Lower Thames Crossing

7.14 Outline Traffic Management Plan for Construction (Tracked changes version)

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1 Executive summary

1.1 Background

1.1.1 This outline Traffic Management Plan for Construction (oTMPfC) has been produced in response to PINS feedback to provide an outline framework that would be applied for the design, management and communication of construction traffic management, road space booking and transport logistics (refer to the outline Materials Handling Plan for further information on Project logistics) for the A122 Lower Thames Crossing (the Project). This outline document, which has been developed following technical engagement with key stakeholders (namely local highway authorities), provides a framework of principles and mechanisms that inform how detailed secondary consent traffic management plans will be developed.

1.1.2 The information within this document also informs the Transport Assessment (TA), which gives detailed information around the traffic impacts envisaged as a result of the Project. The construction period has been broken down into 11 traffic phases for assessment within the TA (refer to Appendix A for these phases and the TA for further information on the assessment of these construction traffic phases). The outputs of the traffic assessments inform various elements within the Environmental Impact Assessment (EIA).

1.1.3 Since the first iteration produced and shared, several elements have been added through detailed consultation with stakehtolders. These include but are not limited to:

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a. Detailed schedule of stakeholder considerations that would need to be made in production of the Traffic Management Plan (TMP) for secondary consents. See Section 2.4 and Table 2.3.

b. An overview of the local operating parameters and communication plan including National Highways roles and responsibilities.

c. The commitment to create a Traffic Management Forum and the connection between the Traffic Manager (the chair) and the contractor and listed stakeholders.

d. An overview of the resolution ladder from HE to the Joint operations forum (JOF) and up to the Secretary of State (SoS) for secondary consents matters.

e. Indicative compound locations and utility logistics hubs, alongside indicative access routes and Temporary Traffic Management (TTM) requirements which inform the Transport Assessment (TA) and Environment Statement (ES).

1.1.4 During the design development phase, issues have been identified, assessed, and resolved on an iterative basis through collaborative working with both internal and external teams. Through technical engagement with local

authorities and other stakeholders, information around current and potential considerations have been collated, prioritised, and discussed. This accompanied by detailed traffic assessments have allowed the TTM and logistical requirements outlined within this document to be optimised by balancing out the requirements for the Project and the requirements of stakeholders. This has been achieved by;

a. re-designing elements to eliminate/reduce impactful measures

b. changing the construction approach to eliminate/reduce impactful measures

1.1.5 Whilst this approach has worked in several areas, on a Project of this scale impacts to stakeholder would still exist. In such cases this document addresses these instances through the introduction of;

a. clear control measures to ensure an appropriate resolution can be achieved for all parties involved when required.

b. commitments the contractor would have to abide by (such as names banned routes for HGVs, see section 4.6) and commitments to address key requirements when developing the TMP (such as for WCH, local schools and public transport providers to name a few, see Table 2.3 for a list of parties affected by the Project and the measures the TMP would address).

1.1.6 As required by Requirement 10 of Part 1 of Schedule 2 to the Development Consent Order (DCO), the Contractors will be required to produce Traffic Management Plans for construction before commencing works. This will be presented to National Highways, consulted with the bodies identified in Table 2.1 and will need to be submitted to and approved by the Secretary of State (SoS) before any part of the authorised development can commence.

1.1.7 The Traffic Management Plans for construction (which will be approved by the SoS if consent is granted for the Project) will manage:

a. strategic road network (SRN) traffic management including lane closures, speed control and temporary road closures and diversions.

b. local road network (LRN), including temporary contraflows (typically a short section of road is closed on one lane and traffic lights are used to allow bi-directional travel along the remaining open lane), road closures, diversions both on-line and off-line, and weekend closures.

2 Introduction

2.1 Purpose and objectives

2.1.1 The purpose of this outline Traffic Management Plan for Construction (oTMPfC) is to provide an overview of the approach that will be followed when undertaking temporary traffic management for the safe construction of the Project.

2.1.2 This document will be used to inform the Traffic Management Plan for Construction (TMP), a document which National Highways will have to submit to the SoS for approval before commencing the relevant part of the Project if the Development Consent Order (DCO) (Application Document 3.1) is granted. This oTMPfC has been produced following engagement with the relevant highway and planning authorities, businesses and emergency services.

2.1.3 The information in this document, namely the tables, plates and appendices, has been used to inform the traffic assessments within the DCO. Such documents include The Transport Assessment (Application Document 7.9), The Traffic Forecasts Non-Technical Summary (Application Document 7.8), Population and Human Health (ES Chapter 13), Air Quality (ES Chapter 5), Noise and Vibration (ES Chapter 12). The information has been used to carry out impact assessments during construction to determine if/when mitigation measures are required and whether commitments are required around these mitigation measures within the DCO. Such measures exist in a number of DCO docs such as this document (OTMPfC) and the CoCP (REAC).

2.1.4 The TMP, which must substantially accord with this oTMPfC, is legally secured under Requirement 10 in Schedule 2 to the DCO (Application Document 3.1). The TMP will be consulted on with the bodies identified in Table 2.1. The TMP which is approved by the SoS must be implemented by National Highways and its Contractors. Traffic management plans (at execution level) would be to discussion and review at the Traffic Management Forum (TMF), which is discussed in Chapter 3, prior to implementation on the network. Stakeholders would have sight of and input to detailed traffic management (TM) solutions. Failure to agree measures would be escalated to the Joint Operations Forum (JOF) as described in Chapter 3.

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2.1.5 This oTMPfC also outlines measures available to the Contractor to reduce the impacts on the community (including journey time reliability, access, severance and safety). The proposals in this oTMPfC are aligned to a number of key documents including the Code of Construction Practice (CoCP) (Application Document 6.3).

2.1.6 The objectives when planning traffic management measures should include (but not be limited to) ensuring:

a. workforce safety

b. road user safety

c. impacts to the local and wider communities are minimised

d. design change is implemented where practicable to avoid or minimise traffic measures required

e. diversions routes and signage are appropriate

2.1.7 A balance of all these factors is required when planning the appropriate measure to be implemented, which can be obtained through collaborative working with stakeholders within the traffic management forum.

2.2 Summary description of the Project

2.2.1 The A122 Lower Thames Crossing (the Project) would provide a connection between the A2 and M2 in Kent and the M25 south of junction 29, crossing under the River Thames through a tunnel. The Project route is presented in Plate 2.1.

2.2.2 The A122 would be approximately 23km long, 4.25km of which would be in tunnel. On the south side of the River Thames, the Project route would link the tunnel to the A2 and M2. On the north side, it would link to the A13, M25 junction 29 and the M25 south of junction 29. The tunnel portals would be located to the east of the village of Chalk on the south of the River Thames and to the west of East Tilbury on the north side.

2.2.3 Junctions are proposed at the following locations:

a. New junction with the A2 to the south-east of Gravesend

b. Modified junction with the A13/A1089 in Thurrock

c. New junction with the M25 between junctions 29 and 30

2.2.4 To align with National Policy Statement for National Networks (Department for Transport, 2014) policy and to help the Project meet the Scheme Objectives, it is proposed that road user charges would be levied in line with the Dartford Crossing. Vehicles would be charged for using the new tunnel.

2.2.5 The Project route would be three lanes in both directions, except for:

a. link roads

b. stretches of the carriageway through junctions

c. the southbound carriageway from the M25 to the junction with the A13/A1089, which would be two lanes

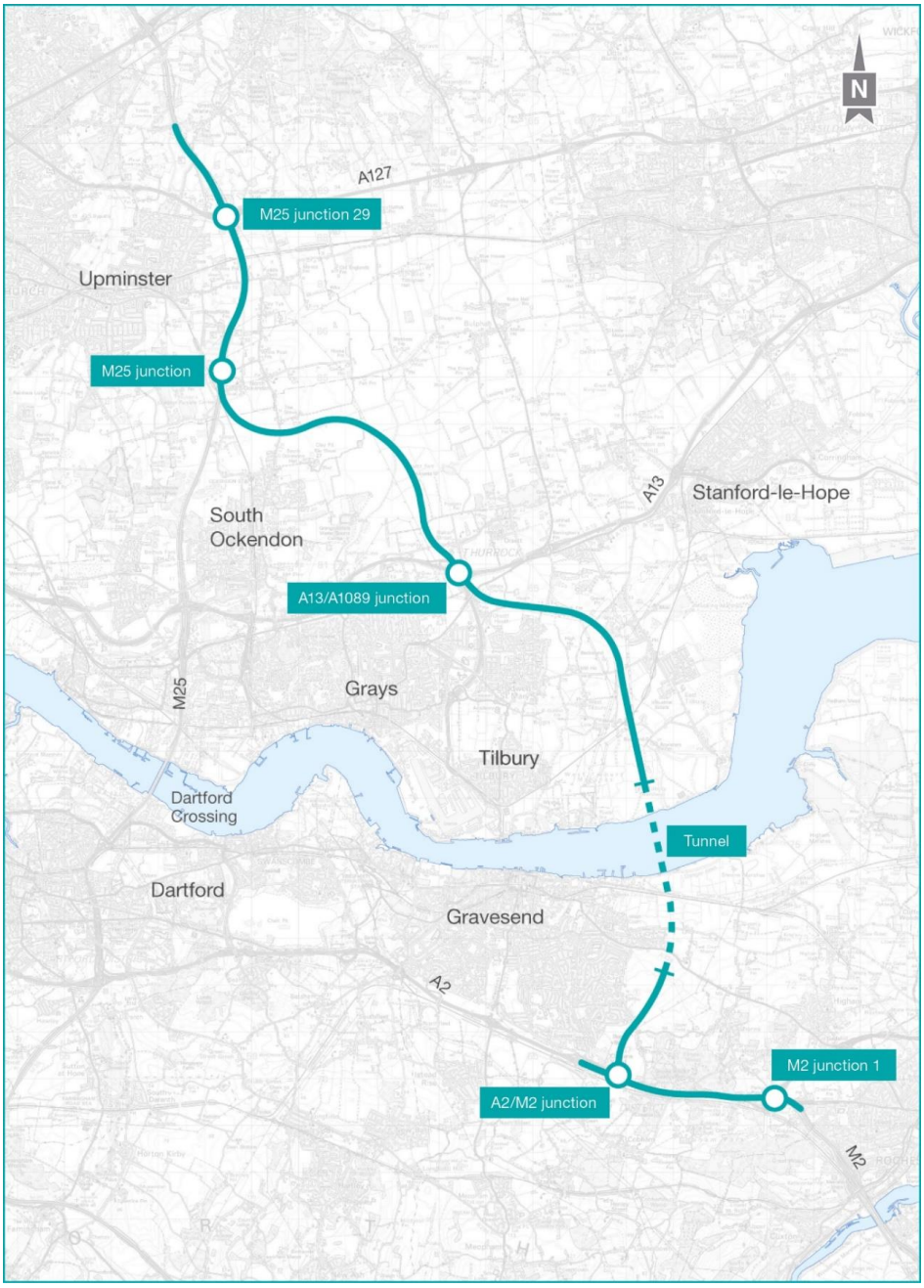
2.2.6 In common with most A-roads, the A122 would operate with no hard shoulder but would feature a 1m hard strip on either side of the carriageway. It would also feature technology including stopped vehicle and incident detection, lane control, variable speed limits and electronic signage and signalling. The A122 design outside the tunnel would include emergency areas. The tunnel would include a range of enhanced systems and response measures instead of emergency areas.

2.2.7 The A122 would be classified as an ‘all-purpose trunk road’ with green signs. For safety reasons, walkers, cyclists, horse riders and slow-moving vehicles would be prohibited from using it.

