



National Highways Company Limited

Smart Motorways Alliance

Scheme Scope

**M1 North Leicestershire (J21a-23a) Extra
Capacity**

PCF Stages 1&2 only

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Section A: Scheme Client Requirements

The Client has a requirement to develop a proposal to upgrade the M1 North Leicestershire extra capacity (Junctions 21a-23a) to provide extra capacity. This is a sub-project that has evolved from the former “Junctions 19-23a” study which was paused in 2018.

This is a Roads Investment Strategy 3 (RIS3) proposed scheme, and therefore the requirement is to progress the scheme to a position where the Department for Transport can determine whether to commit to the scheme as part of RIS3.

This Scheme Order is for the SMA to undertake activities commensurate with delivering National Highways Project Control Framework (PCF) Stages 1- Options identification & Stage 2- Option Selection (current at 1st March 2022), except for those items of scope which deliver any public communication, public consultation or publication, to allow National Highways to present a report at Ministerial Decision Point (MDP) 2 in March 2023.

The document entitled ‘**Supporting document to Scheme Client requirements**’ appended to the Scheme Order provides a detailed breakdown of scope to be delivered.

This is considered a Non-defined solution for the SMA and is not represented in the ALR ABPM.

The Client in consultation and agreement with the SMA may amend the delivery and scope requirements of PCF Stages 1 & 2 post award of this Scheme Order.

External engagement and consultation is likely to be required to develop understanding of scheme impacts and also other developments in the area; all requests for such engagement shall be submitted for approval by National Highways.

The Client shall prepare and deliver a handover, to the Alliance, of all documentation associated with any previous work undertaken for this scheme.

The Client’s existing authority from the Department for Transport is to progress the scheme to PCF ‘Stage 2’ only by March 2023.

Further to this milestone, DfT and Ministers will review the Roads Period 3 portfolio; therefore, there will be a pause in the Scheme at this point.

The Client may issue a further Scheme Order to the SMA for PCF Stages 3-7 for the Scheme should it be approved for delivery in RIS3.

Section B: Scheme Scope Requirements

The Scheme Scope is to be delivered in conjunction with Volume 2.2 of the Alliance Contract, the Alliance Scope. The sections of the Alliance Scope are detailed below, the requirements of these sections are set out within Volume 2.2 of the Alliance Contract.

Scope Section	Description
S100	Description of the Works
S200	General Constraints
S300	Alliance’s design
S400	Scheme handover
S500	Programme

S600	Quality Management
S700	Tests and inspections
S800	Management of the works
S900	Working with Others
S1000	Services and other things to be provided
S1100	Health and safety
S1200	Subcontracting
S1300	Title
S1400	Accounts and records
S1500	Commercial management
S1600	Transfer of rights
S1700	Information management
S2000	Project Bank Account (Y(UK)1)
S2100	Client's work specification

Below identifies the additional description of the works included in the Scheme Scope.

S100 Description of the Works

The M1 J21a-23a scheme will consist of upgrading this section of the strategic road network to provide extra capacity in accordance with design standards GD301 or other relevant standards.

Parallel RIS3 Pipeline Scheme

M1 Leicester Western Access will consider the mainline M1 between 21 and 21a and targeted junction improvements at M1 J21.

There is a strong interdependency with both projects; the scope, benefit analysis and operation of the M1 must be considered in synergy by both schemes.

Junction 21a

On the Junction 21a Northbound diverge, the A46 traffic shares lane 1 with an MSA merge causing congestion in lanes 1 and 2 of the motorway.

Junction 23

During AM and PM peak periods, junction 23 northbound diverge causes queuing onto the mainline and congestion on local roads such as the A512.

Freight

The proportion of freight across the route is generally high owing to its strategic nature.

A42/M42 Links

J23a connects the M1 with the A42 and M42. The two junctions of the 23a and 24 provide busy connections to cross-country routes and the local road network. East Midlands Airport is also located along this section. Traffic management will be a key consideration during any construction phase to ensure continuity of network performance.

