

BERKSHIRE LOCAL TRANSPORT BODY (BLTB)

REPORT TO: BLTB

DATE: 4 June 2020

CONTACT OFFICER: Tim Wheadon, Chief Executive, Bracknell Forest Council

Item 10: Financial Approval 2.45 Slough: Langley High Street/ Meadfield Road Junction Improvements Phase 1

Purpose of Report

1. To consider giving financial approval to scheme 2.45 Slough Langley High Street/ Meadfield Road Junction Improvements – Phase 1.
2. The B470 Station Road/ Langley High Street runs through the centre of Langley village and is a key strategic link (A4, M4, M25) for businesses and residents, providing access to jobs, education and amenities. It is, however, subject to heavy traffic congestion, particularly during peak hours. Meadfield Road is a secondary road joining the High Street and is a key through route connecting residential streets in the east of Langley to the High Street and their access to amenities and Langley Station. Meadfield Road also serves as a connecting road between High Street and Market Lane, leading to Hollow Hill Lane.
3. The main objective of the scheme is to reduce delay to traffic, primarily in anticipation of significant volumes of traffic being re-routed through Langley as a result of the closure of Hollow Hill Lane. This closure is proposed to support the construction of the Western Rail Link to Heathrow (WRLtH) being promoted by Network Rail.
4. The High Street/ Meadfield Road junction improvements are also an extension of a recently completed LEP scheme to improve station access facilities at Langley railway station with the advent of Crossrail.

Recommendation

5. You are recommended to give scheme 2.45 Slough Langley High Street/ Meadfield Road Junction Improvements phase 1 conditional financial approval in the sum of £1,324,000 in 2020/21 on the terms of the funding agreement set out at paragraph 14 step 5 below, subject to meeting the following conditions:
 - 1) Production of a revised, and more robust, assessment of scheme costs, post-preliminary scheme design; and
 - 2) Formal confirmation (e.g. S151 Officer letter) to cover Slough Borough Council's funding allocation, along with confirmation that Slough Borough Council will cover any potential cost overruns.

These conditions should be met at the earliest feasible date, but no later than 31st August 2020.

Other Implications

Financial

6. A call for bids process was undertaken in January 2020 and a list of prioritised projects were agreed at the BLTB meeting March 2020. Scheme 2.45 Slough Langley High Street/ Meadfield Road Junction Improvements phase 1 is funded from this reallocation. See Appendix 1.
7. This report recommends that Slough Borough Council be authorised to draw down the capital sum £1,324,000 from the Local Transport Body funding for this scheme.
8. The funding agreement set out at paragraph 14 step 5 sets out the roles and responsibilities, reporting and auditing arrangements, timing and triggers for payments, contributions from other funders, consequences of delay, consequences of failure, claw back, and evaluation requirements at one and five years on.

Risk Management

9. The risk management arrangements already put in place by the Local Transport Body are as follows:
 - The [Assurance Framework](#)ⁱ has been drafted following DfT guidance and has been approved by the DfT for use in allocating capital funds for transport schemes
 - Hatch Regeneris have been appointed as Independent Assessors and have provided a full written report (see Appendix 2) on the full business case for the scheme
 - The funding agreement set out at paragraph 14, step 5 makes clear that the financial risk associated with implementation of the scheme rests with the scheme promoter.

Human Rights Act and Other Legal Implications

10. The scheme promoter is a local authority and they have to act within the law. Slough Borough Council will provide legal support for the BLTB, should any questions arise.

Supporting Information

11. The scheme will be carried out by Slough Borough Council.
12. In May 2020 Hatch Regeneris completed their assessment with a recommendation for conditional approval, which is attached at Appendix 2.
13. The full details of the scheme are available from the [Slough Borough Council website](#)ⁱⁱ. A summary of the key points is given below:

Task	Timescale
Feasibility, outline design and initial cost estimates	January 2020
Public engagement	July 2020
Construction	December 2020
Completion	March 2021

Activity	Funder	Cost (approx)
Major scheme funding	Berkshire Local Transport Body	£1.324m
Council contribution	Slough Borough Council capital programme	£0.264m
Total		£1.588m

14. The table below sets out the details of this scheme's compliance with steps 1-5 of paragraph 14 of the full [Assurance Frameworkⁱⁱⁱ](#).

Assurance Framework Check list	2.45 Slough Langley High Street/ Meadfield Road Junction Improvements - Phase 1																																			
	<p>The main objective of the scheme is to reduce delay to traffic, primarily in anticipation of significant volumes of traffic being re-routed through Langley as a result of the closure of Hollow Hill Lane. This closure is proposed to support the construction of the Western Rail Link to Heathrow (WRLtH) being promoted by Network Rail.</p> <p>The scheme was submitted as part of a wider scheme for Langley High Street, for inclusion in January 2020 LEP Call for Bids. The updated prioritisation methodology assessment process was used and the overall scheme was given 18 points and ranked 6th of 6 schemes submitted. The scheme has since been split into three elements, with this being phase 1 (note: it was originally referred to as phase 2).</p> <table border="1"> <thead> <tr> <th>Factor</th> <th>Raw score</th> <th>Weighting</th> <th>Weighted score</th> </tr> </thead> <tbody> <tr> <td>Strategy</td> <td>3</td> <td>1.5</td> <td>4.5</td> </tr> <tr> <td>Deliverability</td> <td>1</td> <td>2</td> <td>2</td> </tr> <tr> <td>Economic Impact</td> <td>2</td> <td>4</td> <td>8</td> </tr> <tr> <td>TVB area coverage</td> <td>2</td> <td>1</td> <td>2</td> </tr> <tr> <td>Environment</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>Social</td> <td>1</td> <td>0.5</td> <td>0.5</td> </tr> <tr> <td colspan="3">Total</td> <td>18</td> </tr> </tbody> </table>				Factor	Raw score	Weighting	Weighted score	Strategy	3	1.5	4.5	Deliverability	1	2	2	Economic Impact	2	4	8	TVB area coverage	2	1	2	Environment	1	1	1	Social	1	0.5	0.5	Total			18
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Social	1	0.5	0.5																																	
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Step 2: Programme Entry: evolution of the scheme from outline proposal to full business case, external view on the business case, and independent assessment (See paragraphs 15 and 16)	<p>The scheme became part of the approved forward pipeline by the BLTB on 12 March 2020^{iv} (minute 33 refers).</p> <p>The Slough Borough Council website^v holds the latest details of the full business case, including the VfM statement certified by the senior responsible officer.</p> <p>Any comments or observations on the scheme received by either TVB LEP or Slough Borough Council have been fully considered during the development of the scheme.</p> <p>The report of the Independent Assessor is attached at Appendix 2. The</p>																																			

Assurance Framework Check list	2.45 Slough Langley High Street/ Meadfield Road Junction Improvements - Phase 1
	<p>Independent Assessor was asked to report as follows:</p> <ul style="list-style-type: none"> • Completeness – has the promoter prepared a complete Full Business Case submission, when judged against the prevailing advice from the DfT • Accuracy – has the promoter performed the relevant calculations and assessments accurately and without error • Relevance – has the Full Business Case considered all relevant matters, including use of appropriate forecasting models and planning assumptions, and has it included any irrelevant considerations such unduly-optimistic assumptions or out of date modelling data • Value for Money – does the scheme promoter’s Value for Money assessment comply with the prevailing DfT guidance • Evaluation arrangements – has the scheme promoter made provision for appropriate post-implementation evaluation of the scheme. • Remedies – where the independent assessment reveals a gap between the FBC supplied and the standard anticipated by the DfT guidance, then the advice for the LTB should include recommendations for remedial actions required – e.g., collection of further data, sensitivity tests on particular assumptions etc.
Step 3: Conditional Approval	<p>The Independent Assessor has recommended that in this case a Conditional is appropriate. The two conditions are:</p> <ol style="list-style-type: none"> 1) Production of a revised, and more robust, assessment of scheme costs, post-preliminary scheme design; and 2) Formal confirmation (e.g. S151 Officer letter) to cover SBC funding allocation, along with confirmation that SBC will cover any potential cost overruns. <p>These conditions should be met at the earliest feasible date, but no later than 31st August 2020.</p>
<p>Step 4: Recommendation of Financial Approval</p> <ul style="list-style-type: none"> - High Value for Money - Support of the Independent assessor 	<p>The analysis contained within the Full Business Case suggests that the scheme will generate “Very High” Value for Money.</p> <p>Benefit to Cost Ratio (BCR) of 9.3. to 1, indicating the scheme should deliver ‘Very High’ value for money from investments.</p> <p>The recommendation is that you give the scheme Conditional Approval.</p>
<p>Step 5: Formal Agreement</p> <ul style="list-style-type: none"> - roles - responsibilities - reporting - auditing - timing and triggers for payments, - contributions from other funders, 	<ol style="list-style-type: none"> 1. <u>Roles</u>: Thames Valley Berkshire LEP is a part funder of the scheme. Slough Borough Council is the scheme promoter, and is the relevant highway and planning authority. 2. <u>Responsibilities</u>: Thames Valley Berkshire LEP is responsible for allocating the capital finance in accordance with its Assurance Framework. Slough Borough Council is responsible for all aspects of the design, risk management, insurance, procurement, construction and implementation of the scheme, including its responsibilities as highway and planning authority, any other statutory duties, and any financial or other liabilities arising from the scheme.

Assurance Framework Check list	2.45 Slough Langley High Street/ Meadfield Road Junction Improvements - Phase 1
<ul style="list-style-type: none"> - consequences of delay, - consequences of failure, - claw back, - evaluation one and five years on 	<p>3. <u>Implementation</u>: In addition to any reporting requirements within Slough Borough Council, the scheme promoter will use the proforma supplied by Thames Valley Berkshire LEP to make reports on progress of the implementation of the capital scheme to each meeting of the BLTB until the build is complete. In particular, Slough Borough Council will report on any change in the size, scope or specification of the scheme; and on any substantial savings against the scheme budget whether achieved by such changes to the size, scope or specification of the scheme, or through procurement, or through the efficient implementation of the scheme.</p> <p>4. <u>Reporting</u>: The scheme promoter must provide accurate, timely, verified and quality assured quarterly monitoring and forecast data, which relate to defined output and outcome indicators agreed between Thames Valley Berkshire LEP and government as a condition of the Growth Deal. This scheme will not be required to participate in an evaluation as set out in the Growth Deal Monitoring and Evaluation Plan.</p> <p>5. <u>Auditing</u>: Slough Borough Council will keep financial records such that the expenditure on the scheme is readily identifiable, and if and when BEIS, DfT or other government department or the Accountable Body for Thames Valley Berkshire LEP requests access to financial or other records for the purposes of an audit of the accounts, Slough Borough Council will co-operate fully.</p> <p>6. <u>Timing and Triggers for payments</u>: See the Claim Proforma (available on request).</p> <p>7. <u>Contributions from Other Funders</u>: Slough Borough Council capital programme will contribute £264,000 in 2020/21. In the event that the scheme experiences or it is anticipated that the scheme will experience a shortfall in these contributions, Slough Borough Council will be required to notify Thames Valley Berkshire LEP of these developments. The provisions of clauses 8, Consequences of Delay; 9, Consequences of Change to the Design or Specification of the Scheme; or 10, Consequences of Failure will then be applied.</p> <p>8. <u>Consequences of Delay</u>: In the event that the scheme experiences minor delays to its overall Business Case programme (no more than 10 weeks), Slough Borough Council will report these delays and the reasons for them, and the proposed remedial action to the next available meeting of the BLTB. In the event that the scheme experiences major delays to its overall Business Case programme (11 weeks or longer) Slough Borough Council will be required to seek permission from Thames Valley Berkshire LEP to reschedule any payments that are due, or may be delayed in falling due because of the delay to the overall Business Case programme.</p> <p>9. <u>Consequences of Change to the Design or Specification of the Scheme</u>: In the event that Slough Borough Council wishes to change the design or specification of the scheme such the scheme delivered</p>

Assurance Framework Check list	2.45 Slough Langley High Street/ Meadfield Road Junction Improvements - Phase 1
	<p>will vary in any material aspect from the description given in the overall business case, Slough Borough Council will be required to seek prior written consent from Thames Valley Berkshire LEP. Failing this permission, no further monies will be paid to Slough Borough Council after the change becomes apparent to Thames Valley Berkshire LEP. In addition, consideration will be given to recovering any monies paid to Slough Borough Council in respect of this scheme.</p> <p>10. <u>Consequences of Failure</u>: As soon as it becomes apparent to Slough Borough Council that it will not be possible to deliver the scheme within the current LGF programme, i.e. by the end of 2020/21, written notice shall be given to the Accountable Body for Thames Valley Berkshire LEP. No further monies will be paid to Slough Borough Council after this point. In addition, consideration will be given to recovering any monies paid to Slough Borough Council in respect of this scheme.</p> <p>11. <u>Claw back</u>: If the overall scheme achieves savings against budget, these savings will be shared by Thames Valley Berkshire LEP and the other funders noted above in proportion to the amounts set out in the Financial Profile. The Accountable Body for Thames Valley Berkshire LEP reserves the right to claw back any amounts of grant that have been spent on purposes other than the scheme as approved and any repayments due as a consequence of changes to the design or specification of the scheme or scheme failure.</p> <p>12. <u>Evaluation One and Five Years On</u>: Slough Borough Council will produce scheme evaluations One and Five years after practical completion that comply with DfT guidance.</p> <p>13. <u>Other Conditions of Local Growth Funds</u>: Slough Borough Council will acknowledge the financial contribution made to this scheme through Local Growth Funds and follow the 'Growth Deal Identity Guidelines' at Appendix 2). It will also give due regard to the Equality Act 2010 - Public Sector and with the Public Services (Social Value Act) 2012, particularly through the employment of apprentices across the scheme supply chain.</p>

Conclusion

15. It is the conclusion of the Independent Assessor that there is sufficient evidence presented to support the overall strategic and economic case for investment in the scheme. It has good strategic alignment and an established need for intervention. The overall economic case demonstrates the scheme should deliver very high value for money.

