

A38 Derby Junctions
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7.4(a) Traffic Management Plan

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- A. Dynamic Roadworks Benchmark Scores.
- B. Traffic Management Layouts (for each Junction, for each construction phase.

1 Executive summary

1.1 Overview

- 1.1.1 The A38, which passes through Derby, is part of the strategic road network and provides a route between Birmingham and the M1 at junction 28, thereby providing a route for north-south long-distance journeys by private vehicle. Where the A38 passes through the western and northern parts of Derby, local intra-urban trips cross the A38 on radials into the city or use the A38 to travel around Derby. The interaction between strategic and local trips result in delays and queues at the three roundabout junctions, A38/A5111 Kingsway roundabout, the A38/A52 Markeaton junction and the A38/A61 Little Eaton junction to the west and north of Derby City Centre.
- 1.1.2 The two-way average daily traffic flows (AADT) along this length of the A38, in the calendar year of 2017 were between 40,000 (on the A38 south of the A5111 Kingsway junction) and 55,000 (on the A38 between the A5111 and the A52).
- 1.1.3 The A38 is a strategic route and therefore carries a relatively high proportion of heavy goods vehicles. In the calendar year of 2015, manual classified counts at the Markeaton junction indicated a yearly average of between 11% and 14% heavy goods vehicle content on the A38.
- 1.1.4 Historically, all three junctions suffer from long periods of congestion and delays throughout the year. The Highways Agency (now Highways England) made “Interim Improvements” to the capacity of all three junctions in 2006; and further improvements to the capacity of the Little Eaton and Markeaton junctions were implemented in 2014 with “Pinch Point” funding.
- 1.1.5 The high traffic flows at the Derby junctions also creates conflict with walkers and cyclists that cross the A38 at the Little Eaton and Markeaton junctions. The Regional location of the A38 corridor and the area that the Scheme is located within is shown in Figure 1.1 below.



Figure 1.1: Scheme location plan

1.1.6 AECOM has been appointed by Highways England, through various procurement contracts, to take the Scheme through Stage 2 (Option selection), Stage 3 (Preliminary Design), Stage 4 (Statutory Process) and Stage 5 (Detailed Design/Construction Preparation) of the Project Control Framework (PCF). This version of the Traffic Management Plan document has been developed with the input and support of several Buildability Advisors that were appointed to provide construction advice to the Scheme at Stages 2 and 3.

1.1.7 **This version of the Traffic Management Plan (TMP) ~~has been~~ prepared at Stage 3 (Preliminary Design) and updated during the DCO examination. At this stage the content is conjectural. Further refinement of the TMP is required at each subsequent Stage of the Scheme's development. The next major revision would be in Stage 5 "Construction Preparation" (detailed design) at which time the Project's construction methods and programmes would be developed in more detail including consultation with the key stakeholders. The TMP will be updated and expanded to reflect the specific issues raised by the local authorities. The development of construction preparation needs to be further informed by these issues. It is also expected that the future development of construction details will then lead to additional development of the TMP.**

1.2 Existing situation

1.2.1 The existing Kingsway, Markeaton and Little Eaton roundabouts are at-grade roundabout junctions with varying levels of signalisation.

1.2.2 The Kingsway Roundabout provides the junction between the A38 and the A5111 southern ring road and is an elongated roundabout. The A38 (northbound) entry from the South has been signalised, but all other entries operate under priority control with two-lane entries.

1.2.3 The Markeaton Roundabout consists of four arms which provide the junction between the A38 and the A52, which links the west of Derby to the city centre. Three of the entries (all but Ashbourne Road E) have been signalised, and pedestrian crossings are present on three of the exit arms. There are also 3 to 2 merges on the A38 exit arms and a 2 to 1 merge on both the exit onto Ashbourne Road (into Derby City Centre) and the A52 (towards Ashbourne).

1.2.4 The Little Eaton Roundabout consists of five arms and is the junction between the A38 and the A61, which provides a route into Derby City Centre from the north. Three of the five entries are signalised, with the remainder (B6179 Alfreton Road and the entry from the Mobile Home Park) operating under a priority-controlled layout. A bypass lane has been provided so that traffic routing southbound from the A38 to A61 is not subject to delays at the traffic signals.

1.3 Traffic Management Plan

1.3.1 The purpose of this version of the TMP is to establish the outline rules for the traffic management and temporary road layouts that would be needed to construct the consented Scheme. The TMP recognises the need for engagement with local communities and forums such as the Derby City Behaviour Change Group to begin early dialogue, to inform the development of the TMP.

- 1.3.2 As the Scheme progresses through detailed design and statutory consultation stages and towards the construction stages of the project, Highways England intends to award the construction, through their Delivery Integration Partnership (DIP) procurement process, to BAM Nuttall. This TMP has been prepared in advance of the DIP procurement.
- 1.3.3 Subsequent versions of this TMP would be reviewed, ~~and~~ updated and agreed with all relevant parties, which include but is not limited to Highways England's operation and maintenance teams, Derbyshire County Council (DCC), Derby City Council (DCiC) and the affected District Councils prior to the start of works. Other parties with specific interests, such as Derbyshire NHS, Derby University, Public Transport Operators, and key businesses would be welcome to make their views on the TMP known but this would preferably be done through the Local Highway Authority or in the wider forums such as the Derby City Behaviour Change Group.
- 1.3.4 The target set by Highways England is to construct the Scheme (i.e. completion of all three junctions) over a period of three-and-a-half years. The Contractor is currently reviewing opportunities to reduce the programme and has discussed with DCiC the opportunity for specific longer duration closures to allow critical path items of work to be completed during rail type possessions of the road. Details will be further developed in advance of works starting on site. This has been determined with the input of the Buildability Advisor over the preceding four years. This duration would need to be reviewed as the construction planning stages are developed.
- 1.3.5 An alternative would be to build each junction separately and in turn, but this would result in a six to seven years construction period that was considered would be too disruptive to travel in and through Derby.
- 1.3.6 There are recognised compromises between: the permitted working hours in a week, the need to relocate fauna, the desire to eliminate unnecessary delays to the existing traffic movements, to minimise detrimental environmental impacts to adjacent residents, to programme earthwork settlement periods, create sufficient working space for safe construction activities (and aim for zero harm), and to minimise the costs of construction. **These would be discussed in further detail at Stakeholder Workshops in Stages 4 & 5.**
- 1.3.7 This construction programme would be developed based upon constraints relating to network availability and the adherence to working hours of 07:30-18:00 on Mondays to Fridays and 08:00-13:00 on Saturdays except for:
- Night-time closures for Markeaton footbridge demolition and installation of the new footbridge.
 - Junction and slip road tie-in Works.
 - Installation of bridge decks.
 - Installation of sign gantries.
 - Installation of temporary and permanent line markings.

- Overnight traffic management measures, as agreed with the local authority (DCiC) in advance.
 - Any emergency works.
 - Works associated with traffic management and signal control changes.
- 1.3.8 Any other work carried outside the core hours, or any extension of the core hours, may be possible with the prior agreement of the local environmental health officer so long as the activity is demonstrated to be 'environmentally not worse' than the activities that have been assessed in the Environmental Statement.
- 1.3.9 This is determined via legal advice received, however these working hours are not final and are subject to the approach taken by the DIP contractor.
- 1.3.10 The Regional Intelligent Unit (RIU) would be consulted with to provide Working Windows in order to inform the timings of lane closures to ensure minimum delays for road users and maximum working times for the project. This process will include the local highway authorities and their intelligence of impact, tolerance levels of the local network, and the identification of opportunities. A process to secure early identification and communication will be established – this is part of the development of this TMP, the construction preparation, and will continue through the construction period

2 Introduction

2.1 Purpose and objectives

- 2.1.1 The purpose of this TMP is to describe the temporary traffic management proposals required for the safe and efficient construction phases of the A38 Derby Junctions Scheme.
- 2.1.2 It is necessary to minimise the impact on customers and stakeholders while ensuring work is carried out efficiently, and as a result delivered as quickly as possible. It is of the utmost importance that no one should be harmed when travelling or working on the strategic road network.
- 2.1.3 The statutory public consultation for the Scheme started on 7 September 2018. It ran for six weeks, closing on 18 October 2018.
- 2.1.4 In the days leading up to the start of the consultation, people living within 500m of the road were consulted. Adverts were placed in a number of papers (local and national press) to ensure that local people were aware of the consultation.
- 2.1.5 The Scheme is expected to be submitted for Development Consent Order (DCO) in the spring of 2019.

2.2 Details of the Scheme

- 2.2.1 The A38 Derby Junctions preferred route announcement was made on 31 January 2018. The Scheme is part of in the Regional Investment Strategy (RIS) programme to be developed by Highways England.
- 2.2.2 Table 2.1 **Error! Reference source not found.** would provide the contact details of key roles during the construction of the Scheme. This table would be completed after the Contractor is appointed and the construction working methods have been developed.