Junction Arrangements

Improvements to the merge and diverge layouts will be made to accommodate capacity needs where traffic forecast analysis indicates this is needed and in line with GD301. The design will be confirmed or amended on receipt of detailed traffic modelling data at DF2.

There are no significant departures from standard (DfS) expected from the assessments undertaken to date in line with National Highways' design standards. The Alliance should review and confirm any departures from GD301 are required.

The DF1 design of emergency areas pre-dates GD301 so changes are likely to be required to the numbers of places of relative safety.

Following issue of the draft scope the pre-order optimisation of this Scheme Order to the Alliance Partners is summarised below:-

Lot 2 DED scope

Jacobs will deliver 50% of the scope as the Responsible Partner.

WSP will deliver 50% of the scope as Support Partner.

Lot 3 OSAP scope

Balfour Beatty will provide the Pre-construction leadership for the Scheme Order

BMJV will provide the management support and technical / buildability support for the Scheme Order.

S200 General Constraints

Congestion

The M1 J21- 21a section has very high traffic flows and is one of the most significant congestion issues in the East Midlands– this is due to a combination of link capacity and closely spaced junctions (including a Motorway Service Area) with heavy turning movements; the consequent weaving issues lead to flow breakdown. While the *scheme* is between J21a – 23a, this traffic density may influence assessments and design.

Scheme delivery Interdependencies

Potential delivery phase must be co-ordinated with M1 Leicester Western Access RIS3 Pipeline being progressed by RIP. Scope boundary of projects to be agreed to ensure integrated options are produced. One such example of scope is the Leicester Forest East Motorway Service Area (MSA) which abuts the existing D4 running lanes between J21-J21A. Its lease runs to 2030 and may constrain the development of a robust design solution, both for J21 improvement feasibility and smart motorway elements. Widening here has typically been viewed as difficult due to an MSA structure which abuts lane one on either side, and houses the main facilities, over the M1. Options discussed in the past have included relocating the services – potentially to J21a with separate access to/from the M1 and A46 to continue to serve both routes. Options to widen but retain the existing services location may always continue to suffer from weaving issues irrespective of the number of lanes.

M1 J23a should be reviewed following completion of the above East Midlands Gateway Works and the M1 J23a-25 SM works. Actual traffic levels and patterns may differ from previous forecast modelling and will need to be monitored.

High-Speed 2 (HS2)

Awaiting the Government decision, but Phase 2b (Birmingham to Leeds) could clash with the current construction dates for the *scheme*. Dialogue to reopen and assess situation once PCF1 commences.

Other constraints

The following are to be assessed by the Alliance to understand their impact on the *scheme*:

- East Midlands Airport, Rail Freight Terminal, Distributions Companies & Services around M1 J23a & J24.
- Urban environment at (and south of) M1 J21a
- A Motorway Service Area (MSA) located between J21-J21A is a constraint and would be impacted if motorway widening required

Nature Conservation and Biodiversity:

The aim for the project is to meet the 'no net loss' of bio-diversity RIS2 requirement and to offset its impacts as far as practically possible, recognising that those requirements may increase in future RIS. Note that use of designated funds to support this is unlikely to be available in RIS3 and as such any mitigation and additional requirement would need to be included in the scope of the *scheme* and its future cost estimates.

Environmental Constraints

There are numerous Environmental constraints identified at this stage including:

- 8 SSSIs
- 9 AQMAs
- Noise Barriers would possibly be required

Scheduling constraints

- The Client's existing authority from the Department for Transport to progress the *scheme* only to the equivalent of PCF stage 2 by March 2023.
- Further to this milestone DfT and Ministers will review the Roads Period 3 portfolio, therefore there is the likelihood of a 'pause' in the *scheme* at this point

S225 Protection of Existing Structures and Services

MP0285-ACM-SGN-M1_SW_ZZ_ZZ-TN-CB-0001 summarises the potential structures requiring pier protection identified at PCF Stage 0, but will need further work through the stage development.

