South East Local Enterprise Partnership (LEP)

INDEPENDENT TECHNICAL EVALUATOR REVIEW

Grays South

OCTOBER 2019

PUBLIC

South East Local Enterprise Partnership (LEP)

INDEPENDENT TECHNICAL EVALUATOR REVIEW

Grays South

TYPE OF DOCUMENT (VERSION) PUBLIC

PROJECT NO. 70051897

DATE: OCTOBER 2019

South East Local Enterprise Partnership (LEP)

INDEPENDENT TECHNICAL EVALUATOR REVIEW

Grays South

WSP

Kings Orchard
1 Queen Street
Bristol
BS2 0HQ

Phone: +44 117 930 6200

WSP.com

QUALITY CONTROL

Issue/revision	First issue	
Remarks	Draft	
Date	25 October 2019	
Prepared by	Grace Francombe	
Signature		
Checked by	Ian Baker	
Signature		
Authorised by	Ian Baker	
Signature		
Project number	70051897	
Report number	V1.00	
File reference	\\uk.wspgroup.com\central data\Projects\700518xx\70051897 - Grays South Business Case Review (ITE)\02 WIP\BC Business Case\FBC Review	

CONTENTS

TABLES

FIGURES

No table of figures entries found.

APPENDICES

1 INTRODUCTION

WSP was commissioned by the South East Local Enterprise Partnership (SELEP) to provide Independent Technical Evaluator (ITE) services for the Grays South Full Business Case (FBC). The FBC has been prepared by the scheme promoter Thurrock Borough Council.

The ITE assessment has been based on reviewing the alignment of the FBC to relevant guidance set out in HM Treasury Green Book, and related departmental guidance, such as Department for Transport's (DfT) WebTAG, and Ministry of Homes, Communities and Local Government (MHCLG) Additional Guide and Appraisal Guide.

WSP have previously been commissioned to review the Outline Business Case (OBC) for the Grays South scheme. Changes to the Business Case as a result of this previous review have been considered, as well as checking the approach adheres to guidance for the development of a FBC (as opposed to an OBC).

The remainder of this document is structured as follows:

- Grays South Project: an overview of the project, including any changes from OBC and outstanding uncertainties.
- Key Observations at OBC Review: the key points raised at the OBC review, and responses from the scheme promoters of changes made at FBC level.
- FBC Evaluation: review of the Five Cases, highlighting any issues and areas of uncertainty and developments since the OBC review.
- Outcomes and Recommendations: drawing together the key points from the previous chapters and setting out conclusions of review.

2 GRAYS SOUTH PROJECT

The Grays South project has been provisionally allocated £10.8m of Local Growth Funding (LGF), with a total project cost of £28.7m.

The OBC, developed in early 2018, sought £3.7m of Local Growth Funding (LGF) from SELEP. The FBC, which has been reviewed as part of this commission, seeks the further £7.1m of LGF funding, giving £10.8m in total.

The level crossing outside Grays South rail station is one of the most dangerous in the eastern region. Network Rail have assigned the crossing an All Level Crossings Risk Model (ALCRM) rating of D for individual risk and 1 for collective risk. The Grays South project encompasses the closure of the level crossing and replacing it with an underpass. The scheme will also involve development of a public realm square at either entrance of the underpass. The LEP funding ask is in relation to:

- Creation of an 8m wide pedestrian underpass to replace the existing pedestrian level crossing, thereby addressing both the safety concerns shared by Network Rail, Thurrock Council and other bodies, and the significant severance the crossing creates within the town centre.
- Creation of new public squares at both ends of the underpass to create well designed public realm, providing a high-quality arrival point, meeting and event space and better links between the town centre, college and High Street. This improved public realm will bring vibrancy and vitality to the town centre, support local businesses, set a benchmark for quality and make Grays more attractive to external visitors.

3 KEY OBSERVATIONS AT OBC REVIEW

A Report was issued by WSP following review of the OBC summarising the findings and key areas for address. As part of the FBC submission the scheme promoters produced a table showing how these comments have been addressed in the FBC.

As part of the FBC evaluation in the next chapter the level to which it is considered sufficient updates to the Business Case have been made to address these comments is discussed.

Table 3-1 below shows the comments from the OBC and response from the scheme promoter.

Table 3-1 – Key observations at OBC review

Observations from OBC	Response from scheme promoter
Strategic Case	
Whilst various socio-economic problems within Grays are identified, not all of these problems are evidenced and quantified (such as the poor urban realm, which could have been demonstrated through pedestrian quality audits, via the use of PERS software) and then directly linked to the scheme / or the lack of adequate current or future infrastructure. Others are alluded to indirectly and found elsewhere in the analysis.	Updated to include evidence from latest town centre evaluation.
The objectives are still not SMART (Specific, Measurable, Achievable, Realistic, Time-limited), which is a missed opportunity and weakness (as it is a Green Book requirement), and one which could easily have been addressed. If all the problems had been quantified, they would naturally be measurable, and the link to how the infrastructure could reduce these impacts could more easily have been demonstrated. This would not be difficult to develop, especially as the monitoring and evaluation section is quite detailed.	Objectives have been updated to be made SMART and to align to monitoring and evaluation metrics.
Option Alternatives	
The option assessment within the OBC is still relatively basic and has only really considered options for the replacement of the level crossing, not the urban realm proposals, which form a crucial part of the scheme. But this is a direct result of the urban realm proposals being less well	Options for urban realm development have been included, including costings and designs.