2.2.8 The Project would include adjustment to a number of local roads. There would also be changes to a number of Public Rights of Way, used by walkers, cyclists and horse riders. Construction of the Project would also require the installation and diversion of a number of utilities, including gas pipelines, overhead electricity powerlines and underground electricity cables, as well as water supplies and telecommunications assets and associated infrastructure.

2.2.9 The Project has been developed to avoid or minimise significant effects on the environment. The measures adopted include landscaping, noise mitigation, green bridges, floodplain compensation, new areas of ecological habitat and two new parks.

Plate 2.1 Lower Thames Crossing route



Related Project documents

2.2.10 Control documents that should be read alongside this oTMPfC:

a. The CoCP and the Register of Environmental Commitments (REAC) which detail specific environmental management commitments (Application Document 6.3)

b. Outline Site Waste Management Plan (oSWMP) (Application Document 6.3)

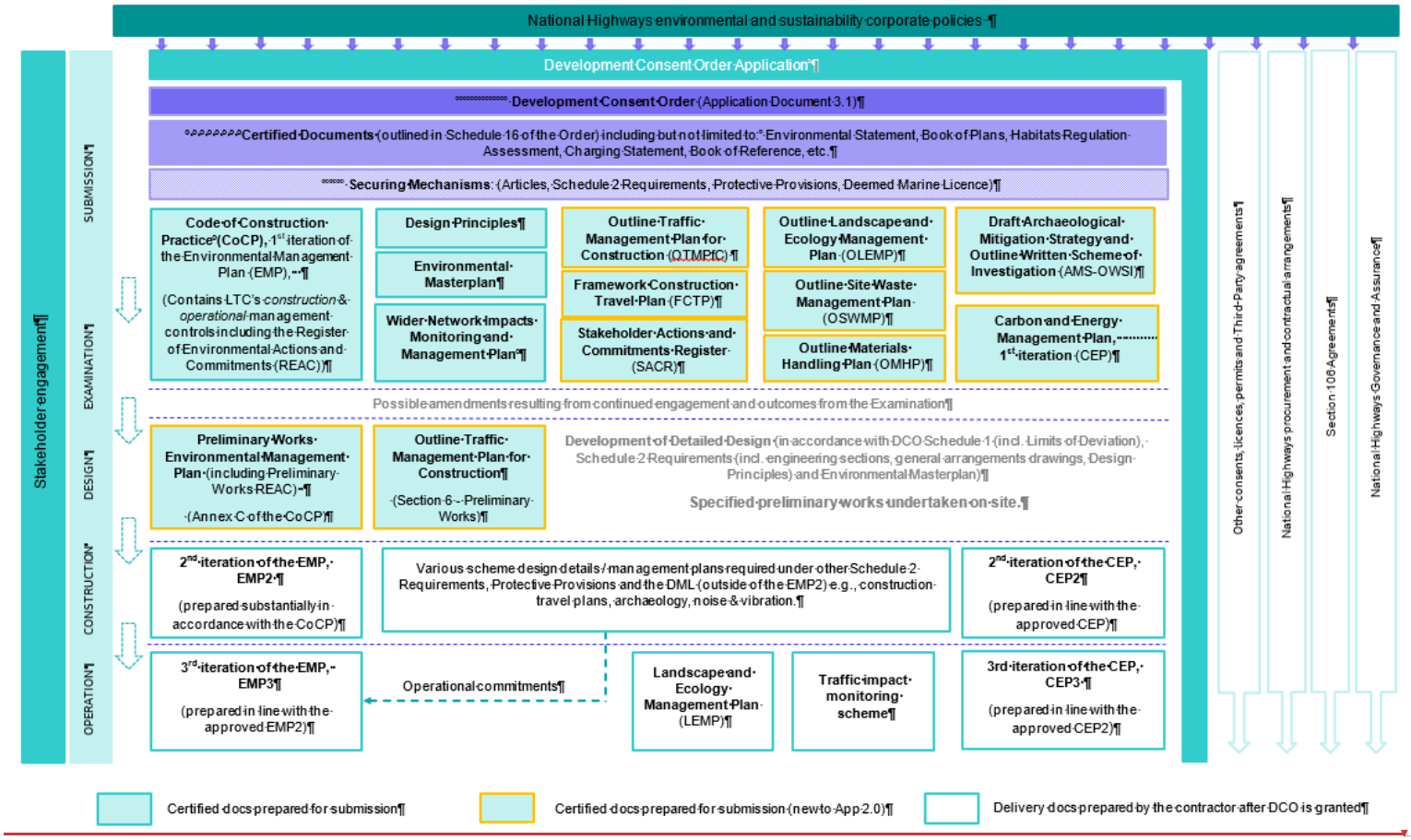
c. Outline Materials Handling Plan (oMHP) (Application Document 6.3)

d. Framework Construction Travel Plan (FCTP) (Application Document 7.13)

2.3 Interaction with the Development Consent Order

2.3.1 This oTMPfC is the document which the TMP must substantially accord with under the draft Development Consent Order (DCO) (Application Document 3.1). In particular, Requirement 10 requires plans for the management of traffic (i.e. the TMP), which must substantially accord with this document, to be submitted and approved by the SoS prior to commencing construction. A TMP may relate to part of the Project, so for example, there may be separate TMPs for different stages or areas of the Project. Plate 2.2 provides an extract from the Project Control Plan, which illustrates the securing mechanisms.

Plate 2.2 Extract from the Project Control Plan



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2.3.2 The TMP which is approved by the SoS, must be implemented by National Highways, its Contractors and agents.

2.3.3 The Contractor must consult with the relevant authorities in Table 2.1 and must give due consideration to any representations made in response to that engagement regarding the TMP for construction.

2.3.4 The Contractor must include copies of any representations made and a written account of how any such representations have been taken into account, with the TMP submitted to the SoS for approval, as per Schedule 2, paragraph 20 of the draft Order (Application Document 3.1).

Table 2.1 TMP consultees

	Local planning authority	Local highway authority	Other
Essex County Council	-	X	-
Brentwood Borough Council	X	-	-
Transport for London	-	X	-
London Borough of Havering	X	X	-
Thurrock Council	X	X	-
Kent County Council	-	X	-
Gravesham Borough Council	X	-	-
Medway Council	X	X	-
Royal Mail	-	-	X
Port of Tilbury	-	-	X
London Gateway	-	-	X
Purfleet Terminal	-	-	X
Blue-Lights Services	-	-	X

2.4 Challenges and considerations

2.4.1 The Project is complex, with many different elements. A significant number of construction vehicle movements and associated traffic management measures would be required throughout the construction period. While many of the Project elements can be constructed offline, away from the public, there are also main works and utility works which would interface with public areas and the public road network.

2.4.2 During the design development phase, issues were identified, assessed and resolved on an iterative basis as indicated in Plate 2.3. That plate also illustrates the cycle of work required to optimise the design and minimise the construction traffic impacts. It should be noted that whilst the process allows for solutions to minimise disruption, in some instances this may not be possible. In these instances, mitigation measures would be explored within the Traffic Management Plan.

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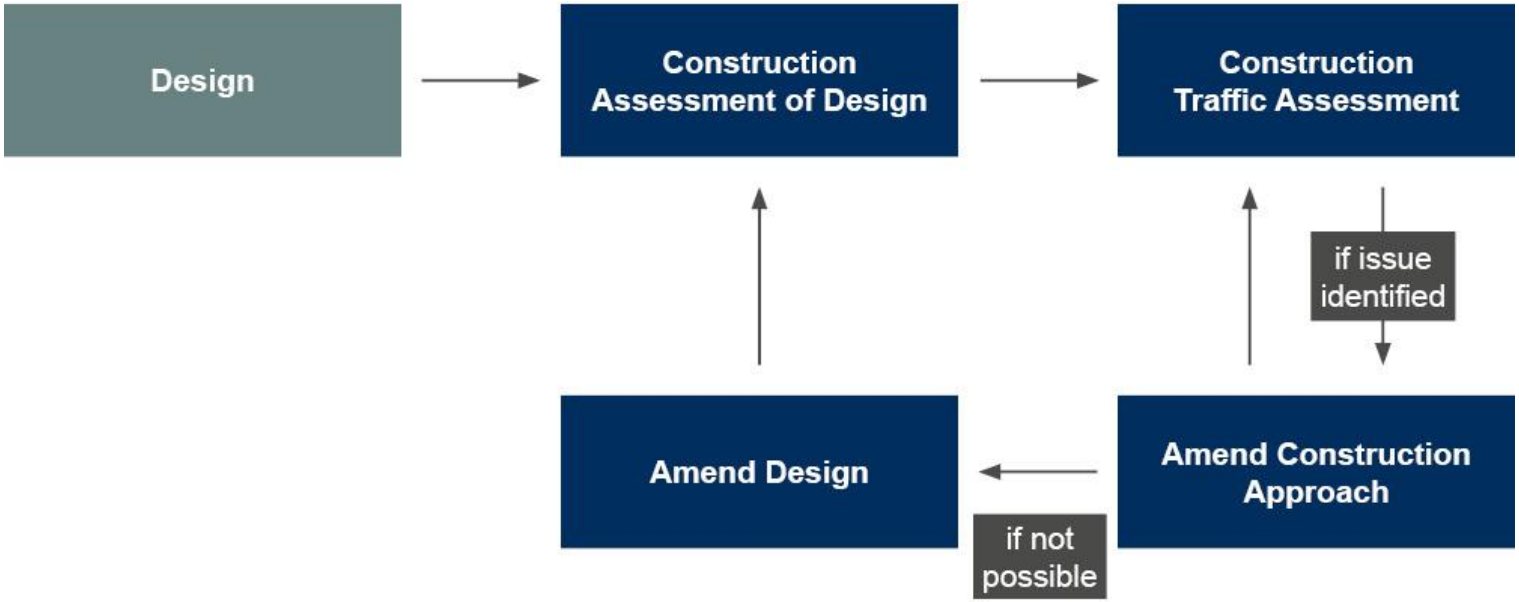
Plate 2.3 Iterative process



2.4.3 As a direct result of engagement thus far, several significant design changes and construction approaches have been made which has materially reduced the envisaged construction impacts.

2.4.4 Through early engagement with key stakeholders, identified themes and localities have been taken into consideration when developing this oTMPfC. Engagement with other key stakeholders including local businesses, landowners, public services and members of the public, would continue to take place. Table 2.2 highlights some of the key themes identified through engagement.

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Table 2.2 Key themes from technical engagement

Location	Issue	Outcome
All local road networks	Concerns were raised regarding the local authorities' ability to contribute to the development of TMPs. Additionally, how would the Project be able to coordinate its traffic management and how the local authorities would be party to that coordination.	The Project will appoint a Traffic Manager to coordinate management and act as an interface with the local authorities. In addition, National Highways will establish a Traffic Management Forum (TMF) chaired by the Traffic Manager. Members of the forum will be from the main Contractors and associated utility companies, as well as representatives of local communities and businesses, emergency services and local authorities.
Gravesend town centre and country lanes	Not allowing Heavy Goods Vehicle (HGV) movements	The Project will apply construction HGV bans on Brewers Road, Thong Lane, and The Street.
A226	Minimise construction traffic impacts	The Project will introduce a right-turn-only movement for construction HGVs when exiting the Southern tunnel entrance compound, joining the A226.
Lower Higham Road	Consider mitigation measures Rat-running	The Project will introduce a construction HGV ban on Lower Higham Road and provide a primary access to the A226 Gravesend Road compound from the A226 Gravesend Road. The Project will introduce additional temporary overnight closure on local roads to minimise rat-running associated with overnight closures of the A2/M2.
A1013 & local roads	Minimise long-term closures Avoid Orsett village for access routes	Design changes to the Rectory Road / A1013 and A1089 / A1013 interfaces to remove the need for long-term closures. The Project will introduce construction HGV bans on Rectory Road, School Lane, High Road and Prince Charles Avenue in Orsett.
West Tilbury	Minimise impact on West Tilbury	Proposed secondary access route amended for the Northern tunnel entrance and Station Road compounds to avoid Gunn Hill and Rectory Road in West Tilbury.
Ockendon Road and St Marys Lane	Impacts of businesses as a result of long-term closures Suitability of alternative routes due to weight restrictions	The TMP will require the establishment of a traffic management forum which affected businesses would be invited to e.g. South Essex Crematorium, and The Coopers' Company and Coborn School

2.4.5 It is acknowledged that the impacts on communities from measures required to ensure the safe delivery of the Project, should be kept to a minimum as much as is reasonably practicable.