Background Papers

16. The LTB and SEP scoring exercise papers are available on request

<http://thamesvalleyberkshire.co.uk/Portals/0/FileStore/StrategicInfrastructure/StrategicInfrastructure/BLTB/Assurance%20Framework%20for%20Berkshire%20Local%20Transport%20Body%2014%20November%202013.pdf>

ii <http://www.slough.gov.uk/parking-travel-and-roads/plans-for-the-future.aspx>

iii <http://thamesvalleyberkshire.co.uk/Portals/0/FileStore/StrategicInfrastructure/StrategicInfrastructure/BLTB/Assurance%20Framework%20for%20Berkshire%20Local%20Transport%20Body%2014%20November%202013.pdf>

iv <http://www.slough.gov.uk/moderngov/ieListDocuments.aspx?CId=601&MId=5473&Ver=4>

v <http://www.slough.gov.uk/parking-travel-and-roads/plans-for-the-future.aspx>

Appendix 1 - Local Growth Deal list of prioritised schemes agreed March 2020

Weighting	1.5	2	4	1	1	0.5				
Factor	SEP	Deliv- erable	Econo mic Impact	TVB area	Natural Capital	Social Value	Total Weigh ted score	Rank	Contributi on Sought	Cumulative spend
LGF Eligible Projects										
Reading Buses: Completing the Connection	4.5	6	8	2	3	1.0	24.5	1	1,541,243	1,541,243
Superfast Broadband - Extension	4.5	6	8	2	1	0.5	22	2	46,920	1,588,163
2.29 Wokingham: Winnersh Triangle Park and Ride - Extension	4.5	4	8	1	2	0.5	20.0	3	1,411,142	2,999,305
2.24 Newbury: Railway Station improvements - Extension	4.5	4	8	1	1	1.0	19.5	4	640,000	3,639,305
2.30 TVB Smart City Cluster Extension	4.5	6	4	2	2	0.5	19	5	283,620	3,922,925
Slough Langley High Street (phases 1, 2 & 3)	4.5	2	8	2	1	0.5	18.0	6	4,000,000	7,922,925

Appendix 2

Thames Valley Berkshire Local Enterprise Partnership

**Independent Assessment Summary Report: Langley High Street/
Meadfield Road Junction Improvements**

May 2020

www.hatchregeneris.co.uk

Executive Summary

- i. This technical note provides an independent assessment of the Langley High Street / Meadfield Road Junction Improvements Business Case submission to the Thames Valley Berkshire Local Enterprise Partnership (TVB LEP). The scheme is promoted by Slough Borough Council (SBC).

Scheme Summary

- ii. The business case submission sets out the case for investment in the signalisation of High Street/Meadfield Road junction with the provision of a formal pedestrian crossing on the Meadfield Road arm of the junction.
- iii. This scheme complements a previous scheme enhancement to the adjacent junction to the north on the High Street with Langley Road.
- iv. A primary aim of the scheme is to mitigate impacts associated with the closure of the nearby Hollow Hill Lane, that runs adjacent to the High Street, which is required to deliver the Western Rail Link to Heathrow (WRLtH).
- v. The overall scheme cost is estimated to be £1.588 million, with £1.324 million sought from the Local Growth Fund (LGF).

Review Findings

Conclusions

- vi. The overall scheme is considered to align well with strategic priorities and there is an established need for the intervention in the context of the predicted Hollow Hill Lane closure. The scheme will help substantially off-set the impact of traffic diverting along Meadfield Road. In the absence of Hollow Hill Lane closure, the strategic benefits of the scheme are significantly reduced, albeit some local benefits remain, in terms of supporting development.
- vii. The overall Economic Case, whilst subject to some forecasting challenges and a lack of clarity around the robustness of the approach applied, indicates there is a reasonable degree of likelihood that it will deliver high value for money, mainly through highway decongestion benefits. It should be noted that there will be some negative journey time impacts upon some north-south movements through the junction as a result of the signalisation; however, these are predicted to be fully off-set to benefits on the Meadfield Road arm of the junction. Most of the wider economic, social and environmental impacts are relatively neutral, with some slight positives. As with the Strategic Case, the economic benefits from the scheme will be substantially reduced without the closure of Hollow Hill Lane.
- viii. There are a number of concerns over the robustness of the Financial Case presented. It does not appear that the costs of the scheme are very well developed at this stage and a significant proportion of the scheme costs relate to contingency and risk.

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- ix. The Commercial and Management Cases are considered to be relatively succinct, but broadly compliant with requirements. They provide sufficient evidence to demonstrate that the procurement approaches offer value for money within the context in which the scheme must be delivered and that there are, generally, robust measures in place to manage the delivery of the project. Since there is significant development work still to be completed, the programme will need to be closely monitored and there remain a number of critical milestones, including land acquisition and consultations over removal/relocation of on-street car parking.
 - x. It is our conclusion that there is sufficient evidence presented to support the overall strategic and economic case for investment in the scheme, but only in the event of Hollow Hill Lane being closed. It has good strategic alignment and an established need for intervention. The overall economic case demonstrates a reasonable probability that the scheme should deliver high value for money.
 - xi. There are, however, clear limitations in the detail of the scheme costs, as they are currently presented, and more information is required to verify that a sound financial case exists.

Recommendations

- xii. On the basis of the strength of the strategic and economic cases we recommend the scheme for approval but with the following conditions:
 - 1) Production of a revised, and more robust, assessment of scheme costs, post-preliminary scheme design; and
 - 2) Formal confirmation (e.g. S151 Officer letter) to cover SBC funding allocation, along with confirmation that SBC will cover any potential cost overruns.
- xiii. These conditions should be met at the earliest feasible date, but no later than 31st August 2020.

1. Introduction

- 1.1 This report provides an independent assessment of the Full Business Case (FBC) submitted by Slough Borough Council (SBC) for the signalisation of High Street/Meadfield Road junction with the provision of a formal pedestrian crossing on the Meadfield Road arm of the junction.
- 1.2 The report considers the evidence presented and whether it represents a robust case for the investment of Thames Valley Berkshire Local Enterprise Partnership (TVB LEP) growth deal funds.
- 1.3 The independent assessment has applied criteria from TVB LEP assurance framework and the requirements for transport scheme business cases set out within the Department for Transport (DfT) Transport Appraisal Guidance (TAG).

Submitted Information

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- 1.4 The independent assessment process for the High Street/Meadfield Road Junction submission has been conducted on the following set of documentation submitted by SBC and their consultant team (Atkins):
- Full Business Case Submission (15th May 2020)
- 1.5 In addition to these formal documents, Hatch Regeneris have engaged with SBC and their consultants between March 2020 and May 2020 to discuss the requirements of the business case submission and comment upon the acceptability of the proposed appraisal approach and input assumptions and parameters.
- 1.6 Whilst no formal Appraisal Specification Report or Option Appraisal Report was submitted for this project, the specification was been discussed and agreed between SBC and TVB LEP and reference to scheme optioneering is incorporated within the main Pro-forma submission.

Report Structure

- 1.7 This Independent Assessors Report responds to the formal submission of documentation, as well as the informal engagement process with SBC and their consultants, to provide a review of information provided, assess its suitability and robustness against TVB LEPs assurance requirements, and provide recommendations in relation to the approval of LEP funding for the proposed scheme.
- 1.8 The report is structured as follows:
- Business Case Submission – presents a summary of the scheme elements included within the pro-forma submission, alongside the:
 - ☐ Rationale for the Scheme and Strategic Fit (Strategic Case),
 - ☐ Value for Money (Economic and Financial Cases); and
 - ☐ Deliver and Risk (Commercial and Management Cases).
- 1.9 It also sets out the recommendations to the LEP Local Transport Body relating to the suitability of the scheme for funding.

2. Business Case Submission

Overview

- 2.1 The full business case submission sets out the case for investment in enhancements to Langley High Street / Meadfield Road Junction. The core scheme deliverables are:
- the signalisation of the High Street/Meadfield Road junction;
 - a formal pedestrian crossing on Meadfield Road; and
 - the implementation of Advance Stop Lines for cyclists on north and southbound lanes on High Street
- 2.2 To achieve these revisions will require a small element of land-take and the removal of 10 on-street car parking spaces.
- 2.3 The scheme will help reduce delays to traffic along the High Street and Meadfield Road, primarily in anticipation of significant volumes of traffic being re-routed through Langley as a result of the closure of Hollow Hill Lane. This closure is

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- proposed to support the construction of the Western Rail Link to Heathrow (WRLtH) currently being promoted by Network Rail.
- 2.4 The High Street/ Meadfield Road junction improvements are also an extension to the junction improvement delivered in March 2020 at the High Street/ Langley Road junction, which adjoins the High Street/ Meadfield Road junction to the north.
- 2.5 It should also be noted that SBC have aspirations to deliver further enhancements to the High Street corridor, to both the north and south of the Meadfield Road junction. These will complement the High Street / Meadfield Road Junction scheme and provide additional capacity across the whole of the corridor, subject to funding becoming available.

Key Input Assumptions and Parameters

- 2.6 The overarching business case is considered particularly reliant upon the following key assumptions:
- Outputs from PICADY and LINSIG local junction models of the 'current layout' and 'with scheme' scenarios, respectively.
 - ☐ 2018 and 2028 model scenarios are assessed
 - ☐ 2018 represents scenarios with both Hollow Hill Lane open and closed
 - ☐ 2028 represents forecast traffic flows in 2028 (with background growth) and with Hollow Hill Lane closed
 - ☐ 2028 future year scenario, with Hollow Hill Lane closure, is based on outputs from strategic traffic model.
 - Annualisation factors:
 - ☐ 253 days per year
 - 60-year benefits appraisal period
 - Costs and benefits discounted to 2010 prices
 - Values of time:
 - ☐ Business trips = £17.689
 - ☐ Commuting trips = £9.953
 - ☐ Leisure trips = £4.543
 - Optimism bias (as defined by DfT TAG) has not been applied over and above contingency and risk

Independent Assessor Comment

- 2.7 The use of the PICADY and LINSIG models is considered appropriate for assessing the highway user impact on the surrounding highway network; however, the details of the model are not provided and so we are not able to verify how these models have been constructed. It is recognised that there are limitations to the scenarios that have been modelled and that this will impact upon the overall robustness of the outcomes of the assessment.
- 2.8 The use of outputs from the strategic model to inform the 2028 future year scenario is considered an acceptable approach. It is, however, recognised that it does not permit a dynamic assessment of traffic routing based on delays experienced at the junction, particularly Meadfield Road. As is described below, in the Value for Money

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- section, this will have implications upon the ability for the local junction models to accurately assess the extent of future year delays at the model.
- 2.9 The annualisation factors, the appraisal period and the discount period are all acceptable.
- 2.10 The absence of optimism bias (as defined by DfT TAG) is not within standard appraisal practice. It is, however, recognised that a large contingency and risk allowance has been included within the Financial Case and this, partially off-sets the impact. The implications are discussed further within the 'Value for Money' section below.
- 2.11 The submission does not make it explicitly clear on when it has been assumed that Hollow Hill Lane will close. Whilst we acknowledge that a formal date remains unknown, any assumption on the date will affect the Economic Case, as the profile of benefits will be significantly greater after it is closed, in comparison to before. This is considered further within the section on the Economic Case.

Rationale for the Scheme and Strategic Fit (Strategic Case)

- 2.12 The Pro-forma document sets out the background to the scheme and an overview of the wider issues of the area. This includes the strategic importance of the WRLtH project, that this scheme will support.
- 2.13 The key policy context is highlighted in relation to TVB Strategic Economic Plan (SEP), the Berkshire Local Industrial Strategy (BLIS), as well as local Slough Borough Council strategies and policies. The alignment of the core scheme objectives against these strategic policy documents is also set out.
- 2.14 The rationale for the scheme is established, based upon the context of Langley Village and surrounding areas. The impact of the proposed closures of Hollow Hill Lane (to enable the strategically important WRLtH) is set out, with traffic forecast to re-distribution to the High Street through Meadfield Road, creating additional congestion and delay through Langley. As well as addressing congestion, the scheme is also needed to alleviate safety concerns.
- 2.15 Evidence to support the need is presented from an experimental closure of Hollow Hill Lane in 2016. Strategic transport model outputs also demonstrate the impact of diverted traffic from the closure. The specific poor performance of the High Street / Meadfield Road Junction is presented from a local junction model. This predicts worse-case delays of up to 37 minutes along Meadfield Road, although it is acknowledged that it is unlikely drivers will queue for this period of time and are likely to re-route to avoid such an extensive delay.
- 2.16 The scheme details are set out describing how signalisation of the junction will significantly improve the future operation, whilst crossing facilities and advanced stop lines will improve safety for pedestrians and cyclists. The need to remove on-street car parking is set out, which could have some negative impacts, but provision will look to re-located, where feasible. A draft feasibility design drawing is provided.
- 2.17 The extent to which the scheme will overcome barriers to growth is set out. This highlights the strategic importance of the Langley High Street corridor and how congestion will inhibit growth. It outlines a range of development opportunities along the corridor.

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- 2.18 The alternative scheme options are described, both in terms of alternative diversion routings for the closure of Hollow Hill Lane, as well as for the design of the High Street . Meadfield Road junction improvement and other capacity enhancements. The preferred scheme options is concluded to be the most feasible option to begin to accommodate the additional traffic anticipated as a result of the Hollow Hill Lane closure.
 - 2.19 The consequences of a 'do-nothing' option are presented highlighting the increased levels of congestion and the negative impact this will have upon economic and environmental outcomes.
 - 2.20 Slough Borough Council is identified as the sole partner for the scheme, but a range of other organisation are identified as key stakeholders.