Table 2.1: Contact details of Highways England, designer & contractor roles

Role	Activity (contractors)	Name	Organisation	Contact Details
Client				
Designer				
Coordinator for H&S (EMIA)/Principal Designer (UK)				
Technical Assurance				
East Midlands Asset Delivery (EMAD)	Maintenance			
Project Director				
Project Manager				

2.3 Summary description of the Scheme

2.3.1 The aim of this project is to improve the capacity of the three existing at-grade roundabouts on the A38 through Derby, thereby smoothing the flow of traffic. The three junctions are located at the junctions of:

- A38/A5111 Kingsway.
- A38/A52 Markeaton.
- A38/A61 Little Eaton.

Historically, this latter A38/A61 Little Eaton Roundabout is sometimes referred to as Abbey Hill Roundabout.

2.3.2 All three junctions would be converted from at-grade roundabouts to grade-separated junctions in order to split opposing movements of vehicles and increase the junction's capacity.

2.3.3 This combination of improvements is the "A38 Derby Junctions" ('the Scheme').

2.3.4 The area that the Scheme is located within is shown in Figure 1.1.

2.4 Existing situation

2.4.1 The existing Kingsway, Markeaton and Little Eaton roundabouts are at-grade roundabout junctions with varying levels of signalisation. Each is described in turn in the following paragraphs:

2.4.2 The Kingsway Roundabout provides the junction between the A38 and the A5111 southern ring road and is an elongated roundabout. The A38 (northbound) entry from the South has been signalised, but all other entries operate under priority control with two-lane entries.

2.4.3 The Markeaton Roundabout consists of four arms and is at the intersection between the A38, which carries north-south movements, and the A52, which links the west of Derby to the city centre. Three of the entries – all but Ashbourne Road (East) – have been signalised, with pedestrian crossings on three of the exit arms. There are also 3 to 2 merges on the A38 exit arms and a 2 to 1 merge on both the exit to Ashbourne Road (into Derby City Centre) and the exit to A52 (towards Ashbourne).

2.4.4 The Little Eaton Roundabout consists of five arms and is at the intersection of the A38, the A61, which provides a radial route into Derby's city centre from the north, the B6179, and an access to adjacent land (Ford Lane). Three of the five entries are signalised, with the remainder (the B6179 Alfreton Road entry and the Ford Lane entry from the Mobile Home Park) operate under priority-control. A bypass lane has been provided so that traffic routeing southbound from the A38 to the A61 is not subject to delays at the traffic signals.

2.5 Nature of works

2.5.1 The construction works programme is based upon the strategy of implementing the upgrades at each junction simultaneously. A general overview of the Kingsway, Markeaton and Little Eaton layouts are described respectively.

- 2.5.2 **Kingsway:** The A38 would be lowered to pass underneath the modified junction in a new underpass with a new dumbbell roundabout configuration and bridge to carry vehicles over the lowered A38. The A38 would be widened to 3 lanes between Kingsway and Markeaton with the speed limit increased from 40mph to 50mph.
- 2.5.3 **Markeaton:** The A38 would be lowered to pass underneath a new signalised roundabout with two new bridges to carry the A52 traffic over the A38. The A38 would be widened to 3 lanes in each direction between Markeaton and Kedleston Road with the speed limit increased from 40mph to 50mph.
- 2.5.4 **Little Eaton:** Two new bridges would be built to carry the A38 on an overpass and the existing roundabout extended to the south. The existing national speed limit would be retained with an advisory 50mph over the junction.

2.6 Challenges and considerations

- 2.6.1 The PCF Stage 3, Client Scheme Requirement (CSR) document, published in February 2019, identified constraints with respect to delivery. The following constraints relate specifically to the construction phases:
 - The Scheme requires a number of Departures from Standards. Departures for sub-standard weaving lengths between Markeaton and Kedleston Road junctions are key to the delivery of the Scheme.
 - The construction of Little Eaton involves the widening of embankments on the River Derwent floodplain. Little Eaton junction crosses the River Derwent Floodplain and an area designated as part of the Derwent Valley Mills World Heritage Site.
 - The overhead electrification of the rail line near to the Little Eaton junction would require ongoing discussions with Network Rail to ensure possessions are co-ordinated.
- 2.6.2 Traffic management restrictions are shown below in Table 2.2. These would be agreed with EMAD and the other key stakeholders (including the local highways authorities) throughout Stages 4 & 5. Restrictions to other roads that are concurrent with the Scheme’s construction, would be identified and would need to be considered in combination with the secondary traffic routing effects.

Table 2.2: Traffic management restrictions

Location	Concern
A38	Two Lanes to be maintained from 6am to 9pm At least one lane open between 9pm and 6am Overnight closures permitted, subject to diversion routes being agreed.
Slip Roads	Selective overnight closures permitted, subject to full advance warning and diversion routes being agreed.
A61 (dual 2-lane length)	Two lanes to be maintained during peak hours. At least one lane to be maintained during off-peak and inter-peak hours*. Overnight closures permitted, subject to diversion routes being agreed.

Location	Concern
A38-A61 left turn lane	Selective closures permitted, subject to agreement with EMAD and local authorities.
B6179	Daytime restrictions to be confirmed. Overnight closures permitted, subject to diversion routes being agreed.
A52	At least one lane to be maintained. Overnight closures permitted, subject to diversion routes being agreed.
A5111	At least one lane to be maintained. Overnight closures permitted, subject to diversion routes being agreed.

*Inter-peak hours refer to 1000-1600; off-peak hours refer to 1900-0700.

2.6.3 Table 2.3 contains a list of statutory undertakers and their contact details. This table would be updated as the construction method is developed.

Table 2.3: Affected statutory undertakers

Statutory Undertakers	Category	Name	Contact Details
Western Power Distribution	Electricity Supply	Paul Lemmey	plemmey@westernpower.co.uk
National Grid	Gas Supply	Rob Beaton	0114 2419907
Open Reach (BT)	Telecommunications	Mark Unwin	nnhc@openreach.co.uk
Severn Trent Water	Water supply	Craig Shilton	0800 707 6600
Severn Trent Water	Waste water	Duncan Colin	07789 903274
Virgin Media	Telecommunications	Tom Kendrick	0115 8421452
O2 & Vodafone	Mobile communications	Michael Swash	07525 632 585

2.7 Dynamic roadworks vision

2.7.1 Customers understand why there are roadworks, but nonetheless they still see them as disruptive and inconvenient. To improve the customer experience, Highways England has developed a vision of how it will manage major roadworks in the future.

2.7.2 Consideration has been given to the principles described in the vision as part of the deployment of the TMP. The vision describes five key areas where Highways England is looking to change the approach to roadworks.

- Varying the speed limits so they are appropriate for the work taking place.
- Shortening the length of roadworks.
- Appropriate use of full road closures and associated diversions.
- Delivering roadworks quicker.
- Explaining clearly what activities are, or are not, taking place.

2.7.3 The Scheme's traffic management proposals and impacts would be assessed against the Dynamic Roadworks Vision Scoring criteria, where possible, as shown in Table 2.4. A form is included in Appendix A, which evidences these benchmark scores.

Table 2.4: A38 Derby junctions Scheme dynamic roadworks vision scoring

Vision	Green/Amber/Red/NA/Not yet known
Speeds	Amber
Length	Amber
Closures and diversions	Green
Delivering Quicker	Amber
Explaining Activity	Green

3 Traffic Management Plan

3.1 Customer requirements

3.1.1 This Traffic Management Plan is required by Highways England to describe the Temporary Traffic Management (TTM) arrangement needed to facilitate the construction of the A38 Derby Junctions Scheme. The Traffic Management Plan has been prepared with aims to achieve:

- No increase in personal injury accidents/collisions (or severity thereof).
- Protection to vulnerable road users.
- Protection for the workforce from adjacent live traffic during construction of the works.
- Maintain existing journey times along the A38.

3.1.2 The Highways England 2015-20 Delivery Plan states a KPI target to achieve 90% customer satisfaction, currently satisfaction of 'roadworks management' scores 63%. 'Roadworks – A Customers View' identifies 20 key principles which outline what customers want designers to consider when planning and managing roadworks. Consideration has been given to this guidance during the development of the TMP and the 20 key principles are detailed under 'All Motorists'.

3.1.3 In January 2019, Highways England published their guidance document "Transforming roadworks: Our approach". The document is designed to communicate Highways England's approach to transforming roadworks for their customers, supply chain and stakeholders, by creating a better roadworks experience.

3.1.4 The safety at roadworks is paramount. But Highways England's customers should also feel that roadworks are efficient and that there is a proportionate balance between the work taking place and the benefits being delivered.