S305 Design responsibilities

The Alliance undertakes all design activities in accordance with the Alliance Scope and the Scheme Scope.

S320 Design submission procedures and acceptance criteria

The Alliance develops the design in accordance with GD301 standards. These agreements shall prevail over the requirements of S2100. The Alliance will undertake an impact assessment to assess the implications of full compliance with the S2100 and make a recommendation to the Alliance Board detailing which changes should / should not be adopted.

S502 *Scheme* Programme Requirements

The following summarises the Milestone Key Dates for inclusion in the programme and the performance table as detailed in the Implementation plan.

Milestone Key Date	Date
PCF Gate 2 Report available to submit to DFT	31 st March 2023

S665 Risk Management

The following matters will be included in the Early Warning Register.

Risk Cause	Risk Impact
DCO Process Medium level AQ, and land take concerns as well as low level biodiversity concerns.	Scheme classified as Nationally Significant Infrastructure Project and DCO application is required, the <i>scheme</i> would therefore not be deliverable as a smart motor single option scheme
Smart motorway 'Stocktake' outcomes	Provision in any option will have to consider the additional measures and potential impact on cost and BCR for project.
M1 Leicester Western Access Pipeline scheme being developed separately.	The North Leicestershire Extra Capacity scheme's performance and delivery window could be affected by M1 Leicester Western Access.
Smart motorway media coverage	Stakeholders/customers may be more resistant or express safety concerns over any new smart motorway proposals.
Adverse effects on the links as a result of attracting additional traffic over and above projected forecasts could result in decrease in air quality	The impact of the risk is an increase in design costs, and possible programme delays mitigating the environments effects. This could impact on the viability of the business case and projected benefits
Affordability – the <i>scheme</i> costs increase owing to structures requiring extensive modification to accommodate carriageway widths and height clearances.	Need to agree optimal design and associated costs. Once known then manage through Project
Changes to BCR – the economic appraisal is subject to further refinement which could affect the <i>schemes'</i> value for money.	Review traffic modelling done by the <i>scheme</i> and adjust accordingly. Develop benefits case for other non-TUBA benefits (e.g. noise, accidents, etc.).

S1010 Services and other things to be provided by the Client as a member of the Alliance

None Identified.

Section C: Allocation of Scheme Scope between Alliance Partners

S120 Core Responsibilities of the members of the Alliance

S120A Production Management Partner

1. The Production Management Partner is responsible for
 - a. leading the integration of the members of the Alliance in the Production Hub to deliver the outcomes of the Production Hub including
 - integration of the Partners' resources in the Alliance,
 - programme management office,
 - supply chain management,
 - technology and information management,
 - scheduling,
 - people strategy,
 - commercial management,
 - governance and risk management,
 - quality management and assurance, and
 - business change, and
 - b. investing in the capability and competence development of the *Client*.

S120B Digitally Enabled Design Partner

2. The Digitally Enabled Design Partner is responsible for
 - a. the outline and detailed civil engineering design of the *works* in accordance with S2100 *Client's* work specification,
 - b. the principal designer role for the *scheme* for which they are instructed in accordance with CDM Regulations,
 - c. maximising the use of the *Client's* Rapid Engineering Model (REM), digital design solutions including Building Information Modelling (BIM) and running digital rehearsals,
 - d. design knowledge management and promoting industry practice,
 - e. providing capability and capacity to the Production Hub, and

- f. providing contingency in circumstances where a Digitally Enabled Design Partner is terminated.

S120C On-site Assembly Partner

- 3. The On-site Assembly Partner is responsible for
 - a. the management and delivery of the construction of the *works* in accordance with S2100 *Client's* work specification,
 - b. the principal contractor role for the *scheme* for which they are instructed in accordance with CDM Regulations,
 - c. site level mobilisation, engineering and performance control,
 - d. on-site assembly of assets,
 - e. the installation, testing and commissioning of any infrastructure as part of handover to the *Client*,
 - f. providing capability and capacity to the Production Hub, and
 - g. providing contingency in circumstances where an On-site Assembly Partner is terminated.