Independent Assessor Comment

- 2.21 The Strategic Case is considered to presents a reasonably robust overview of the issues and preferred solution for enhancing highway provision to alleviate the negative impacts associated with the future closure of Hollow Hill Lane.
- 2.22 The policy context is well-established, with reference to key local policy documents and how the scheme outcomes will align.
- 2.23 The section on rational for the scheme suggests that whilst issues of congestion may not be overly significant at present, they will deteriorate dramatically as a direct result of the closure of Hollow Hill Lane and that mitigation measures are required. This is evidenced through discussion of the impact of a trial closure and through plots of traffic delays.
- 2.24 The strategic importance of the Langley High Street corridor is outlined within the barriers for growth section, including the development opportunities within the local surrounds.
- 2.25 The options assessment process demonstrates that alternative mitigation solutions to the closure of Hollow Hill Lane have been considered at both a strategic and local level. The impact of not changing reiterates the congestion and delays that will occur and the type of impact upon local social and economic activity.
- 2.26 A set of three scheme objectives are presented, albeit there is no specific section explaining how these objectives have been developed. They are focused on reducing congestion; improving journey quality; and improving safety for pedestrians and cyclists. These are all referenced throughout the rationale for the scheme and are considered an appropriate set of objectives for the scheme.
- 2.27 Whilst there are no specific measures of success presented within this section there is sufficient evidence to demonstrate that reducing delays and improving journey times at the High Street / Meadfield Road junction, alongside improving safety, will be key outcomes. This is confirmed in Table 3 where the expected benefits are stated as: journey time savings; journey quality; physical activity; accidents; and air quality and noise impacts. Given that the closure of Hollow Hill Lane has yet to occur, it will be challenging to establish a clear reference case baseline against which to assess success.
- 2.28 Whilst no specific constraints or inter-dependencies have been identified it is clear that the overall need for the scheme is highly dependent upon the closure of Hollow

Hill Lane as part of the WRLtH project. If the WRLtH were not to progress, the strategic case for this scheme will be significantly reduced. There are also links with this scheme and other potential capacity enhancement along the Langley High Street corridor, albeit these do not currently have funding and so will most likely not be brought forward until after the completion of this scheme. Some land acquisition is required for the scheme and there is a need to move some existing on-street parking bays. These could both create some constraints on the project.

- 2.29 The list of key stakeholders appears comprehensive, although no detail is presented around the level of engagement undertaken to date. It is suggested that the scheme is well supported amongst these stakeholders but it is unclear what level of wider support amongst local businesses and residents there is for the scheme.

Value for Money (Economic and Financial Case)

- 2.30 The Value for Money section describes the direct and wide outputs the scheme will deliver and presents the funding requirements.
- 2.31 The economic case is set out into terms of the anticipated direct outputs of the scheme in relation to journey time savings; journey quality; physical activity; accidents; and air quality and noise impacts.
- 2.32 The scheme is also anticipated to facilitate wider impacts by unlocking future housing development, enhancing urban connectivity and supporting the creation of jobs and businesses. Specific potential outcomes are detailed in Table 4 in terms of new housing dwellings, retail space, jobs and businesses the scheme could facilitate.
- 2.33 The approach to assessing the potential journey time savings is set out. This describes the use of outputs from local junction traffic models and a bespoke Appraisal Spreadsheet Tool to calculate the economic benefits generated. This includes the parameters applied.
- 2.34 Outputs from the local junction modelling are presented within an appendix showing flows and delays on each arm of the junction in 2018 and 2028, AM and PM Peaks.
- 2.35 The approach to identifying the housing and employment indirectly attributable to the scheme is discussed, including the inter-dependencies with the need for further capacity enhancements along the Langley High Street corridor.
- 2.36 Further wider outcomes are set out in terms of journey quality (moderate positive impact), physical activity (slight positive impact), accidents (slight positive impact), and air quality and noise (neutral impact).
- 2.37 The financial case is set out, with the overall capital cost requirements (£1.588m) presented and the level of LGF sought (£1.324m).
- 2.38 It is stated that scheme costs have been developed based upon Slough's schedule of rates and based upon the judgement of technical experts. The requirement for a high number of utilities diversions is recognised and costs included accordingly. Cost estimates are stated to include a contingency allowance of £730,000. A detailed schedule of costs that this contingency will cover is presented, which includes:
- Additional design costs for the refinement of the design
 - Potential increase in scheme cost due to the design changes
 - Additional base construction costs
 - Third Party Land cost

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- Additional time required for stakeholder engagement
 - Additional utility costs
 - Provision for more general, unknown and unquantifiable cost uplifts
- 2.39 A breakdown of the scheme costs is provided in tabular format. SBC also commits to funding cost overruns.
- 2.40 The profile of funding package is presented, with all expenditure in 2020/21.
- 2.41 The overall present value of benefits, in terms of direct transport user benefits, are presented. These have been calculated using the direct outputs from the junction models and a bespoke spreadsheet tool. Overall these benefits are estimated as just over £10.4 million, in 2010 prices.
- 2.42 The overall present value of costs are estimated at around £1.127 million, in 2010 prices, giving an overall core scenario Net Present Value (NPV) for the scheme of just under £9.5 million and a Benefit to Cost Ratio (BCR) of 9.3.1 to 1, indicating the scheme should deliver 'Very High' value for money from investments.
- 2.43 Due to some of the limitation with the static nature of the local junction modelling, a series of sensitivity tests are presented that demonstrate the outcomes if the journey time benefits are reduced by 25%, 50%, and 75%. These indicate that the BCR would fall to 6.9, 4.6 and 2.3 to 1, respectively.
- 2.44 It is stated that a detailed appraisal of environmental impacts has not been undertaken at this stage but qualitative assessments of the impact on air quality and noise (neutral), townscape (slight positive), biodiversity and water environment (neutral) are considered.
- 2.45 In addition to the main assessment of physical activity, journey quality and accidents additional assessment of the social impacts of the scheme are considered, in terms of security (neutral), access to services (moderate positive), affordability (slight positive), severance (slight positive), option/non-use values (neutral), and apprenticeships (neutral).

Independent Assessor Comment

- 2.46 The Economic Case for the scheme is presented in terms of the direct transport users benefits that will be delivered, the wider development growth it will support, as well as the potential magnitude of environmental and social impact.
- 2.47 Some high-level information is presented in relation to the traffic modelling. The principle of using of the strategic highway model to determine the diversionary impact of the closure of Hollow Hill Lane is considered appropriate, albeit we are not able to verify the precise process that has been undertaken.
- 2.48 The principle of utilising the outputs from the strategic model to inform change of flows within local junction modelling is also considered an acceptable approach to assessing both the baseline need for the scheme, as well as the potential impacts upon congestion and delay.
- 2.49 The local junction modelling data presented in Appendix A indicates that in 2018 (without Hollow Hill Lane closure), the majority of delay is forecast to occur in the AM Peak on the Meadfield Road arm of the junction, with average delay of 482 seconds per PCU (roughly 482 seconds per car), or roughly 23 hours of delay for all vehicles using this route.

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- 2.50 By 2028, substantial increases in traffic flows (resulting mainly from the Hollow Hill Lane closure) are predicted, with a 36% increase in traffic flows through the junction in the AM Peak and 46% in the PM Peak. These increased flows mean that delays are also forecast to increase dramatically to 2,167 seconds (36 minutes) per PCU in the AM Peak and 1,620 seconds (27 minutes) per PCU in the PM Peak. This equates to total delays on Meadfield Road of 155 hours in the AM Peak and 160 hours in the PM peak.
- 2.51 As SBC acknowledge, this level of delay is highly significant and it is unlikely that car drivers would, in practice, sit in queues this long if there were alternative routes to avoid the queue. Whilst other routes are likely to result in longer journey times as well, it is unlikely to be quite as significant as the delays reported within the modelling. The sensitivity tests presented by SBC provide a useful understanding of how lower levels of delay would affect the value for money of the scheme. We consider the outcomes of the sensitivity test are likely to present a more accurate assessment of the overall value for money of the scheme.
- 2.52 As indicated within Appendix A, whilst the impacts of the proposed scheme are predominantly positive, there are some negative impacts upon journey times through the junction along the High Street. This is as a result of the introduction of traffic signals restricting the flow of traffic. The outputs indicate the main impact will be in the PM Peak for traffic approaching the junction on the high Street from the northwest. Whilst SBC states that the detailed design phase will seek to minimise these impacts, it will be important to verify this is the case. It should be noted that there may also be some negative impacts during the inter-peak period, due to the introduction of traffic signals, but this is not discussed, and should be a relatively small impact.
- 2.53 We have been informed that the four modelling scenarios have been available to assess the economic impact of the scheme, as follows:
- 2018 Without Scheme and With Hollow Hill Lane Open
 - 2018 With Scheme and With Hollow Hill Lane Closed
 - 2028 Without Scheme and With Hollow Hill Lane Closed
 - 2028 With Scheme and With Hollow Hill Lane Closed
- 2.54 This might explain why the forecast impacts of the scheme are relatively low in the 2018 scenario, since Hollow Hill Lane is only closed in the 'with scheme' scenario and so traffic flows will be considerably lower; however we have subsequently been informed by SBC that the assessment has applied a single set of flows for 2018 based upon the scenario with Hollow Hill Lane closed (as shown in Appendix A). This creates some uncertainty over the impact of the scheme in 2018.
- 2.55 In assessing the economic impact, it would be standard practice to make an assumption on when Hollow Hill Lane will close in the future, as this will impact upon the profile of benefits accrual i.e. will full benefits start from 2022 or not until 2025? It is not clear from the information presented what assumptions have been applied within this economic analysis.
- 2.56 The assessment of wider impacts provides a useful overview of the aspirational development growth that is planned within the Langley High Street corridor and the need for transport capacity to support this development. Whilst the forecast housing, jobs, employment floorspace presented within Table 4 appear to relate to

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- the Langley Business Park development, the specific link to the scheme is not explained; however, since this is not claimed as a direct outcome of the scheme it does not affect the overall assessment of value for money.
- 2.57 The stated moderate positive impact of the scheme upon journey quality appears logical in the context of the substantial delays forecast in the core scenario. However, as discussed above, it seems unlikely these delays will occur in reality and so the journey quality impacts, whilst still positive, are likely to be of a lower magnitude.
- 2.58 The slight positive impact upon physical activity is considered a reasonable conclusion, albeit it is acknowledged that the scheme only proposes 'light touch' improvements for pedestrian and cyclists.
- 2.59 Whilst the junction does not currently suffer from significant levels of accidents, it is recognised that the significant forecast increase in traffic flows is likely to result in higher accident levels. The signalisation of the junction will provide additional controls on movements and should reduce the risk of accidents. This appears to justify the conclusion that the scheme will provide slight positive benefits.
- 2.60 As SBC acknowledge, a full environmental assessment has not been undertaken and so no definite conclusions can be drawn about the impact of the scheme upon air quality and noise. The current conclusion that impacts will be neutral appears reasonable, albeit actual impacts may be either slightly negative or slightly positive.
- 2.61 Whilst a detailed breakdown of the base construction costs is not presented, it is acknowledged that these have been developed through standard industry practices and with SBC's schedule of rates. The inclusion of preliminaries, overheads and profit, and professional fees demonstrates that the development requirements for the scheme have been taken into account. Further detailed development of base construction costs still needs to occur.
- 2.62 It is recognised that there is a known, and substantial, risk of utilities works being required. It is unclear precisely what basis has been used to estimate the allowance of 35% of base construction cost for utilities works and so there may remain some risk that this value could be higher.
- 2.63 The £730,000 contingency budget is considered to represent a substantial proportion of the budget. Whilst this provides confidence that the budget is very unlikely to be exceeded, it is not considered standard practice for a scheme supposedly at Full Business Case stage of development. Effectively, around 45% of the total budget is unallocated to any specific costs. This indicates that there is relatively poor understanding of scheme costs at this stage. Whilst a significant number of potential contingency requirements are set out, a number of these effectively relate to the potential for significant design changes, including additional lanes on the approach to the junction. This scale of design change indicated should not, typically, take place post submission of the full business case.
- 2.64 It will be important for TVB LEP to have a full understanding of how the scheme is developed going forward.
- 2.65 No optimism bias is included in the economic case. Whilst this is not standard practice, we do not consider this to be an issue given the substantial excess of contingency budget that has been included within the scheme costs.

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- 2.66 It should be recognised that there is no reference to additional maintenance costs associated with the delivery of the signalisation scheme, but it is assumed that these would be absorbed within the SBC's annual maintenance budget.
- 2.67 The profile of the funding package is straightforward and commits SBC to deliver the scheme within 2020/2021. A specific commitment is given from SBC to cover any cost overruns in the event that they occur, albeit this is not officially evidenced through a S151 Officer statement.
- 2.68 The business case submission does not include standard Transport Economic Efficiency, Public Accounts, or Analysis of Monetised Costs and Benefits tables and so it is not feasible to comment upon the details of the monetised value for money assessment. The result for the core scenario appear to demonstrate that the scheme will deliver very high value for money. Due to the limitations of the modelling tools applied in the analysis (as discussed in Sections 2.50) it is considered unlikely that this level of benefit to cost ratio (BCR) will be achieved.
- 2.69 The results presented within the sensitivity tests are considered to offer a more likely insight into the actual outturn BCR that will be achieved by the investment. Whilst there is insufficient information to judge accurately what BCR will be achieved, we can have a high degree of confidence that it will be in excess of 2 to 1 and so the scheme can be considered to deliver 'high' value for money.
- 2.70 It should be reiterated that the high value for money from investment is only likely to occur in circumstances where Hollow Hill Lane is closed. If, for any reason, this closure were not to occur, then we could have no certainty what outturn BCR for the scheme would be generated.
- 2.71 It is recognised that the scale of the scheme does not, in general terms, warrant a full environmental assessment and so the approach adopted by SBC is considered acceptable. In addition to air quality and noise (discussed above in Section 2.60), the stated slight positive impact on the scheme upon townscape is considered acceptable, albeit the positive impact are likely to be very minimal in nature. It is agreed that there is no requirement to assess the impact upon historic environment.
- 2.72 For a scheme of this type, that will reconfigure the highway and require some land take, we would anticipate the need to consider potential impacts upon biodiversity and water environment. Whilst no detail is presented within the business case submission, SBC's reference to an initial assessment provides some justification to their conclusion that the impact will be neutral; however, we would expect this to be assessed further as part of the detail design process.
- 2.73 The qualitative approach to assessing social impacts is considered acceptable. It is agreed that the scheme is unlikely to have any notable impact upon security. On the basis of the core scenario traffic modelling, the scheme could have a moderately positive impact upon access to services, but in reality, as discussed in Sections 2.50 to 2.51, the impacts are likely to be lower and so a slight positive rating may be more appropriate. It is accepted that the scheme could have a slight positive impact upon affordability and community severance, albeit this is not stated within any context of the local demographics of the area. It is agreed that there will be neutral impact upon option / non-use values and apprenticeships.

