Major Road Network (MRN) & Large Local Majors (LLM) Schemes

Outline Business Case Submission

All submissions for entry to the DfT's MRN or LLM programmes must be supported by:

- A completed this bid pro-forma (Part One).
- A checklist to highlight where key information can be found in the OBC (Part Two).
- An Outline Business Case (OBC) as defined in the Department's Transport Business Case Guidance and any Annexes as necessary. Please see:
  https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/85930/dft-transport-business-case.pdf

Checklist (b) details some key items we would expect to be included within the OBC for a candidate for the MRN or LLM programmes.

In summary, the OBC should be submitted when a preferred option with a defined scope has been identified, detailed costings and appraisal have been undertaken, and a firm delivery plan is in place for construction. The OBC should also be submitted alongside the MRN Regional Evidence Base and scheme priorities.

We will be assessing schemes across the five cases and will be considering the following issues in particular:

Strategic

- How clear, robust and well evidenced is the strategic case?
- How clearly are the objectives set out?
- How robust was the options assessment process?
- To what extent will the scheme address key national strategic priorities? For example, access to international gateways, HS2 connections, and the following MRN and LLM objectives:
- To ease congestion and provide upgrades on important national, regional or local routes.
- To unlock economic and job creation opportunities, and support rebalancing in order to enable the delivery of new housing development, support all road users and support the Strategic Road Network.

Value for Money

- What is the scheme's overall value for money taking into account monetised and non-monetised benefits?
- How strongly do the benefits align with the scheme's stated objectives?

Financial

- How robust are the cost estimates?
- What local contributions are there to the total scheme costs? As a general guideline MRN and LLM schemes should aim for a local contributions of at least 15%.
- What is the promoter’s contribution to scheme costs?
- What is the private sector or other third party contribution to overall scheme costs and how firm is that guarantee?
- For LLM schemes, to what extent is the scheme genuinely unaffordable via other funding streams?
- Management
- How soon will the project be delivered?
- How robust and realistic is the plan for delivery?
- Commercial
- How robust is the commercial and procurement strategy?

Proposed MRN and LLM schemes should only be road schemes as both programmes are now funded from the National Roads Fund. MRN schemes should be situated on the MRN, while LLM schemes should be for local roads which could include but are not limited to roads on the MRN. The Department's contribution will normally be between £20 million and £50 million for MRN schemes and above £50 million for LLM schemes.

Part One: Pro-forma

Basic Information

Complete the table below to provide basic scheme information.

Scheme Name	Army & Navy Sustainable Transport Package (A&N STP)
STB Region / Regional Group	Transport East
Promoting Authority	Essex County Council (ECC)
Scheme location (Road name/number and section)	• Army & Navy (A&N) junction (five-arm partially signalised roundabout - Essex Yeomanry Way (A1114), Chelmer Road (A138), Baddow Road (B1009), Van Diemans Road (A1114) and Parkway (A1060), • Sandon Park & Ride, off Maldon Road adjacent to A12 junction 18, • Chelmer Valley Park & Ride, off A130 Essex Regiment Way.
Scheme location (Latitude and longitude)	• A&N junction: 51.72673, 0.48160 • Sandon P&R: 51.72120, 0.52646 • Chelmer Valley P&R: 51.77825, 0.48857

Contact Details

Enter contact information in the table below.

Please provide a contact **name** from the promoting authority for enquiries relating to this bid:	Hannah Neve / Billy Parr
Please provide a contact **email** from the promoting authority for enquiries relating to this bid:	hannah.neve@essex.gov.uk Billy.Parr@essex.gov.uk
Please provide a contact **phone number** from the promoting authority for enquiries relating to this bid:	0741 579 1950

Consultancy Input

Please provide the name of any consultancy companies/lead consultants involved in the preparation of the **OBC.**	Essex Highways 101-105 Victoria Road Chelmsford CM1 1JR
Please provide the name of any consultancy companies/lead consultants involved in the preparation of the **modelling** (if different from above).	As above

1) Introduction

Please provide a clear narrative to describe the scheme in the text box below: (max 100 words)

The A&N junction is a critical part of the Chelmsford transport network and a vital gateway into and out of the city.