2.4.6 The specific restrictions required to mitigate or otherwise minimise the impacts would be developed in discussions undertaken with the relevant authorities and would be set out in the TMP. Table 2.3 below has been produced to set out the overarching considerations.

2.4.7 In particular, Table 2.3 identifies different classes of stakeholders that must be considered when designing the traffic management measures and transportation plans. Table 2.3 itemises the factors that must be addressed in developing the TMP as a minimum.

2.4.8 The Contractor would provide a monitoring system, the purpose of which is to capture real-time data that provides confirmation that traffic and vehicle control measures are effective, and vehicle arrival and departure times from compounds are controlled. Construction HGV movements to compounds would be controlled to avoid peak hours as far as reasonably practicable; this would be based on a number of monitoring factors including Temporary Traffic Management performance. The outputs of this would be a Monitoring Report which would be provided to the TMF. This report would be based on traffic monitoring measures such as automatic number plate recognition, traffic flow monitors and possibly web-based camera systems. Actual monitoring to be implemented would be selected as part of the TMP on a case-by-case basis, by type of works (e.g. early utility works), road or section.

2.4.9 The Main Works Contractors (MWCs) and utilities contractors will be required to monitor their vehicle movements (including those of their suppliers, hauliers and sub-contractors) across the Local Road Network and the Strategic Road Network to promote improvements in road safety and to minimise Project construction traffic and environmental impacts on the road network and local communities. The MWCs will set out their co-ordinated monitoring proposals in their Traffic Management Plans, which will need to be aligned across all contracts for the project, including those for utility works, site enabling, commissioning and decommissioning. Information on compliance will be reported to the Traffic Management Forum on a monthly basis to inform analysis of the activity and confirmation of compliance with specifications. That data will be used to guide actions to resolve non-compliance and to address complaints.

2.4.10 Monitoring data will need to be captured and held by the Main Works Contractors and utilities contractors as part of their supplier set up procedures. These systems of data capture and management will need to be co-ordinated across all contracts and utility works to ensure consistency and ease of reporting and appraisal. The systems will need to include: a Vehicle Booking Management System (VBMS); a vehicle compliance monitoring system by compound (including any intra-compound movements); an Incidents Reporting system; and workforce travel data by compound. This monitoring data will inform reporting to the Traffic Management Forum. That data will allow the TMF to consider adherence to the DCO commitments and to agree actions to be taken to resolve problems.

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2.4.11 The following monitoring data will be captured and reported by Main Works Contractors and utilities contractors for each compound:

a. Supplier Freight Operator Recognition Scheme membership status

b. Operator licence details

c. Anonymised driver licence checks and project specific infringements

d. Summary vehicle movements – including details of no-shows and those turned away

e. Actual vs planned deliveries

f. Vehicle arrival and departure times vs booked times

g. Adherence to agreed vehicle routeing

h. Compliance with vehicle safety protection measures and project identifier / signing

i. CO2 emissions and standards for vehicles

j. Non-compliance with project route bans and no layover on local roads/laybys

k. Any other breaches and complaints

l. Accident/collision reporting

m. Load data and percentage of vehicle fill – to demonstrate vehicle and load efficiencies

2.4.12 Signs identifying the project and contractor contact numbers will need to be displayed in a prominent position on all construction related vehicles whilst it is on project related activities.

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2.4.13 Vehicle compliance training will need to be provided to gate staff, site supervisors and logistics engineers. Vehicles found not to comply with vehicle standards will be refused entry to the site.

2.4.14 Baseline data will be established prior to commencement on any part of the project. The monitoring will continue until the end of decommission of the compounds associated with the project, or as will be agreed with the TMF reflecting the emerging detailed programme for the works and co-ordination across all contracts.

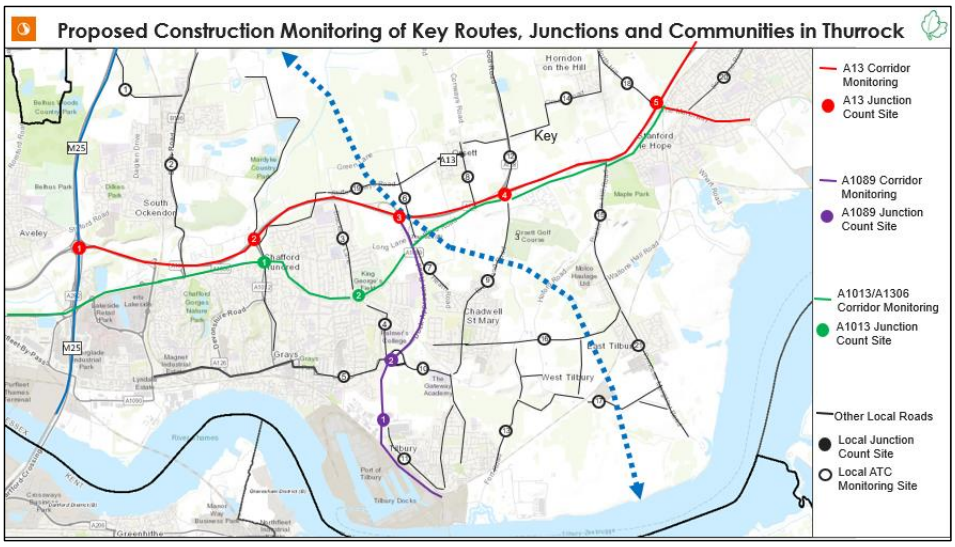
2.4.15 The Main Works Contractors and utility contractors will set out their coordinated and aligned monitoring proposals in the TMPs. Monitoring information will be reported to the Traffic Management Forum to support planning of future works and to support the local Highways Authority with their ongoing management of the local road network.

2.4.16 The objective of this monitoring is to provide a baseline and construction period monitoring at the agreed monitoring locations during the construction period for the project by construction and workforce vehicles and by other traffic re-routeing as a result of the project construction works and traffic management.

2.4.17 Data recorded at monitoring sites may include traffic flow, traffic composition, journey times (limited), traffic safety (collision) data. Note - the monitoring proposals are at locations identified by the LHA as discrete and specific areas of concern. It is not intended that the monitoring will become a fully networked system at this stage. Data captured and reported to be determined in conjunction with NH, its Contractors and appropriate Highway Authority during the development of the Traffic Management Plan.

2.4.18 The plate below shows routes, junctions and communities proposed for construction monitoring.

Plate 2.4 Proposed construction monitoring of key routes, junctions and communities in Thurrock



2.4.19 The agreed monitoring locations are as follows;

A13 Corridor (Red route on Plate 2.4)

a. M25/A13 Junctions

b. A13/A1012 Stifford Interchange

c. A13/A1089 Junction

d. A13/A128 Orsett Cock Roundabout

e. A13/A1014 The Manorway Junction

f. A13/A176 Five Bells Junction

A1089 Corridor (Purple route on Plate 2.4)

a. A1089 Asda Roundabout

b. Marshfoot Interchange

A1013/A1306 Corridor (Green route on Plate 2.4)

a. Chafford Hundred/Treacle Mine Junction

b. A1013 Daneshole Roundabout

Other Local Roads (Black routes on Plate 2.4)

a. Dennis Road, South Ockendon

b. B186, South Ockendon

c. Blackshots Lane

d. Old Dock Approach Road

e. Dock Road, Grays

f. Baker Street

g. Heath Road

h. Rectory Road, Orsett

i. Brentwood Road, Orsett Golf Course

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j. Marshfoot Road

k. Dock Road, Tilbury

l. A128 Brentwood Road

m. Fort Road

n. Orsett Road, Horndon on the Hill

o. Buckingham Hill Road

p. Muckingford Road, East Tilbury

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q. Station Road

r. B1007, Stamford-le-Hope

s. Stifford Clays Road

t. Southend Road Corringham

u. Princess Margaret Rd

2.4.20 In some instances, it may be deemed appropriate that junction modelling is carried out prior to works. The TMP will list the junctions to be modelled if and where required. The list of locations would be discussed with LHA at the TMF.

2.4.21 Key outcomes required from monitoring will be to:

a. Prepare regular construction traffic monitoring reports that describe and characterise the main traffic effects of the project during its construction period, through comparison with the baseline collected prior to commencement

b. Plan for known peaks in activity and where disruption to the network is foreseen.

c. Identify unexpected or unanticipated effects on the road network.

d. Enable the project traffic manager, in consultation with the affected Highway Authority and the proposed Traffic Management Forum (TMF), to plan future works and to develop determine and implement appropriate mitigation for any localised traffic and traffic-related impacts which arise as a result of construction the project. It will also enable Lessons Learnt to be captured and used it the development of future mitigation and operating guidance.

e. Enable effective engagement and communication by the traffic manager with local residents and other stakeholder regarding traffic impacts and network performance during the construction period (including publishing reporting via public facing website, social media channels etc)

2.4.22 Baseline monitoring will need to commence at least one year ahead of works commencing and monitoring should cover the full period of construction works including any advanced enabling/utility works, decommissioning of compounds and diversions etc – unless otherwise agreed by the TMF. Regular reporting to TMF should be provided – monthly for data analysis and urgent action on incidents, complaints and problems, with quarterly summary reports but frequency can be varied in agreement with TMF. Reasoned recommendations where appropriate for any changes to the monitoring programme and reporting should be agreed at the TMF. The Main Works Contractors and utilities contracts will be jointly responsible for maintaining the monitoring network. Responsibility for acquiring the monitoring data will not fall to the Highway Authorities.

2.4.23 The Contractor would support interventions and/or changes to traffic management measures required to ensure that disruption is kept to a minimum, at the time of planning, and would identify where continuous improvements need to be implemented.

2.4.24 Where requests for traffic measures to be modified arise during feedback from the TMF, National Highways would give due consideration to any such request, and where necessary, obtain appropriate approvals for any modifications.