Deliverability and Risk (Commercial and Management Cases)

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- 2.74 The section on deliverability and risk provides an overview of the project programme, project management arrangements, and risk.
- 2.75 The business case document reiterates that 20% local contribution will comprise of Slough Borough Council Capital Funds and states that these are considered a reliable source of funding.
- 2.76 A high-level overview of the proposed programme is presented highlighting phases of preliminary design, public information / engagement, detailed design, mobilisation and statutory consents, commencement of site works (December 2020), and completion of site works (early 2021).
- 2.77 Reference is made to the SBC's wealth of experience in managing capital infrastructure improvements, including High Street/ Langley Road junction adjacent to this proposed scheme.
- 2.78 It is indicated that the construction works will be directly assigned to SBC's Direct Service Organisation (DSO) (Contractors), as an extension to both the High Street / Langley Road junction scheme and the original Langley Station and Access Improvements scheme. Contracts are also likely to mirror the structure previously used. This procurement process is stated to have provided a high quality and efficient service, with resources readily available to be mobilised at short notice. SBC deems it appropriate not to engage in any new, competitive procurement process.
- 2.79 The project management arrangements are described, including reporting protocols, and are stated to reflect the previous governance for the Langley High Street schemes that have worked effectively.
- 2.80 A summary of the key strategic risks identified for the scheme are presented, with mitigating actions set out. As well as issues relating to COVID-19, key scheme risks relate to: scheme design changes, impact on parking, utilities costs, planning/consultation objections, cost increases, and delays/cancellation to WRLtH.

Independent Assessor Comment

- 2.81 The section on deliverability and risk, whilst relatively succinct, provides some useful confirmation of the measures in place to successfully deliver the project by March 2021.
- 2.82 Whilst it is generally accepted that SBC will be a reliable source of match-funding, no commitment from the S151 Officer is formally made with the submission.
- 2.83 The programme provided is very high-level in nature but appears reasonable, in terms of general time periods permitted. There are clearly some potential external project risks, in terms of stakeholder consultation and utilities works, that could significantly affect the programme and which the project team will have limited ability to control.
- 2.84 The recent works along Langley High Street provide strong examples of SBC's experience in successfully delivering highway infrastructure schemes.
- 2.85 It is recognised that the direct award of the contract through the SBC's DCO is the most efficient way of taking the project forward quickly and has enabled previous projects to be successfully delivered. Based upon the information presented it is challenging to conclude whether it represents the best value for money

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- procurement approach but, given the timescales for deliver, it would appear to represent a prudent solution.
- 2.86 The project management arrangements, whilst not presented in any detail, appear sensible and have successfully delivered previous projects within the same corridor.
 - 2.87 The risk register is considered to provide a sufficient amount of detail around both specific risks, as well as mitigating measures. It is recognised that this is a relatively standard highway engineering project, albeit it requires elements of land acquisition, removal of parking bays, and utilities works. All of these elements have the potential to significantly affect the programme for delivery, as well as the cost, but these risks appear to be well understood by SBC and will be managed accordingly.
 - 2.88 There is limited discussion of programme and project dependencies.
 - 2.89 The details of the communication and/or stakeholder management processes are not described in any detail.
 - 2.90 There is no discussion of benefits realisation planning or monitoring and evaluation.

Conclusions and Recommendations

Conclusions

- 2.91 The overall scheme is considered to align well with strategic priorities and there is an established need for the intervention in the context of the predicted Hollow Hill Lane closure. The scheme will help substantially off-set the impact of traffic diverting along Meadfield Road. In the absence of Hollow Hill Lane closure, the strategic benefits of the scheme are significantly reduced, albeit some local benefits remain, in terms of supporting development.
- 2.92 The overall Economic Case, whilst subject to some forecasting challenges and a lack of clarity around the robustness of the approach applied, indicates there is a reasonable degree of likelihood that it will deliver high value for money, mainly through highway decongestion benefits. It should be noted that there will be some negative journey time impacts upon some north-south movements through the junction as a result of the signalisation; however, these are predicted to be fully off-set to benefits on the Meadfield Road arm of the junction. Most of the wider economic, social and environmental impacts are relatively neutral, with some slight positives. As with the Strategic Case, the economic benefits from the scheme will be substantially reduced without the closure of Hollow Hill Lane.
- 2.93 There are a number of concerns over the robustness of the Financial Case presented. It does not appear that the costs of the scheme are very well developed at this stage and a significant proportion of the scheme costs relate to contingency and risk.
- 2.94 The Commercial and Management Cases are considered to be relatively succinct, but broadly compliant with requirements. They provide sufficient evidence to demonstrate that the procurement approaches offer value for money within the context in which the scheme must be delivered and that there are, generally, robust measures in place to manage the delivery of the project. Since there is significant development work still to completed, the programme will need to be closely

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- monitored and there remain a number of critical milestones, including land acquisition and consultations over removal/relocation of on-street car parking.
- 2.95 It is our conclusion that there is sufficient evidence presented to support the overall strategic and economic case for investment in the scheme, but only in the event that Hollow Hill Lane being closed. It has good strategic alignment and an established need for intervention. The overall economic case demonstrates a reasonable probability that the scheme should deliver high value for money.
- 2.96 There are, however, clear limitations in the detail of the scheme costs, as they are currently presented, and more information is required to verify that a sound financial case exists.

Recommendations

- 2.97 On the basis of the strength of the strategic and economic cases we recommend the scheme for approval but with the following conditions:
- 1) Production of a revised, and more robust, assessment of scheme costs, post-preliminary scheme design; and
 - 2) Formal confirmation (e.g. S151 Officer letter) to cover SBC funding allocation, along with confirmation that SBC will cover any potential cost overruns.
- 2.98 These conditions should be met at the earliest feasible date, but no later than 31st August 2020.

Appendix 3

Langley High Street/ Meadfield Road Junction Improvements phase 1 Full Business Case

**Slough Borough Council
21 May 2020**

Introduction

The B470 Station Road / High Street (hereafter referred to as High Street) runs through the centre of Langley village and is a key strategic link for businesses and residents, providing access to jobs, education and amenities. However, this important stretch of road is frequently subject to traffic congestion particularly during peak hours. Meadfield Road is a secondary road joining High Street opposite Langley Memorial Ground and immediately south of Harrow Market. The road is key through route connecting residential streets in the east of Langley to the High Street and their access to amenities and Langley Station. Meadfield Road also serves as a connecting road between High Street and Market Lane, leading to Hollow Hill Lane.

The core scheme deliverables are the signalisation of the High Street/Meadfield Road junction, a formal pedestrian crossing on Meadfield Road and the implementation of Advance Stop Lines for cyclists on north and southbound lanes on High Street. The main objective of the scheme is to reduce delay to traffic along the High Street and Meadfield Road, primarily in anticipation of significant volumes of traffic being re-routed through Langley as a result of the closure of Hollow Hill Lane. This closure is proposed to support the construction of the Western Rail Link to Heathrow (WRLtH) being promoted by Network Rail. In addition, High Street and Meadfield Road currently suffer from congestion, particularly during the AM and PM peaks, which negatively impacts journey quality and the vibrancy of High Street and Langley. The High Street/ Meadfield Road junction improvements are also an extension to the junction improvement delivered in March 2020 at the High Street/ Langley Road junction, which adjoins the High Street/ Meadfield Road junction to the north.

In January 2020, a proforma application was submitted to the Thames Valley Berkshire Local Economic Partnership (TVB LEP) for funding of a package of interventions to ensure Langley High Street has sufficient capacity to accommodate an increase in traffic as a result of the Hollow Hill Lane closure, and the impact this will have on already congested roads. The package of interventions was split into three sub sections, as shown in Figure 1.

Subsequently, the TVB LEP have provisionally agreed to the funding of High Street/ Meadfield Road junction (Section 2 of the original proposal) subject to a more thorough business case application. This Full Business Case has been produced to present the case for the proposed High Street/ Meadfield Road junction improvements and the appraisal that has been undertaken.

Figure 1 - Proposed widening of High Street from Langley Station to the A4 from one lane in each direction to two lanes in each direction (Section 2 is the focus on this business case). It should be noted that the benefits and impacts associated with the proposed scheme mirror those proposed in the January 2020 submission, which supported a package of interventions. However, these have been adjusted proportionately in accordance with the scale of the scheme.

1. Rationale for the scheme and strategic fit

How will the scheme contribute to the delivery of Thames Valley Berkshire's Strategic Economic Plan (SEP)?

Scheme alignment with the Thames Valley Berkshire's SEP

The TVB LEP proudly promotes itself as the most productive sub-region in the UK and the key to supporting, nurturing and growing this economic powerhouse is a robust and sustainable transport infrastructure. Providing smooth and efficient movements of people and goods will not only drive growth from within Langley, Slough and the wider TVB area but will also bring outside investors into the region, thus improving economic prosperity and productivity.

The TVB LEP Strategic Economic Plan (SEP) 2015/2016 – 2022/2021 rightly states that the close proximity of Heathrow airport provides a locational advantage for the region, particularly for Slough and Langley, by ensuring residents have access to highly-skilled and high wage jobs. The Western Rail Link to Heathrow (WRLtH) will provide a step change in supporting the employment growth within Slough and Langley by providing quick and reliable access to Heathrow. The TVB LEP's support for the WRLtH scheme is clearly articulated throughout the strategic planning documents including the SEP, the SEP Implementation Plan and the Evidence Base. This strategic support is continued through the creation of WRLtH project team and Stakeholder Steering Group, showing the TVB LEP's continued and dedicated support to the implementation of the WRLtH scheme.

Slough Borough Council appreciates the importance of this opportunity, although it is understood that improvements to the rail network should not be detrimental to other modes of transport. To successfully implement the WRLtH alongside the existing Great Western rail network, the road tunnel (Chequers Bridge) on Hollow Hill Lane will have to be permanently closed. As a popular commuter route, this will force current traffic to use alternative routes, potentially adding a significant amount of pressure on local roads. The scheme aims to support the WRLtH and economic prosperity in the TVB region whilst mitigating the impact that will result from the closure of Hollow Hill Lane.

Figure 2 below highlights the key transport infrastructure surrounding the scheme including the Slough Mass Rapid Transit Phases 1 and 2 along the A4 and the M4 Smart motorway scheme to the south, Langley Station improvements, Crossrail and the WRLtH.

The proposed scheme, which is an extension to the original rail station accessibility and Station Road/ High Street/ Langley Road junction improvement scheme in Langley , will complement the SEP's overall vision ensuring that:

“The ambition and creativity of our established businesses will be energised through strong, knowledge-rich, networks [and] our infrastructure will match the scale of our ambition and potential” i

Slough Borough Council recognises that TVB is in the final stages of the current SEP delivery period, and whilst the scheme will be well progressed by 2021, there is confidence that the proposal will align with the subsequent SEP by delivering improved transport infrastructure, indirectly supporting economic growth in Langley, Slough and the wider TVB district.

In addition, this scheme extension will contribute to the delivery of the following packages within the Thames Valley Berkshire's (TVB) Strategic Economic Plan (SEP):

(N.B. The text below shows how the proposed extension to the original Langley Highway improvement scheme will support the delivery of the SEP in chronological order, despite the Packages not being in numerical order.)

Figure 2 - Wider geographical area showing the key transport infrastructure.

SEP Package 2: Enhancing urban connectivity

High Street is the central north-south aligned road that links businesses and residents to Langley rail station and the strategic road network (A4, M4 and M25), and is a popular through route for commuters and public services. Currently, High Street and Meadfield Road suffer from congestion during the AM and PM peaks and in particular traffic turning right out of Meadfield Road onto High Street. In the short-term, the scheme aims to reduce congestion at this key junction along High Street and reduce the negative environmental impacts that are associated with the slow-moving nature of congested traffic, notably noise and air quality.

This route will become increasingly important after the proposed closure of Hollow Hill Lane. Strategic traffic modelling has shown that the closure of Hollow Hill Lane will result in a re-routing of traffic onto Meadfield Road and High Street in Langley and this increased number of vehicles will make the High Street more congested . The downstream effects of this congestion threaten to impact labour supply to local businesses, access to education i.e. Marish Primary School, Langley Hall Primary Academy and Langley College, connectivity to the wider TVB district and will inhibit future economic prosperity.

Local junction modelling has forecast that the increase in traffic on Meadfield Road, which currently uses Hollow Hill Lane, will adversely affect the flow of traffic at the High Street/ Meadfield Road junction, resulting in a bottleneck and long delays for vehicles. The proposed scheme aims to accommodate future demand as a result of the Hollow Hill Lane closure, on both High Street and Meadfield Road by enhancing the efficiency and flow of vehicle movement within Langley, thus improving access to the strategic road network. As part of the design for operational improvements at the junction, improvements for pedestrians and cyclists have also been incorporated.

SEP Package 6: Enhancing the strategic transport network

As a result of completing the Slough Mass Rapid Transit (SMaRT) Phase 1 and 2 programmes, the east-west corridor through Slough has been well developed in recent years and is beginning to transform Slough, Langley and the wider TVB district. However, north-south connections through both town centres remains both a challenge and a priority to Slough Borough Council. The scheme aims to improve the flow of traffic along the High Street, supporting the north-south connection and helping to deliver SEP Package 6.

To some extent, the improved connectivity and traffic flow along High Street will also benefit the two local bus services that currently use High Street as part of their route. Bus passengers are likely to see an improvement in their journey quality as bus services will be less likely to experience congestion along Langley High Street. The proposed signalised pedestrian crossing on Meadfield Road will also provide improved and safer accessibility to the southbound bus stop located just north of the junction.

Within Package 6, the TVB LEP also indicates the importance of the WRLtH, and the need to provide certainty with regards to its early implementation. The strategic need for the WRLtH is a clear narrative throughout the Strategic Economic Plan, enhancing and supporting the growth of the strategic transport network, of which the scheme aims to support.

SEP Package 5: Foundations for future growth for housing, transport and utilities

By replacing a priority-based junction with a signalised junction, the scheme will build upon Slough's existing transport infrastructure and will support the anticipated surge in demand as a result of the Hollow Hill Lane closure. By ensuring that High Street and connecting roads such as Meadfield Road can operate efficiently, the scheme will support the future growth in housing, businesses and retail, in a sustainable manner. Although the scheme does not directly support or unlock a significant growth in housing, transport and utilities, the efficiency and robustness of a transport network, of which this scheme supports, underpins the foundations needed for effective and sustainable growth.

The efficiency of the junction, and the smooth flow of vehicles along High Street and Meadfield Road will support the access for SMEs and residents to local and national infrastructure projects including Langley Business Centre, Crossrail, the Heathrow Airport Expansion and the wider strategic road network. The scheme's main priority of reducing current and future congestion along the High Street and Meadfield Road, will improve access to the local labour supply supporting businesses and the wider Thames Valley district.