The proposed scheme improves journey times for active modes, buses and other motorised vehicles at the A&N junction via improved design and encourages alternative means of travel to Chelmsford city centre through the expansion of the city's two P&R sites, an additional 844 metres of dedicated bus lanes on Parkway, Essex Yeomanry Road and Princes Road and over 13,000 square metres of new and improved LTN 1/20 compliant walking and cycling infrastructure.

Please describe the problems the scheme is designed to solve and how the schemes will support MRN and LLM objectives and key national strategic priorities: (max 250 words)

At the inception of the A&N STP project, the A&N junction operated over-capacity during peak periods, leading to delays, unreliable journey times and poor air quality, with the area designated an AQMA. This situation was exacerbated significantly, following the permanent closure of the junction flyover in September 2019, as it came to the end of its usable life. The A&N junction is strategically located, linking the regional centre of Chelmsford with south (Basildon, Southend Airport, Thurrock ports) and east (Maldon) Essex and as such congestion has local, regional and national impacts.

The proposed scheme directly addresses the following MRN objectives:

- **To ease congestion and provide upgrades on important national, regional or local routes**: the scheme reduces journey times through the regionally

significant A&N junction for car-based travel by 53% and delivers journey time and reliability benefits valued at £100.3 million over 60 years.

- **To unlock economic and job creation opportunities, and support rebalancing in order to enable the delivery of new housing development, support all road users and support the Strategic Road Network**: the scheme improves journey times at the junction for all users – car-based (53%), bus (40%), walking (11%) and cycling (44%) – while also providing additional capacity to central Chelmsford via the expansion of P&R sites located near the largest housing growth areas in the city.

The scheme directly addresses DfT strategic priorities as outlined in the *DfT Outcome Delivery Plan* and for specific modes in *Gear Change* (walking and cycling), *Bus Back Better*, and the *Transport Investment Strategy*.

Please describe/explain the impact of not taking forward this scheme: (max 200 words)

Planned housing development is happening apace across Chelmsford and Essex more broadly. Any increase in demand at the already over-capacity A&N junction, a key gateway to the regional centre of Chelmsford City, will result in a significant and rapid increase in congestion at the junction and the wider local road network. The overall impact of not changing can therefore be valued at £100.3 million in journey time and reliability benefits that would be foregone without intervention.

While the current P&R services provides an alternative mode of travel to central Chelmsford, there is only very limited spare capacity to absorb any increase in demand, with over 80% of spaces already occupied on an average day in 2019. By 2041, it is estimated that the lack of P&R capacity would result in 992 less P&R passengers, increasing car-based travel to the city centre and further exacerbating the negative impacts of congestion.

The constraint on access to the centre of Chelmsford, if left unaddressed, would have a significant negative impact on economic growth within Chelmsford and the wider region, particularly in south Essex. It is estimated that without the scheme, the UK economy would lose about £32.0 million in GDP over 60 years.

2) Capital cost of scheme (£000s)

Item	Preparation costs (OBC to start construction)	Land purchase	Construction costs	TOTAL
Base cost	6,617	23.1	40,968	47,607
Inflation	111	1.6	6,497	6,610
Risk	1,504	11.1	21,265	22,780
TOTAL nominal prices	8,232	35.8	68,729	76,997
TOTAL 2022 real prices	8,109	35.0	63,158	71,302

Notes

Please note the risk cost should be as generated by a Quantitative Risk Assessment (QRA) and should not include optimism bias.

Please do not include:

- Any costs prior to completion of the OBC
- Part 1 claims
- Evaluation and monitoring

3) Funding request and profiling (£000s)

This is the total scheme cost, including TAP Stage 1 and 2 work (SOBC and OBC) in nominal prices.

	Pre-2020/21	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	Total	(%) Total
Requested funding from DfT	0	0	0	1,381	3,250	6,057	19,642	19,326	19,038	59	68,753	85%
LA contribution	1,156	1,264	1,300	2,157	1,649	2,250	797	784	773	2	12,133	15%
Third Party contribution											0	0%
Total	1,156	1,264	1,300	3,538	4,899	8,307	20,439	20,110	19,810	62	80,885	100%

*Note that the 2022/23 funding has already been committed by DfT toward the development of the OBC.