3.1.5 The five key elements for transforming roadworks are summarised in a diagram; see Figure 3.1. In summary these five elements are:

- Consult and communicate.
- Plan and design.
- Deliver and manage.
- Inform and advise.
- Monitor and improve.



Figure 3.1: Five key elements for transforming roadworks

3.1.6 The details of the TMP that would be specific to the Scheme are detailed in Table 3.1 along with how the Scheme aims to achieve these principles in order to improve customer satisfaction.

Table 3.1: Scheme specific customer requirements for the TMP

Customer group	Who is affected by this Scheme?	What are their requirements?	How would the TMP take these requirements into account?
Customer	All motorists	<ul style="list-style-type: none"> Better integration with other roadworks. 	<ul style="list-style-type: none"> All works would need to be carefully planned and co-ordinated to minimise disruption and avoid potential conflicts. Closure clashes – not having closures on alternative routes that are not subject to diversions. Scheme to be included in Highways England’s monthly Area national conference call to discuss potential cross-boundary issues with roadworks and rerouting.

Customer group	Who is affected by this Scheme?	What are their requirements?	How would the TMP take these requirements into account?
		<ul style="list-style-type: none"> Maintain existing journey to work times into the city. 	<ul style="list-style-type: none"> Consider personal travel plan campaign to encourage residents to mode transfer from car to use other forms of transport (e.g. bus <u>or</u>, cycle, <u>Derby's e-bikes</u>) <u>Provide Explore potential for</u> priority to bus and cycle movements through the works- <u>to be explored through the Derby City Behaviour Change Group.</u>
		<ul style="list-style-type: none"> Manage incidents to improve journey reliability. 	<ul style="list-style-type: none"> Provision of vehicle recovery service to recover vehicles that have stopped within the roadworks.
		<ul style="list-style-type: none"> Find ways to deliver projects quicker 	<ul style="list-style-type: none"> Prioritise activities within the Works to complete sections of roadworks and opening to traffic as soon as is practicable in order to secure tangible benefits to customers as early as possible. TM to be removed where possible during embargo periods Where TM cannot be removed during embargo periods, the construction of the Scheme should maintain existing productivity The Contractor shall assess whether it is reasonably practicable to remove TM on sections where no construction work is being undertaken.
		<ul style="list-style-type: none"> Shorten the length of 'live' roadworks 	<ul style="list-style-type: none"> Proposed site works is 3.8km long in total. TM to be limited to this length where possible to minimise the length of the disruption to strategic road movements.
		<ul style="list-style-type: none"> Widen 'narrow' lanes 	<ul style="list-style-type: none"> Narrow lanes are to be used due to nature of works. Narrowed lanes to be kept to the pre-agreed widths throughout construction to maintain space for traffic.
		<ul style="list-style-type: none"> Vary speed limits 	<ul style="list-style-type: none"> Where possible roadworks would be designed so that they are adequately safe at the permanent speed limit Consideration to be given to the opportunity to vary the speed limit during periods where work is not being undertaken.

Customer group	Who is affected by this Scheme?	What are their requirements?	How would the TMP take these requirements into account?
		<ul style="list-style-type: none"> • Improve line demarcation. • Improve varioguard visibility. • Explore options for temporary lighting. 	<ul style="list-style-type: none"> • Consideration to be given to these items by the Contractor as part of Stage 5 – construction preparation.
		<ul style="list-style-type: none"> • Give more advance notice. 	<ul style="list-style-type: none"> • <u>Major changes to the layout of the TM would be communicated by signs on the network a minimum of 4 weeks in advance; DCiC would have early visibility of all TM plans and the project would use various routes to communicate with public and other stakeholder with a dedicated web-site and other measures</u>A minimum of four weeks' notice would be provided at the roadside.
		<ul style="list-style-type: none"> • Use more billboards to display reasons and timescales for the works. 	<ul style="list-style-type: none"> • Billboards to be provided on the Scheme at the start of works.
		<ul style="list-style-type: none"> • Use electronic signage (preferred by customers and tends to be trusted as more up-to-date.) 	<ul style="list-style-type: none"> • Variable Message Signs should be used to post an advance notice of the closure. • Suitable temporary replacement signage should be provided so that there is no reduction in the level of service provided to the customer.
		<ul style="list-style-type: none"> • Use travel time variable message signs. 	<ul style="list-style-type: none"> • Travel time variable message signs to be provided to communicate both the time and distance to the end of roadworks.
		<ul style="list-style-type: none"> • Design a progress-o-meter. 	<ul style="list-style-type: none"> • The Scheme shall incorporate the use of a progress-o-meter to update customers about overall progress via signage within roadworks (and through other media).
		<ul style="list-style-type: none"> • Widen local communications and outreach. • Use multiple media channels, regularly. • Adopt impactful messages. • Explain no activity. 	<ul style="list-style-type: none"> • Consideration to be given to these items by the Contractor as part of Stage 5 – construction preparation. <u>From February 2020 the Linkconnex Stakeholder Manager will start working with the local authorities to map out the most effective way of communicating with the community and build upon what already exists.</u>
		<ul style="list-style-type: none"> • Organise a customer reality-check of new traffic management. 	<ul style="list-style-type: none"> • Early drive through new traffic management and regular patrolling to be undertaken to spot issues, improvements, behaviours and any unintended consequences.

Customer group	Who is affected by this Scheme?	What are their requirements?	How would the TMP take these requirements into account?
		<ul style="list-style-type: none"> Collect and monitor customer experience. 	<ul style="list-style-type: none"> The Scheme would aim to seek and act on feedback from customers regarding traffic management measures.
		<ul style="list-style-type: none"> Complete the feedback loop. 	<ul style="list-style-type: none"> Information to be provided to show how customer input has influenced delivery as well as highlighting benefits when these are realised
	HGV drivers	<ul style="list-style-type: none"> Appropriate diversion routes. Maximised lane widths where possible. 	<ul style="list-style-type: none"> Diversion routes avoid narrow roads and low bridges. <u>Narrow lanes to be used due to limited space and consideration to be given to maximising the available space for traffic.</u> <u>When planning TM layout HGV movements will be allowed for with widening at junctions to encourage HGVs to remain on the A38. Diversion routes will only be agreed if they are suitable for traffic diverted from the A38 including HGVs. Signage can be used on the wider strategic road network to encourage HGVs to re-route when closures are planned to reduce commercial traffic on diversions routes</u>
	Disabled car driver	<ul style="list-style-type: none"> Method of recovery that is suitable for passengers with reduced mobility (PRM) and their vehicles. 	<ul style="list-style-type: none"> Recovery vehicles are wheelchair accessible.
	Bus/Coach Services	<ul style="list-style-type: none"> Advance warning of closures and/or diversions. Appropriate diversion routes. Maximised lane widths where possible. 	<ul style="list-style-type: none"> Advance warning of closures and diversion routes that would affect bus routes in order to pass information on to customers. Diversion routes avoid narrow roads and low bridges. <u>Narrow lanes to be used only where essential and consideration to be given to maximising the available space for traffic.</u> <u>Bus movements will be considered when planning TM layouts to ensure sufficient space is provided and consideration to the most frequent turning movements through the works.</u>

Customer group	Who is affected by this Scheme?	What are their requirements?	How would the TMP take these requirements into account?
	Walkers and cyclists	<ul style="list-style-type: none"> • Advance warning of closures and/or diversions. • Appropriate diversion routes provided. 	<ul style="list-style-type: none"> • Diversion routes to consider the needs of walkers and cyclists to ensure that routes are maintained at all times.
Partner	Emergency Services	<ul style="list-style-type: none"> • Suitable diversion routes. • Advance warning of closures and/or diversions. 	<ul style="list-style-type: none"> • Process and procedure for allowing blue-light travel through the works/haul road. • Diversion routes avoid narrow roads and low bridges. • Sufficient notification of closures. • <u>Hospital is represented at the Derby City Behaviour Change Group and the Linkconnex Stakeholder Manager will engage directly with the hospital / emergency services to understand their requirements and open up a line of dialogue with the TM Manager</u>
	Suppliers	<ul style="list-style-type: none"> • Clear route for ease of delivery and Journey time reliability to site. • Suitable access and egress. 	<ul style="list-style-type: none"> • Manage haul roads to facilitate site deliveries. • Access and egress points clearly marked and close to delivery site.
Community	Local Residents	<ul style="list-style-type: none"> • Advance warning of closures and/or diversions. • Sensitivity to local requirements e.g. peak time traffic. • Minimal disruption due to works, including environmental factors (e.g. noise, dust, lighting) and diversion routes. • Deliveries by heavy vehicles to/from the site to minimise their impacts on local residents. 	<ul style="list-style-type: none"> • Notification and liaison with individuals and/or local group representatives. • Night time closures and activity curfews where possible to minimise disruption. • Diversion route signs and information to meet driver requirements and optimise usability to reduce opportunities for error and therefore reduce congestion. • Heavy vehicle deliveries to site would use the A-class roads (i.e. A38 north, A38 south, A61 south, A6 north, A52 west, A5111).
Stakeholder	Derbyshire County Council	<ul style="list-style-type: none"> • Pre-liaison to establish suitability of TM proposals. • Advance warning of closures and/or diversions. • Street Works Permit notifications. 	<ul style="list-style-type: none"> • Liaison to confirm suitable traffic management. • Advance warning and particular sensitivity around significant events, particularly evenings and weekends. • Road booking