Table 2.3 Stakeholder considerations

Who is affected by the Project?	What are their requirements?	The TMP would address the following as a minimum
Van drivers, car drivers and motorcyclists	• Journey time reliability • Safety during journey through traffic management • Advance warning • Breakdown recovery	• Minimise the number of traffic management changes • Minimise narrow lane arrangement • Minimise closures and use of diversion routes • Enforce speed reduction through cameras • Pre-warning signage in line with best practice guidance • Provision of portable variable message signs to display informative messages • Provide (and clearly sign) free vehicle recovery where applicable
Disabled car drivers	• Breakdown recovery • Advance communication	• Provide (and clearly sign) free vehicle recovery where applicable • Make method of recovery suitable for people with reduced mobility • Ensure means of communication is accessible
HGV drivers	• Journey time reliability • Advance warning of closures and/or diversions • Appropriate diversion routes • Increased lane widths where practicable • Breakdown recovery	• Sufficient notification of closures • Diversion routes which avoid narrow roads and low bridges • Narrow lane arrangements to maximise slow lane width for HGVs. • Provide (and clearly sign) free vehicle recovery where applicable
Public Parks	• Public and staff access • Access for deliveries • Waste collection • Access for WCH • Access to car park where required	• Maintain existing routes (as far as reasonably practicable) • Access and egress to be maintained throughout the construction period with the exception of night-time and weekend closures when required for specific planned works • Advance warning and particular sensitivity around significant events, particularly evenings and weekends

Who is affected by the Project?	What are their requirements?	The TMP would address the following as a minimum
Walkers, cyclists and horse riders	• Access to pedestrian routes • Access to cycling routes • Access to equestrian routes • Appropriate and safe surfaces for all users • Clearly signed and segregated diversion and access routes	• Seek views of highway authorities when designing diversion routes • Ensure temporarily diverted routes are designed with WCH users in mind and that consideration is given to visual, hearing and physically impaired users • Ensure diverted and existing routes are clearly signed and segregated from construction sites • Provide temporary signalised crossings to ensure safe crossing points where required
Public transport users and operators	• Modes of public transport including rail and bus services and operations	• Maintain existing routes (as far as reasonably practicable) • Provide temporary diversions, temporary bus stops when and where required • Seek view of authorities when designing diversion routes and temporary bus stops following approval of TMP • Reduce impact to the rail network and schedule • Engage with rail companies on proposed works and programme to reduce impacts following approval of TMP
Exhibition centres, church halls, community centres, recreational facilities, sports clubs, places of worship, cemeteries and crematoriums	• Public and staff access • Access for deliveries • Waste collection • Emergency service access • Postal deliveries	• Access and egress to be maintained throughout the construction period with the exception of night-time and weekend closures when required for specific planned works • Advance warning and particular sensitivity around significant events, particularly evenings and weekends • Engagement with relevant stakeholder prior to proposed night closures of the LRN and SRN
Major superstores	• Public and staff access • Access for deliveries • Waste collection • Emergency service access • Postal deliveries	• Access and egress to be maintained throughout the construction period with the exception of night-time and weekend closures when required for specific planned works • Advance warning and particular sensitivity around significant events, particularly evenings and weekends • Engagement prior to proposed night closures of the LRN and SRN

Who is affected by the Project?	What are their requirements?	The TMP would address the following as a minimum
		• Include temporary advance warning signs on approaches at appropriate locations to inform road users to use appropriate diversions put in place
Logistics centres (e.g. ports)	• Closures/diversions that may impact on journey-time reliability to and from the facility • Appropriate diversion routes for distribution centre traffic	• Access and egress to be maintained throughout the construction period with the exception of night-time and weekend closures when required for specific planned works • Advance warning, with particular sensitivity around peak times • Diversion routes that can accommodate stacking and/or tacho breaks • Engagement prior to proposed night closures of the SRN
Local businesses and residents	• Public and staff access • Access for deliveries • Waste collection • Emergency service access • Postal deliveries (including Royal Mail collection) • Appropriate diversion routes	• Access and egress to be maintained throughout the construction period with the exception of night-time and weekend closures when required for specific planned works • Regular communication to inform changes and scheme progress • Include temporary advance warning signs on approaches at appropriate locations to inform road users to use appropriate diversions put in place •
Relevant authorities and local stakeholders	• Closures/diversions that may impact on journey-time reliability to and from the facility • Public and staff access • Emergency service access • Appropriate diversion routes • Safety during works • Reduced road closures • Reduced delays • Prevention of damage to roads	• Engage with the local authorities on traffic management • Include temporary advance warning signs on approaches at appropriate locations to inform road users to use appropriate diversions put in place • Ensure existing routes are maintained where practicable • Ensure safe crossing is provided where temporary pedestrian crossings are placed • Ensure diversion routes and existing routes are segregated from construction sites • Make sure access is maintained throughout works • Regular communication which may include web-based applications and letter

Who is affected by the Project?	What are their requirements?	The TMP would address the following as a minimum
	• Emergency diversion routes	drops, describing changes and scheme progress
Distribution centres	• Closures/diversion that may impact on journey time reliability to and from the facility • Appropriate diversion routes for distribution centre traffic	• Access and egress to be maintained throughout the construction period with the exception of night-time and weekend closures when required for specific planned works • Advance warning, with particular sensitivity around peak times • Diversion routes that can accommodate stacking and/or tacho breaks • Engagement prior to proposed night closures of the SRN
Emergency services	• Access through haul road during emergencies • Suitable diversion routes • Advance warning of closures and/or diversions	• Process and procedure for allowing emergency services through the works/haul road • Diversion routes avoid narrow roads and low bridges • Sufficient notification of closures • Early engagement with Emergency Services to ensure clarity
Nearby events	• Minimum disruption due to works, to and from the venue	• Closures/diversions to avoid such events and/or simultaneous activities as far as possible
Healthcare facilities, local surgeries and hospitals	• Access/egress for staff and patients • Emergency service access • Postal deliveries • Waste collection	• Access and egress to be maintained throughout the construction period with the exception of night-time and weekend closures when required for specific planned works • Communications to update the facility regarding any closures and diversion routes
Local schools	• Access/egress for staff and students • Unhindered and safe WCH routes • Emergency service access • Waste collection	• Access and egress to be maintained throughout the construction period with the exception of night-time and weekend closures when required for specific planned works • Advance warning with particular sensitivity around significant events, particularly evenings and weekends that are likely to affect late evening and weekend school • HGV movements would not be allowed to pass school entrances during drop off / pick up

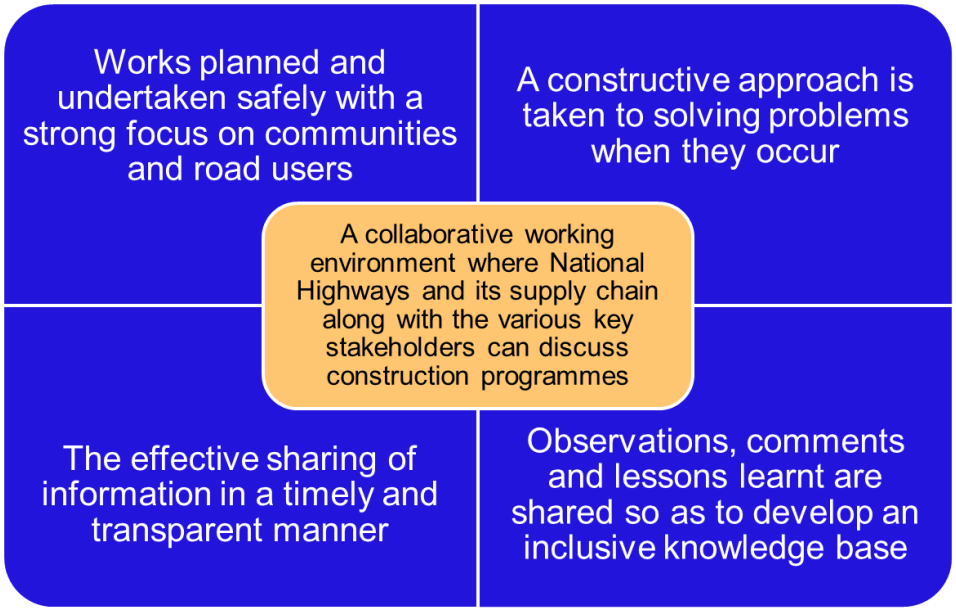
Who is affected by the Project?	What are their requirements?	The TMP would address the following as a minimum
Local care homes	• Access/egress for staff, patients and visitors • Unhindered walking routes • Emergency service access • Waste collection	• Ensure safe crossing and pedestrian lights are provided • Access and egress to be maintained throughout the construction period with the exception of night-time and weekend closures when required for specific planned works
National Highways	• Safety during works • Reduced road closures • Reduced narrow-lane traffic management arrangement • Reduced delays • Prevention of damage to roads • Emergency diversion routes	• Ensure safety standards are met throughout • Engage with National Highways National Traffic Operation Centre regarding infrastructure and technology assets and the potential impact on journey time data, enabling pre-event and 'on the night' messages to road users via Variable Message System • Engage with National Highways Regional Operations teams in the East and Southeast, and their maintenance service providers regarding network occupancy management and diversion routes

3 General principles

3.1 Collaborative working and permit schemes

3.1.1 Establishing a collaborative working environment where National Highways, along with its suppliers and stakeholders, can discuss construction programmes to ensure works are planned and undertaken safely are key to the successful delivery of the Project

Plate 3.1 Overview of collaborative working environment



3.1.2 The Project would coordinate road space requirements across the three proposed contract areas (noting that the TM will oversee all contracts):

a. Roads in Kent

b. Tunnels

c. Roads north of the River Thames

3.1.3 The TM would request road space through the following relevant highway authority booking or permitting systems (see also paragraph 3.1.4, Modification to application of permit schemes) to:

a. National Highways – Network Occupancy Management System (NOMS)

b. Local highway authorities – Permits for Road & Street Works – Street Manager:

i. Kent County Council

ii. Thurrock Council

iii. Essex County Council

iv. London Borough of Havering

v. Transport for London

Timescales for road booking

a. National Highways

i. Provisional booking – 24 months

ii. Firm booking – six months

a. Local highway authority

i. Provisional advanced booking – three months minimum

ii. Permit application – 10 days

Modification to application of permit schemes

3.1.4 As is common with Nationally Significant Infrastructure Projects, the draft DCO will propose to disapply provisions of the New Roads and Street Works Act 1991 (NRSWA). The intent is to ensure that the highway authority cannot impose moratoria on works, or give direction on location, timing or the nature of reinstatement, which would impact the Project delivery.

3.1.5 This is considered appropriate given the scale of works proposed under the DCO, the specific authorisation given for those works by the Order (if granted) and the provisions in the DCO (including the requirements, and the need for a TMP) which would regulate, and provide appropriate safeguards in connection with, the carrying out of the Order works.

3.1.6 The Project intends to utilise the existing road booking system operated by the respective local highway authority, to aid management and integration of other schemes. In addition, the appointment of a TM (see paragraph 3.3.14) and the establishment of a TMF (see paragraph 3.3.15) would enable timely discussions to be held regarding the detailed location, extent and type of traffic management to be used prior to SoS approval of the TMP.

3.2 Local operating parameters during construction

3.2.1 Highway authorities would continue to carry out their statutory obligations with regard to managing their networks.

3.2.2 Where the Project has an interface with either the strategic or local road network, the Contractor delivering the works would seek to reach agreement with the relevant highway authority, on the extent of the operational boundaries by way of a Detailed Local Operating Agreement (DLOA) or a Local Operating Agreement (LOA). The agreements set out the roles and responsibilities for the

following themes, including acknowledgement that the local highway authorities may require access to the works areas to fulfil their obligations and duties:

a. Communications and customer care

b. Operational areas

c. Asset handover

d. Routine maintenance and repair

e. Winter maintenance and extreme weather

f. Incidents

g. Traffic management

h. Emergency works (under the LOA)

3.2.3 In the event that no agreement can be reached, the Contractor delivering the works would set out the arrangements covering these themes in its Traffic Management Plan (where relevant to the construction of the Project) for the approval of the SoS.

3.2.4 The management of PRoWs, with respect to their short-term closure and/or diversion, would be undertaken following engagement with the relevant local authority. Depending on footfall/likely usage, and length and suitability of an alternative route, it would be determined whether a temporary diversion is required and what route it would follow. For temporary closures, restrictions, and alterations of streets, there must be reasonable access for pedestrians going to or from premises abutting a street, or private means of access if there would otherwise be no such access.

3.3 Communication and community engagement

3.3.1 The communication relating to the TMP should be seen in the context of the communications plans set out in the Code of Construction Practice (CoCP) (Application Document 6.3). In particular, Section 5 of the CoCP details how the Project and Contractors will engage and communicate with the stakeholders and communities impacted by the works.

3.3.2 Section 5 of the CoCP establishes that National Highways will develop a Communications and Engagement Strategy that outlines the objectives and processes for engagement and communications with stakeholders.

