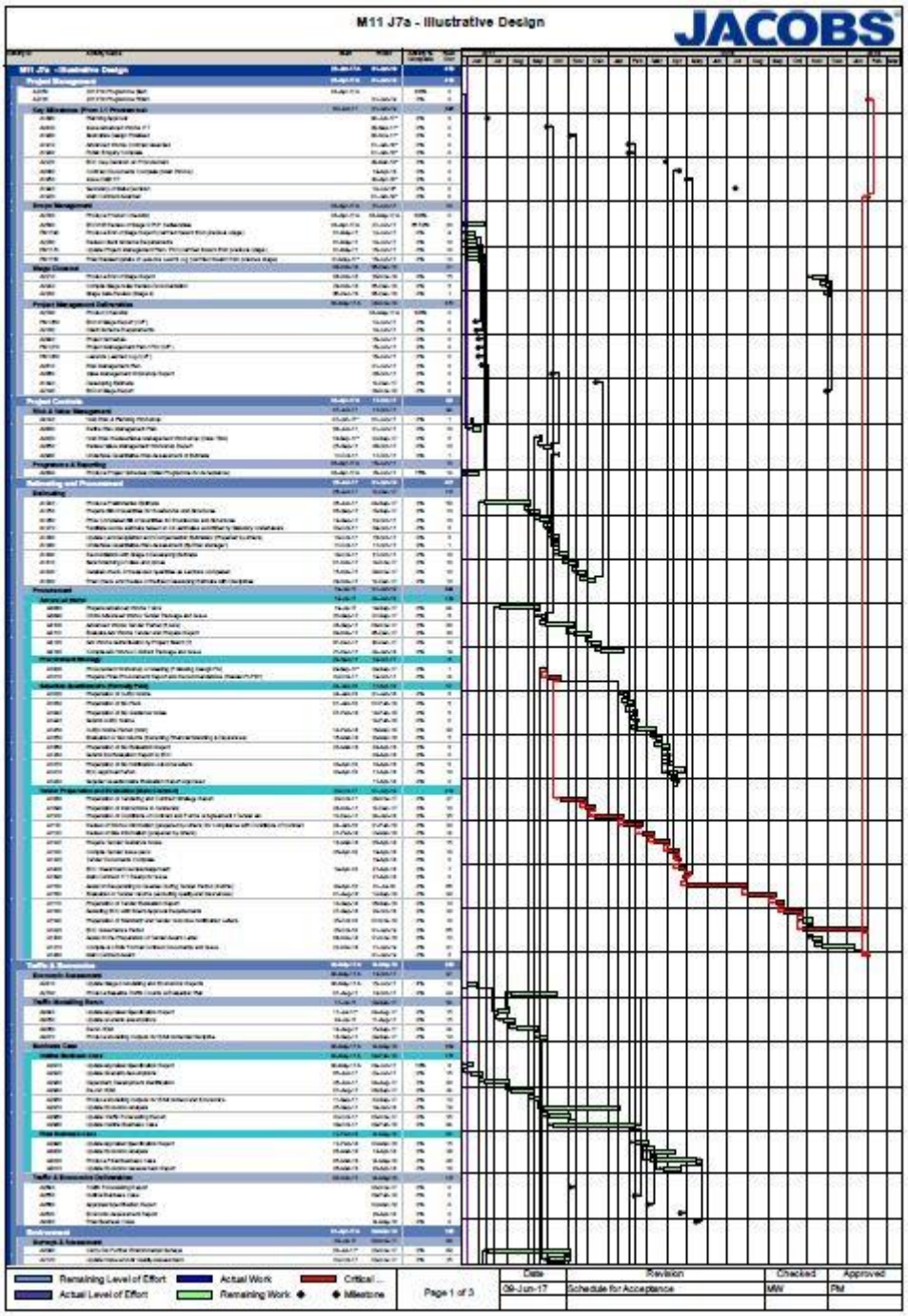
Risk Identification				Rigation Qualitative Risk Impact Asses					Pre-Mitigation Quantitative Risk Impact Assessment					Risk Mitigation Plan		
Risk ID	Risk Cause 'The Risk is caused due to.....'	Risk Event 'There is a Risk that ..... will happen'	Risk Impact 'The impact of the Risk is ....'	Likelihood	Cost Impact	Schedule Impact	Quality Impact	Reputation Impact	Risk Rating	Probability	Minimum Cost Impact	Most Likely Cost Impact	Maximum Cost Impact	Price Build Up Notes & Comments	Mitigation Owner & Organisation	Risk Mitigation Plan	Target Date for Closeout of Action
M11J7A - 016	Unexpected condition issues with the concrete slab under the tarmac on Gilden Way	May not be able to use the planned construction methodology	Potential road closure and traffic diversions Delay and additional cost	3	3	3	3	3	Medium Threat	21%	£ -	£ 250,000	£ 1,250,000	ML: More joints & additional repairs Maximum: Delays and knock-on effect on wider network e.g. TM & diversions	Albert Kontoh (Jacobs)	1) Carry out a pavement condition survey - COMPLETED 2) Review/analyse the results of the pavement survey - COMPLETED	TOLERATE RISK
M11J7A - 024	New land owners are being directly affected by the changes to the route of the access tracks	Local land owners object the access tracks for HPGM diversion	Unable to provide access tracks for the HPGM diversion	3	1	3	1	3	Medium Threat	25%	£ 50,000	£ 100,000	£ 250,000	Cost to pay for the land access	Roger Moore (LSH)	1) Negotiate access for HPGM works with local land owners 2) Carry out survey on the listed properties to understand their condition prior to start of works 3) Assess the effect of the vibrations from the construction traffic on the listed properties 4) Carry out structural assessment of the bridges over Pincey Brook 5) Assess the impact of the construction traffic on the local area	30/11/2017