Customer group	Who is affected by this Scheme?	What are their requirements?	How would the TMP take these requirements into account?
	Derby City Council	<ul style="list-style-type: none"> • Pre-liaison to establish suitability of TM proposals. • Advance notice to warn of closures and/or diversions. • Street Works Permit notifications 	<ul style="list-style-type: none"> • Liaison to confirm suitable traffic management. • Advance warning and particular sensitivity around significant events, particularly evenings and weekends • Road booking • Notify environmental health officer of work outside of normal working hours.
	Highways England – Network Operations (East Midlands Asset Delivery Team)	<ul style="list-style-type: none"> • Set advance warning and alternative route signing remote from the Works. • Programme maintenance operations of other parts of their Trunk Road. • Emergency diversion routes. • Manage routes and provide directions for abnormal loads. 	<ul style="list-style-type: none"> • Liaison to confirm suitable traffic management. • Advance warning and particular sensitivity around significant events, particularly evenings and weekends • Road space booking.
	Statutory Undertakers	<ul style="list-style-type: none"> • Statutory Utility companies to be able to undertake regular maintenance of their equipment during the Works. 	<ul style="list-style-type: none"> • Keep local highway authorities informed.

3.1.7 This Traffic management Plan is a live document and key stakeholders, including the Contractor (~~who is yet to be appointed Linkconnex~~), Highways England's East Midlands (Area 7) Asset Delivery Team, local highway authorities and the emergency services would be consulted prior to finalising each update of this Traffic Management Plan.

3.1.8 The present document has been developed with the input and support of two Buildability Advisors, who were appointed by Highways England at various times during the development of options for the Scheme.

3.1.9 Once the Contractor has been appointed, then the proposed method of undertaking the Works would need to be reviewed. The land-take required to implement the construction methods would need to be balanced against the space needed to implement sufficient capacity at the temporary junctions and to phase the Traffic management layouts to suit the Works.

3.1.93.1.10 The A38 strategic traffic model will be used to model the traffic management construction phases and refine the traffic management arrangements, to identify the key alternative routes and the required diversion signing. Further, junction operational assessment (e.g. LINSIG software) will be used to model the

temporary traffic signal to better understand the queue lengths and to inform the size of the temporary junction layouts. Further, critical junctions on the major diversion routes on the local road network will also be modelled to assist the local highway authority with understanding the impact on their road network and to inform whether any further traffic management is required.

3.2 Proposed traffic management measures

- 3.2.1 Subject to securing a DCO, preliminary works are planned to start in late 2020. The main construction work is expected to be undertaken between March 2021 and August 2024, a total of 3.5 years. The three junctions would each be constructed in several phases: Kingsway would be constructed in three phases, Markeaton in five phases and Little Eaton in six phases. These fourteen junction-construction phases would be progressed at all three junctions simultaneously and would overlap in time.
- 3.2.2 General arrangement plans that indicate the expected traffic management layouts, for each envisaged construction phase at each junction, are provided at Appendix B.
- 3.2.3 The first construction phase at each of the three junctions would be a period of restricted speed limits applied to the existing highway network. These first construction phases at each junction would allow preparatory construction tasks to take place alongside the existing highway.
- 3.2.4 For the purpose of appraising the traffic impacts, the construction phases at each junction and their respective traffic management layouts have been arranged into groups of simultaneous phases, which are referred to as Traffic Management Scenarios. The arrangement of construction phases into Traffic Management Scenarios (TM Scenario 0 to TM Scenario 7) is shown diagrammatically in Figure 3.2 at the end of this section.
- 3.2.5 Each of these eight traffic management scenarios are described in the following paragraphs.

TM Scenario 0

- 3.2.6 TM Scenario 0 would be in place for approximately 241 days and would be required because of the construction work, which would be ongoing and adjacent to the A38 carriageways during this traffic management scenario. It is expected that the speed limit through the construction length would be reduced to 40mph.

TM Scenario 1

- 3.2.7 TM Scenario 1 would be in place for approximately 100 days. Reduced speed limits through the roadworks would be maintained and Phase 2 at Little Eaton would begin.

3.2.8 Little Eaton Phase 2 involves:

- Closure of Ford Lane
- To the north of the new A38 alignment through the Little Eaton junction the existing traffic-signal controlled roundabout would be retained. This would connect the A38 northbound (both into and out of this junction) and the B6179 Alfreton Road to the north, with 2 and 3 lanes retained on the circulatory carriageway.
- A temporary signal-controlled junction, on the A61 south, would connect the A38 southbound (both into and out of the junction) and the A61 South, with 3-lane entries from both the A38 and A61.
- The right turn from B6179 to the A38 Southbound would be banned and drivers would be directed to use the A61/Croft Lane ('Pektron') Roundabout to make that movement. Alternatively, a U-turn facility might be constructed on the A38 dual carriageway to the north of the Little Eaton junction.
- A link from the temporary A38/B6179 roundabout to the temporary signalised A38/A61 junction, with 2 lanes in each direction.

TM Scenario 2

3.2.9 This TM Scenario would last for approximately 200 days and involves the continuation of Phase 1 at Little Eaton. Phase 2 at Markeaton would begin.

3.2.10 Markeaton Phase 2 involves:

- Diversion of the A38 southbound onto the newly constructed slip roads, connected with the A52 by a temporary traffic signal-controlled junction (with right turns banned), with 3 lanes on the A38 entry into and exit from this temporary junction.
- Diversion of the A38 northbound into a new temporary link, connected with the A52 by a temporary traffic signal-controlled junction with 3 lanes on the A38 entry into and exit from the junction. The right turn from A38 South to A52 East would be banned, the right turn from A52 East to A38 North would be banned, and the left turn from A52 West to A38 South would be banned.
- Modified speed limits for both new slip road southbound and the new temporary link.

TM Scenario 3

3.2.11 This TM Scenario would last for approximately 161 days and includes the continuation of Phase 2 at Markeaton. Kingsway Phase 2 and Little Eaton Phase 3 would begin.

3.2.12 Kingsway Phase 2 involves:

- Traffic diverted to the newly constructed dumbbell roundabout layout, with 2-lane entries from A38 onto the roundabouts, and with speed restrictions continuing to apply due to the construction work adjacent to the junction.
- Kingsway Park Close would be opened to traffic. The Brackensdale and Raleigh Street connections to the A38 would be closed.
- The entries to the new roundabouts; from A38 northbound, from Kingsway Park Close and from A5111 Kingsway, would be signal controlled to assist the traffic flow, which would still include the A38 through-movements in this Phase.

3.2.13 Little Eaton Phase 3 involves:

- Traffic diverted into the newly constructed larger roundabout.
- Signal-controlled 3-lane entries from A38, both northbound and southbound, into the junction.
- The lengths of circulating carriageway that would carrying the A38-traffic through the junction (both southbound and northbound) would be 3 lanes wide, i.e. circulating at the A61 and B6179 entries. The circulating carriageway could be 2 lanes wide between A38 northbound exit and A61.

TM Scenario 4

3.2.14 TM Scenario 4 would last for approximately 173 days and would mark the end of all previous Phases and the start of three new Phases: Kingsway Phase 3, Markeaton Phase 3+4 and Little Eaton Phase 4.

3.2.15 Kingsway Phase 3 involves:

- Traffic diverted to the fully-operational new junction, with speed restrictions continuing to apply due to works adjacent to the junction.

3.2.16 Markeaton Phase 3+4 involves:

- Traffic diverted into the completed new gyratory, which is fully signal-controlled, with 2 lanes wide on all circulatory links, except where carrying the A38 southbound movement, which requires 3 lanes.
- Signal controlled 3-lane wide entries into the junction from the A38 entries.
- Traffic to A38 North would be carried via a temporary-alignment northbound slip road, with speed restrictions.
- Traffic to A38 South would leave the gyratory junction on a 3-lane exit, which would narrow to 2 lanes.