3.3.3 Furthermore Section 5 of the CoCP requires each Contractor to develop an Engagement and Plan (in support of the Communications and Engagement Strategy, to ensure stakeholders are informed of the works activities and to maintain good relationships with others.

3.3.4 The Communications and Engagement Strategy will be submitted for acceptance by National Highways and will include the points set out in Section 5.2.1 in the CoCP.

3.3.5 The Contractor would engage with the local community, particularly focusing on those who may be impacted by the construction, including local residents, businesses and landowners.

3.3.6 The Communications and Engagement Plans s would provide a programme of community engagement such as, but not limited to, community drop-in sessions, one-on-one meetings, newsletters and leaflet drops (explaining forthcoming works).

3.3.7 National Highways will work closely with relevant stakeholders on the membership of the proposed Community Liaison Groups (CLG), which will include representation from the local community. Attendance and membership will be published on the project website and consideration must be given to including any feedback in newsletters and leaflets.

3.3.8 The scope of the CLGs will be to ensure that local residents are appropriately informed and therefore prepared for forthcoming changes and construction activities.

3.3.9 Terms of Reference, such as frequency of meetings, for the CLGs will be developed with the participants and agreed in advance of construction commencing. It is anticipated that the Terms of Reference will then evolve as the Project progresses.

3.3.10 The Local Community Leaders of the CLGs will be invited to the Traffic Management Forum.

3.3.11 Feedback to the CLG would be provided by the Traffic Manager via the TMF.

3.3.12 At least two weeks before planned works are carried out, the Contractors will distribute information sheets relating to the programmed activities. The information sheets will detail the expected disruptions and measures being taken to avoid, minimise or mitigate the adverse impacts of these works. There may be circumstances where for example, emergency works need to be carried out and notification may not meet the timeframe.

3.3.13 The National Highways Customer Contact Centre would be used to deal with enquires and complaints from the public. This consists of a phone line, email and website facility. The information line is staffed by National Highways 24 hours a day, seven days a week. The response time for enquiries is 10 working days. The contact number, email and website addresses for the Customer Contact Centre would be displayed on signs next to the construction areas that are clearly visible to pedestrians and the travelling public.

National Highways' responsibilities

3.3.14 National Highways would appoint a Traffic Manager whose role would be to:

a. Ensure that any traffic management required by the Project is planned, delivered, and managed collaboratively, and that the commitments of the TMP are adhered to, with a specific focus on:

   i. Planning and delivery

   ii. Network occupancy

iii. Delivering safely

iv. Operations

b. Ensure that standards and best practices are applied in the planning and delivery of traffic management.

c. Establish and chair the TMFs ensuring that all affected stakeholders are invited to attend.

d. Attend other third-party established traffic management meetings where there is an interface with the Project (e.g. Kent Corridor Coordination Group).

e. Review feedback from local highway authorities in terms of planned traffic management as well as the performance of key traffic management phases.

f. Receive data from the main works Contractors as to the performance of traffic management in terms of the impact on the SRN and local authority roads.

g. Represent the TMF at the JOF which is an executive level forum made up of National Highways and its Contractors. The Traffic Manager will report to the JOF on traffic management performance and to escalate issues of concern raised by stakeholders. More information on the JOF is available in the Code of Construction Practice.

h. Review the performance of incident management that occurs within the designated 'Works Zone' as set out in a TMP and any relevant DLOAs.

i. Act as the interface with the Community Liaison Group.

j. Generally, oversee the performance of the wider Project construction network in terms of the coordination, planning and delivery of traffic management on the SRN and LRN.

Traffic Management Forum

3.3.15 The TMF would consist of the main works Contractors, utility companies, local authorities and those named in Table 2.1, local highway authorities, public transport operators, emergency services, National Highways maintenance providers and any other affected stakeholders depending on the planned construction phases (see Plate 3.2 for the proposed structure).

3.3.16 Two TMFs would be established (roads in Kent and roads north of the Thames), both chaired by the Traffic Manager, and would have attendees from the roads and tunnels Contractors in each respective area.

3.3.17 The TMF would be established following the grant of the DCO or earlier if agreed with all attending stakeholders and meetings would be held monthly.

3.3.18 The TMF would review planned traffic management arrangements and receive comments as to their appropriateness. The TMF would also monitor, review, and provide updates to the TMPs when required. Updates to the TMPs would be consulted upon with the relevant LHA.

3.3.19 The TMF would review the performance of implemented traffic management with a focus on:

a. Direct impacts to the travelling public (including WCH)

b. Indirect impacts on the wider network as a result of the implemented traffic management

c. Impacts on local businesses and communities

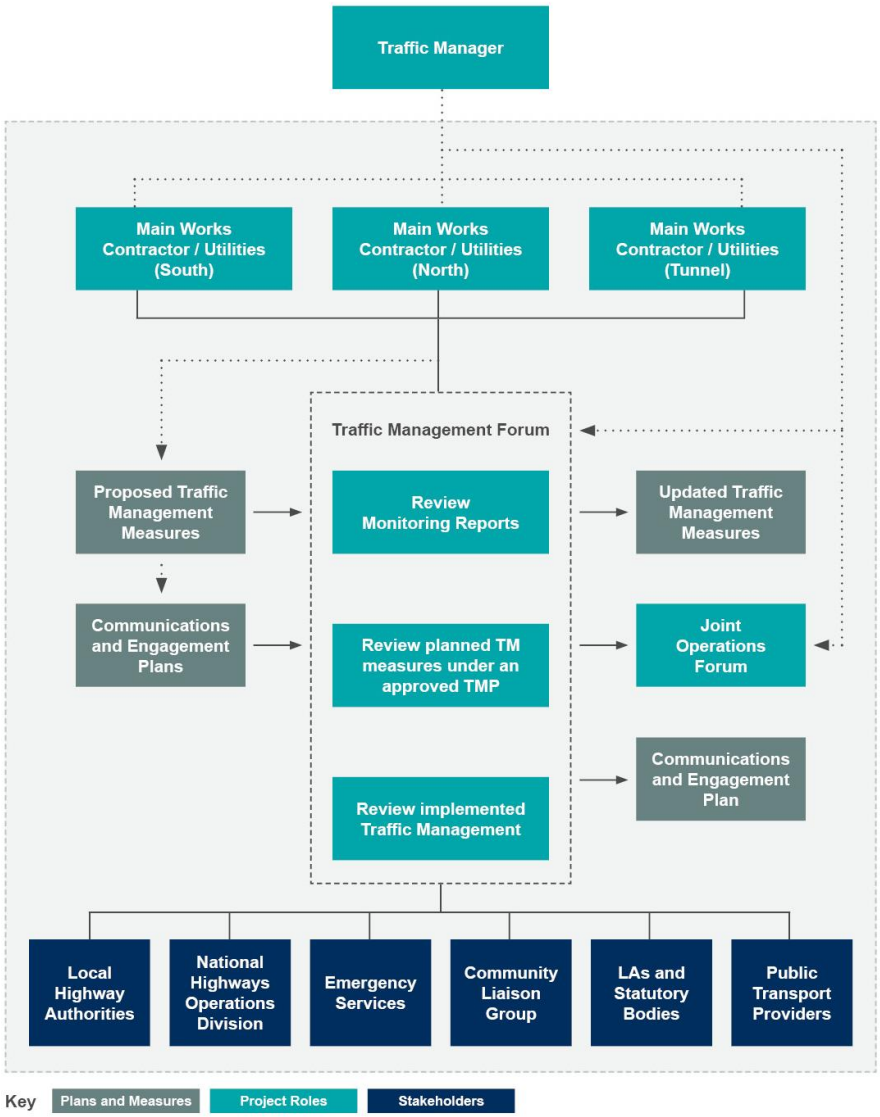
d. Reviewing specific traffic management operations such as weekend closures for demolition

e. Refer to Appendix D which includes a dynamic road works vision benchmark criteria. The criteria will be used to monitor traffic management measures.

Royal Mail

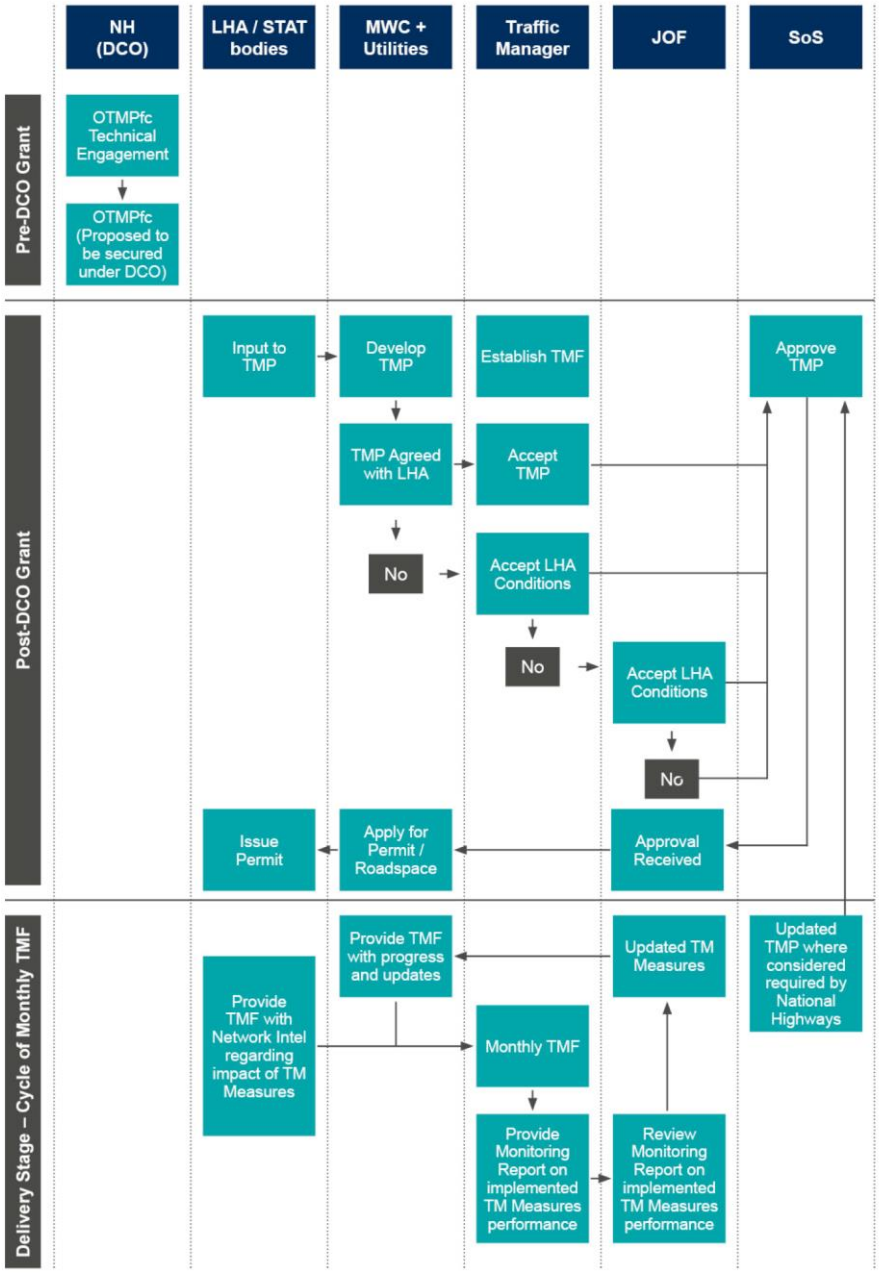
3.3.20 Advance notifications of programmed diversions and closures will be issued to Royal Mail. This would include providing not less one month notice of any road closures, diversions or alternative access arrangements that may affect travel on those routes and the agreed hours of working. The method of communication would be agreed as part of the Traffic Management Plan which is submitted to the Secretary of State for approval.