developed than the more urgent part of the scheme, the level crossing replacement alternatives.	
It is still considered to be a weakness of the OBC that none of the alternative options presented have been costed or economically appraised, as this does not allow decision-makers to make informed decisions on alternatives to the preferred scheme option without being given comparable levels of information for each option.	The lack of economic appraisal of alternatives (i.e. no underpass) is due to this decision having been made previously by the Council.
Dependencies	
Given the "scheme" assessed here is Phase 2a, the underpass and public realm, it would have been logical to describe the "wider scheme" (phases 1 and 2b) and the dependence / interrelationship of those phases in dependencies section of the OBC. These dependencies are described elsewhere in the OBC, but not in the dependency section. This is a structural / drafting observation rather than a content gap.	Details of Phases 1 and 2b have been included in the dependencies section.
Economic Case	
Costs	
The lack of a schedule of costs is still considered to be an omission from the costing process as this reduces the transparency of the cost build-up and increases the level of risk that costs could ultimately increase as the project progresses.	Detailed schedule of costs has now been included.
It is the view of the promoter that the Network Rail provided costs are robust, but they have not	Appendix provides breakdown of costs.

been itemised / disaggregated in the way that are expected say by the DfT appraisal. It is noted where costs are broken down into individual items (such as including contingency), the values are within an expected / acceptable range (ie 30% of scheme costs).	
Costs associated with maintenance and renewal are still excluded from the total scheme costs at this stage, which would slightly reduce the benefit cost ratio if included. Maintenance and renewal costs typically account for a much smaller proportion of whole life costs than the construction costs.	Maintenance and renewal costs are included but not itemised.
Additional no construction inflation is applied to the 2016 generated scheme costs.	
Optimism has been applied at 13.5%, though only to the public sector costs, not to the entire cost estimate, which is non-standard.	Optimism bias has been applied to all costs - this was also the case in final version of the previous iteration.
Benefits – urban realm impacts	
All the assumptions contained within OBC iteration 1 appeared reasonable, as all such improvements to the public realm could be implemented. However, given that the public realm part of the scheme has not been designed yet, it is difficult to assign a high level of certainty to all these infrastructure improvements making it into the final design.	Public realm improvements included in the toolkit have been checked for relevance with Steer (contractor which has done the designs)
Financial Case	

It is noted that an £800,000 Network Rail contribution towards scheme costs is time limited and therefore may be at risk. It is unclear why the stated Network Rail contribution has fallen from £4m to £800,000.	Network Rail's contributions are time limited within Control Periods. CP5 finished end of March 2019 and hence the current Network Rail contribution was £705,000, slightly less than the £800,000 due to being an estimate of works able to be completed by the end of the CP. Thurrock Council actively encouraging NR to apply for further funds within CP6 and to access the Level Crossing Risk Reduction Fund or similar fund that becomes available.
It is unclear how the £5.6m of funding captured through development receipts has been calculated given the level of immaturity of any future development project, but as this is being underwritten by the promoter there is limited risk to SELEP. It is noted that if this sum doesn't materialise, this would further reduce the BCR as public sector costs would increase.	This risk is covered in the sensitivity analysis.
Commercial Case	
No information is provided on the contracting strategy (i.e. traditional, design and build, etc). This is therefore an omission.	Options for contracting have been provided with relative pros and cons for each.
A basic procurement strategy is outlined, but it does not include a programme (nor is it included	Options for procurement have been

within the overall project programme) and there is no evidence there has been any engagement with the market.	provided with relative pros and cons for each.
There is no mention of risk allocation and transfer within the commercial case.	Details of risk allocation have been added.
Management Case	
A very basic programme is provided related to the Network Rail Grip process. The Gantt chart has not been produced by any recognisable software (MS Project, Primavera), with no detail provided on specific tasks, their dependency, and therefore a critical path cannot be produced. It is noted that a detailed programme with a critical path cannot be produced until “Network Rail issue a revised programme which is normal practice at this early GRIP Stage”.	Detailed programme has been included in appendix. This will be updated as timings become more certain from Network Rail.
As only a very basic Gantt chart is included with no dependencies, a critical path has not been identified.	Detailed programme has been included in appendix. This will be updated as timings become more certain from Network Rail.
Outcomes and Recommendations	
A suitable schedule of costs has not been provided to enable full scrutiny and validation of the scheme cost estimate. No costs have been identified for the development of the project (such as the design and planning costs), and similarly no costs have been provided associated with	More detailed costings have been included

maintenance and renewal of the underpass. Each of these gaps contribute to higher levels of uncertainty in the scheme cost estimates provided. However, sensitivity testing associated with increased scheme costs of 50% indicate the BCR may fall to 1.9 (just shy of the SELEP BCR threshold of acceptance). It is however not considered that the omission of the items above would not generate scheme cost increases of 50%. Also given that cost increases will be borne by the promoter, this is not considered to be a risk to SELEP.	Initial design concepts and costings have been developed for public realm work Detailed programme of work has been included
No design work, cost estimates or delivery programme have been prepared for the public realm works. This creates a level of uncertainty to the scope, cost and deliverability of that component of the scheme. However, this design work is now ongoing and the requirement for the additional detail and costing could be provided in the current financial year, especially as the funding ask has been reduced to £3.7m in 2019/20. This perhaps offers the opportunity to revisit the OBC cost benefit analysis on completion of the design and analysis.	Appears that costs for public realm are included in revised estimate for FBC.
No detailed project programme or delivery plan is provided, which creates additional uncertainty about the deliverability of the project by the end of the Growth Deal.	