S120D The *Client* as a member of the Alliance

- 4. The *Client* as a member of the Alliance is responsible for
 - a. playing an active role in the delivery of the SMP from within the Alliance in an integrated manner,
 - b. providing capability and capacity to the Production Hub, the delivery hubs and improve its own capability over the duration of the contract,
 - c. providing the services outlined in S1010 Services and other things to be provided by the *Client*, and
 - d. providing contingency in circumstances where the Production Management Partner is terminated.

KEY:

- **Responsible** – The Lot Partner(s) responsible for delivering the activities as defined in the Alliance Scope
- **Support** – The Lot Partner(s) support the delivery of the requirements as defined in the Alliance Scope

The Alliance as a whole remains responsible for delivering the *scheme*.

REFERENCE	The <i>Client</i> (as a member of the Alliance)	Lot 1 Fluor	Lot 2 Jacobs	Lot 3 Balfour Beatty BMJV
SECTION A: LOT SCOPE				
S100 Description of the works				
S105 Introduction to National Highways				
S110 Introduction to the Smart Motorways Programme				
S115 The structure of the Alliance	R	R	R	R
S116 Alliance Objectives	R	R	R	R
S120 Core responsibilities of the members of the Alliance	S	R	R	R
S120A Production Management Partner		R		
S120B Digitally Enabled Design Partner			R	
S120C On-site Assembly Partner				R
S120D The <i>Client</i> as a member of the Alliance	R			
S130 Agile responsibilities of the members of Alliance				
Scoping of surveys				
Asbestos	S	S	R	S
Communications	S	S	R	S
Condition	S	S	R	S
Drainage and ducting	S	S	R	S
Environmental and ecology (e.g. protected species)	S	S	R	S
Lighting	S	S	R	S

REFERENCE	The Client (as a member of the Alliance)	Lot 1 Fluor	Lot 2 Jacobs	Lot 3 Balfour Beatty BMJV
Noise	S	S	R	S
Pavement	S	S	R	S
Structures and geotechnical	S	S	R	S
Topographical	S	S	R	S
Carrying out of surveys				
Asbestos	S	S	S	R
Communications	S	S	S	R
Condition	S	S	S	R
Drainage and ducting	S	S	S	R
Environmental and ecology (e.g. protected species)	S	S	S	R
Lighting	S	S	S	R
Noise	S	S	S	R
Pavement	S	S	S	R
Structures and geotechnical	S	S	S	R
Topographical	S	S	S	R
Preliminary design				
Gantries, structures and bridges	S	S	R	S
Noises and environmental barriers	S	S	R	S
Piling and foundations	S	S	R	S
Power and lighting	S	S	R	S
Retaining walls	S	S	R	S
Technology and communications	S	S	R	S
Detailed design				

REFERENCE	The <i>Client</i> (as a member of the <i>Alliance</i>)	Lot 1 Fluor	Lot 2 Jacobs	Lot 3 Balfour Beatty BMJV
Gantries, structures and bridges	S	S	R	S
Noises and environmental barriers	S	S	R	S
Piling and foundations	S	S	S	R
Power and lighting	S	S	R	S
Retaining walls	S	S	S	R
Technology and communications	S	S	R	S
Traffic management	S	S	S	R
Development of as-built records	S	S	S	R
Purchase and provision of				
Technology	R	S	S	R
Traffic management	R	S	S	R
Any other products and services called off from CCS and other <i>Client</i> framework contracts	R	S	S	R
Consent and administrative activities				
Statutory and consent management (e.g. Statutory instruments, Statutory Undertakers, Distribution Network Operators (DNOs))	S	S	R	S
Environmental assessment	S	S	R	S
Customer service and external stakeholder management	S	S	S	R
Setting up and administering of PBAs	S	R	S	S