Plate 3.2 Traffic Management Forum



3.3.21 The implementation of traffic management measures on the LRN and SRN would require engagement in the TMF and would be subject to discussion with the relevant local highway authority. Plate 3.3 shows the traffic management planning/escalation process.

Plate 3.3 Traffic management planning



3.4 Working hours

3.4.1 The CoCP (Application Document 6.3) details the working hours that have been assessed as part of the environmental assessments.

3.4.2 Abnormal traffic movements may occur outside standard working hours. The Project would use National Highways ESDAL system to plot the proposed route. These movements would be discussed at the TMF and carried out in a way that would reduce the impact on the local area. Abnormal load routes between the SRN and the delivery destination would be assessed prior to use, to ensure their suitability. In some cases, temporary modification of the existing road or road assets may be required to accommodate the abnormal load. These temporary modification works would be discussed at the TMF.

4 Proposed measures

4.1 Access routes

4.1.1 Establishing access routes to the works has been an iterative process, involving stakeholders and changes to design. The key principle during development was to avoid or reduce as far as reasonably practicable the use of the LRN for construction traffic.

4.1.2 The main works routes have been revised and refined on the basis of:

a. Numerous site visits have allowed the determination of suitable roads for short-term or long-term use and the safety implications of using such routes.

b. Stakeholder meetings and public consultations have highlighted issues which have been fed back into the Project development.

c. Discussions with internal and external stakeholders have highlighted sensitive areas and roads.

d. Traffic assessments, using the Project's transport model, have helped predict the impact of the Project's construction on the road network.

4.1.3 The use of the LRN has been reduced by the following proposals:

a. Early construction of temporary offline haul routes directly off the SRN where practicable

b. Maximum use of internal haul routes, when available, to gain access to worksites

c. Engagement with local businesses to establish access via private roads

4.1.4 Notwithstanding, there may be periods for certain works to be conducted before offline haul routes are operational during which construction vehicles would need to get to site using the LRN. These are likely to be limited to early works, namely ecology, utilities and site setup works

4.1.5 Haul routes have been proposed within the Order Limits to connect the SRN directly to the work sites where practicable. While these are constructed early in the Project construction programme, traffic would need to utilise the local road network. Where it is not possible to create an access directly off the SRN network, construction traffic would continue to utilise sections of the LRN.

4.1.6 Plate 4.1 to Plate 4.4 show illustrative HGV routes which would facilitate main works. Note these figures are illustrative and a snapshot in time during the works. Refer to the Temporary Work Plans TR010032/APP/2.17 for drawings which show the full extents of the scheme. Access requirements for the nitrogen deposition compensation works will be considered during the development of the Traffic Management Plans.

4.1.7 There would be various types of access route associated with main works activities shown in the plates that follow. These are:

a. ‘Short-term – Online – Main’ routes shown would be used for initial access, primarily for site setup works. Once the appropriate offline accesses are created, the short-term routes would not be used for HGV construction traffic other than for very specific works (e.g. any remaining utility works). The temporary offline access routes are programmed to be constructed early in the programme to reduce the use of the local road access where practicable. It is envisaged offline access routes would be available within several months, but all are scheduled to be completed no later than two years after the start of construction.

b. ‘Long-term – Online – Main’ routes are primarily part of the SRN and would be used by HGV construction traffic throughout the construction period.

c. ‘Construction Routes – Offline – Main’, also known as haul routes, are offline routes constructed temporarily to facilitate the construction works and, in most cases, would allow access to the worksite directly from the SRN thereby reducing the need to use the LRN. Note, the offline access routes shown are illustrative and represent a snapshot in time; they would evolve in line with the surrounding construction works.

d. ‘Secondary’ routes would be used by HGV construction traffic throughout construction but would be used far less frequently than the other routes.

e. ‘Emergency’ routes would be used in the case of an emergency. They would not be used in any other instance by HGV construction traffic (i.e. including during wider network issues). It is therefore possible the route would not be used at all during the construction period.

f. ‘Crossing’ locations shown are illustrative locations where the haul route would bisect the LRN, thereby creating a need for a construction crossing point. Crossing points would be in place with traffic signals or similar for a period of time during the works to allow construction traffic to cross the local road network. Once new local road overbridges are completed (proposed as part of the permanent works) and an access under the bridge is created, these crossing point traffic management measures would no longer be required and would therefore be removed.

g. ‘Main Works Construction Compound’ illustrates the proposed temporary construction compound area which would generally encompass hardstanding for construction offices, welfare facilities, plant and material storage among others, to facilitate construction. In most compounds, the area would also contain provision for holding construction traffic (thereby reducing risk of queuing on the road network) as well as earthworks stockpile.

4.1.8 Plate 4.1 below shows main works compounds:

a. Marling Cross compound – near Gravesend East junction

b. A2 compound – near the A2/M2 and Thong Lane

c. Southern tunnel entrance compound – north of the dashed line (shows part of Southern tunnel entrance compound)

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Plate 4.1 Illustrative Compounds and HGV construction traffic routes (A2/M2 to Thong Lane over A122)

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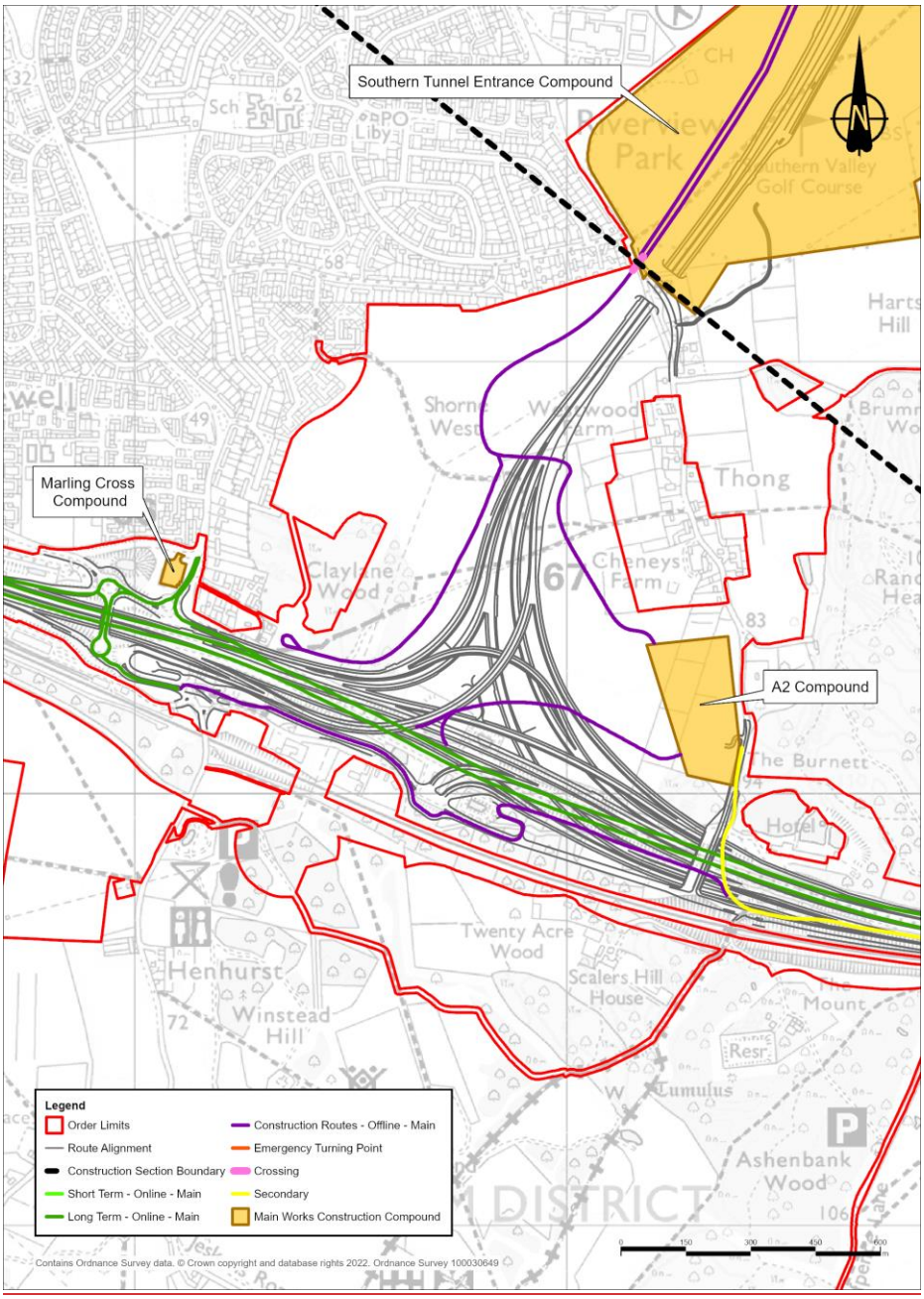

4.1.9 Plate 4.2 below shows main works compounds:

a. Southern tunnel entrance compound – around proposed southern tunnelportal

b. Northern tunnel entrance compound – around proposed northern tunnel portal (including the section between the dashed line and the Tilbury Loop railway line, east of the Project alignment)

c. Station Road compound – between dashed line and the Tilbury Loop railway line (west of the Project alignment)

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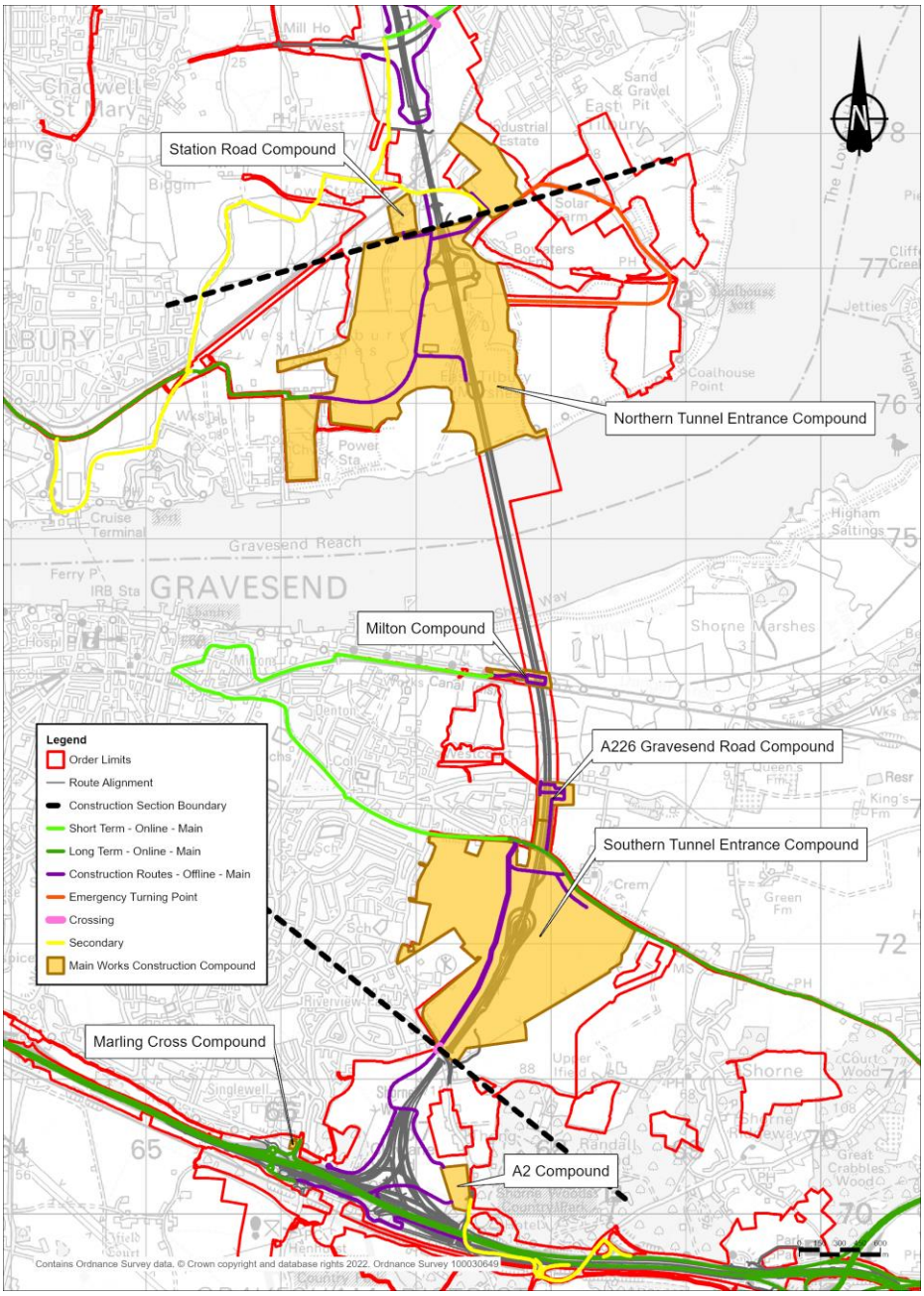
Plate 4.2 Illustrative Compounds and HGV construction traffic routes (South Portal to North Portal)