4 FBC EVALUATION

4.1 EVALUATION APPROACH

The FBC has been evaluated in line with the SELEP Business Case Review Pro-Forma. This Pro-Forma considers a number of aspects to each of the Five Cases, and requires a qualitative assessment of the FBC, and a RAG (Red Amber Green) rating. The Assessment Pro-Forma is attached as Appendix A to this report.

The review of the FBC has considered, and taken on board, the changes since the OBC, but also evaluated the FBC in its own right against the guidance criteria.

4.2 STRATEGIC CASE

4.2.1 IS THERE EVIDENCE TO SHOW THERE IS A NEED FOR INTERVENTION?

The key current problems setting out the need for intervention have been identified in the Strategic Case (and elsewhere in the FBC). These include:

- Safety – the level crossing has been identified as one of the most dangerous in the Anglian Region
- Connectivity – severance issues where north and south connectivity of High Street is hampered by the rail crossing
- Public realm – existing public realm spaces are poor quality and create a negative image of the town from a gateway perspective.
- Transport linkages – services around Grays station are not well integrated, made worse by the level crossing
- Housing demand – demand for housing continues to outstrip supply
- Retail and commercial offer – in decline although recent interventions have improved this

The evidence presented to support each of these issues is varied. The safety aspect has been well presented with the number of pedestrians and cyclists using the level crossing and the Network Rail All Level Crossings Risk Model (ALCRM) rating. It has been stated that there have been no serious injury/fatal incidents at the level crossing, however there is no evidence of the number of incidents of misuse at the level crossing. It is assumed this is because this data is not typically formerly collected, however as British Transport Police have recently increased patrols of the station there should be evidence to support this decision.

The current frequency and duration of level crossing closures has been stated in terms of the impact on severance. Although the figure for the number of pedestrians/cyclists using the level crossing has been presented, there is no evidence of the distribution of this demand i.e. proportion to/from Grays station, proportion to/from South Essex College etc.

In a noted advancement since the OBC, a study was undertaken in December 2018 which identified that poor public realm is a contributing factor to town centre footfall and spend. The 'Walkscore' is

stated as 87/100. This is considered ‘very walkable’ and although shows room for improvement (90-100 is ‘walkers paradise’) it doesn’t necessarily support the argument that public realm is viewed by the public as a key issue in Grays. Assumedly severing the High Street with the level crossing close would reduce future urban realm scores.

Strong evidence has been presented for the issue of housing demand, with the Local Plan requirements far exceeding the identified sites. Supporting figures have been provided. A Retail and Leisure study (January 2018) has been referenced which sets out the commercial issues in Grays town centre.

Although sound evidence to support a number of the key issues has been presented, this information is within various sections of the Business Case. The case for intervention would be much stronger if this was presented consistently and coherently within the *Need for Intervention* section of the FBC.

The impact of not addressing these problems has not been supported by any forecasts or evidence. It is stated that there will be ‘increases in frequency and duration of level crossing closures’, however no figures are presented to support this. When looking to the future, the FBC has not considered the wider impacts of not changing i.e. social and economic implications.

From considering the need for intervention, the scheme and its objectives it can be seen that the provision of the underpass and public realm enhancements would help to address the identified problems. The Strategic Case presents a table showing the alignment of the existing problems to the scheme objectives, however there is no narrative to support these assertions. This argument is not made strongly in the Business Case. The necessary inputs are within the FBC, but need to be drawn together into a compelling narrative to support the link between problems and objectives.

The case for why the scheme is needed now has been made well in the FBC. This is driven by Network Rail issuing their formal three year notice of intention to close the crossing in January 2016. Three years from this letter, Network Rail can exercise its choice of a precise date of closure for the crossing.

4.2.2 HAVE THE OBJECTIVES BEEN APPROPRIATELY DEFINED?

In the OBC review the scheme objectives were identified as an area of weakness and a missed opportunity as they were not SMART (Specific, Measurable, Achievable, Realistic, Time-limited). In the FBC the objectives have been updated such that they are now SMART. However, it is noted that the objectives are heavily intervention-led, particularly for the housing and commercial development objectives. For example, ‘to increase housing supply, by enabling the delivery of 84 new homes on project site by 2025’. The HMT Green Book states ‘The objectives should not bias the choice of options towards a particular pre-determined solution’. The objectives related to safety, footfall, public realm and connectivity are more in line with what would be expected for scheme objectives. The link between the scheme objectives and the Monitoring and Evaluation (M&E) plan has been well put together.

As discussed above, the objectives presented do align to the problems identified. Although these arguments could be stronger within the FBC. There has been no clear alignment of the scheme objectives to policy priorities at a local, regional or national level. The OBC review raised that the Industrial Strategy should be included as a national policy, it is noted that this is still omitted.

4.2.3 HAVE ALTERNATIVE OPTIONS BEEN DEFINED?

Option generation for the scheme is in two phases. Firstly, four different options were considered including:

- To replace the level crossing with an underpass
- To replace the pedestrian crossing with a new footbridge
- To remove the level crossing and refurbish the existing footbridge
- To remove the level crossing and existing footbridge with no replacement crossing.

The pros and cons of these four options were considered by Thurrock Borough Council, Network Rail and Ward Members. The arguments made are sound from a narrative perspective, however are not supported i.e. references to costs but these have not been calculated for each option. The underpass is selected as the preferred option, noting this decision has not been based on the appraisal of the options.

Three options have then been considered for the design of the underpass and public realm squares. It is noted that these options are an advancement of the OBC where there was limited detail of the design of the public realm element of the scheme. High-level cost estimates have been presented for the three options, with supporting detailed cost plans provided as an appendix. Only the highest cost option is appraised in the FBC. The lack of appraisal of other options, and the basis for discounting options is seen as a key weakness of the FBC.