M11J7A - 027	Limited availability of power supplies	Existing power supplies/connections are insufficient	Additional power supplies required - additional cost, potential to delay the programme	3	2	3	1	1	Medium Threat	50%	£ 55,000	£ 250,000	£ 500,000	ML: new power supply through project Maximum: New power supply and additional land access	Lara Jlad	Confirm the availability of power sources	30/11/2017
M11J7A - 001	Unforeseen ground conditions	Design and/or construction methodology may have to be changed	Delay and additional cost	2	2	3	4	2	Medium Threat	20%	£ 75,000	£ 250,000	£ 1,500,000	Cost of redesign and/or remediation e.g. piles	D&B Contractor	1) Undertake GI surveys - COMPLETED 2) Receive factual report - COMPLETED 3) Prepare GIR report - COMPLETED 4) Produce remediation strategy - COMPLETED 5) Carry out additional ground investigation during detailed design prior to construction	31/03/2019
M11J7A - 009	The amount of work being carried out in the same time frame as this scheme	The supply chain may not have the availability to support the planned programme	Delay to programme and/or increased costs	2	4	3	1	2	Medium Threat	15%	£ 50,000	£ 1,500,000	£ 3,000,000	Maximum 1 year delay Inflation	Ian Allen (ECC)	1) Develop procurement strategy - COMPLETED 2) Engage with supply-chain where appropriate	31/01/2018
M11J7A - 020	High concentration of utilities in the vicinity of the scheme	The pinchpoint at Mulberry Green may not allow sufficient space for utilities diversions	Additional utilities diversions required resulting in programme delay and additional cost	2	3	4	2	2	Medium Threat	15%	£ 500,000	£ 1,000,000	£ 1,500,000	ML: Cost to divert Virgin Media	Paul Manamike (Jacobs)	Carry out Trial Holes	15/12/2017
M11J7A - 013	Publicity raises Landowner expectations	Part 1 claims may be significantly greater in value and/ or number than covered in the estimate	Increased costs	2	3	1	1	3	Medium Threat	15%	£ 500,000	£ 1,000,000	£ 1,500,000	Additional allowance	Paul Manamike (Jacobs)	Regular update of Part 1 Claims - ONGOING TOLERATE RISK	7 years post construction