REFERENCE	The Client (as a member of the Alliance)	Lot 1 Fluor	Lot 2 Jacobs	Lot 3 Balfour Beatty BMJV
Supporting SMP delivery (e.g. Red-X campaign)	S	R	S	S
Production activities				
Logistics	S	S	S	R
Promoting use of off-site manufacture and standardisation	S	S	S	R
Continuous improvement and innovation	S	R	R	R
SECTION B: GENERAL REQUIREMENTS				
S200 General constraints				
S201 Alliance behaviours	R	R	R	R
S202 Parent Company Guarantee	S	R	R	R
S203 Conflict of interest	S	R	R	R
S204 Anti Bribery and Anti-Fraud	S	R	R	R
S205 Data Protection	S	R	R	R
S208 Official Secrets Acts	S	R	R	R
S210 Confidentiality	S	R	R	R
S211 Insurance	S	R	R	R
S215 Security and protection of the Site	S	S	S	R
S220 Security and identification of people	S	R	R	R
S225 Protection of existing structures and services	S	S	S	R
S230 Cleanliness of roads	S	S	S	R

REFERENCE	The Client (as a member of the Alliance)	Lot 1 Fluor	Lot 2 Jacobs	Lot 3 Balfour Beatty BMJV
S240 Network occupancy	S	S	S	R
S241 Recovery services	S	S	S	R
S245 Condition survey	S	S	R	S
S250 Considerate Constructor Scheme	S	S	S	R
S251 Customer service	S	R	R	R
S256 Project Control Framework	S	R	R	R
S266 Energy Efficiency Directive	S	R	R	R
S267 Environmental requirements	S	S	S	R
S268 Aftercare / Management of landscape works	S	S	S	R
S269 Site Waste Management plan	S	S	S	R
S270 Sustainable development requirements	S	S	S	R
S272 Air Quality Strategy	S	S	S	R
S274 Discrimination, bullying and harassment	S	R	R	R
S275 Equality, diversity and inclusion	S	R	R	R
S276 Employment and skills	S	R	R	R
S300 Design	S	S	R	S
S305 Design responsibilities	S	S	R	S
S310 Design criteria	S	S	R	S

REFERENCE	The Client (as a member of the Alliance)	Lot 1 Fluor	Lot 2 Jacobs	Lot 3 Balfour Beatty BMJV
S320 Design submission procedures and acceptance criteria	S	S	R	S
S325 Design approval from Others	S	S	R	S
S400 Scheme handover				
S405 Scheme Open for Traffic	S	S	S	R
S410 Scheme handover	S	S	S	R
S415 Scheme Completion	S	S	S	R
S445 Documents	S	S	S	R
S450 Access to information following Completion	S	S	S	R
S500 Programme				
S501 Alliance programme requirements	S	R	R	R
S502 Scheme programme requirements	S	R	R	R
S515 Scheme programme quality	S	R	R	R
S520 Methodology statement	S	R	R	R
S525 Revised Alliance programme	S	R	R	R
S535a Earned value management and reporting	S	R	R	R
S600 Quality Management	S	R	R	R
S605 Alliance aligned/integrated management system	S	R	R	R
S610 Lean	S	R	R	R

REFERENCE	The Client (as a member of the Alliance)	Lot 1 Fluor	Lot 2 Jacobs	Lot 3 Balfour Beatty BMJV
S615 Quality planning	S	R	R	R
S620 Authorised persons with adequate skills, knowledge and experience and training	S	R	R	R
S625 Quality reviews	S	R	R	R
S626 Audits	S	R	R	R
S630 Registers	S	R	R	R
S640 Non-conformity corrective action reports	S	R	R	R
S645 Quality indicators	S	R	R	R
S650 Deliverables	S	R	R	R
S655 Alliance management review	S	R	R	R
S660 Quality management points	S	R	R	R
S665 Risk management	S	R	R	R
S700 Tests and inspections	S	S	S	R
S800 Management of the works				
S810 Communications	S	S	S	R
S820 Disclosure requests	S	R	R	R
S825 Information security	S	R	R	R
S835a Business Continuity	S	R	R	R
S900 Working with Others	S			
S905 Requirements of Others	S	R	R	R
S920 Utilities providers	S	R	R	R
S1000 Services and other things provided				