4.1.10 Plate 4.3 below shows main works compounds:

a. Northern tunnel entrance compound – around proposed North Portal (including the section between the dashed line and the Tilbury Loop railway line, east of the Project alignment)

b. Station Road compound – between dashed line and the Tilbury Loop railway line (west of the Project alignment)

c. Brentwood Road compound – south of the A13 and east of the A1089 near Brentwood Road

d. Stanford Road compound – south of the A13 and east of the A1089 near the A1013

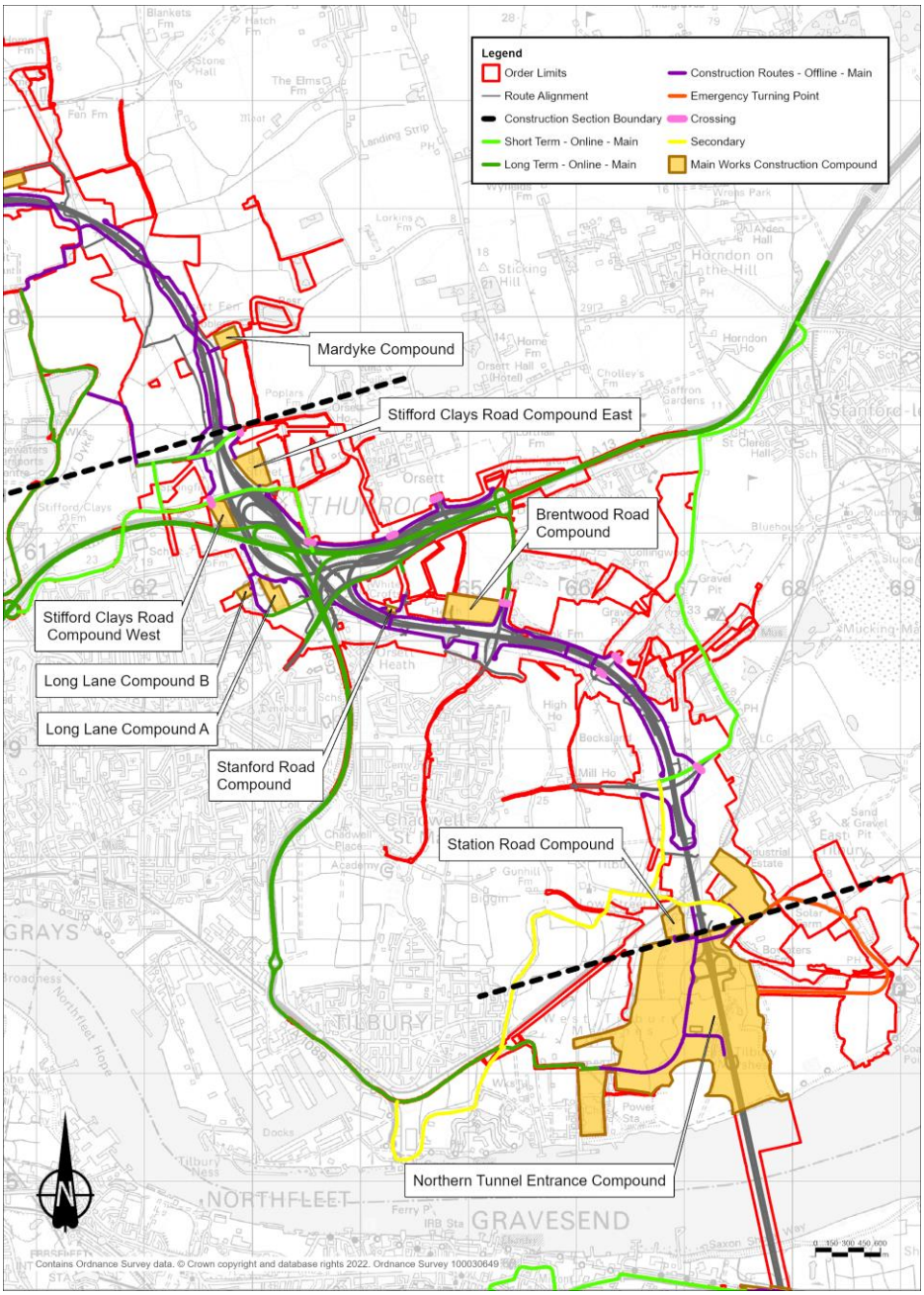
e. Long Lane compound (A&B) – south of the A13 and west of the A1089

f. Stifford Clays Road compound West – north of the A13 and west of the Project alignment

g. Stifford Clays Road compound East – north of the A13 and east of the Project alignment

h. Mardyke compound – north of the A13, east of the Project alignment near Fen Lane

Plate 4.3 Illustrative Compounds and HGV construction traffic routes (North Portal to A13)



4.1.11 Plate 4.4 below shows main works compounds:

a. Stifford Clays Road compound West – north of the A13 and west of the Project alignment

b. Stifford Clays Road compound East – north of the A13 and east of the Project alignment

c. Mardyke compound – north of the A13, east of the Project alignment near Fen Lane

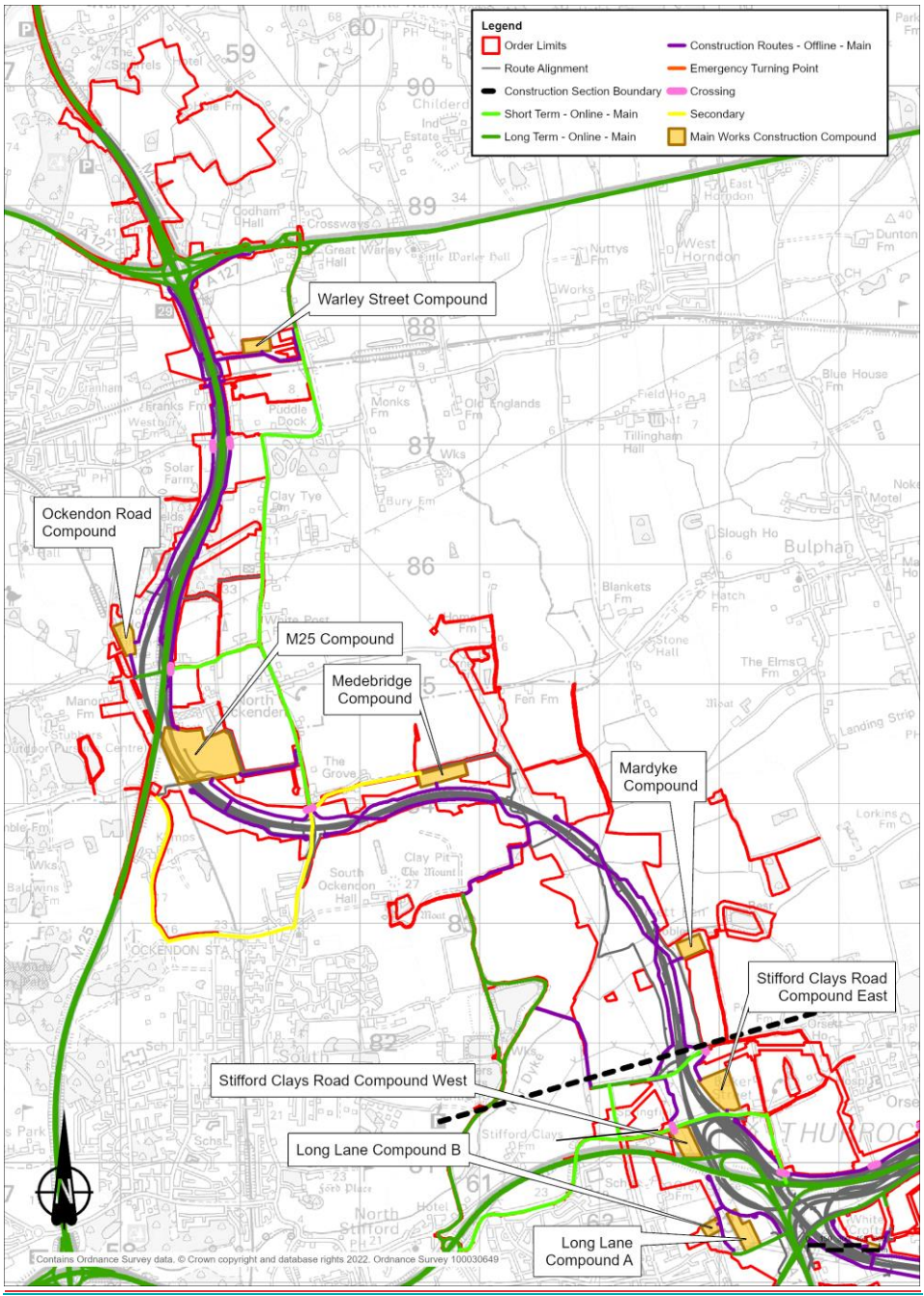
d. Medebridge compound – north of the Project alignment in an open field

e. M25 compound – just east of the M25 and near Ockendon Road

f. Ockendon Road compound – just west of the M25 and near Ockendon Road

g. Warley Street – just east of the M25 and near the A127

Plate 4.4 Illustrative Compounds and HGV construction traffic routes (A13 to M25)



4.2 Proposed Utility Access Routes

4.2.1 Plate 4.5 to Plate 4.8 illustratively show the additional access routes associated with utility works (in addition to the main works access routes) and the proposed utility logistic hubs (ULH) locations. The main works construction routes would be utilised for the utility works as well as the specific utility works access routes. In several cases, the specific utility access routes would be spurs off the main works construction routes.

Deleted: to Plate 4.8

4.2.2 There would be two types of utility access route:

a. 'Utilities Online Access' – These would be access routes using the existing road network. The routes would access specific utility works areas.

b. 'Utilities Offline Access' – These would be access routes off the road network. In several cases these are 'spurs' off the main works offline haul routes. The routes would be used to access utility logistics hubs and/or specific utility works areas.

4.2.3 Plate 4.5 to Plate 4.8 also illustratively show 'Utility Hubs'. Utility Hubs would generally receive, store, and distribute the plant machinery and materials for specific utility works. They may include offices, welfare facilities, refuelling stations, security hubs, vehicle/wheel washing sites and parking areas similar in size to the main works satellite compounds.

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4.2.4 Note that use of the Utility access routes shown, is envisaged to be very low and infrequent compared with use of the other routes.

4.2.5 Beredens Lane shall be limited as an access to Beredens Lane ULH for emergency vehicle access and by the use of motorway-prohibited traffic including pedestrians, holders of provisional motorcycle or car licences, riders of motorcycles under 50cc, cyclists and horse riders.