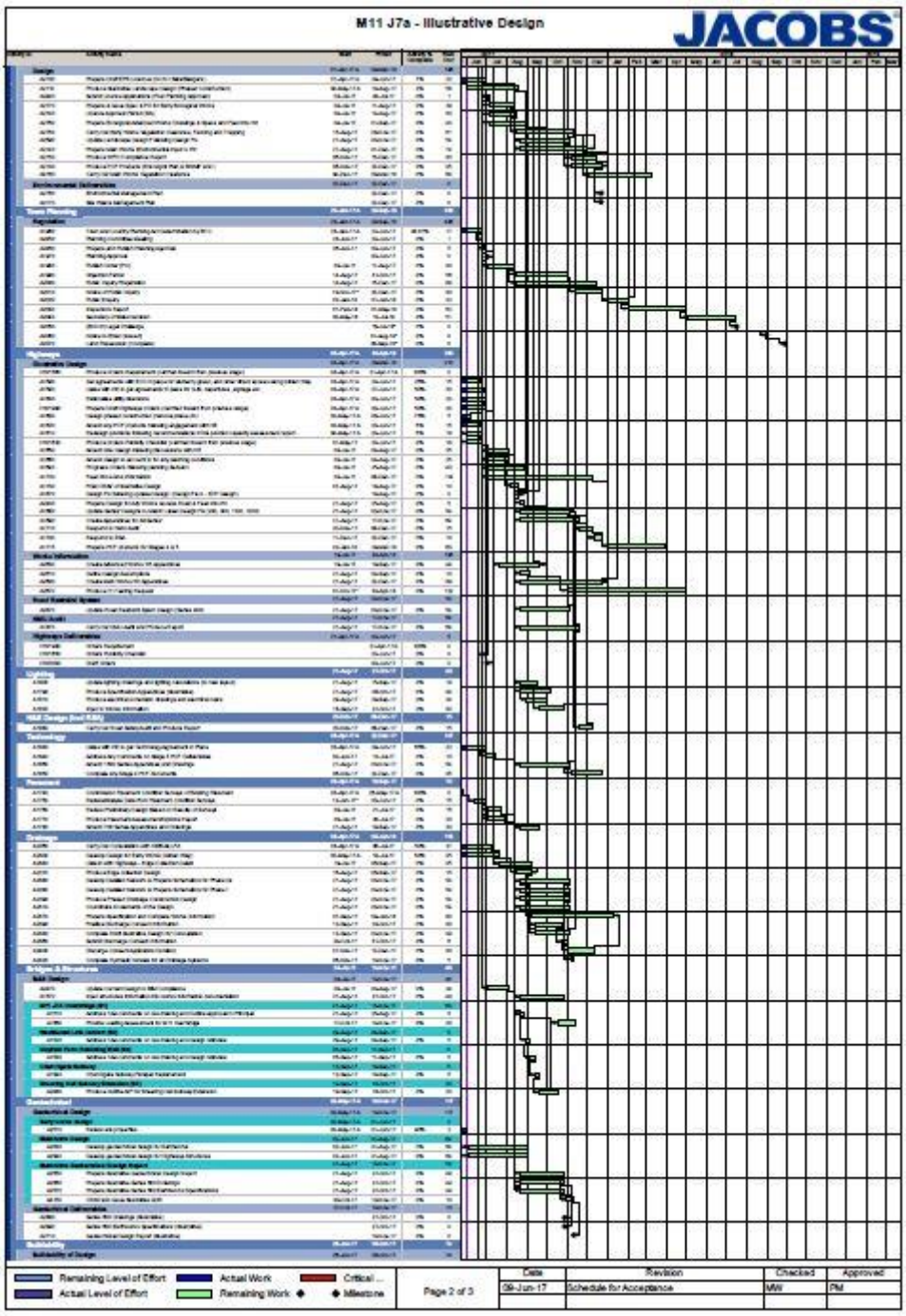
Risk Identification				Itigation Qualitative Risk Impact Asses						Pre-Mitigation Quantitative Risk Impact Assessment						Risk Mitigation Plan		
Risk ID	Risk Cause 'The Risk is caused due to.....'	Risk Event 'There is a Risk that ..... will happen'	Risk Impact 'The impact of the Risk is .....'	Likelihood	Cost Impact	Schedule Impact	Quality Impact	Reputation Impact	Risk Rating	Probability	Minimum Cost Impact	Most Likely Cost Impact	Maximum Cost Impact	Price Build Up Notes & Comments	Mitigation Owner & Organisation	Risk Mitigation Plan	Target Date for Closeout of Action
M11J7A - 005	World War II airfields in vicinity of the scheme	Unexploded Ordinance may found in the footprint of the scheme	Disruption of construction Additional cost if identified.	2	1	1	1	1	Low Threat	10%	£ -	£ 50,000	£ 50,000	Specialist treatment and knock-on delays	D&B Contractor	1) Undertake risk base desk study before GI work - COMPLETED 2) Undertake a non-Intrusive magnometer survey - COMPLETED 3) Carry out recommended dig *(Prior to construction)*	30/06/2020
M11J7A - 010	Environment Agency (EA) drainage requirements	EA may not consent to planned drainage discharge rates	Delay until licence granted	2	1	2	1	1	Low Threat	15%	£ -	£ 25,000	£ 30,000	Additional modelling and management time	Albert Kontoh (Jacobs)	1) Talk to ECC Flood authority - COMPLETED 2) Continue to engage and seek EA approval to current flood modelling - ONGOING 3) Carry out additional watercourse modelling (e.g. Harlowbury Brook) if required - TBC	31/05/2018
M11J7A - 015	Species arrive and/ or move between surveys	Unanticipated protected/ Invasive species may be found during construction	Delay and cost of remediation works	2	1	1	2	1	Low Threat	10%	£ 5,000	£ 50,000	£ 75,000	Remediation and out of sequence working	Helen Kemm (Jacobs)	1) Undertake regular invasive/ protected species surveys prior to enabling construction works - Ongoing from 30/04/2018 2) Undertake regular invasive/ protected species survey prior to main works construction - Ongoing from 31/05/2019 3) Include robust response measures for unexpected protected/ Invasive species in the scheme works information - by 30/09/2019	30/06/2020
M11J7A - 029									0								
M11J7A - 030									0								
M11J7A - 031									0								
M11J7A - 032									0								
M11J7A - 033									0								