4) Value for Money

Please provide a short description of your assessment of the value for money of the scheme including your estimate of the Benefit Cost Ratio.

This should cover both monetised and non-monetised costs and benefits. The full assessment, as set out in the Value for Money Guidance https://www.gov.uk/government/publications/dft-value-for-money-framework should be provided in the OBC. Valuation of any dependent development, should be reported here, separately from the central value for money evidence and supporting evidence, and a full description of the approach taken should be included in the OBC.

Value for money has been assessed in line with DfT guidance via a thorough, robust and transparent process from options development, measuring costs and impacts, and the consideration of risks and uncertainties to the identification of a preferred option. All relevant impacts have been assessed in a proportionate manner based on a consistent evidence base developed in line with DfT TAG. The results of the assessment of value for money are outlined in the following table. (All monetised values are in £million 2010 market prices discounted to 2010).

Impact	Scenario		
	Core	Low	High
Impacts typically monetised for initial BCR			
Present Value of Benefits (PVB)	97.7	77.1	107.2
Present Value of Costs (PVC)	41.0	43.5	43.0
Net Present Value (NPV)	56.6	33.6	64.1
Initial Benefits Cost Ratio	2.4	1.8	2.5
Initial Value for Money (VfM) category	**High**	**Medium**	**High**
Impacts typically monetised for adjusted BCR			
Adjusted Present Value of Benefits (PVB)	110.0	86.8	119.8
Present Value of Costs (PVC)	41.0	43.5	43.0
Adjusted Net Present Value (NPV)	69.0	43.3	76.8
Adjusted Benefits Cost Ratio	2.7	2.0	2.8
Adjusted VfM category	**High**	**Medium**	**High**
Non-Monetised Impacts			
Landscape	A&N: Moderate adverse		
	P&R: Slight adverse		
Townscape	A&N: Slight adverse		
Historic Environment	A&N: Moderate adverse		

Impact	Scenario		
	Core	Low	High
	Sandon P&R: Slight adverse		
	Chelmer P&R: Moderate adverse		
Biodiversity	A&N: Slight adverse		
	Sandon: Neutral/slight adverse		
	Chelmer: Minor adverse		
Water Environment	A&N: Very large adverse		
	P&R: Negligible		
Security	A&N: Slight beneficial		
	Sandon P&R: Moderate beneficial		
	Chelmer P&R: Slight beneficial		
Access to Services	Moderate Beneficial		
Affordability	Neutral		
Severance	Slight Beneficial		
Option and Non-Use	Moderate Beneficial		
Impact on VfM category	**High**	**Med / High**	**High**
Risk, sensitivities and uncertainties			
National/local demand side risk is reflected in the results of the Low and High Growth scenarios.	As per results in this table.		
Supply side risk (changes in the transport network).	No significant impact expected due to minimal risk of any variation in assumptions and minimal impact should a variation occur.		
P&R model parameter risk	Sensitivity testing indicated that no significant impact expected.		
Car-based travel demand does not recover to pre-COVID levels.	The Low Growth scenario covers this, although evidence suggests that car-based demand is already approaching pre-COVID levels.		
P&R demand does not recover to pre-COVID levels.	The Low Growth scenario cover this with respect to value for money. Under-utilisation of the sites can be addressed via policy instruments such as parking and fare policy and A&N signal timings if necessary.		
Lower concession demand on P&R due to increased fare in April 2021. Results of sensitivity test indicate reduction in NPV of P&R revenue from £4.4 million to £2.3 million. No change in VfM.	Sensitivity test results for Core scenario: BCR 2.6 VfM High		