4.2.4 DOES THE CASE IDENTIFY FACTORS AFFECTING THE SUITABILITY OF THE PREFERRED OPTION?

The FBC considers the constraints and dependencies of the scheme. These have not been considered at an option level, but given the similar nature of the options the conclusions are assumed to still stand. Ground condition has been identified as the key technical constraint and has been factored into the risk adjustment for the scheme costs. Planning consent and land acquisition have also been identified as constraints. This section of the FBC has been well drafted.

The housing development is stated to be dependent on the development of the underpass. The current commercial properties in place do not have the ability to convert upper floors to residential development. Part of the funding package is derived from receipts generated by future developments of plots in and around the project area (£5.6m). This is a commitment by the Council, and a risk it bears.

4.2.5 DOES THE CASE IDENTIFY RISKS AFFECTING DELIVERY OF THE SCHEME?

Risks have been set out at a high level in the Strategic Case, and then in further detail in the Management Case. The level of detail provided for risks to delivery is in line with what would be expected for a Strategic Case.

4.3 ECONOMIC CASE

4.3.1 GENERAL APPRAISAL ASSUMPTIONS

The accompanying spreadsheets to support the appraisal have not been provided, therefore the level of interrogation possible has been relatively limited. The assessment has been made based on the best information available.

The WebTAG databook version used is not the most recent (May 2019. The appraisal base year is 2019, this is not in line with WebTAG guidance where the appraisal base year should be 2010, but does adhere to HM Treasury Green Book. The promoter states this is because this is not a Transport scheme. Use of a 2019 base year was accepted by SELEP / the ITE at OBC stage.

It is unclear whether the appraisal outputs have been presented in market or factor prices. The DfT toolkits (AMAT) will likely be output in market prices, however there appears to be no adjustment to costs. This could give a potential difference of 19% between the unit of account for costs and benefits.

Discounting has been applied to 2019, however it is unclear whether values used from the Databook and toolkits, that are discounted to 2010, have been adjusted for this.

The scheme opening year has been stated as 2024, it cannot be checked how this feeds into the benefits modelling. The appraisal period is deemed appropriate for the impacts considered. A 10-year appraisal is used for public realm ambience benefits, and a 30-year appraisal is used for all other impacts.

The MHCLG Appraisal Summary Table has been presented in the Economic Case, the standard DfT appraisal output tables (TEE, PA, AMCB and AST) have not been provided. This would be considered an omission for a business case submission to the DfT and is expected by SELEP (as one outputs required noted within the assessment template) for transport schemes. It still remains unclear how a scheme involving the appraisal of transport modes such as rail and pedestrians, with benefits attributed to these, could be considered not to be a transport scheme.

4.3.2 CAPITAL COSTS

The scheme costs in the FBC are stated to have been estimated in 2019 prices (with the exception of schedule 4 costs which are based on uplifted 2015 estimates). This is a noted improvement from the OBC when 2016 costs estimates were being used. However, the detailed cost plan provided as an appendix to the FBC states price base is 2Q2015, although it is noted there is an inflation allowance of 18.9% which is assumed to reflect the spend profile of the costs.

The total scheme cost presented of £28.7m (excluding OB) includes:

- Principal contractor/designer costs based on Volker Fitzpatrick estimate including the underpass, steps and ramps, structures, public squares and the Station Road diversion;
- Highways diversion contribution to maintenance
- COWD Network Rail
- Crown Road
- Public realm beyond red line
- Land acquisition
- Professional fees for urban realm design, land acquisition, legal support and other

The FBC states that more detailed costs will become available once Network Rail progress to GRIP Stage 3. It is highly unusual (and would be non-compliant for a DfT and Green Book FBC) for the scheme costs not be finalised (and ideally based on tender prices).

The literal definition of the Green Book FBC is the 'procurement phase':

Stage 3 – Procuring the solution and preparing the Full Business Case (FBC)

This is the procurement phase for the project, which results in the Full Business Case (FBC), following negotiations with potential service providers prior to the formal signing of the contract(s). The purpose of the FBC is to record the findings of the procurement phase and to identify the option that offers the 'most economically advantageous tender' (MEAT) and best public value. In addition, the FBC records the contractual arrangements, confirms affordability and puts in place the agreed management arrangements for the delivery, monitoring and post-evaluation of the project.

It was noted within earlier discussion with the promoter and SELEP that costs wouldn't be tender prices within this FBC. That was accepted by SELEP who asked for the costs provided to be considered in terms of the potential certainty / risk, accepting them not being as advanced as is usual for an FBC.

Compared to the OBC, a more detailed breakdown of costs is provided and a funding profile. However, inflation is not presented separately within this funding profile so it is not clear what assumptions have been made. It is stated that inflation has been included in the Network Rail cost estimates, but no further detail is provided.

The spend profile shows that £5.1m is to be spent in 2019/20. Depending on what has been spent so far this financial year, this figure seems high given only five months remaining. The Economic Case includes costs spent in 2018/19 (£1.2m), if these costs have already been spent then they should be treated as 'sunk costs' in the appraisal and not included. This would affect the BCR and VfM category.

A Quantified Risk Assessment (QRA) exercise has not been conducted. This would be expected the FBC stage. A 30% allowance for risk is included in the scheme costs. Although this figure is deemed acceptable in terms of allowance, a QRA should have been carried out to identify and quantify risks to the scheme. Optimism Bias (OB) of 13.5% has been added to the scheme costs in addition to the 30% risk. In a noted change since the OBC, this OB is applied to all scheme costs as opposed to only public-sector costs. The 2018/19 present value of total project costs is presented as £30.7m

which includes optimism bias, the total public-sector cost is £25.8m. There does not appear to be conversion of these scheme costs to market prices.