3.2.17 Little Eaton Phase 4 involves:

- A similar layout to Little Eaton Phase 3.
- Construction of the east bridge deck would take place over the traffic circulating on the larger roundabout. Bridge beams would be lifted into place using over-night closures.
- If this is not possible on safety grounds, then a U-turn facility might be constructed between the A38 northbound and A38 southbound carriageways on the A38 North arm, which would accommodate the turning movements from A38 South to A61 South and from B6179 to A61 South.
- During Little Eaton Phase 4, the A38 through movement would be travelling through the newly constructed larger roundabout. All entries into the roundabout would be controlled by temporary traffic signals.
- On the south and west side of the roundabout, the circulating carriageway would be three lanes wide; i.e. from the A38 North entry to the B6179 Alfreton Road exit. Elsewhere the circulating carriageway could be two lanes wide.
- All entries into the roundabout would be controlled by traffic signals.

TM Scenario 5

3.2.18 This Scenario would last for approximately 140 days and includes the continuation of Markeaton Phase 3+4. At the Kingsway junction the Scheme would be fully operational, i.e. the 'Do-Something' (DS) layout. At the Little Eaton junction, the construction would enter Phase 5, which is the construction of the west bridge's deck.

3.2.19 Little Eaton Phase 5 involves:

- A similar layout to Little Eaton Phase 3.
- The A38 through movements in both directions would be routed through the newly constructed larger roundabout. Three lanes would be provided on the circulatory carriageway to accommodate these A38 eastbound and A38 westbound through-movements.
- All junctions with the roundabout would be controlled by traffic signals.
- Construction of the west bridge deck would take place over the traffic circulating on the larger roundabout. Bridge beams would be lifted into place using over-night closures.
- If this is not possible on safety grounds, and a closure of the western side of the roundabout is required while bridge construction takes place, then:
 - Of the three eastbound lanes, two would turn left to the A38 North; the third lane would be for vehicles heading to A61 South.
 - the U-turn facility constructed for Phase 4 on the A38 North arm, between the A38 northbound and A38 southbound carriageways, could be retained to accommodate the turning movements from A38 South to A61 South and from B6179 to A61 South.

- The A61 South to A38 North movements could be diverted through the completed east bridge. The circulating carriageway through the east bridge would need to be marked with two lanes northbound.
- A temporary traffic signalled junction would be required to control the priority of movements from A38 South and from A61 South given that both would be heading to A38 North.
- Movements from A61 South to the B6179 and the few movements from A38 North to the B6179 and would be diverted. These movements might be directed to make a U-turn at the A6 Palm Court junction.

TM Scenario 6

3.2.20 TM Scenario 6 would last for approximately 175 days and would include the full DS Scheme junctions at Kingsway and Little Eaton.

3.2.21 Markeaton Phases 3 + 4 would be ongoing; as described for TM Scenario 4 above.

TM Scenario 7

3.2.22 Scenario 7 would last for approximately 84 days and would include the full DS Scheme junctions at Kingsway and at Little Eaton.

3.2.23 Phase 5 construction would start at Markeaton.

3.2.24 Markeaton Phase 5 includes:

- Diversion of the A38 northbound into the new grade-separated southbound carriageway (3 lanes): the A38 southbound would continue to be routed through the signalised gyratory.
- Closure of the northbound diverge slip road: the northbound merge slip road remains open.

3.3 Scheme opens to traffic

3.3.1 On completion of TM Scenario 7, the whole Scheme would be open to traffic; this is the 'Do-Something' network case.

3.3.2 Figure 3.2 shows how the construction phases overlap and relate to the traffic management scenarios which were developed to appraise the delays during construction.

A38 Derby Junctions
Traffic Management Plan

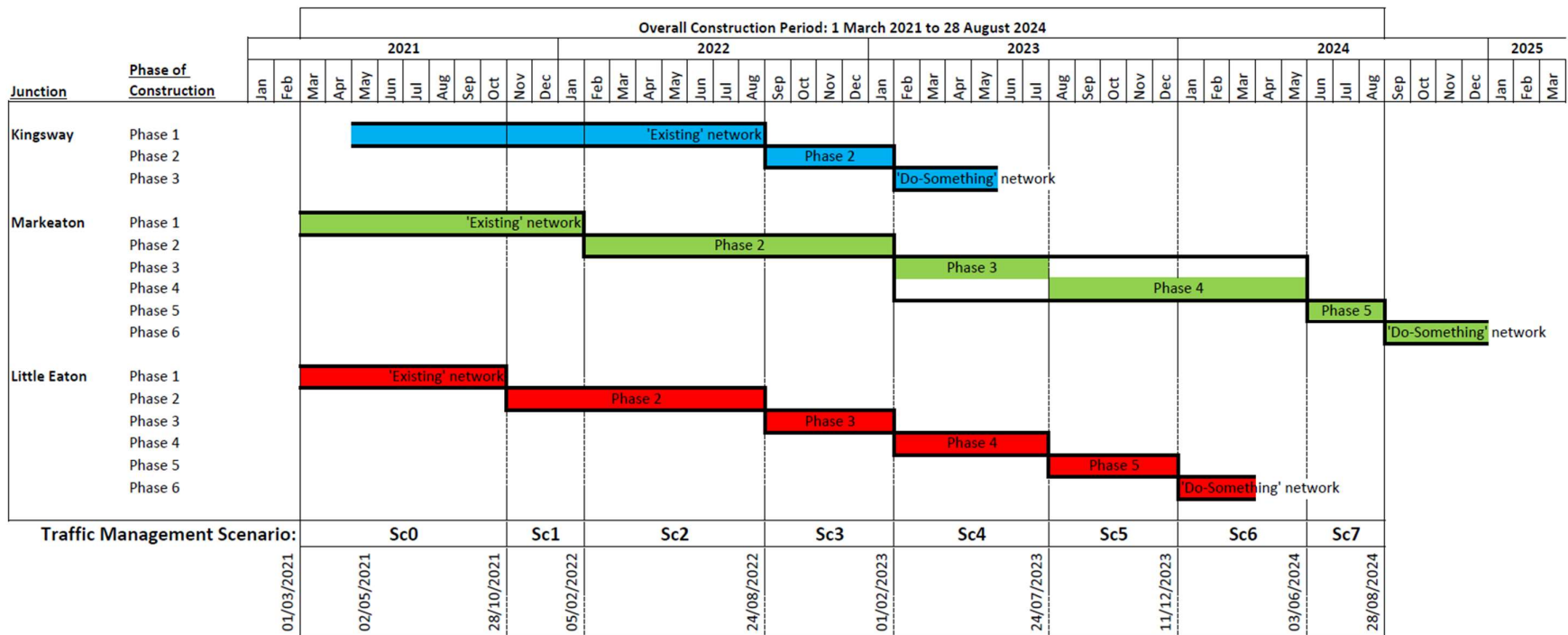


Figure 3.2: Construction phases and TM scenarios

4 Working hours

4.1.1 During the Scheme’s construction phases, the project-wide core working hours are defined in Table 4.1.

Table 4.1: Core working hours

Works	Working Hours
All works including earthworks	07:30 – 18:00 Monday to Friday 08:00 – 13:00 Saturdays with no working on Sundays and Bank Holidays Exceptions to these core working hours are detailed in the paragraphs below

4.1.2 To maximise productivity, a period of up to one hour before and up to one hour after normal working hours would be used for start-up and close down of activities. This would include, but not be limited to, deliveries, movement to place of work, unloading, maintenance and general preparation works. These periods would not be considered an extension of core working hours.

4.1.3 The RIU would be consulted to provide Working Windows in order to inform the timings of lane closures to ensure minimum delays for road users and maximum working times for the project. As noted in 1.3.10 above, this process will include the local highway authorities and their intelligence of impact, tolerance levels of the local network, and the identification of opportunities.

4.1.4 Some activities with limited durations would be undertaken outside of the core working hours, namely:

- Night-time closures for Markeaton footbridge demolition and installation of the new footbridge.
- Junction and slip-road tie in works.
- Installation of bridge decks.
- Installation of sign gantries.
- Installation of temporary and permanent line markings.
- Overnight traffic management measures – as agreed with the local authority in advance.
- Any emergency works.
- Works associated with traffic management and signal-control changes.

4.1.5 **Any other work carried-out outside of the core working hours, or any extension of the core hours, may be possible with the prior agreement of DCiC and Erewash Borough Council (EBC) environmental health officers (as applicable) and agreed with all relevant parties so long as**

the activity is demonstrated to be not environmentally worse than the activities that have been assessed within the Environmental Statement.

4.2 Bank holidays

4.2.1 For each year of construction there would be a number of observed bank holidays in England, these are listed below in Table 4.2. The impact of these bank holidays upon possible working restrictions would be developed further with the DIP in Stages 4 & 5.