<table>
<tr><th rowspan="2">Impact</th><th colspan="3">Scenario</th></tr>
<tr><th>Core</th><th>Low</th><th>High</th></tr>
<tr><td>Inflation risk: recent price volatility and cost inflation has been identified as a significant risk that impacts on the assessment of VfM. A risk valued at £9m has been included in the QRA to cover the possibility of cost inflation higher than published BCIS rates. A sensitivity test was undertaken to assess the impact of this not eventuating, i.e. if costs are as per BCIS rates.</td><td>Core
BCR 3.2
VfM High</td><td>Low
BCR 2.4
VfM High</td><td>High
BCR 3.3
VfM High</td></tr>
<tr><td rowspan="5">Cost uncertainty: sensitivity of VfM to level of cost overruns using analysis of P-values was undertaken (switching value). Results indicate the probability that scheme cost overruns will result in an increase or decrease in the VfM category, e.g. in the Core scenario there is a 32% chance that the costs will be sufficiently lower than expected to increase VfM to Very High.</td><td colspan="3">Probability that costs will not be high enough to reduce the VfM category</td></tr>
<tr><td>>95%</td><td>>95%</td><td>>95%</td></tr>
<tr><td colspan="3">Probability that costs will be low enough to improve VfM category</td></tr>
<tr><td>32% chance of increased VfM to Very High</td><td>85% chance of increased VfM to High</td><td>34% chance of increased VfM to Very High</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>Final VfM category</td><td>High</td><td>High</td><td>High</td></tr>
</table>

Key points to note regarding the information in the above table are that:

- The Core and High growth scenarios have high value for money based on monetised impacts, while the Low growth scenario is on the border between high and medium value for money (BCR of 1.99, which is less than the 2.0 required for high value for money).
- Monetised benefits are largely made up of journey time savings (reduced congestion) valued at £90.0 million (83%), health benefits from increased physical activity due to the improved walking and cycling measures valued at £13.4 million and journey time reliability benefits valued at £9.4 million.
- Environmental impacts are assessed at this stage without considering the impact of mitigation measures and as such represent a worst-case scenario.
- Social impacts are largely positive.
- The outcomes of sensitivity testing indicate that the impacts of identified key risks and uncertainties are not likely to change the value for money category for the Core and High growth scenarios and to increase value for money to High for the Low growth scenario.

Overall, the assessment of Value for Money is considered **High** when considering all significant impacts, sensitivities and risks.

Benefit to Cost Ratio	2.7 (range: 2.0 to 2.8)
Value for money category	High

5) Affordability (LLM schemes only)

Please provide a brief summary of why the scheme would be unaffordable other than via this bid to the LLM fund. Proposed LLM schemes should be single schemes that can only be delivered or justified as a whole. The Department's contribution will normally be above £50 million for LLM schemes.

Although Essex County Council will be contributing £8.1M of its own funds to the scheme, the ECC capital budget is not large enough to be able to deliver a scheme of this magnitude. A contribution of £4M has been secured from Chelmsford City Council's Community Infrastructure Levy towards the cost of the scheme. However, when combined with the ECC contribution, this is still not sufficient to cover the whole cost of the scheme. No large developments are specifically dependent on the scheme and, as a result, the Community Infrastructure Levy is the only mechanism available to obtain funding from private developers.

6) Delivery

Please state the estimated delivery milestones as below, assuming programme entry is granted at least 3 months after submission of the OBC. Please amend/add to milestones as necessary.

Submission of planning application	June 2023
Determination of planning decision	October 2023
Publication of scheme orders/CPOs (see section 7 below)	October 2023
Completion of Public Inquiry	Not assumed
Confirmation of all statutory orders and consents	N/A
Completion of procurement	May 2024
Full Business Case submitted to DfT	July 2024
Start of Construction (assume 3 months from FBC to funding commitment)	January 2025
Scheme open to public	April 2027

Note: If planning consent, scheme orders, CPOs or a public inquiry are not required please insert 'n/a' and provide an explanation in Section 7 below

7) Orders and consents

Do you envisage that CPOs will be necessary? If not please explain here or insert appropriate reference to relevant OBC paragraph.	Yes
Are other statutory/highways orders required that would normally require a Public Inquiry (e.g. Side Roads Orders, Transport and Works Act Order)? Please specify	No
What other statutory orders/consents are required? (e.g. heritage, environmental consents	Possible environment consents
If CPO and other orders are required does your timetable assume that there will be a public enquiry? If not please explain here or insert appropriate reference to OBC document	No See OBC document Section 7.8

8) Stakeholder Support

Does this scheme have implications for Highway England or Network Rail infrastructure? If so, what discussions have taken place with either of these organisations to facilitate this scheme?