SEP Package 1: Unlocking housing developments

The scheme will complement the ongoing transport infrastructure improvements in Langley, the combined effects of which will help to unlock new housing developments and support the TVB SEP Implementation Plan of delivering 21,060 jobs and 10,702 houses by 2021.

This includes the collaboration between the Borough of Slough and South Buckinghamshire District Council to develop proposals for the Northern Extension. The permanent closure of Hollow Hill Lane could prove detrimental to the Northern Extension business case if local roads prove unable to cope with additional vehicles. Slough Borough Council is taking a

proactive approach to ensure that the roads remain efficient, for both short term benefits of closing Hollow Hill Lane and future developments such as the Northern Extension. Thus, the proposed signalisation of High Street/ Meadfield Road junction will prove valuable to the efficient movement of vehicles and wider housing developments.

SEP Package 3: Encouraging vibrant town centres

High Streets across the UK are undergoing a radical change, primarily driven through a large shift towards online shopping . In addition, the ongoing COVID-19 pandemic is adding further strain on High Streets. As a result, the customer experience and public perception and ambience of High Street shopping and services, now more than ever, is vital to ensure their success in the future. It is unlikely that a heavily congested High Street will attract and retain both businesses and consumers, thus the scheme will play an important role in ensuring the ambience of Langley High Street remains inviting. Although the proposed scheme will not implement any specific public realm improvements, the overall package of transport interventions will support Langley in retaining its status as a vibrant and prosperous town centre.

The signalised pedestrian crossing which would be provided on Meadfield Road will also support the future of Langley High Street, encouraging safe active travel within the community.

Alignment with other local and regional policies

Berkshire Local Industrial Strategy (BLIS) March 2019 (Framework document for consultation)

The scheme supports the delivery of the Berkshire Local Industrial Strategy (BLIS), in particular Priority 4: Vibrant places and a supportive infrastructure . The strategy framework understands that the transport network is congested, with an over dependence by private vehicles on key routes such as the M4. To respond, the BLIS highlights the importance of sites close to railway stations and motorway junctions, and in strategic transport corridors. It is anticipated that, as a result of the Hollow Hill Lane closure, the High Street will become overly congested with the redirected traffic. As the location of Langley High Street is within such close proximity to the M25 and M4, large volumes of commuter traffic could use the High Street as a shortcut, particularly if long queues are witnessed on the SRN. This scheme will support the BLIS framework by improving the flow of traffic along Langley High Street and Meadfield Road.

The BLIS document also supports the TVB LEP's view for the strategic need for the WRLtH giving improved access to Heathrow from the west and south, bringing substantial benefits and productivity enhancements. The document also highlights the importance of encouraging access to Heathrow by sustainable travel modes, such as rail, rather than a dependence on private vehicles. The proposed scheme will help to deliver efficient movement of traffic along High Street, including access to Langley Station and the rail network, at the northern end of High Street.

Slough's Five Year Plan (2020 – 2025)

The Five Year Plan document outlines Slough Borough Council's vision for Slough and the milestones towards delivering it. The Plan focuses on five priorities, of which the scheme will help to deliver the following:

Priority 2: Our people will be healthier and manage their own care needs. The proposed scheme will help to encourage the Langley community to use active travel by providing safe and accessible walking and cycling facilities. These will be in the form of formal pedestrian crossings on the Meadfield arm of the junction and Advance Stop Lines on High Street. These facilities will be particularly pertinent during and after the COVID-19 pandemic where walking and cycling are emphasised as a safe means of travel and could potentially result in a long-term shift towards active travel.

Priority 3: Slough will be an attractive place where people choose to live, work and stay. The proposed scheme supports the delivery of the long-term priority of investing in infrastructure that will have a positive impact on the regeneration of Slough and improve air quality. By reducing congestion along both High Street and Meadfield Road, the High Street will become a more attractive place to work and shop, in addition to the reduced emissions associated with the start-stop nature of congested traffic.

Priority 5: Slough will attract, retain and grow businesses and investment to provide opportunities for our residents. As part of this priority, the Council aims to make the most of the benefits of the Heathrow expansion and WRLtH to maximise the growth potential of Slough and Langley. The proposed scheme supports the WRLtH by implementing mitigation measures to ensure the smooth operation of traffic through Langley as a result of the closure of Hollow Hill Lane. In addition, the priority aims to encourage modal shift towards sustainable forms of transport, of which the scheme supports in a similar argument to Priority 2.

Slough Local Development Framework Core Strategy 2006 – 2026 (Adopted December 2008)

The core strategy highlights the overarching issues Slough will encounter over the next 20 years, and the Council's plan on how to proactively address them to ensure the district remains vibrant and prosperous. The primary themes are to enhance the transport network and encourage the use of sustainable modes of transport within the community. The scheme indirectly supports and promotes the rail network, particularly its access to Heathrow Airport, and will directly improve journey times and the journey quality and reliability of bus services. With reduced congestion along High Street, passengers using bus 3 (Uxbridge – Slough Town Centre) and bus 7 (Heathrow – Slough Town Centre) will benefit from the scheme.

In addition, the scheme will introduce pedestrian safety improvements through signalised crossings on the Meadfield Road arm of the junction and bicycle improvements through the introduction of Advance Stop Lines on the north and southbound approaches of High Street. The improvements above, alongside previous interventions to Langley Station as part of the original scheme, will encourage the Langley community to use walking and cycling as sustainable and safe modes of transport, particularly when accessing Langley High Street and railway station.

Slough's Third Local Transport plan 2011 – 2026

The Local Transport Plan for Slough outlines the fifteen-year plan for the local transport network, describing how Slough Borough Council will maintain and improve transport in the borough, to meet both national and local objectives. The proposed scheme will support the following objectives outlined in the LTP:

Table 1 - Alignment of the junction improvement scheme at High Street/ Meadfield Road with objectives of Slough's Third Local Transport Plan.

Local Transport Plan Objective	Alignment with the proposed scheme
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To minimise the noise generated by the transport network, and its impacts on the environment	- Improving the flow of vehicles will reduce the start-stop nature of congested traffic, thus reducing the impact of noise pollution on High Street and Meadfield Lane.
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To achieve better links between neighbourhoods	- Bus services will operate with improved journey time reliability and customer experience, encouraging the use of public transport.
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- Supporting the WRLtH will improve connections across the wider TVB area.

To improve the journey experience of transport users across Slough's transport networks	- Similarly, bus services will operate with improved journey experience as a result of reduced congestion.
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	- Walking and cycling will become an attractive alternative to private vehicles with improved crossing facilities and Advance Stop Lines at the junction.
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To reduce transport CO2 emissions	- Reducing the start-stop nature of congested traffic will support the reduction in transport CO2 emissions.
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Emerging Local Plan for Slough

The emerging Local Plan for Slough aims to address key challenges that Slough and Langley will encounter during the 2016-2036 delivery period, including how to tackle congestion on the road network. The proposed signalisation of the High Street/ Meadfield Road junction, which is the focus of this funding application, aligns with both the current and emerging Local Plan to help address the issue of future congestion.

A proposed subsequent stage to this scheme, which is not considered for funding under this Growth Deal, is to widen the B470 from a single lane carriageway to a two-lane carriageway in each direction from Langley Station and the A4, thus continuing to complement the emerging Local Plan for Slough in 2021 and beyond.

Overview of Strategic Alignment

The table below presents an overview of how the upgrading of High Street/ Meadfield Road junction from a priority to a signalised junction, aligns with the policies and plans detailed in the preceding sections.

What is the rationale for the scheme?

Scheme extension location

Langley is a large village within The Borough of Slough, approximately two miles east of central Slough. Whilst primarily residential, Langley also includes light industrial,

commercial, retail and leisure use. Key sites within Langley include the Langley Hall Primary Academy & Langley College, Langley Park Memorial Recreation Ground, Langley Business Centre & Waterside Drive Business Park, Harrow Market and Langley Rail Station (which is on the Great Western Main Line to London Paddington and which will soon be on Crossrail, providing connectivity into London).

Langley High Street is single carriageway, with one lane in each direction. It is north-south aligned, running from the A4 Junction 5 in the south to Langley rail station in the north, and through the heart of Langley in the centre. North of this, it continues into South Buckinghamshire. It is subject to 20mph and 30mph speed limits along its extent.

To the immediate east of and running parallel to High Street is Mansion Lane / Hollow Hill Lane / Market Lane. This connects traffic from Iver in the north to Sutton Lane / M4 Junction 5 in the south and is a route used by thousands of commuters each day. Traffic surveys undertaken by Network Rail in 2015 recorded an average weekday (24 hours) flow of 7,767 vehicles (two-way).

Connecting the two north-south corridors is Meadfield Road which runs from east to west in line with Harrow Market and Market Lane. The route is also a key connector for residential homes in the east of Langley, and their accessibility to the High Street amenities. To the south, Parlaunt Road is a secondary east-west corridor connecting the High Street and Market Lane; however this scheme is focused solely on the forecast congestion of Meadfield Road resultant of the Hollow Hill Lane closure. Figure 3 below shows the location of the scheme, alongside key geographical landmarks reported above.

This scheme is an extension to the 'original' improvement scheme developed for Langley (LEP Ref 2.21), consisting of:

1. Junction upgrade at Station Road/ Waterside Drive and accessibility improvements to Langley Rail Station (scheme delivered in 2018) shown at Langley station in Figure 3.
2. In addition to the above original scheme, junction improvements (conversion of a mini roundabout to signalised junction with pedestrian crossings) at High Street/ Station Road/ Langley Road (completed on site in March 2020), shown in Figure 3 below.

Figure 3 - Langley Village and surrounding landmarks.

Scheme rationale

As aforementioned, this scheme is an extension to the original improvement scheme in Langley (LEP Ref 2.21) and is primarily in response to the expected re-distribution of traffic from Hollow Hill Lane to High Street through Meadfield Road, as a result of Hollow Hill lane being permanently closed. The scheme aims to improve the efficiency of the High Street/ Meadfield Road junction and is therefore designed to increase capacity and reduce additional congestion and delay through Langley that would otherwise be caused.

In the short-term, the scheme will help to alleviate the current traffic congestion witnessed along High Street and Meadfield Road. As the High Street will continue to be a key road within Langley, it is likely that the number of vehicles using the road will increase in line with anticipated economic growth predicted in the strategic documents reported above. As such, the scheme will help to ease congestion issues currently observed along High Street and Meadfield Road in line with gradual growth in vehicle numbers and the step change in demand predicted as a result of the WRLtH.

Slough Borough Council understands the importance of the WRLtH and the significant benefits it will bring in terms of employment, connectivity and improved economic prosperity for both Langley, Slough and the wider Thames Valley area. However, the benefits associated with the WRLtH could be overshadowed by the possible negative effects of overly congested roads, environmental disbenefits associated with queueing vehicle traffic, reduced vibrancy of Langley town centre and negative public opinion accompanying such changes. Thus, the strategic objective of this scheme is to support Network Rail and the WRLtH by introducing signalisation at a key junction on the High Street to help mitigate the negative impacts described above.

Also, the informal pedestrian crossings along High Street in Langley is a safety concern for pedestrians, particularly given the close proximity of Langley Hall Primary Academy and Langley College. Formal, signalised, crossings have already been introduced at the High Street/ Langley Road junction and the introduction of a further signalised crossing across Meadfield Road will improve pedestrians' perception about safety and accessibility.

Experimental closure of Hollow Hill Lane.

In 2016, a six-month experimental closure of Hollow Hill Lane was conducted to better understand the effects upon the local highway network. This is the most robust example of impact analysis possible and strongly complements the strategic modelling undertaken by Network Rail. Whilst the focus of the traffic impact study was on Iver, given that the investigation was commissioned by Buckinghamshire County Council, the Study Area also covered Langley Park Road which leads directly to Station Road High Street and the extent of this extended scheme. The Study reported the following key impacts upon Langley:

- 24 Hour: An additional 1,389 northbound and 2,836 south bound vehicles on Langley Park Road, which leads to Station Road/ High Street through Langley;
- AM & PM peak hours: An additional amount of traffic on Langley Park Road, leading to Station Road/ High Street, not dissimilar to that indicated by the strategic model results outlined above.

The Study found that a majority (67% based on 24 hour) of re-distributed traffic uses Langley Park Lane (and onwards to Station Road/ High Street through Langley) rather than the most feasible other alternate route being Thorney Lane North (25%) through Iver. This supports Station Road/ High Street as being an important location for the focus of remedial measures.

The Study concluded that the increased levels of traffic observed through the Study will serve to exacerbate the existing congestion and environmental functions of the roads within the Study Area. The junction improvements at High Street/Meadfield Road junction is therefore required as a step towards mitigating the impacts of the WRLtH however this will by no means solve the overall congestion problems described above. A wider package of works will be required before Hollow Hill Lane is permanently closed which will allow the High Street to continue to operate as a strategic through route and Langley to function as a centre for housing, employment, education and local commerce. This includes a scheme to widen the highway from one to two lanes in each direction, as also presented in the January 2020 proforma application, which would be subject to a supplementary business case.

Re-routed traffic due to the closure of Hollow Hill Lane

Network Rail is proposing to create a high-speed rail link from Langley to Heathrow T5 (Western Rail Link to Heathrow, WRLtH), which would require the permanent closure of Hollow Hill Lane. Strategic modelling has been undertaken in SATURN, a highway assignment model, and has demonstrated that the impact of this closure would be the re-routing/ re-distribution of a significant amount of Hollow Hill Lane traffic onto High Street, through Langley.

Figure 4 below captures the forecast change in traffic flows by the model in future year 2028, as a direct result of the closure of Hollow Hill Lane. It is evident that the model is forecasting a re-distribution of traffic from Mansion Lane/ Hollow Hill Lane/ Market Lane onto the High Street, as vehicles are using the route through Langley as the most feasible alternative. The main impact of the redistributed traffic is on the High Street/ Meadfield Road junction, which is the focus of this business case, and High Street north of this junction.

Figure 4 - Changes in traffic flow associated with the closure of Hollow Hill Lane (output from the strategic model, where blue represents a reduction in traffic and green represents an increase in traffic)

Specifically, the model is forecasting an increase in traffic on High Street, north of Harrow Market in the centre of Langley, of between 140 and 190 vehicles in each direction, during the peak hours. This is an increase of approximately 15-30% in traffic in both directions along High Street, in relation to today's flows. The model is also forecasting an increase in traffic on Meadfield Road of between 80-90 vehicles in the peak hours, turning onto High Street north. This is a result of traffic re-routing due to the Hollow Hill Lane closure and represents an increase of approximately 50% based on today's flow. It should be noted that in reality some strategic re-routing is expected to occur as there are other alternatives for traffic (e.g. Thorney Lane to the east of Langley, Willoughby Road and Parlount Road) and it is unrealistic to expect vehicles to queue for up to 37 minutes when there are alternate routes available – as explained in the sub-section below. This will be covered though a sensitivity test in the Value for Money section of this Business Case.