Table 4.2: Observed bank holidays in England during construction

Holiday	Observed Date During Each Construction Year				
	2020	2021	2022	2023	2024
New Year's Day	1 January	1 January	3 January	2 January	1 January
Good Friday	10 April	2 April	15 April	7 April	29 March
Easter Monday	13 April	5 April	18 April	10 April	1 April
Early May Bank Holiday	4 May	3 May	2 May	1 May	6 May
Spring Bank Holiday	25 May	31 May	30 May	29 May	27 May
Summer Bank Holiday	31 August	30 August	29 August	28 August	26 August
Christmas Day	25 December	27 December	27 December	25 December	25 December
Boxing Day	28 December	28 December	26 December	26 December	26 December

4.3 Significant events and seasonal traffic

4.3.1 At certain points in the year there are events held in Derby which could attract extra trips to the area and put pressure on the local road network.

4.3.2 These events include but are not limited to:

- Derby Fake Festival.
- Derby Half Marathon, Derby 10k & Derby 5k Races, Triathlon.
- Events at Derby Arena and the Cricket Club.
- Sports Events – Derby County Football Club Home Games and Derbyshire County Cricket Club Home Matches.
- Darley Park Concert.

4.3.3 The Contractor's Stakeholder Manager will co-ordinate the tracking of all local events which may impact on traffic flows through the works and using advance notice any activities involving closures would be planned not to coincide

4.3.4 The impact of these events upon possible working restrictions would be developed further in Stages 4 & 5.

- 4.3.5 Other known events, that are not specific to Derby, but which may require restrictions are; Black Friday and Cyber Monday, amongst others.

5 Proposed traffic management measures

5.1 Restrictions

- 5.1.1 Any restrictions would be in place 24 hours per day and seven days per week throughout the duration of the construction of the Scheme. Such restriction would need to be identified as the construction methods and traffic management phasing and layouts are developed during the next stage.
- 5.1.2 During construction, traffic management and capacity restrictions should aim to not cause vehicle delays or queues along the A38 that extend beyond those currently expected. Areas of the road network that are particularly sensitive to blocking by queues would be identified, in collaboration with the relevant authorities including EMAD, and measures implemented to resolve the perceived issues.

5.2 Operating lanes

- 5.2.1 Footways through the Scheme would be a minimum width of 1.8m.
- 5.2.2 Cycle ways would be provided where they are currently located, or suitable alternatives identified and proposed. Cycle lanes should not be less than 1.5 wide, where they are provided.
- 5.2.25.2.3 Highways England and its Contractor will engage with and support the Derby Behaviour Change Group and will support the promotion of a mode shift in the city and consider NMUs when planning our workplace transport plan.
- 5.2.35.2.4 There are no equestrian routes around the Scheme.
- 5.2.45.2.5 Public Rights of Way (PRoW), these would be maintained throughout the construction period, some of the PRoWs would require minor diversions, these would be suitable and appropriate where implemented.
- 5.2.55.2.6 Narrow lanes – the lane width through the Scheme would be a minimum of 3.25m on at least one lane in each direction to accommodate standard heavy goods vehicles. Minimum lane widths must allow for the standard snow plough blade that is attached to the highway authority gritting vehicles.

5.3 Speed limits

- 5.3.1 Throughout the construction of the A38 Derby Junctions the speed limit would be **at least** 30mph until each junction has been completed when the speed limit would be increased to 50mph at Kingsway and Markeaton and to national speed limit at Little Eaton.
- 5.3.2 The first section of reduced temporary speed limit would begin shortly before Kingsway Junction and end at Kedleston Road, a second section

would begin on the A38 at the entry/exit with the junction of Palm Court and end 500m north of the Little Eaton junction.

- 5.3.3 The specifics of exact speed limits and locations would be developed further with the DIP in Stages 4 & 5.

5.4 Length of traffic management measures

- 5.4.1 The envisaged extents of traffic management works would be in two discrete lengths.

- The southern length (1.2km) would be from a point on the A38 South about 500m south of Kingsway junction to the Kedleston Road slip roads.
- The northern length (2.7km) would likely start from the entry/exit slip roads of the A6 Palm Court junction and end approximately 500m north of Little Eaton junction.

- 5.4.2 The combined length of the two traffic management lengths would be about 3.9km.

5.5 Carriageway and slip road closures

- 5.5.1 Any full carriageway and slip road closures would be agreed in advance with the Highway Authority and information on the closure would be advertised well in advance.

5.6 Adjacent roadworks and other traffic management arrangements

- 5.6.1 Other traffic management arrangements and roadworks in the area would need to be coordinated. Both the local highway authorities operate a Street Works Order Permit Scheme under the Traffic Management Act 2004.

- 5.6.2 Other schemes in surrounding area, if any, would need to be documented during the next development stage and considered when developing the next version of this Traffic Management Plan and in consultation with the stakeholders (as stated in the communication plan).

- 5.6.3 Liaison would be required between the sponsors of any other emerging highway improvement schemes. Public utility companies may also need roadworks to maintain their equipment, and some work by the public utility companies would be required to deliver this Scheme. Liaison would be required in advance of start of works and would need to continue throughout construction process.

- 5.6.4 Subsequent versions of this Traffic Management Plan would describe the interactions with stakeholders and the sponsors of any other schemes and describe how these would be addressed. HE, and its Contractor, will collaborate through the Local HAUC (Highways and Utility Committee) coordination meeting. This has been established for approximately 20 years and is a joint group with DCC and DCiC and the local statutory

~~Undertakers This would be undertaken with liaison of the DIP in Stages 4 & 5.~~

5.7 Incident management

- 5.7.1 The contractor should develop the Incident Management Strategy accordingly with the company policy and safety standards. This would include the preparation of a 'Severe Weather & Incident Management Plan'.
- 5.7.2 Incidents where vehicles have struck or displaced traffic management equipment or entered the works area shall be recorded. This would allow the traffic management design to be reviewed and altered, if appropriate, to maintain the safety of drivers and workers.
- 5.7.3 Vehicle recovery services would be maintained, as part of the Construction Contract, to minimise the duration of incidents and restore the smooth flow of traffic. Targets should be set for the recovery of vehicles along with definitions of the limits of the proposed services and specifics relating to their operation.

5.8 Incursion risk management

- 5.8.1 Traffic Management includes risk management and those in control of workplaces have a duty to identify hazards, assess risks and consider means to control the risk exposure. Traffic management planners need to detail and consider potential hazards associated with both safety issues and the performance of the road network. In the paragraphs below, the issues that should be considered while analysing the hazards during the construction works on the A38 Derby Junctions Scheme.

5.9 Consideration of road layout

- 5.9.1 The temporary Traffic Management layout shall start and finish at an appropriate location to avoid potential for driver confusion; for example, shared attention between negotiating junctions and becoming aware of the new TM layout. There is also risk that workers can be injured because they may not be noticed by drivers if TM layouts start on a bend.

5.10 Consideration of advance signings and limited speed

- 5.10.1 Drivers shall be informed in advance about the construction works with associated speed restrictions and about the presence of workers in the carriageway.
- 5.10.2 Advance signings would be posted on major trunk roads in the vicinity to the Scheme to advise drivers of alternate routes avoiding the A38. Advance signs would also be required on the appropriate Local Authority network, with the agreement of the two Local Highway Authorities. Portable variable message signs will also be used to supplement fixed signs and keep drivers informed

5.10.3 Speed limit and warning signs are proposed throughout the A38 Derby Junctions construction area.

5.11 Consultation on appropriate TM system

5.11.1 The local authority (DCiC/DCC), Highways England's East Midlands (Area 7) Asset Delivery Team and the Police ~~should~~will be consulted on the TM proposals (~~e.g.including~~ diversion routes, speed cameras, etc.).

5.12 Provision of staff working zones

5.12.1 Provision of the minimum lateral clearance between the live lane and work area, once the traffic management layout is in place (for high speed roads is 1.2m, for other roads it is 0.5m), should be used to wherever possible.

5.13 Reversing vehicles

5.13.1 The temporary traffic layout shall aim to eliminate the risk associated with reversing operations. The need for public vehicles to reverse should be avoided where possible as reversing is a major cause of fatal accidents. Where reversing is unavoidable, the DIP would undertake a suitable risk assessment which could include the use of Banksman or other mitigation strategies.

5.13.2 The construction activities within the Scheme's Works would be planned to eliminate reversing operations onto a public highway. Construction related vehicles would not be permitted to reverse onto the public highway.

5.14 Lane widths

5.14.1 The width of the route shall be sufficient to safely accommodate the number of vehicles that use them at peak times. At least one narrow lane on both carriageways would have a width of 3.25m to facilitate HGV traffic.

5.15 Exclusion zones

5.15.1 A Risk/No Risk Zone must be identified, with the red zone acting as an exclusion area for all persons. As a minimum, the Risk Zone must be physically segregated by barriers to prevent any persons entering the Risk Zone.