It should be noted that if following a DfT methodology of cost development, OB would typically reduce at FBC stage compared to OBC stage as cost certainty increases (design advancement, risk mitigation or materialisation). It would however seem sensible to retain this level of OB in this case due to the fact that costs are still not tendered prices / are more uncertain than a typical scheme at FBC stage.

Thurrock Council will contribute £10.4m to the scheme costs, and an additional £1.2m of S106 funds held by the Council. This equates to a 40% local contribution, which is deemed reasonable. The FBC includes the revenue generated through development receipts, it is stated that Thurrock Council will take the risk on securing these contributions.

There is no cost inclusion for maintenance or whole life cycle costs of the scheme. It is stated that its assumed that Network Rail will be responsible for the maintenance cost of the underpass given it forms part of the rail track infrastructure. The costs of maintaining the public realm elements of the scheme are not included. If these costs were included they would reduce the BCR, although it is noted that these costs are typically small in comparison to the scheme capital costs.

4.3.3 BENEFITS

The approach to benefits estimation appears similar in the FBC to that reviewed in the OBC. This included a blend of recognised appraisal tools, and bespoke analysis.

For the appraisal it has been assumed that the Do Minimum (DM) scenario sees the closure of the level crossing and the removal of the existing footbridge as it would not be fit for purpose for the increase in demand. In this scenario it has been assumed that the alternative route would be to walk to the next rail line crossing which is using the B189 road bridge. This distance is noted in Google to be ~300m, whereas the modelling in the FBC states 200m. The Do Something (DS) scenario assumes the closure of the level crossing and the development of the underpass and public realm squares. The increment of the DM and DS has been considered in two stages. The status-quo (the current situation with level crossing and footbridge) compared to the DM, and then the DS compared to the status-quo.

The appraisal included the following items:

- Safety benefits of reduced incidents as a result of level crossing closure
- Active mode appraisal to capture the impacts of changes in walking and cycling demand
- Public realm benefits capturing the benefits to pedestrians of improved infrastructure
- Journey time benefits of the underpass compared to the DM where the level crossing is closed
- Changes to Vehicle Operating Costs (VOCs) and external costs associated with driving due to modal shift
- Land value uplift associated with the housing development, noting this is included in the adjusted BCR.

The native appraisal spreadsheets have not been provided for review, therefore the results presented for the benefits cannot be fully reconciled. This also limits the depth to which calculations can be reviewed, as they can only be considered on the information provided as part of the FBC documentation. An example includes how 2010 present values (PV) from the DfT Databook being converted to 2019 PV cannot be reviewed, and whether this adjustment accounted for inflation, discounting and / or includes a market price adjustment.

4.3.3.1 Mode shift

The FBC considers mode shift in two stages – status quo compared to DM, and then DS compared to status quo. The first of these stages would see mode shift away from walking where the level crossing and footbridge is closed and pedestrians must now use the road crossing to the south. Bespoke analysis has been used to estimate the mode shift. The FBC states that 50% of walkers would switch modes if forced to walk greater than one mile. This assumption is largely unfounded/unsupported by evidence, and ignores that fact that pedestrians will be travelling for different purposes and between different origins and destinations that will ultimately affect this mode choice.

The FBC states that if the level crossing and existing footbridge were closed then 12% of trips would not be made. Again, this assumption is unsupported by evidence. This proportion is considered high given the relatively small increase in journey time/distance required to cross the rail line at the road bridge. Any consideration of mode shift to bus is excluded from analysis, this is seen as an oversimplification and oversight of the FBC.

The second stage then considers the mode shift when the underpass is constructed compared to the level crossing. In this scenario the FBC states the assumption that 5.5% of car users switch to walking. It is unclear from the FBC what population this 5.5% is captured from i.e. the area considered.

These assumed figures for mode shift are then fed into the estimation of impacts under the following headings.

At FBC stage it would be expected that this analysis of mode share would be considerably more detailed, incorporating the distribution of demand and drawing on an evidence base or standard modelling technique to estimate the mode shift. Given the use of these figures in the benefits estimation toolkits and calculations that feed into the appraisal, it would be expected that this methodology would have been considered in more detail.

4.3.3.2 Accident reduction

There is no change to the calculation of accident cost reduction as a result of removing the level crossing from the OBC. The approach to this calculation appears logical and uses values from the Databook (readjusted to 2019 prices and values).

4.3.3.3 Active mode appraisal

The health impacts (reduced risk of premature death and absenteeism) associated with changes in walking and cycling demand have been estimated using DfT's Active Mode Appraisal Toolkit (AMAT). This is a noted update from the earliest OBC draft, where World Health Organisations Health Economic Assessment Tool (HEAT) was used. The level of benefits generated through the AMAT are lower than previously estimated by the HEAT.

Within the tool a number of 'routes to impact' have been considered, capturing changes in active mode travel demand for different aspects of the scheme. It is unclear how the VOCs from 'reduction in driving and mode shift to walking relative to DM' is different from the external costs and VOCs for the 'reduction in distance driven relative to the DM' line. Some 'double counting' within the appraisal cannot be ruled out from this description alone.

4.3.3.4 Urban realm impacts

Public realm benefits have been quantified using TfL's Ambience Benefits Calculator (ABC). The tool has been used to estimate the impact between the status quo and DM, and then the DS and status quo.