The consequence of this, without the mitigation which this scheme is designed to provide, is increased delay and queuing through Langley, leading to adverse environmental impacts as a result of stationary or slow-moving traffic (increased noise and reduced air quality).

Poor performance of local Junction due to the closure of Hollow Hill Lane *

In addition, local traffic modelling (in Junctions 9 software) has been undertaken at the High Street/ Meadfield Road junction, which is proposed to be upgraded to a signalised junction as part of this extended scheme. The result of this modelling showed that the junction experiences operational stress in the current year, especially on Meadfield Road where long queues can occur. In the year 2028 scenario developed, which includes the Hollow Hill Lane closure, the local junction model showed that for the current priority junction layout:

- A worsening in operation due to the increased flows through the junction, with both the B470 Station Road/ B470 High Street/ Langley Road and B470 High Street/ Meadfield Road junctions forecast to operate over capacity by 2028. (N.B. The B470 Station Road/ B470 High Street/ Langley Road junction has recently been upgraded from a mini-roundabout to a signalised junction, similar to the proposed scheme, to address this issue).
- The most critical arms are Langley Road, which is expected to have close to a minute of delay per Passenger Car Unit (PCU), up from 17 seconds in the current year (addressed by the signalisation of this junction in March 2020); and Meadfield Road which is expected to have 37 minutes of delay per Passenger Car Unit (PCU), up from just over a minute in the current year.

An increase of up to 37 minutes is clearly a significant and unacceptable level of delay and will cause a magnitude of problems for both frequent and new users of Meadfield Road, particularly those using the route as part of a commute. Residents in the east of Langley, who's primary access to the town centre is through Meadfield Road, could observe significant disruption as a result of the closure of Hollow Hill Lane. The stationary traffic could also cause downstream effects of increase air and noise pollution and unsatisfactory journey quality for vehicle drivers, passengers and active mode users.

The proposed improvements to the High Street/ Meadfield Road junction, as part of this scheme extension, was also modelled. This showed that the junction would operate within theoretical capacity with reduced delay to traffic, thus demonstrating the benefit of the extended scheme measures.

* Although modelling is the most appropriate tool to predict the operation of the High Street/ Meadfield Road junction, on site observations has shown that the level of queuing and delay on Meadfield Road may be overestimated to a minor extent in the model. This is because, in reality, some vehicles waiting on Meadfield Road are occasionally edge out and join the flow of traffic on High Street when pedestrians are crossing the road. However, this driver behaviour is not expected to significantly reduce the high level of delay expected due to the Hollow Hill Lane closure and Slough Borough Council is looking to signalise the junction as a proactive approach to this closure and increase in demand, for which the current junction layout will no longer be appropriate.

Scheme details

The proposed scheme is to request funding for an extension of the original Langley Station scheme, to deliver improvements to the High Street/ Meadfield Road junction which would complement the original scheme and the junction improvements at High Street/ Station Road/ Langley Road. As previously mentioned, the overall aim of the proposed scheme is to increase junction capacity to alleviate current congestion witnessed along High Street and better accommodate the additional traffic expected at the junction as a result of the potential closure of Hollow Hill Lane to the east of the junction. For the purposes of this assessment, we have used the estimated differences in delay impacts at the junction as a proxy measure of how the existing and proposed junction layouts could meet the expected traffic volumes. This local traffic modelling has shown that the scheme will indeed reduce delays overall. Further information can be found in Appendix A.

The scheme will implement the following interventions:

- Signalisation of the High Street/ Meadfield Road junction, upgraded from a priority junction currently in use;
- Formal pedestrian crossings on Meadfield Road arm of junction; and
- Advance Stop Lines for cyclists on north and southbound directions on High Street.

This would deliver improved operational performance through the centre of Langley and improved safety for pedestrians and cyclists. As a result of increasing junction capacity, the scheme will result in the loss of a small number of parking bays along Meadfield Road, adjacent to Harrow Market. Slough Borough Council will undertake further assessment of how these bays are used, as well as occupancy rates, during the next stage of design. A solution to the loss/ relocation of parking will be then provided within the next highway design stage. The Council will also undertake early engagement with impacted parties and look to provide suitable alternative facilities, either through re-location of bays or the development of the design to incorporate inset shared use facilities. It should be noted that the process of removing these bays is straight forward in terms of timescales. Slough Borough Council estimates that this process can take approximately 6 weeks. However, significant complaints and objections could potentially have implications on the programme. To account for this fact, impact upon parking is included as one of the key strategic risks identified during this study (see Table 10).

A draft feasibility design drawing for the proposed scheme can be found in Appendix B.

What barriers to growth will it address? What is the evidence?

Langley High Street is a key strategic route running from Langley Station to the A4 which currently suffers from traffic congestion during peak hours. An increase in vehicle numbers from anticipated future growth in business, housing activity and closure of Hollow Hill Lane will likely result in further pressures along this corridor. Slough Borough Council recognises that this is a proactive response to a problem that, if not fixed in the short-term, may cause significant barriers to growth in the long-term. Increased congestion will inhibit the

economic growth predicted for the local area and may cause labour supply issues to businesses located on the High Street and surrounding Slough district.

The emerging local plan places emphasis on how Slough will support and benefit from the expansion at Heathrow, which includes the WRLtH tied into the wider rationale for the project. In 2010, there were a reported 4,090 on-airport Slough employees, which equates to 6.8% of the local are workforce . It is conceivable that the number of residents employed by Heathrow will grow in line with the continued development of the third runway. Slough and Langley aim to support the delivery of the emerging local plan by improving residents' access to Heathrow.

The original scheme will prepare Langley for future investments including the Northern Extension situated to the north of Langley Station and, the development of Langley Business Park which has submitted multiple planning proposals. These include a data centre with retail, leisure and residential opportunities and other light industrial opportunities, with a minimum of 582 jobs created⁶, . As the proposed scheme focuses on High Street/ Meadfield Road junction rather than the package of interventions proposed in January 2020, a proportionate approach has been taken to calculate the number of houses, jobs and employment floorspace the scheme will help to unlock. Further details can be found in Table 4.

The Northern Extension, Langley Business Park and future developments will all benefit from improved operational performance at High Street / Meadfield, and thus reduced congestion along the High Street from Langley Station. This will not only support vehicles from the Hollow Hill Lane closure but will also cater for the additional trips generated from development, including Heavy Goods Vehicles required for construction.

Although the proposed scheme will start to address the impacts of the WRLtH within Langley, Slough Borough Council recognises that this is only the beginning and further mitigation measures will be needed to fully address the impacts of the WRLtH and improved access to the Heathrow expansion.

In the short term, the scheme will support Langley High Street in transitioning to a new normal as a result of the COVID-19 pandemic, enabling the High Street to return its previously vibrant nature. As communities are encouraged to stay local, through walking and cycling rather than public transport, the effect of reduced congestion along High Street and Meadfield Road will be beneficial for those using active travel to get to the High Street and its amenities. This will be achieved through reduced noise and air pollution associated with the start-stop nature of congested traffic.

What other options have been considered?

Alternative options to re-distribute traffic are limited due to a lack of north-south network links, particularly as Langley High Street is a popular commuter route to the A4, M4 and M25. Alternate north-south routes to the east through Iver and to the west through Middle Green will significantly increase journey time, vehicle operating costs and may have long-term adverse environmental impacts. Indeed, the temporary experimental closure of Hollow Hill Lane demonstrated that the majority of traffic would choose to use High Street Langley rather than Thorney Lane North through Iver.

As part of their modelling analysis and business case preparation for the WRLtH, the Network Rail have considered the possibility of constructing a new north-south road bridge across the rail tracks. However, this is not considered a feasible option as the road bridge would require a six-metre clearance from the railway tracks. To achieve such clearance, long approach structures would be required which will cut off access to adjacent cottages and farmland and be a costly alternative.

Other options that promote a shift towards public transport to reduce the dependency on private vehicles, have already been recognised through the SMaRT Phase 1 and 2 programmes and improved access to Langley station. The proposed scheme will complement both projects.

The proposed feasibility design in Appendix B includes measures to improve the safety of non-motorised users including formal pedestrian crossings on the Meadfield Road arm of the junction and Advance Stop Lines on both north and southbound carriageways on High Street. Slough Borough Council anticipates that with enhanced active mode user safety, residents and commuters will be encouraged to undertake local trips by a sustainable means, thus also helping to reduce delay through Langley in the future.

Slough Borough Council has also considered the possibility of providing an upgraded priority junction or introducing a mini roundabout. However, with substantial vehicle movement already on the High Street and the anticipated increase of traffic on Meadfield Road as a result of the closure of Hollow Hill Lane, a signalised junction was considered to be most feasible and beneficial option, accounting for traffic movements and physical constraints. Slough Borough Council has also considered widening the High Street carriageway from one lane in each direction to two lanes in each direction to accommodate for the future increase in traffic from both the Hollow Hill Lane closure and future growth predicted as part of the Slough Borough Council and TVB LEP strategic plans. This option was considered as the part of the proforma submitted to the TVB LEP in January 2020. Slough Borough Council will continue to evaluate the possibility of implementing this scheme in the future, alongside potential funding sources.

In summary, the complementary continuation of junction improvements along the High Street, in line with the previously completed Langley Road junction, is the most feasible option to begin to accommodate the additional traffic anticipated as a result of the Hollow Hill Lane closure. The local traffic modelling has demonstrated the significant benefit gained with regard to Meadfield Road delay under this option.

What would be the consequences of a “do nothing” option?

Doing nothing will result in increased traffic congestion along Langley High Street and Meadfield Road as a result of development growth in the region, with a notable rise following the closure of Hollow Hill Lane. This anticipated growth is additional to the congested roads already witnessed along High Street and Meadfield Road. As the proposed scheme is a smaller intervention than the combined package of works considered in the application submitted to the TVB LEP in January 2020, the benefits associated with the scheme and consequences of a “do nothing” scenario will be less severe than those proposed in the previous submission. However, it should be noted that the particular consequences associated with the expected increase in traffic on Meadfield Road remain severe.

The increased congestion will result in labour supply issues to the wider Slough district potential adverse environmental impacts (increased noise and reduced air quality). Doing nothing may also lead to severance issues both to High Street pedestrians and car users as higher levels of congestion may make it more difficult for the Highways Authority to facilitate crossings across High Street and limits the ability of car users in the north of the Borough to access Slough and employment opportunities via the A4 and surrounding motorways. Traffic modelling has been undertaken which indicates that the implications of a “do nothing” scenarios are:

- A worsening in junction operation due to the increased flows, with both the B470 Station Road/ B470 High Street/ Langley Road and B470 High Street/ Meadfield Road junctions forecast to operate over capacity by 2028. (N.B. The B470 Station Road/ B470 High Street/ Langley Road has recently been upgraded to a signalised junction under the original scheme and was completed in March 2020).
- Anticipated delay per Passenger Car Unit (PCU) of +37 minutes for Meadfield Road, up from just over 1 minute in the current year.
- Increased congestion along the corridor as a result of the closure of Hollow Hill Lane, whereby its experimental closure in 2016 resulted in an additional 4,225 two-way vehicles per day observed on Langley Park Road, leading to Station Road/ High Street through Langley.

The economic impact of the “do nothing” option would directly affect Langley High Street where, as a result of continuous congestion along the corridor, individuals will be discouraged to use the services along the High Street due to its unappealing and unattractive nature. This may result in the public choosing to shop elsewhere and a lack of investment from businesses. This will diminish the vibrancy of the town centre and reduce the economic vitality of the High Street, affecting the delivery of the TVB SEP Packages described above.

Currently, the quantitative evaluation of journey time benefits associated with the scheme calculate a £10.4 million saving in journey time, in present value, discounted to 2010. The consequence of a “do nothing” scenario will result in no journey time savings for vehicles using High Street or Meadfield Road, alongside other qualitative disbenefits to be described below. Further details on the economic evaluation can be found in the subsequent pages.

Which partner organisations are involved in, and committed to, the scheme?
Slough Borough Council will be the sole partner for the scheme. As a result of previous infrastructure projects in Langley including the signalised junction improvements along the proposed route, Slough Borough Council will continue to have a close relationship with necessary supporters of the scheme including Langley Hall Primary Academy & Langley College, Langley Park Memorial Recreation Ground, Langley Business Centre & Waterside Drive Business Park, Harrow Market Great Western Rail and Network Rail. As the scheme will ultimately benefit the wider transport network, Network Rail and Heathrow Airport will be stakeholders in the area and have been involved in the continuous discussion surrounding the closure of Hollow Hill Lane.

Slough Borough Council is working closely with the LEP to ensure infrastructure investments are delivered in line with its visions and objectives, particularly by addressing the opportunities associated with the expansion of Heathrow.

2. Value for money

What outputs will the scheme deliver?

As previously mentioned, the local model demonstrates that Meadfield Road is operating above capacity. In addition, the strategic model has shown that the closure of Hollow Hill Lane will result in a re-distribution of traffic from Hollow Hill Lane to Meadfield Road, High Street and Station Road. The existing junction layout, whereby High Street traffic has priority over Meadfield Road traffic, is not expected to accommodate the re-routing of traffic satisfactorily. On the other hand, existing conditions are poorly configured for pedestrian and cycle access. It is important to the success of future developments in the area that conditions are fit-for-purpose to encourage more walking and cycling.

It is, therefore, prudent to plan for future potential congestion while enhancing the conditions required to ensure the viability of active travel modes to improve public health. The proposed High Street/ Meadfield Road junction improvements are anticipated to deliver journey time benefits. Decongestion benefits and a reduction in externalities (e.g. air pollution, accidents and noise) will also be gained. Moreover, the scheme's potential benefits include an improvement in journey quality for active users and health benefits resulting from increased physical activity.

Table 3 summarises the main expected benefits of the proposed scheme. These benefits are linked to relevant scheme objectives identified in the rationale for the scheme and strategic fit section.