5.15.2 Risk Zone exclusion requirements and all pedestrian and vehicle routes must be communicated to all on site, including visitors, through an appropriate induction process. If it is not possible to physically segregate persons from entering the Risk Zone then an effective control system such as proximity warning technology should be selected, implemented and established as a minimum.

5.15.3 A Start of Shift briefing must be provided, detailing information on exclusion zones and safe systems of work.

5.16 Driver compliance

- 5.16.1 Compliance ~~should~~will be discussed with the Police to agree procedures for enforcement ~~where~~if necessary. The possible use of average speed cameras would be developed during the detailed design stage~~further at Stages 4 and 5~~.

5.17 Communication plan

- 5.17.1 Discussions with the two local highway authorities has been ongoing since 2003 and throughout the Scheme's development.
- 5.17.2 At this stage in design (Stage 3, Preliminary Design) it is anticipated that advance notification would be provided prior to start of works and any restrictions/closures via the following platforms:
- Announcement on local and regional radio;
 - Notices in local papers;
 - The East Midlands Regional Operations Centre;
 - Emergency Planning Team;
 - Blue Light First Responder Community;
 - Highways England Digital Channels via the 'Roadworks' tab of each scheme's project webpage and via the Traffic England webpage - information comes from road-space booking system, 'Network Occupancy Management System' (NOMS). 'Accurately updating NOMS and our digital channels' provided further information and guidance;
 - Advance warning signs and scheme information boards at the road side on affected routes in accordance with TSM Chapter 8 (a minimum of four weeks in accordance with 'Roadworks – A Customers View');
 - Temporary Variable Message Signs (VMS) should be used to post an advance notice of the closure, these signs have a greater impact over more traditional methods of signing and but should only be used in conjunction with and not instead of traditional signs. The use of VMS signs is particularly recommended where a closure might affect traffic wishing to access a mainline railway station or airport outside normal working hours. If such signs are not available, mobile signs should be used; and
 - Additional advance warning is to be provided to key Stakeholders in the vicinity of the Scheme that may be affected by the works via the following platforms with particular sensitivity around significant events and holidays
- 5.17.3 The Scheme would aim to seek and act on feedback from customers regarding traffic management measures. This information would be used by

the Contractor alongside other sources of evidence and insight to continuously improve traffic management on the Scheme.

5.17.4 The following measures would be adopted by the Scheme in order to keep customers informed of progress on the Scheme and improve the customer experience through roadworks or overall customer satisfaction:

- In accordance with MPI 48, billboard signage should be provided to communicate Scheme information. Billboards should be located at the start of works and repeated after every junction to improve their effectiveness.
- The Scheme shall incorporate the use of a progress-o-meter to update customers about overall progress via signage within roadworks (and through other media). This should be allied to updates on key milestones and what has been completed.

5.17.5 During the development of the detailed communication plan for the Scheme consideration should be given to improve engagement with customers by:

- Widening the catchment area, going beyond those immediately impacted and reaching those living along diversion routes and at local commuter hubs;
- Up-to-date information should be provided frequently via multiple methods including social media and roadside signage;
- Periods where no visible activity is undertaken should be explained with clear signage to reduce frustrations from road users;
- Information should be provided via signage within roadworks (and through other mediums) to show how customer input has influenced delivery as well as highlighting benefits when these are realised

5.17.6 Notice of any TM restrictions should be advertised in local papers with announcements on local and regional radio prior to the start of works including any restrictions and closures.

5.18 Diversion routes selection

5.18.1 Any signed diversion routes must be agreed with East Midlands Asset Delivery (EMAD) and the appropriate Local Highway Authority (including obtaining local TTROs if necessary) and other key stakeholders would be consulted. Once agreed the proposed diversion routes would be shared with the following organisations for their information and comment:

- Highways England.
- The East Midlands Regional Operations Centre.
- Royal Derby Hospital.
- Emergency Planning Teams.

- Blue Light First Responder Community.

5.19 Safety measures

- 5.19.1 The overall traffic management plan is designed and intended to specify adequate safety measures in advance against identified hazards to ensure safe movement of traffic during the construction of the A38 Derby Junctions. This overall traffic management plan delineates the safety standards in terms of Construction zones, Limited Speed, VRS, Signs and Safety measures in work zones.
- 5.19.2 Road safety audits would be undertaken of the Temporary Traffic Management, once these have been developed in more detail. Any recommendations should be implemented.

5.20 Temporary vehicle restraint system protection

- 5.20.1 Where appropriate, to ensure both road user and road worker safety, working areas would be protected by temporary Vehicle Restraint Systems.
- 5.20.2 Zone Guard System 2 - Temporary VRS with the best containment level is proposed for construction works.
- 5.20.3 Other protection systems should be considered during Scheme development.

5.21 Temporary road markings

- 5.21.1 The existing road markings would be removed, and the carriageway would be temporarily re-marked to suit the narrow lane arrangement for each phase.
- 5.21.2 During any construction works in the central reserve all conflicting marking would be removed/covered to suit the narrow lane arrangements.

5.22 Segregating and diverting pedestrians

- 5.22.1 During construction provisions need to be made for pedestrian's at all three junctions to safely cross from one side of the A38 to the other.
- 5.22.2 Proposed diversion routes for pedestrians would be required. The details of these temporary pedestrian diversions would be refined during Stages 4 & 5 of the Scheme's development; once the construction methods and programmes have been developed in more detail. The routes would be discussed with DCC, DCiC and the EMAD team within Highways England.

5.23 Safety of workforce from public

- 5.23.1 The temporary Vehicle Restraint Systems would be used as a protection for both road users and road workers to ensure their safety. The road markings would separate the construction zone and live traffic and the implementation of a reduced speed limit would reduce the risk of accidents.

- 5.23.2 The workers shall always wear appropriate personal protective equipment (PPE). They should see and always be seen by oncoming traffic and carry equipment to minimise the risk of dropping into live lanes. The workers shall always work in a safe position, at least 1.20m from the live carriageway on high speed roads and should be protected by safety fences or cones if possible.

6 Proposals to manage network occupancy

6.1.1 The purpose of the Network Occupancy Plan is to set out the approach to manage the area or route network.

6.1.2 Highways England has a legal obligation under Section 59 of the New Roads and Street Works Act 1991 (NRSWA) to use its best endeavours to coordinate the execution of works of all kinds.

6.2 Strategic road network

6.2.1 Highways England Network Operations are responsible for the delivery of maintenance of the Strategic Road Network in each area. The A38 Derby Junctions falls within the remit of the East Midlands (Area 7) Asset Delivery Team.

6.2.2 Access would be governed and managed through the road space booking process, the 'NOMS'. The Contractor is required to arrange access through the road space booking process. The categories and timescales used by the East Midlands (Area 7) Asset Delivery Team are detailed within their respective Network Occupancy Management plans.

6.2.3 Information regarding these Occupancies and Activities is used for the purpose of managing conflict on the Area Network by the MSPs and by the National Traffic Operations Centre (NTOC). It is also used to inform customers of any traffic management or carriageway closure that would adversely impact their journey via Highways England's digital channels. The responsibility for ensuring the data quality in NOMS and (in turn) each Scheme webpage and Traffic England would rest with Highways England's Project Manager.

6.3 Local road network

6.3.1 For the area surrounding the Kingsway junction and the Markeaton junction, access to the Local Road Network ~~would be~~ is governed by DCiC and access to traffic sensitive streets is managed through the "Derby City Council Permit Scheme For Road Works and Street Works Under Part 3 Of The Traffic Management Act 2004" ~~their road space booking process~~. It is proposed that the Development Consent Orders would disapply the DCiC Permit Scheme within that area of the Works within Derby City's unitary authority boundary.

6.3.2 Surrounding the Little Eaton junction, DCC is ~~responsible for~~ manages access to those traffic sensitive streets on the Local Road Network under the "Traffic Management (Derbyshire County Council) Permit Scheme Order 2015" (DCCPS). The Contractor ~~Works require~~ is required to arrange access through the road space booking ~~notification~~ process. It is proposed that the Development Consent Orders would disapply the DCiC Permit Scheme within that area of the Works within Derbyshire County's authority boundary.

6.3.3 Where the Permit Schemes are to be disapplied, access to traffic sensitive streets will revert back to the “New Roads and Street Works Act 1991” as modified by the A38 Derby Junctions’ DCO.

6.3.16.3.4 There will be occasions when a proposed operation on a traffic sensitive street will fall both within and outside of the DCO’s area. In these cases, there will need to be close coordination between the relevant Local Highway Authority and Highways England’s Contractor. The process for maintaining this close coordination will need to be agreed between the relevant organisations. It is suggested that this process is documented in a subsequent version of this TMP.