The scheme does not have implications for National Highways or Network Rail

9) Section 151 Officer Declaration

As Section 151 Officer for [name of promoting authority] I declare that the scheme cost estimates quoted in this bid are accurate to the best of my knowledge and that [name of authority] has allocated sufficient budget to deliver the scheme on the basis of its proposed funding contribution accepts responsibility for meeting any costs of delivering the scheme over and above the DfT contribution requested, including potential cost overruns, and the underwriting of any third party contributions

accepts that no further increase in DfT funding will be considered beyond the maximum contribution requested.

Name:	Signed:

Please email this completed form to:

LT.plans@dft.gov.uk

Please note that the size limit for attachments to a single incoming email to DfT is 20MB. If your submission is larger than this please submit separate emails, use a zip folder, or convert large files to an alternative format.

We would prefer it if annexes are separated out into individual pdf documents.

NOTE: The following sections will be completed following the completion of the OBC

Part Two: Checklist

Please complete this checklist by referencing locations where the relevant material can be found in the OBC document.

Strategic Case

Item	Section/Page
A detailed description of the physical scope of the scheme	
The objectives of the scheme	
A description of the process by which the scheme came to be identified as the preferred option for meeting those objectives including why alternative options were discarded	
For schemes that directly aim to facilitate commercial or housing development on specific sites, details of the sites, current planning status, status of developer commitment and the expected impact of the scheme	
The impact the scheme would have on: • Access to planned HS2 stations or sites. • Access to International Gateways.	
Details of public consultation activities on the scheme to date, and key findings including how any key questions/concerns have been addressed.	

Economic Case

As well as referencing the location of these within the OBC, please supply each of the following documents and refer to Annex A for the checklist of appraisal and modelling supporting material.

Item	Section/Page
Option Assessment Report (OAR)	
Data Collection Report	
Local Model Validation Report (LMVR)	
Present Year Validation Report (if required)	
Forecasting Report	
Economic Appraisal Report	
Social and Distributional Impacts Assessment	

Management Case

Item	Section/Page
Governance structure including SRO, Project Board, Project Manager, and other key roles, and resourcing levels	
Detailed Project Plan	
Risk Management : • Detailed Risk Register • Narrative to explain the most significant risks; how they are being managed and their potential impact on time and budget. • Risk management strategy	
Project Assurance e.g. Gateway Reviews	
Evaluation Outline evaluation plan including a statement of core evaluation objectives	

Commercial Case

Item	Section/Page
Description of the preferred procurement strategy.	
Rational for the selection of preferred procurement route against possible alternatives.	
Explanation of how costs and risks will be shared throughout the contract.	

Financial Case

Item	Section/Page
Detailed cost breakdown.	
Independent surveyor's report verifying cost estimates.	
Details of and justification for inflation assumption used.	
Quantified Risk Assessment All scheme costings should include an amount for risk, based on the results of a Quantified Risk Assessment (QRA) which should be proportionate to the nature and complexity of the project.	
Evidence of commitment for any third party contributions.	

Annex A: Checklist of appraisal and modelling supporting material

Option Assessment

Item	Section/Page
An Option Assessment Report to include steps 1 to 8 set out in WebTAG – the transport appraisal process.	

Modelling

Item	Section/Page
Details of the sources, locations (illustrated on a map), methods of collection, dates, days of week, durations, sample factors, estimation of accuracy, etc.	
Details of any specialist surveys (e.g. stated preference).	
An Existing Data and Traffic Surveys Report to include:	
Traffic and passenger flows; including daily, hourly and seasonal profiles, including details by vehicle class where appropriate.	
Journey times by mode, including variability if appropriate.	
Details of the pattern and scale of traffic delays and queues.	
Desire line diagrams for important parts of the network.	
Diagrams of existing traffic flows, both in the immediate corridor and other relevant corridors.	
An Assignment Model Validation Report to include:	
Description of the road traffic and public transport passenger assignment model development, including model network and zone plans, details of treatment of congestion on the road system and crowding on the public transport system.	
Description of the data used in model building and validation with a clear distinction made for any independent validation data.	