The impacts considered included: provision of seating area, plants, well maintained areas, wider and conditioned pavements, improved lighting and signage, increase in safety. These impacts all seem reasonable given the scheme, however it should be noted that the public realm designs have not been finalised or included in the FBC, so no certainty can be placed on whether these items will or will not be included within the final scheme. The benefits attributable to this are therefore also less certain.

It should be flagged that the ABC tool has been developed by TfL, meaning it is reflective of values of time (and other parameters) in London. The FBC states that a high proportion of users of Grays station are travelling to London (justifying use of these values), however the level crossing and public squares will not only be used by rail passengers visiting London alone. It is accepted however London values of time provide a reasonably proxy of values of time for Thurrock.

4.3.3.5 Changes in vehicle operating costs

To estimate the change in vehicle operating costs (VOCs), the change in highway kilometres have been extracted from the AMAT tool. These removed kilometres are then combined with values from the Databook to estimate the change in VOCs.

This process, and the values used, cannot be verified. However, the approach appears reasonable and logical.

4.3.3.6 Journey time impacts

The journey time impacts reflect the additional time required to cross the rail line using the road bridge in the DM. A weighted average value of time (using databook values) has been applied to the added journey time. This approach seems logical and reasonable.

4.3.3.7 Land Value Uplift

The argument for dependency in the FBC is relatively weak. It is stated that without the revised commercial development, the residential development would not come forward. However, it is not dependent from the perspective of delivering the underpass. There is also no guarantee of the development coming forwards and so it is not currently a committed part of the scheme.

The MHCLG ready reckoner tool has been used to estimate the Land Value Uplift (LVU) impacts. Feeding into this is an assessment of the deadweight and additionality. A high level of additionality has been applied based on evidence that currently identified housing sites are far below the requirements to reach targets. Therefore, it is argued that this housing development would not be being displaced from elsewhere.

It is noted that only the housing development is considered as an incremental change, given there is existing commercial development on the site that would be being replaced by the scheme. This seems reasonable.

It is unclear whether, or what magnitude, of development costs have been included in the LVU calculations. It is not clear whether the development is even viable, but it is noted that Thurrock Borough Council are taking the risk on the development receipts.

4.3.4 BENEFIT COST RATIO AND VALUE FOR MONEY ASSESSMENT

The core Benefit Cost Ratio (BCR) for the scheme is presented as **2.3:1**, this does not include the benefits associated with the LVU due to residential development.

The Present Value of Benefits (PVB) is reported as £55.2m, summing the *Summary of net results* table in the Economic Case would suggest the PVB is in fact £58.1m. The Present Value of Costs (PVC) is reported as £30.9m (including optimism bias) for the total project costs, the costs to the public sector are reported as £25.8m. The total project cost includes the cost to the private sector of the development receipts. For the calculation of the BCR the cost to the public sector is used as the PVC i.e. the private sector contribution is not included. In line with guidance this cost to the private sector should be subtracted from the PVB, and included as revenue to the public sector in the PVB. It is unclear from the FBC submission whether the benefits and costs are in consistent prices, values and units of account. This does not give confidence that the BCR calculation is based on comparable costs and benefits.

The presented core BCR would suggest the scheme presents **High** Value for Money (VfM) (i.e. above 2.0). An adjusted BCR is also presented which includes the benefits generated through LVU. This adjusted BCR is 2.4:1, which also represents High VfM. LVU is typically used as a switching value in DfT appraisal (i.e. a level 3 benefit in the DfT Value for Money Framework, which isn't permitted to change the BCR, but can change the VfM category). However, it is noted that including these benefits does not change the VfM categorisation of the scheme.

Sensitivity testing has been conducted, assessing the sensitivity of the appraisal to changes in inputs. The results of the sensitivity analysis are presented on the adjusted PVB (including LVU),

whereas it would be expected they would be presented on the core scenario. The following tests have been run:

- Scenario 1: reduced mode shift to car use in DM relative to status quo. The central case assumed 25% of those who currently walk switch to car when faced with a longer journey, in this scenario this assumption is reduced to 12.5%. The FBC reports that this test reduces the adjusted BCR to 2.2:1, applying this reduction in benefits to the core scenario it is estimated it would reduce the core BCR to 2.1:1.
- Scenario 2: higher mode shift as a result of the underpass and public realm work. This test increased the assumed mode shift from car from 5.5% in the core scenario to 11%. The FBC states this test increases the adjusted BCR to 2.7:1. Applying the same increase to the core PVB results in a BCR of 2.6:1.
- Scenario 3: 50% of additional housing is generated by the scheme (42 homes). As the LVU is included in the adjusted BCR, this test will not change the core scenario BCR. The reduction in housing will reduce the adjusted BCR to 2.1:1.
- Scenario 4: Costs increased by 30% relative to the baseline excluding OB. The FBC presents an adjusted BCR of 2.1:1, applying this increase in costs to the core scenario results in a BCR of 1.9:1.

These sensitivity tests show that increase in scheme costs in excess of 30% could reduce the VfM category to medium.

When considering the VfM, the FBC also presents non-monetised impacts as a result of the scheme including increased connectivity and reduced severance as a result of providing the underpass, construction employment in the local area, attracting retailers to the town centre and increasing productivity of commercial space through evening economy.

4.4 FINANCIAL CASE

4.4.1 FINANCIAL ESTIMATES (CAPITAL)

The total project cost has been presented as £28.7m. These costs are stated to be based on estimates, and not tender prices as would be expected at FBC. In total, £10.8m of funding is being sought from Local Growth Funding (LGF) from SELEP. Funding for £3.7m of this has previously been provided by SELEP following the OBC. The FBC seeks the further £7.1m of funding.