6.3.26.3.5 The categories and timescales used are to be confirmed as part of their respective Network Occupancy Management plans.

6.3.36.3.6 Since the inception of the A38 Derby Junctions project in 2003, there have been ongoing and regular discussions with these two Local Highway Authorities not only about the design of the project but also about the method and the duration of its construction.

6.3.7 This ongoing dialogue with the Local Highway Authorities would continue during the statutory process (Stage 4), during construction preparation (Stage 5) and during construction itself (Stage 6). For example, if overnight road closures are needed to lift bridge beams into position then the overnight diversion routes would be planned in advance and then agreed with one or both of the Local Highway Authorities as appropriate.

6.3.46.3.8 A Stakeholder Manager will be based in the Project Offices from the start of the works (SoW) so that they can provide effective communication between the site team and stakeholders (this will be a full-time role). The individual will be given the flexibility to manage their own time and is fully expected to be a regular visitor to the DCiC offices to promote effective communication. The dedicated Stakeholder Manager has already been appointed and the knowledge they gain and the relationships they develop over the months before SoW will be vital to keep everyone informed and involved.

7 Implications of traffic management measures

7.1 Intelligent transport service and operations

7.1.1 There is no live intelligent transport service equipment located within the bounds of the site. However, there is a VMS matrix sign 1.4km north of the Little Eaton Junction on the southbound carriageway that would need to be maintained.

7.1.2 On the approaches to the Scheme, on the main trunk routes, journey time information would be displayed to inform drivers and provide information on alternative diversion routes.

7.1.3 ~~The~~ Highways England and its Contractor would be responsible for the maintenance of all existing and temporary telecommunications and signs equipment located within the Works and all signs on local roads associated with the works, as well as incident management on the A38 within the extent of the site for the duration of the works. The maintenance boundary must be agreed with EMAD, DCiC and DCC.

7.1.4 It is expected that the proposed Traffic Management measures would not have implications on the operation of the network for traffic monitoring, data collation and driver information services.

7.1.5 During some of the construction phases there will be a requirement for temporary junction layouts. The details of these temporary junction layouts will be developed during PCF Stage 5 (construction preparation). As noted at paragraph 3.1.10 above, the traffic impacts of the key traffic management scenarios will be represented using strategic modelling software, (e.g. SATURN) in order to appraise the potential traffic re-routing effects of the temporary highway arrangements and to understand the traffic demands upon each temporary junction. The capacity of each temporary junction will be checked using appropriate junction operational appraisal software (e.g. LINSIG, ARCADY, PICADY) and the relevant LHA(s) will be given the opportunity to review the operational analyses and comment on the proposals for each temporary junction layout.

7.1.6 The traffic management strategy is to maintain the existing journey times along the A38 and thereby minimise the desires of drivers to re-route onto the local road network, which re-routing could include the use of less appropriate roads.

7.2 Maintenance activities

7.2.1 Appropriate Stakeholder consultation has taken place throughout the development of the Scheme's design. The consultees and the activities discussed are contained in the Maintenance and Repair Strategy Statement at Section 13.

- 7.2.2 The Contractor shall be responsible for ensuring that any roads with temporary traffic management would be safe for users (including ensuring de-icing operations are undertaken).
- 7.2.3 The Contractor shall maintain or arrange access for gritters which are 'free travelling' between treatment areas.
- 7.2.4 The Contractor would be responsible for the maintenance of all telecommunications and signs equipment located within the extent of the site.
- 7.2.5 Appropriate Stakeholder consultation has taken place with the Maintenance Service Providers (MSPs) throughout the development of the Scheme design. Details of the consultees are provided in Table 13-1 of the Maintenance and Repair Strategy Statement (HE514503-ACM-TTM-A38_SW_01_ZZ-RP-TR-0001). This document will be updated at PCF Stage 5.
- 7.2.6 Consideration would be given to allow for the maintenance of assets which are in close proximity to the Scheme, and those located ~~between~~within the Scheme's works. Safe points should be provided, where possible, to allow the safe installation of traffic management such as lane closures. This would be refined further at Stage 5.
- 7.2.7 A Detailed Local Operating Agreement (DLOA) would be developed in liaison with EMAD, DCiC, DCC, and the authorities responsible for operational and maintenance activities on the public maintained highway, at PCF Stage 5.
- 7.2.8 Throughout the construction period the East Midlands (Area 7) Asset Delivery Team shall require access to the carriageway for Winter Maintenance operations. The winter maintenance of footways, cycleways and bridleways would be the responsibility of the DIP. This will be detailed in the DLOA.

7.3 Other service providers

- 7.3.1 The VMS sign detailed in paragraph 7.1.1 would need to be maintained at all times.
- 7.3.2 There are currently no other known impacts of the Scheme on other service providers.

7.4 Other implications

- 7.4.1 Special attention would need to be given to the access arrangements to the Derby Royal Hospital, including the emergency access routes which may include sections of the A38 under Traffic Management measures. This would need to be considered throughout Stage 4 & 5 with all key stakeholders involved; including the emergency services.

- 7.4.2 Maintenance of suitable access throughout construction activities should also be considered for the Royal School for the deaf Derby and the Fuel/Food businesses that are all located close to or adjacent to the Markeaton junction.

8 Traffic management plan management

- 8.1.1 For long term projects, the management of this TM Plan should incorporate procedures that involve a formal review of this plan as part of a continuous improvement approach to ensure its continuing suitability, adequacy and effectiveness.
- 8.1.2 The minimum standards and requirements of Traffic Management would be adhered to, guidelines are set out in the 'Guidance to Safer Temporary Traffic Management'.
- 8.1.3 The management review process should ensure that sufficient information is gathered over the term of the project to allow management to undertake an effective review.
- 8.1.4 The TM Plan should also contain provision for recording variations to the TM Plan, subsequent to obtaining approval and/or during implementation of the TM Plan. Such variations should be approved and recorded properly.

Appendix A Dynamic Roadworks Benchmark Scores

THE FOLLOWING TABLES WOULD BE DEVELOPED DURING THE CONSTRUCTION PREPARATION STAGE. THE TABLE ENTRIES HERE ARE BASED UPON ADVICE PROVIDED BY THE BUILDABILITY ADVISORS IN 2016.

Scheme	A38 Derby Junctions
<p>1) Varying the speed limits so they would be appropriate for the work taking place.</p> <p>Amber</p> <p>Section 3 of this Traffic Management Plan outlines the proposals for the traffic management as applied to this project. Due to the nature of the works (including road widening between two junctions in close proximity) maintaining the permanent speed limit throughout construction with vehicles merging/diverging was not considered safe therefore a reduced speed limit has been applied.</p> <p>It is proposed to undertake the construction works for all three junctions simultaneously.</p>	
<p>2) Shortening the length of roadworks</p> <p>Amber</p> <p>The total length of the proposed traffic management, between the first and the last traffic cones, would be approximately 8.0km.</p> <p>The longest single length is likely to be 2.7km, which would be over the length of the Little Eaton junction during earthwork operations (from the A38 North approach to the Little Eaton works to the A6 Palm Court diverge slip road).</p> <p>On the southern part of the Scheme, the longest length is likely to be approximately 1.2km (from the approach to Kedleston Road merge slip road to the A38 South exit at Kingsway).</p> <p>Refer to section 3.2 of the Traffic Management Plan for more descriptions of the construction phases.</p>	
<p>3) Appropriate use of full road closures and associated diversions</p> <p>Green</p> <p>Section 3.2 of the Traffic Management Plan outlines the Scheme's TM proposals for the mainline works and slip-road works.</p>	

4) Delivering roadworks quicker

Amber

To open all three junction improvements to traffic at the earliest possible opportunity, construction would take place at all three junctions concurrently.

The individual junctions would be opened to traffic as they are completed. It is expected that the Kingsway junction would be opened to traffic first, which would then deliver early benefits to Highways England's customers.

The construction of the Scheme is based on a 5-day working week plus Saturday mornings (refer to section 4) with periods of embargo during public holidays (refer section 4.2).

A list of embargo periods for the project is outlined in section 4.3.

5) Explaining clearly what activities are, or are not, taking place

Green

An initial review of the proposed communication plan for the development has been undertaken in section 5.17 of this Traffic Management Plan. This plan outlines multiple means of communicating the progress and status of the proposed Scheme.

Discussions and meetings with Derby City Council and with DCC were ongoing during PCF Stages 1 to 4 inclusive.

A traffic model of the traffic management construction phases has been prepared to assist with the next stages: to refine the traffic management arrangements, to identify the key alternative routes and the required diversion signing, and to size the temporary junctions layouts.

The communication plan and traffic management modelling would be further reviewed and updated as the project progresses to PCF Stage 5.

Appendix B Traffic Management Layouts (at each Junction; for each construction phase)