Risk Identification				Itigation Qualitative Risk Impact Asses						Pre-Mitigation Quantitative Risk Impact Assessment						Risk Mitigation Plan		
Risk ID	Risk Cause 'The Risk is caused due to.....'	Risk Event 'There is a Risk that ..... will happen'	Risk Impact 'The impact of the Risk is .....'	Likelihood	Cost Impact	Schedule Impact	Quality Impact	Reputation Impact	Risk Rating	Probability	Minimum Cost Impact	Most Likely Cost Impact	Maximum Cost Impact	Price Build Up Notes & Comments	Mitigation Owner & Organisation	Risk Mitigation Plan	Target Date for Closeout of Action
M11J7A - 034									0								
M11J7A - 035									0								
M11J7A - 036									0								
M11J7A - 037									0								

11. APPENDIX C – GANTT CHART

The Gantt Charts for the period up to the start of construction in 2019 can be seen below. The originals can be provided on request.




M11 J7a - Illustrative Design
JACOBS
Remaining Level of Effort
Actual Work
Critical ...
Actual Level of Effort
Remaining Work
Milestone
Page 2 of 3
Date
Revision
Checked
Approved
09-Jun-17
Schedule for Acceptance
MW
PM

12. APPENDIX D – MONITORING AND EVALUATIONS METRICS

Category	Key Performance Indicators	Description
High-level outcomes	Jobs connected to intervention (permanent, paid FTE)	Up to 5,000
	Commercial floorspace planned - please state m² and class	Harlow Science Park = 14 Hectares + 15,000ft² Med Tech Innovation Centre; Kao Park = 52,000m²; Templefields = 80,000m²
	Commercial floorspace constructed to date - please state m² and class	Harlow Science Park – Opens 2018; Kao Park – 75% let; Templefields – Renovation complete mid 2018
	Housing unit starts (forecast over lifetime)	1,200
	Housing unit starts (to date)	None
	Housing units completed (forecast over lifetime)	1,200
	Housing units completed (to date)	None
Transport (outputs)	Total planned length of resurfaced roads (km)	1.8
	Total completed length of resurfaced roads (km)	None
	Total planned length of newly built roads (km)	None
	Total completed length of newly built roads (km)	None
	Total planned length of new cycle ways (km)	1.8
	Total completed length of new cycle ways (km)	None
	Type of service improvement	Mixed – Road and Footway
Land, Property and Flood Protection (outputs)	Anticipated area of site reclaimed, (re)developed or assembled (ha)	None
	Actual area of site reclaimed, (re)developed or assembled (ha)	None
	Length of cabling/piping planned (km) - Please state if electricity, water, sewage, gas, telephone or fibre optic	1.8 for each facility
	Length of cabling/piping completed (km) - Please state if electricity, water, sewage, gas, telephone or fibre optic	None
	Anticipated area of land experiencing a reduction in flooding (ha)	None
	Actual area of land experiencing a reduction in flooding (ha)	None
	Follow-on investment at site (£m) - Please state whether Local Authority, Other Public Sector, Private Sector or Third Sector	None
	Anticipated commercial floorspace refurbished - state m² and class	None
	Actual commercial floorspace refurbished - state m² and class	None
	Anticipated commercial floorspace occupied - state m² and class	See above
	Actual commercial floorspace occupied - state m² and class	See above
	Commercial rental values (£/m² per month, by class)	POA
Business, Support, Innovation and Broadband (outputs)	Anticipated number of enterprises receiving non-financial support (#, by type of support)	Unknown
	Actual number of enterprises receiving non-financial support (#, by type of support)	Unknown
	Anticipated number of new enterprises supported	Unknown
	Actual number of new enterprises supported	Unknown
	Anticipated number of potential entrepreneurs assisted to be enterprise ready	Unknown
	Actual number of potential entrepreneurs assisted to be enterprise ready	Unknown
	Anticipated number of enterprises receiving grant support	Unknown
	Actual number of enterprises receiving grant support	Unknown
	Anticipated number of enterprises receiving financial support other than grants	Unknown
	Actual number of enterprises receiving financial support other than grants	Unknown
	Anticipated no. of additional businesses with broadband access of at least 30mbps	Unknown
	Actual no. of additional businesses with broadband access of at least 30mbps	Unknown
	Financial return on access to finance schemes (%)	Unknown

13. APPENDIX E – CATEGORIES OF EXEMPT INFORMATION

Not Applicable