The profile of spend by funding stream is not presented in the FBC. The spend profile is presented by cost type only. This spend profile is in line with the activities set out in the work programme appended to the Management Case. The spend profile shows that £1.2m of the £28.7m project cost was spent in 2018/19. It is stated that these costs have been adjusted for inflation, however no detail of this has been provided. These costs do not appear to include an allowance for monitoring and evaluation, the S151 officer letter states ‘adequate revenue funding has been or will be allocated to support the post scheme completion of monitoring and benefits realisation reporting’. The capital costs include a risk adjustment of 30%. Although this is a reasonable level of risk to include, it would

be expected that by FBC level a QRA would have been carried out. It is noted that a detailed risk register has been appended to the FBC, however this has not been used to inform a QRA.

A detailed cost breakdown, significantly more detailed and advanced than the cost breakdown provided at OBC, has been provided for the principal contractor/designer costs based on Volker Fitzpatrick estimate including the underpass, steps and ramps, structures, public squares and the Station Road diversion. This cost estimate includes preliminaries and design team fees. It is again noted that this is an estimate, and not tendered costs (generally assumed to mean there is "cost certainty") which are typically expected to be included within an FBC.

The other cost line items (highways diversion contribution, COWD Network Rail, Crown Road, public realm beyond red line, land acquisition, professional fees for urban realm design, land acquisition, legal support and other), are not supported by a detailed breakdown. Cost associated with these latter items therefore have much higher levels of uncertainty than the contractor cost estimates.

4.4.2 FINANCIAL PROCEDURES

The project is stated to be funded through:

- Thurrock Borough Council Capital Programme
- S106 funds held by Thurrock Council
- Network Rail
- Development receipts
- Funding sought through LGF (SELEP)

£5.6m funding has been assumed to come through development receipts as the housing development comes forward. The basis of this figure has not been provided. The FBC states that Thurrock Borough Council will take financial risk on this funding being secured. If these private sector funds do not come forwards (either in entirety or of this magnitude), the BCR would reduce as the costs to the public sector would increase.

The funding profile appears reasonable, with costs spread between 2018/19 and 2023/24. Construction costs are incurred between 2020/21 and 2023/24. The design and land acquisition costs are earlier in the funding profile as would be expected.

A Section 151 officer letter demonstrating funding commitment has been included as an appendix to the FBC.

According to the FBC, Network Rail are funding £0.7m to the scheme. This seems a limited financial contribution given their desire to close the crossing.

The funding risks section of the FBC is relatively limited given the scheme is at FBC. The main funding risks identified are the financial risk Thurrock Borough Council are taking on securing development receipts and uncertainty over Network Rail scheme costs until further through GRIP process (and that the Borough Council will take on risk of funding shortfall).

4.4.3 FUNDING ESTIMATES (NON-CAPITAL)

There has been no allowance in scheme costs for maintenance. The FBC states that this is due to difficulties in estimation prior to the design progressing further. Again, at FBC stage it would be expected that these costs would be accounted for. It is expected that Network Rail will be responsible for the maintenance of the underpass, however these costs have also not been included in the FBC. Including maintenance costs would decrease the BCR, if only marginally.

4.5 COMMERCIAL CASE

4.5.1 CONTRACTING AND PROCUREMENT

Further detail of the contracting strategy has been added to the Commercial Case since the OBC stage. However, it is noted that there remains a level of uncertainty to the approach that will be used for contracting. The focus of an FBC is typically on the deliverability of a scheme and therefore it would be expected that this would be considerably more established. Similarly, a number of options for the procurement strategy are considered, with the advantages and disadvantages of both. However, there no definitive position on this has been presented, as would be expected. There has been no timeframe provided for procurement and contracting stages.

Evidence of previous procurement experience has been presented for Network Rail and Thurrock Borough Council. For Network Rail this is strong, and supported. For Thurrock Borough Council there are examples of infrastructure projects referenced, but there has been no link made of their relevance to the Grays South project.

4.5.2 RISK ALLOCATION

A high-level risk allocation between Network Rail and Thurrock Borough Council is presented in the Commercial Case. This is a noted updated from the OBC, however there remains limited detail presented.

As a QRA exercise has not been carried out, therefore there has been no allowance given to these allocations of risk.

4.6 MANAGEMENT CASE

The Project Sponsor and Senior Responsible Officer (SRO) have been identified in the Management Case. The Grays Programme Board and Thurrock Council Project Team have also been identified. This is the level of detail that would be expected at FBC, and the membership within these boards/teams seems appropriate and well set out. Approval processes have been set out from the Thurrock Borough Council perspective. There is limited detail of processes for the Network Rail element of the scheme, it is stated that following GRIP Stage 3 approval processes this will be considered in more detail.

A comprehensive list of key stakeholders has been identified. There has been no detail provided of any stakeholder engagement to date, and it is only stated that an Engagement Plan is currently being drafted. By FBC, it would be anticipated that stakeholder engagement would have already

commenced. It is however noted that earlier public engagement had shown support for an underpass.

A risk register has been developed and appears to be updated periodically. The FBC states there are regular risk review meetings. Each risk has now been assigned an owner, target date and mitigation measures, which is a noted update from the OBC. It is unclear why this risk register has not been used to undertake a QRA exercise.