Table 3 - Scheme expected benefits.

Expected benefit	Description	Scheme objectives
Journey time savings (decongestion and vehicle operating costs)	Benefits resulting from decreases in journey times have been inferred from the forecast reductions in delays as a result of signalisation at the High Street/Meadfield Road junction. Reductions in vehicle operating costs are also expected as a result of the scheme. Based on reduced congestion for car users, it is anticipated that fewer disruptions will be experienced by road traffic, thus resulting in improved reliability.	Reduced congestion and other externalities
Journey quality	The proposed intervention is expected to improve journey quality factors, resulting in a better user experience for car users and active mode users.	Improve journey quality
Physical Activity	As an improved and safer environment for pedestrians and cyclists is proposed, an increasing proportion of the population involved in regular physical activity is anticipated. As a result, improvements in health and wellbeing are likely to arise.	Improve safety and user experience for pedestrians and cyclists
Accidents	Junction improvements are expected to reduce the likelihood of traffic accidents involving death or injury. Likewise, the scheme will provide safer cycling facilities and result in a reduction of personal injury accidents.	Improve safety and user experience for pedestrians and cyclists/Reduced congestion and other externalities.
Air Quality and noise impacts	As the intervention will result in changes in traffic flows and speeds, environmental improvements in terms of a reduction to noise pollution and emissions are anticipated.	Reduced congestion and other externalities.

In addition, the scheme will support the Thames Valley Berkshire Strategic Economic Plan (SEP) by facilitating the unlocking of future housing development, enhancing urban connectivity and supporting the creation of jobs and businesses. In this context, Table 4

estimates the outputs that the scheme will deliver, including details from the original Langley Station business case. Due to the scale and nature of the scheme, direct impacts to unlock land for new housing dwellings, retail space, jobs and businesses created are not anticipated. In contrast, it is expected that the proposed scheme will help facilitate the delivery of those benefits. Estimates predicted in the table show that the proposal will facilitate the delivery of new 60 houses in total and provide additional support to the creation of 48 jobs that will yield 331 square meters of employment area.

How have these outputs been estimated?

Only journey time savings are quantified and monetised in the value for money assessment, using an approach which is proportionate to the size and cost of the scheme. A proportionate qualitative assessment on a seven-point scale has been undertaken for other identified benefits (Table 3) attributable to the scheme.

An economic assessment of journey time benefits has been adopted for this Business Case. The assessment compares the relative benefits of the Do Something (DS) scenario option against the Do Minimum (DM) scenario. The impacts of the scheme on journey times for car users have been assessed based on the delay outputs of the software traffic model with signalisation (DS), in comparison with delays with the existing junction retained as priority (DM). The base year traffic model (2018) represents a current scenario where Hollow Hill Lane remains open, while the future year forecast operation of the junction (2028) have considered the closure of Hollow Hill Lane. The future year flows account for both a change in routing of traffic due to Hollow Hill Lane closure, and a change in flows due to background growth and introduction of other planned schemes in the wider area. The increase in flows through this junction however are primarily due to the closure of Hollow Hill Lane.

Detailed demand and delays in seconds per pcu and total pcu-hrs for each arm of the junction were provided for both modelled years and for AM and PM peaks in each year. Annual benefits were calculated on the assumption being that they are evenly accrued for 253 working days a year. Using this methodology, benefits were calculated for highway users, disaggregated by user type, with separate values of time for business and non-business users. To summarise, for the purpose of the economic analysis, the following assumptions have been made:

- For the purposes of this appraisal, the journey time savings have been inferred from the forecast changes in delays between the DM and DS;
- The impacts of the scheme have been assessed over a 60-year appraisal period, in line with TAG guidance, with an assumed opening year for the scheme of 2021;
- All costs and benefits in the economic appraisal are discounted to 2010 market prices in accordance with TAG Unit A1.1;
- Scheme costs have been converted from factor costs into market prices using the indirect tax uplift factor of 19%;
- Different values of time were assumed for business drivers and passengers and for commuting and leisure trips (£17.689, £9.953, and £4.543, per hour, 2010 prices). This data has been taken from the TAG data book table A1.3.1;
- Average values for the proportion of travel in work and non-working time were assumed. This data has been taken from the TAG data book table A1.3.4.

A bespoke Appraisal Spreadsheet Tool in line with WebTAG requirements was developed to calculate the economic benefits generated by the proposed scheme. These benefits were monetised to give a Present Value of Benefit (PVB) to be compared to the Present Value of Cost (PVC). Sensitivity analysis was carried out to assess if the value for money category is likely to change. In accordance with requirements set out in 'The Value for Money Framework' published by the Department for Transport, this is a crucial step in mitigating uncertainty in the value for money assessment and increasing the level of confidence of decision-makers.

On the other hand, the outputs reported in Table 4 above focus on planning applications and forecasts from Slough Borough Council's Planning Department. The original scheme (submitted to the LEP in January 2020) reported the indirect delivery of 1,500 dwellings however this has been scaled down to an estimated 41 houses (public sector) as the original scheme is near completion, and this funding application is only focused on High Street/ Meadfield Road junction improvements (defined as 'Section 2' in the proforma application submitted in January 2020 – see Figure 1).

The other estimates predicted in the table for 2023/2024 include preliminary figures for a data centre at Langley Business Park (originally creating 4,000 sqm of space and 60 residential dwellings and retaining 432 jobs once completed), and current lease of the business park as a temporary filming studio. Likewise, these figures have been scaled down based on costs estimates to reflect the proportionate share to this scheme. In addition, estimates have also considered the cumulative impacts that will result from delivering all the three sub sections of the package of interventions (see Figure 1). Thus, a corresponding percentage reduction has been applied to reflect the fact that this funding application is only focused on High Street/ Meadfield Road junction improvements (Section 2). It should be noted that this assessment is based on professional judgement.

Although interdependencies between the different sections of the original scheme in terms of unlocking housing developments or additional jobs expected to be created are not straightforward to interpret; the estimate is considered conservative in comparison to the potential maximum outcomes to be achieved. These figures are based on publicly available documents and are indicative at this stage as it has not been possible to model the direct link between the new scheme and the benefits relating to housing, retail and employment growth.

What wider outcomes will be achieved in TVB? Please quantify these if possible.

As shown in Table 3 above, in addition to journey time benefits, other impacts are expected to arise including health benefits through active travel, increased liveability and decreased externalities such as congestion, noise and air pollution. A quantification of such benefits was not undertaken at this stage, but a proportionate qualitative assessment on a seven-point scale was conducted. Results relative to the DM scenario are discussed below.

Journey quality

Moderate positive – As recognised in the literature and in TAG Unit A4.1, there is limited evidence on monetary valuations of journey quality in relation to highway projects. It is however prudent to conclude that the real and perceived physical environment experienced while travelling is expected to improve as a result of the proposed intervention. For car users, the reduction in travel time as compared to an uncontrolled junction may result in a

moderate beneficial impact as a result of reduced frustration and stress. The introduction of a signalised crossing on the Meadfield Road arm of the junction and the introduction of Advanced Stop Lines on the north and south approaches of High Street is also expected to reduce pedestrians and cyclists' frustration and fear of accidents, respectively.

Overall, it was found that the Langley High Street/ Meadfield Road junction improvement scheme had a moderate beneficial impact in terms of journey quality.

Physical Activity

Slightly positive – TAG Unit 4.1 notes that transport and the physical environment of urban areas both play a major role in the amount of physical activity that people are engaged in on a day-to-day basis. There is a longstanding recognition of the interrelationship between transport, the environment and health. It is assumed that the additional pedestrian (signalised crossing) and cyclist (safe place to stop at High Street) improvements proposed by the scheme may encourage greater levels of activity as active mode users may perceive less risk of being injured by a car.

As only light touch improvements for pedestrians and cyclists are proposed, a significant shift towards active transport modes is not anticipated. Therefore, the immediate impact of the scheme to physical activity is considered to be slightly positive.

Accidents

Slightly positive – Historic collision data has indicated only two incidents at the High Street/ Meadfield Road junction over the last 5-year period. Therefore, there is limited scope to improve collision rates at this location. However, it should be noted that historic collision data available does not reflect the effects of the closure of Hollow Hill Lane. The potential closure of this road could result in a rerouting of traffic through the junction and therefore the base year for the analysis might show more collisions as compared with the observed data.

On the other hand, signal controlled junctions do provide improved safety for traffic and simplify drivers' decision-making. Therefore, the scheme is expected to reduce the likelihood of collision in the future. Likewise, safer cycling facilities and the formal pedestrian crossing are also likely to result in an improved level of safety for vulnerable users.

Overall it is expected that the impact of the scheme on safety will be slightly positive.

Air quality and noise

Neutral – A full appraisal of the environmental impacts of the scheme has not been undertaken. A proportionate qualitative assessment was carried out to identify whether significant beneficial or adverse environmental effects are likely to arise. As a result of the scheme, a reduction in traffic delay and start/stop driving is predicted, which would decrease congestion-related impacts such as air and noise pollution levels. However, with the increased speed (due to reduced delays) those benefits might not be able to be achieved due to changes in driving patterns compared to congested conditions.

In summary, noise and local air quality levels are not likely to be impacted as the scheme is not expected to significantly affect traffic flow. Any influence in the volume of traffic flow is likely to be broadly balanced by the effect of the additional interventions, which may encourage modal shift to more sustainable travel.

The anticipated impact on local air quality and noise is thought to be negligible.

To what extent are these outputs (and downstream outcomes/impacts) likely to be additional? What is the basis for this assessment?

The proposed junction improvement, together with the continuing transport network improvements across Slough and Langley will contribute towards reducing congestion and allow the town centres to remain vibrant place to live and work. This is likely to have downstream outcomes with improved access to labour supply, reliable journey times, and sustainable economic growth through increased productivity levels. In addition, positive social impacts such as an increase in journey quality, accidents savings and higher levels of physical activity are derived from the Do-Something scenario.

This fully supports the TVB SEP (Package 5: Foundations for Future Growth) and Berkshire's Local Industrial Strategy^{1,8}. This reliable transport network will also unlock the full potential for future housing developments and business investments, including the Northern Extension. The overall scheme deliverables and benefits also support other relevant strategies such as the delivery of the Berkshire Local Industrial Strategy (BLIS) and the Slough Local Development Framework Core Strategy. Further details are provided in the first section of this funding application.

What is the nature of the resourcing package that is proposed (e.g. balance between private sector investment, loans and grants, etc.)?

Slough Borough Council is proposing an extension to the existing Langley scheme (ref 2.21) which cost £1.76m, with LGF funds of £1.5m awarded. The Council is now proposing an extension to the scheme, which will cost an addition £1.588m in total. Of this, £1.324m is requested as a grant from the Thames Valley Berkshire Growth Development Fund to support the completion of the signalisation of High Street/ Meadfield Road junction, the introduction of formal pedestrian crossings on the Meadfield Road arm of the junction and Advance Stop Lines for cyclists on the north and southbound approaches on High Street. The remaining £264,000 (20%) will be contributed by Slough Borough Council, consistent with the minimum 20% requirement as part of the total funding for any scheme extension agreed during this round of Growth Development Fund bidding.

Scheme costs have been developed based upon Slough's schedule of rates. The cost estimates for the individual elements of the scheme have been estimated by technical experts with experience in similar schemes including the recently implemented scheme at High Street/ Langley Road junction. As the proposed scheme is located close to Harrow Market, local businesses and residential properties, the cost estimates have included an additional 35% of base construction cost for Main Contractor Preliminaries to account for the high number of utilities that will require diversion. In addition, C2 stat search was carried out as part of the High Street/ Langley Road scheme design and therefore we already have sight of likely stats implications. Some design engineering has already been undertaken as part of the High Street/ Meadfield Road outline design, to limit impact (and cost) on utilities.

The cost estimates also include a risk contingency to support the risks identified in Table 10. This is based upon DfT guidelines for preparing scheme cost estimates at this feasibility stage of design, as well as professional judgement/ experience of delivering similar highway schemes in the past. Whilst recognising that a notable contingency has been allowed for within the scheme estimate, this is typical and prudent at this stage of highway design. The

potential risk contingencies costs in the Meadfield Road junction scheme which have been accounted for include:

- Additional design costs for the refinement of the design through Preliminary and Detailed Design, as experienced on the Langley Road junction scheme. This may include exploring the option to include an additional approach lane on High Street northern arm, to gain even higher benefit with regard to junction performance. Should this be achievable within the site constraints, further traffic modelling may be required to assess amendments and impact on junction operation.
- Potential increase in scheme cost due to the design changes above, including increased cost of tie in with the existing Langley Road junction scheme.
- Additional base construction costs which are established through the Preliminary and Detailed Design process. This may include additional full depth carriageway construction, or additional signal pits and ducts, than assumed at this stage.
- Third Party Land cost, which was not included within the base construction costs as it is currently unknown (although expected to be circa 50k).
- Additional time required for stakeholder engagement (public and Langley Park Trustees) and buy in (including handling objections through design changes), due to the requirement to relocate parking bays and for acquisition of some of the park.
- Additional utility costs. We have built into the capital costs a provision for utility works, as we know this is a certain, to a similar level that has been spent at the High Street/ Langley Road scheme. The Meadfield Road junction however is more physically constrained than the Langley Road junction and therefore we may expect utility companies to provide more extensive solutions for diverting services, which would be more expensive. There is also the risk (and experience thereof) that trial holes uncover additional buried equipment not accounted for in desktop plans, which require diversion. Utility costs are notoriously expensive and can therefore significantly impact upon overall delivery costs, should further works be required than assumed at this initial design stage.
- Provision for more general, unknown and unquantifiable cost uplifts which may affect the scheme:
 - o Unforeseen cost overrun due to errors, omissions or abortive work as the design progresses (although this will be best managed to reduce likelihood of occurrence).
 - o Degree of complexity involved in stakeholder/ public engagement/ approvals.
 - o Overrun of outline programme – potential Covid-19 impact upon resources, ability for site surveys/ intrusive works i.e. trial holes, etc.

A summary of the estimated cost of the scheme (in 2020 factor prices) can be found below in Table 5. The table also outlines additional assumptions applied to the construction costs around overheads and other professional costs.

Table 5 - Cost estimate.