REFERENCE	The <i>Client</i> (as a member of the <i>Alliance</i>)	Lot 1 Fluor	Lot 2 Jacobs	Lot 3 Balfour Beatty BMJV
S1010 Services and other things to be provided by the <i>Client</i> as a member of the Alliance	R	S	S	S
S1100 Health and Safety				
S1105 Supply chain health and safety maturity matrix	S	R	R	R
S1107 Alliance's health and safety management system	S	R	R	R
S1108 Subcontractor's health and safety management systems	S	R	R	R
S1111 Action to rectify breaches	S	R	R	R
S1112 Health and safety culture	S	R	R	R
S1113 Health and safety – exchange of information	S	R	R	R
S1114 Asbestos	S	S	S	R
S1115 Health and safety advice	S	R	R	R
S1116 Health and safety inspections	S	R	R	R
S1117 Health and safety in construction	S	S	S	R
S1118 Incident investigation, reporting and follow-up	S	R	R	R
S1119 Incident statistics	S	R	R	R
S1121 Health and safety management audit	S	R	R	R

REFERENCE	The Client (as a member of the Alliance)	Lot 1 Fluor	Lot 2 Jacobs	Lot 3 Balfour Beatty BMJV
S1122 CDM compliance	S	S	R	R
S1123 Health and safety – charity-based incentive Schemes	S	R	R	R
S1125 Management of road risk	S	S	S	R
S1127 Substance abuse	S	R	R	R
S1128 Security	S	R	R	R
S1129 Employee safety	S	R	R	R
S1130 Fleet Operator Recognition Standard (FORS) Accreditation	S	S	S	R
S1131 Driving for better business	R	R	R	R
S1200 Subcontracting	S	R	R	R
S1205 Restrictions or requirements for subcontracting	S	R	R	R
S1210 Acceptance procedures	S	R	R	R
S1300 Title				
S1305 Marking	S	S	S	R
S1400 Accounts and records	S	R	R	R
S1415 Form of documents to be retained	S	R	R	R
S1420 Records and audit access	S	R	R	R
S1425 Retention of records	S	R	R	R
S1500 Commercial Management				

REFERENCE	The Client (as a member of the Alliance)	Lot 1 Fluor	Lot 2 Jacobs	Lot 3 Balfour Beatty BMJV
S1505 Provision of cost information	S	R	R	R
S1510 Provision of price information	S	R	R	R
S1515 Cost verification	S	R	R	R
S1520 Invoicing	S	R	S	S
S1525 Forecasting	S	R	S	S
S1530 Earned value for assessment	S	R	S	S
S1600 Transfer of Rights				
S1605 Alliance rights over material prepared for the design of the works	S	R	R	R
S1610 Other rights to be obtained by the Alliance	S	R	R	R
S1700 Information management (Option X10)	S	R	R	R
S1705 Information management requirements	S	R	R	R
1S2000 Project Bank Account (Option Y(UK)1)				
S2010 Project Bank Account tracker	S	R	R	R
S2100 Client's work specification	S	R	R	R
S2110 Drawings	S	R	R	R
Annex A Reference documents				
Annex B Form of Parent Company Guarantee	S	R	R	R
Annex C Insurance Tables	S	R	R	R

REFERENCE	The Client (as a member of the Alliance)	Lot 1 Fluor	Lot 2 Jacobs	Lot 3 Balfour Beatty BMJV
Annex D Alliance Inclusion Action Plan	S	R	R	R
Annex E Alliance Employment and Skills Plan	S	R	R	R
Annex F Special activities and requirements	S	S	R	S
Annex G Continuous improvement/lean minimum requirements	S	R	R	R
Annex H Quality improvement process	S	R	R	R
Annex I Subcontractor Warranty	R	R	R	R
Annex j Information management requirements	S	R	R	R