A detailed work programme has been provided as an appendix to the FBC. This is a noted update from the OBC where only a high-level chart was provided. This work programme allows the critical path and key dependencies to be identified. However, it is noted that Network Rail have not yet undertaken the required steps to develop the full detail of the rail element of the scheme, and this is likely to impact the critical path. It is observed that the work programme does not include the residential and commercial development.

A Monitoring and Evaluation Plan and Benefits Realisation Plan have been included as appendices to the FBC. The Plans are well developed and detailed. A Baseline Report has also been appended, although it is noted that much of this data (PERS walking audit, pedestrian counts, public perception, business survey) has not been included but stated to be commissioned in 2020. The level of detail of the Monitoring and Evaluation and Benefits Realisation Plans are as would be expected for an FBC.

5 OUTCOMES AND RECOMMENDATIONS

There have been some marked improvements to the FBC compared to the earlier OBC iteration. These primarily relate to the deliverability of the scheme where more detailed cost estimates, a detailed work programme and risk register have been provided. It is noted there is still a level of uncertainty surrounding these documents through a lack of detailed specification of the Preferred Option, however their inclusion is more in line with expectations of a scheme at the FBC stage.

The Strategic Case has been strengthened through development of a strong narrative making the case for change. This now draws on more factual information to support assumptions of the DM scenario. The scheme objectives have been improved such that they are now SMART, and relate well to the monitoring and evaluation stages of the scheme development. Three options have been developed for the underpass and public realm configuration, this is an advancement since the OBC. Although it is noted that, at FBC, it would be anticipated that a Preferred Option had been identified, and other options would have been discarded through robust appraisal and consideration of strategic fit and value for money.

The scale of the benefits captured in the Economic Case seem reasonable. The active mode benefits are now captured using DfT's AMAT as opposed to WHO's HEAT, following recommendation from the OBC review. It is also noted that the LVU benefits associated with the residential development has been moved to the adjusted benefits and BCR, and the construction employment impacts have no longer been quantified or included in the benefits calculation. These updates are all seen to strengthen the Economic Case.

However, there are still aspects of the Business Case that generate some uncertainty at the FBC stage. These include:

- The objectives have been updated such that they are now SMART. However, scheme objectives should be set out to address the issues identified in the need for intervention, they should not be led by a specific intervention. The objectives related to delivery of residential and commercial floorspace are particularly scheme specific stating the number of houses which would be delivered and floorspace.
- The narrative surrounding the current problems is largely unsupported by data and evidence, with the exception of the safety issue where detail of the ALCRM rating is given.
- A detailed Preferred Scheme has not been identified, and the evidence of discounting other options is purely qualitative and is not driven through analysis or appraisal.
- It is not clear whether consistent units of account have been used throughout the economic appraisal (i.e. factor or market prices, discounting adjustments to databook values).
- A far greater level of detail has been added to the scheme costs since the OBC. However, as the scheme design has not been confirmed, these costs are at risk of change. A 30% risk allowance has been included. However, a detailed QRA exercise has not been undertaken as would be expected. The sensitivity testing showed that an increase of 30% in scheme costs, which is not uncommon for a scheme at this level of design, could reduce the VfM category to medium.

- No maintenance costs have been included for the scheme, although it is noted the inclusion of these is unlikely to have a significant impact on the VfM.
- The approach to estimating the mode shift to/from walking in the DM and DS is non-standard. No supporting evidence (spreadsheets) have been provided and the assumptions used are largely unfounded. These values feed into the various impacts measured.
- There is a possibility of some double-counting of benefits within the assessment of health impacts, this could impact on the level of benefits generated by the scheme and, if confirmed, could result in a downward adjustment.
- It is unclear what inflation assumptions have been applied to the scheme costs. This could impact the costs within the Economic and/or Financial Cases.
- There is no confirmed approach to the procurement and contracting strategies of the scheme. By FBC this would be expected to be in place and well documented in the Commercial Case.

The certainty of the economic appraisal is considered to be **medium/low**. This rating is lower than that provided for the OBC review, this is to reflect that although there have been refinements and additions (improvements) to the detail provided in the Business Case, the level of expectation is raised when a scheme is at FBC. By this stage there should be certainty, and where not, sufficient and calculated risk allowance, to give confidence that the scheme could be delivered and work could begin immediately. The Business Case content does reflect more, the content of a business case still at OBC rather than FBC.

Although the risk of scheme cost increases sits primarily with Thurrock Borough Council, (as confirmed by the S151 officer letter underwriting any cost increase), there remains a risk to SELEP that should any cost increases rise to an extent to which Thurrock consider them to be unaffordable and decide not to deliver the scheme, any funding SELEP has already provided or could provide in the future would also be at risk.

In summary, the need for the scheme is very strong, without it a high street will be severed with clear and tangible social and economic disbenefits. The proposed scheme would address this and could bring about additional economic benefits, which as appraised here, seem reasonable in terms of the expected magnitude of costs and benefits. However, reasonably high levels of uncertainty do need to be applied to both scheme costs and the resulting BCR and VfM category because none of the scheme costs relate to actual contractor tender prices, which would be typical and expected at FBC stage.

Without the inclusion of contractor tender prices, and a design for *all* elements of the scheme, which would enable the scheme to go out to procurement, it is unclear how this FBC differs from what is typically expected to be contained within an OBC.

The scheme still appears to be a good scheme for SELEP to invest in, but that investment needs to be considered in the context of the limited certainty around the outturn cost estimates and programme and the resultant impact that may have on affordability and Value for Money.

Appendix A

SELEP BUSINESS CASE ASSESSMENT PRO-FORMA

Kings Orchard
1 Queen Street
Bristol
BS2 0HQ

wsp.com