Item	Section/Page
Evidence of the validity of the networks employed, including range checks, link length checks, and route choice evidence.	
Details of the segmentation used, including the rationale for that chosen.	
Validation of the trip matrices, including estimation of measurement and sample errors.	
Details of any 'matrix estimation' techniques used and evidence of the effect of the estimation process on the scale and pattern of the base travel matrices.	
Validation of the trip assignment, including comparisons of flows (on links and across screenlines/cordons) and, for road traffic models, turning movements at key junctions.	
Journey time validation, including, for road traffic models, checks on queue pattern and magnitudes of delays/queues.	
Detail of the assignment convergence.	
Present year validation if the model is more than 5 years old.	
A diagram of modelled traffic flows, both in the immediate corridor and other relevant corridors.	
A Demand Model Report to include:	
Where no Variable Demand Model has been developed evidence should be provided to support this decision (e.g. follow guidance in WebTAG M2 Variable Demand Modelling – section 2.2).	
Description of the demand model.	
Description of the data used in the model building and validation.	
Details of the segmentation used, including the rationale for that chosen. This should include justification for any segments remaining fixed.	
Evidence of model calibration and validation and details of any sensitivity tests.	
Details of any imported model components and rationale for their use.	

Item	Section/Page
Validation of the supply model sensitivity in cases where the detailed assignment models do not iterate directly with the demand model.	
Details of the realism testing, including outturn elasticities of demand with respect to fuel cost and public transport fares.	
Details of the demand/supply convergence.	
A Forecasting Report to include:	
Description of the methods used in forecasting future traffic demand.	
Description of the future year demand assumptions (e.g. land use and economic growth - for the do minimum, core and variant scenarios).	
An uncertainty log providing a clear description of the planning status of local developments	
Description of the future year transport supply assumptions (i.e. networks examined for the do minimum, core scenario and variant scenarios).	
Description of the travel cost assumptions (e.g. fuel costs, PT fares, parking).	
Comparison of the local forecast results to national forecasts, at an overall and sectoral level.	
Presentation of the forecast travel demand and conditions for the core scenario and variant scenarios including a diagram of forecast flows for the do-minimum and the scheme options for affected corridors.	
If the model includes very slow speeds or high junction delays evidence of their plausibility.	
An explanation of any forecasts of flows above capacity, especially for the do-minimum, and an explanation of how these are accounted for in the modelling/appraisal.	
Presentation of the sensitivity tests carried out (to include high and low demand tests).	

Cost Benefit Analysis

Item	Section/Page
A clear explanation of the underlying assumptions used in the Cost Benefit Analysis.	
Information on local factors used. For example the derivation of growth factors and annualisation factors in TUBA (to include full details of any calculations).	
A diagram of the network (if COBALT used).	
Information on the number of junctions modelled (if COBALT used), for both the do-minimum and the do-something.	
Details of assumptions about operating costs and commercial viability (e.g. public transport, park and ride, etc).	
Full appraisal inputs/outputs (when used, COBALT and/or TUBA input and output files in text format should be supplied).	
Evidence that TUBA/COBALT warning messages have been checked and found to be acceptable.	
Spatial (sectoral) analysis of TEE benefits.	
Details of the maintenance delay costs/savings.	
Details of the delays during construction.	
Appraisal tables (AMCB, PA, TEE) in excel format.	

Economic Case Assessment

Item	Section/Page
A comprehensive Appraisal Summary Table in excel format.	
Assessment of Economic impacts.	
Economic impacts worksheets.	
Assessment of Environmental impacts, to include an environmental constraints map.	
Environmental impacts worksheets.	
Assessment of Safety impacts and the assumed accident rates presented (when used, COBALT output should be provided).	
Assessment of Social impacts.	
Assessment of Distributional impacts.	
Social and distributional impacts worksheets (including DI screening pro forma).	
Cost pro forma.	