Cost Item	Cost
Base construction costs	£496,000
Main Contractor Preliminaries	£174,000
Overheads and profit	£57,000
Risk/ Contingency	£730,000
Professional Fees incl. Surveys	£131,000
Scheme cost estimate (rounded)	£1,588,000

Slough Borough Council is committed to funding any cost overruns, however these are deemed unlikely if supported by careful financial management throughout the entire project lifetime by the Council's experienced project delivery team.

What is the funding package through which the scheme will be delivered?

Slough Borough Council proposes to distribute the funds across the following financial years to assist with the development of further detailed designs and scheme mobilisation before commencing construction onsite in December 2020:

Table 6 - Funding profile for the High Street/ Meadfield Road signalisation scheme.

Source Year	2019/20	2020/21	Later years	Total
Business rates retention pilot				
Growth Deal /other HMG Revenue	Capital	1,324,000		1,324,000
Other public sector	SBC Capital Funds	264,000		264,000
Private sector				
Total (rounded)				1,588,000

What assessment has been made of the value for money of this scheme?

The following key economic statistics will be used to demonstrate whether the Do-something option achieves value for money:

- The Present Value of Benefits (PVB), representing monetised journey time savings, discounted to 2010 prices and values;
- The Present Value of Costs (PVC), representing the total project investment costs;
- The Net Present Value (NPV), representing the absolute difference between the PVB and PVC; and
- The ratio of PVB to PVC representing the high-level Value for Money of the scheme.

The analysis contained within this funding application suggests that the High Street/ Meadfield Road junction improvements scheme will generate a NPV of £9,307,000 PV. The PVB divided by the PVC suggests scheme's BCR of 9.3 which would imply a Very High Value for Money . Further social and environmental benefits have been derived from qualitative assessment, and whilst these will not provide a monetised benefit for use in this appraisal, they are expected to contribute positively to the value for money of the project. Table 7 below presents a summary of the forecast PVBs and PVCs for implementing the High Street/ Meadfield Road signalisation scheme.

Table 7 - High level summary of costs and benefits for the High Street/ Meadfield Road signalisation scheme.

Analysis of monetised costs and benefits (2010 market prices, discounted to 2010)	Present value (£) – Rounded
Present Value of Benefits (PVB)	£10,434,000
Present Value of Costs (PVC)	£1,127,000
Net present value	£9,307,000
BCR	9.3

As indicated, the PVB represent the monetised journey time savings from the project discounted to 2010 prices. The PVC was calculated based on the cost components outlined in Table 5 (including SBC contribution) . As a result, a total estimated Present Value of Costs (PVCs) of £1,127,000 has been estimated in 2010 market prices, discounted to 2010. It was

discussed and agreed with the LEP Reviewer on 18th May 2020 that no Optimism Bias will be included in the PVC calculations.

As aforementioned, the DM was modelled in PICADY while the DS was modelled in LINSIG. Both models are local junction models using fixed demand and covering, which means they have not assessed the potential scales of traffic redistribution over the wider network. Accounting for these uncertainties, conservative assumptions into the economic appraisal have been applied, primarily by treating delay impacts from two weekday peak hours as reasonable approximations of daily impacts. Nonetheless, the journey time benefits assessed based on a comparison of outputs from these two models in isolation might still be overestimated and should be treated as indicative.

Moreover, it was agreed with the LEP Reviewer at the start of this business case work that the existing model runs will be used for the economic assessment in order to follow the proportionality to this business case. The PICADY DM 2018 assumes that the Hollow Hill Lane is open whilst it is closed in the DM 2028. The Hollow Hill Lane is closed in both DS 2018 and DS 2028 in LINSIG.

To account for this limitation and noting the potential uncertainties in these PVBs calculated based on the assumption that reductions in delays at the Meadfield junction would provide lead to overall journey time savings, a series of theoretical sensitivity tests have been run by reducing the delay benefits by 25%, 50% and 75%. Table 8 below presents the BCRs obtained using different values of delay benefits for the purpose of sensitivity testing. These tests indicate that if the actual delay benefits across the network are 75% less than the junction-specific delays modelled here, the scheme is still likely to offer a High value for money, with a BCR greater than 2. It should be noted that the applied approach does not include the scale of wider network journey time impacts could be from traffic redistribution.

Table 8 - Sensitivity testing results.
Analysis of monetised costs and benefits

Core Scenario				
Delay benefits reduced by 25%				
Delay benefits reduced by 50%				
Delay benefits reduced by 75%				
Present Value of Benefits (PVB) *	£10,434,000	£7,825,000	£5,217,000	£2,608,000
Present Value of Costs (PVC) *	£1,127,000	£1,127,000	£1,127,000	£1,127,000
Net present value	£9,307,000	£6,698,000	£4,090,000	£1,481,000
BCR	9.3	6.9	4.6	2.3

*2010 market prices, discounted to 2010.

How will this scheme contribute to the natural capital of Thames Valley Berkshire?

A detailed appraisal of the environmental impacts of the scheme has not been undertaken as part of the economic analysis. Instead, a proportionate qualitative assessment was carried out in order to assess the environmental effects likely to arise as a result of the High Street/ Meadfield Road signalisation scheme in accordance with TAG Unit A3 – Environmental Impact Appraisal. This section provides a closer overview of how the scheme is expected to contribute to the natural capital of Thames Valley Berkshire.

In many urban areas, including Langley and Slough, a common source of air and noise pollution is stationary or slow-moving road traffic. The effects of traffic signal control strategies on vehicle emissions (noise and air pollutants) are well known in the technical literature. The rationale behind the claim of lowering emissions is that congestion causes vehicles to function at sub-optimal speeds and accelerations, leading to incomplete combustion and additional emissions of NO_x, CO, etc. The scheme aims to reduce the start-stop nature from slow moving traffic associated with Meadfield Road and the High Street and the air pollution that often accompanies such movements (CO₂, NO_x and PM₁₀). However, as the Hollow Hill Lane closure threatens to increase the volume of traffic using the High Street, higher air and noise pollution levels may be recorded. When aligned with the objectives of Slough's Low Emission Strategy and the above assumptions, the anticipated impact on air quality and noise pollution is therefore considered to be neutral. On the other hand, as the scheme is entirely located within an urban townscape, no impacts on the landscape and character of the surrounding area are expected. However, the overall impact on townscape is considered to be slightly positive as the improvement of pedestrians and cyclists' facilities is likely to enhance human interaction, contribute to the character of the townscape, and improve visual amenity.

The historic environment has been scoped out for further assessment as the potential for affecting the key historic environmental resources and assets is considered relatively low. A high-level environmental constraints appraisal has found that the route does not run through any sensitive areas in terms of biodiversity. Likewise, in terms of drainage and the water environment, an initial assessment has found that the impacts of construction and operation of the scheme will be negligible. As a result, it is expected that the impact on biodiversity and water environment will be neutral.

How will this scheme maximise social value for Thames Valley Berkshire?

A detailed social impact appraisal has not been undertaken for this scheme. In accordance with requirements set out in TAG unit A4-1, a proportionate approach to deliver a high-level social impact assessment has been used. Final results are presented in a seven-point scale of beneficial, neutral or adverse. Key points are as follows:

- Physical Activity, Journey Quality and Accidents have been previously assessed as wider outcomes to be achieved in TVB (see Page 19-20);
- Security, Access to services, Affordability, Severance, and Option and non-use values will be assessed in a qualitative manner based on professional judgement. Results will be presented in this section.

Security

Neutral – Transport interventions may impact the level of security for transport users. TAG unit A4-1 states that security concerns are greater on roads where motorists are required to

slow or stop their vehicle. The signalised junction layout allows queuing traffic to be better managed and controlled than the existing priority junction layouts. As a result, road users are expected to be less vulnerable to crime in such circumstances.

However, a more detailed analysis of recorded criminal acts and incidents of antisocial behaviour should be undertaken to support a final qualitative assessment. This analysis should be accompanied by a full appraisal of the different security indicators in line with TAG unit A4-1. As this assessment has not been undertaken due to the size and scope of the scheme, the impact on security is then considered to be Neutral. However, this is considered to be a conservative evaluation.

Access to services

Moderately positive – Accessibility benefits can be similar to transport user benefits as the changes in journey time and operating costs reduce the generalised cost associated with travel and hence make transport more affordable. Reduced journey times and operating costs also increase the range of services that can be accessed for the same cost. Modelling results have shown positive improvements to average journey time and queue lengths from the Do Minimum model scenario. As a result, accessibility is anticipated to increase to some extent. The overall impact on accessibility is appraised as a moderate positive benefit.

Personal Affordability

Slightly positive – Affordability of transportation is primarily a distributional issue as it can be a major barrier to the mobility of certain groups. As potential changes in the cost of travel have not been evaluated, the assessment presented in this section provides a ‘light touch’ qualitative consideration of affordability from a wider perspective. As signalisation is expected to reduce queueing along the route, leading to reduced vehicles idling, braking and accelerating, a reduction in vehicle operating costs is anticipated. In some cases, minor affordability disbenefits can be found, likely caused by increased vehicle speeds leading to increased fuel consumption. However, the decreased vehicle operating costs are expected to outweigh these affordability disbenefits. Therefore, the overall impact of the scheme to personal affordability is appraised as slight beneficial.

Community Severance

Slightly positive – Community severance is defined in TAG unit A4-1 as the separation of residents from facilities and services they use within their community caused by substantial changes in transport infrastructure, or by changes in traffic flows. No significant traffic volume change is expected as a result of the scheme. On the contrary, additional improvement for non-motorized users are being proposed (formal pedestrian crossings and advanced stop lines for cyclists). Improved walking and cycling conditions will have a positive impact on vulnerable groups such as older people, under 16s, no car households, people with disabilities, and ethnic minorities. Overall, it is likely that the effect of the scheme on severance will be slight beneficial.

Option and non-use values

Neutral – Option values and non-use values relate to the implementation or withdrawal of a public transport service. TAG Unit A4-1 requires that option values and non-use values are

assessed if the scheme being appraised includes measures that will substantially change the availability of transport services within the study area. As the scheme include no changes to any public transport routes or services provided in the area, no further appraisal is required for this indicator.

Apprenticeships

Neutral – The development phase (project management and design) of this scheme will not directly produce any apprenticeships. However, Slough Borough Council will work closely with the Slough Academy to promote any opportunities that arise for apprentices during this scheme. The Council will also look to consider the use of apprentices as a criterion when procuring construction services.

3. Deliverability and risks

How secure are the funding contributions from your own organisation and elsewhere?

The 20% local contribution will comprise of Slough Borough Council Capital Funds and are considered a reliable source of funding.

A further extension to the scheme, which will deliver highway widening along the length of the B470/ High Street from Langley Station to Elmhurst Road and the A4, is not proposed for funding within the current Growth Deal. However, Slough Borough Council is exploring additional sources of funding to support the completion of this additional scheme.

What are the key scheme milestones?

The key milestones of the proposed scheme are presented below:

Table 9 - Key project milestones for the High Street/ Meadfield Road junction signalisation scheme.

Date	Project Milestone
Pre-2020 (already completed)	Traffic Modelling of extended scheme High Street/ Meadfield Road junction design to demonstrate its suitability.
	Feasibility design of High Street/ Meadfield Road junction to ensure it ties into the improvements currently being delivered at Station Road/ High Street/ Langley Road under the original scheme.
January 2020 (already completed)	Feasibility, outline design and initial cost estimates
May/June 2020	Financial (LEP) approval
May – July 2020	Preliminary Design
July 2020	Public Information/ Engagement (date subject to Council Leader instruction)
August – November 2020	Detailed Design
September 2020	Update on the scheme cost
Late 2020	Mobilisation and Statutory consents
December 2020	Commencement of site works
Early 2021	Completion of site works

Slough Borough Council is confident that the proposed scheme can be successfully completed on time and in budget. The internal Council management structure has a wealth of experience in managing capital infrastructure improvements including close monitoring of project progress and cost. The proposed scheme mirrors a similar improvement at High Street/ Langley Road junction completed in March 2020. Detailed design for that scheme began in July/ August 2019 and therefore confidence can be gained in the outline

programme in Table 9, which broadly follows the same timescales. This successfully demonstrates Slough Borough Council's competency in managing transport infrastructure improvements.

As the necessary detail is unavailable at this stage, an update on the scheme costs will be provided by September 2020. Whilst this will not be based upon final detail design, the preliminary design will permit a more accurate assessment of base costs with a construction schedule. A quantified risk assessment can be conducted then to generate a more accurate assessment of the risk budget.

Construction works will be assigned to Slough Borough Council's Direct Service Organisation (DSO) (Contractors), as an extension to the original scheme works recently completed on site at the High Street/ Langley Road junction and the original Langley Station and Access Improvements scheme. Slough Borough Council will continue to use the procurement process already in place for the previous schemes which has proven to provide a high quality and efficient service. In addition, resources are readily available from the original scheme and are ready to be mobilised at short notice. Therefore, Slough Borough Council deems it appropriate not to engage in any new, competitive procurement process. Both Public Engagement and commencement of site works will be undertaken with appropriate safety measures in line with the government advice on the COVID-19 pandemic. At time of writing this business case, Slough Borough Council remains confident that the pandemic will not affect the timeline of the proposed scheme.

What are the proposed arrangements for project management?

The Project Team in Slough Borough Council will be responsible for ensuring that the scheme follows the identified programme and will maintain overall responsibility for the delivery of the project. Each work stream will report quarterly to the Project Team on progress and expenditure. This method of governance has been effective for previous transport network improvements including the original Langley Station and Accessibility improvements and SMaRT Phase 1 and will be scaled appropriately for a scheme of this size. Responsibility for accurate, timely and appropriate communications within the project team rests with the SBC Project Manager, who will also ensure that the Project Board is kept up-to-date with programme developments. Project team meetings are held on a monthly basis with regular updates provided to the LEP Board via the Berkshire Strategic Transport (BSTF) forums (officers and members). Throughout the project, the risk register will be maintained and updated as necessary, with mitigation and contingency measures used as appropriate. Construction works will be assigned to SBC's DSO (Contractors), as an extension to the original scheme works recently completed on site at the High Street/ Langley Road junction. Contracts will likely mirror the structure of the High Street/ Langley Road scheme, which was successfully completed in March 2020.

What are the principal risks linked to the scheme's delivery, and what actions will be (or have been) taken to mitigate and manage these?

A summary of the key strategic risks identified during this study can be found in the table below. This will continue to be reviewed as the project develops. Mitigation actions have also been identified and described below.

Table 10 - Risk register for the High Street/ Meadfield Road signalisation scheme.