Plate 4.5 Illustrative Compounds, ULH and HGV construction traffic routes including utilities (A2/M2 to Thong Lane over A122)

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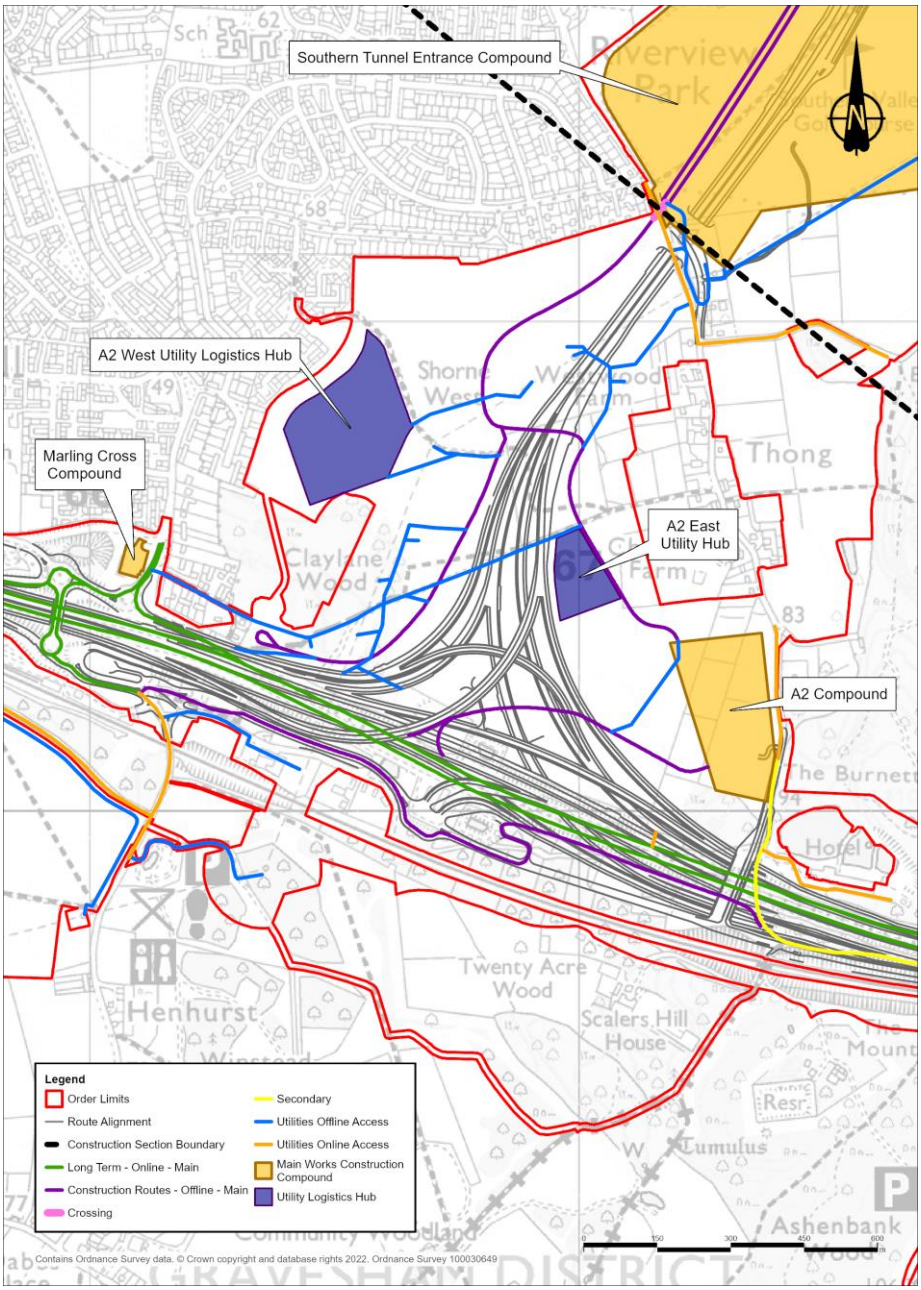


Plate 4.6 Illustrative Compounds, ULH and HGV construction traffic routes including utilities (South Portal to North Portal)

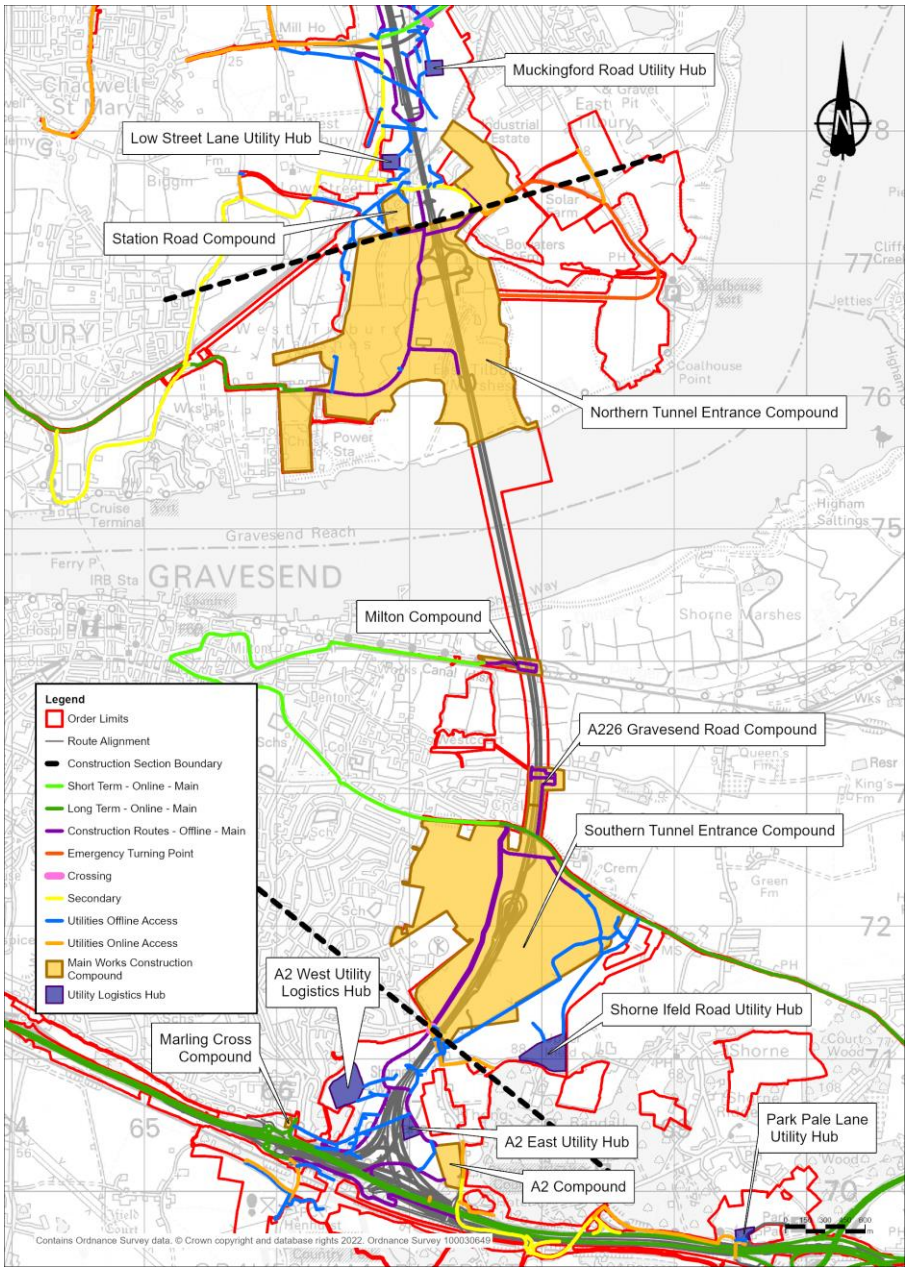


Plate 4.7 Illustrative Compounds, ULH and HGV construction traffic routes including utilities (North Portal to A13)

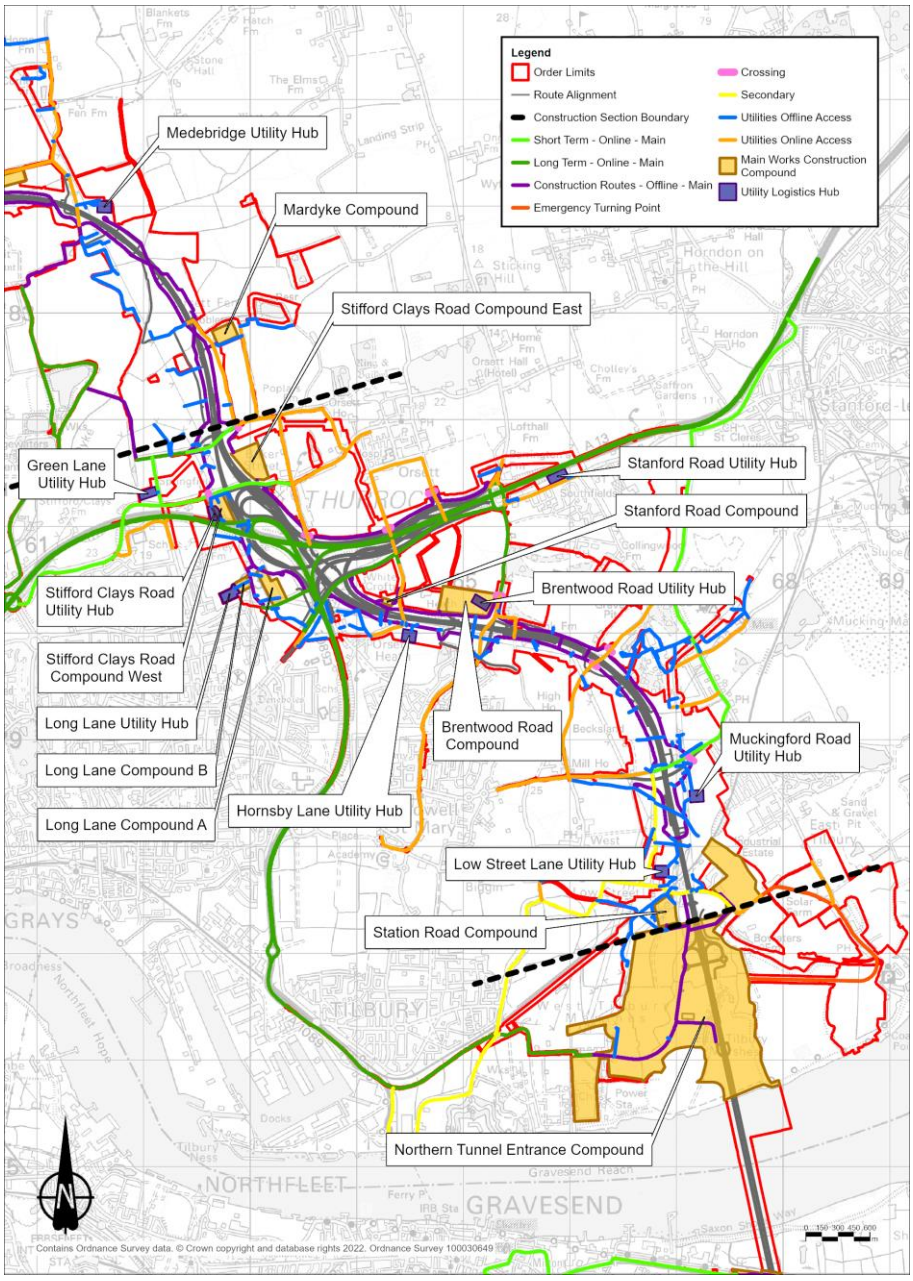
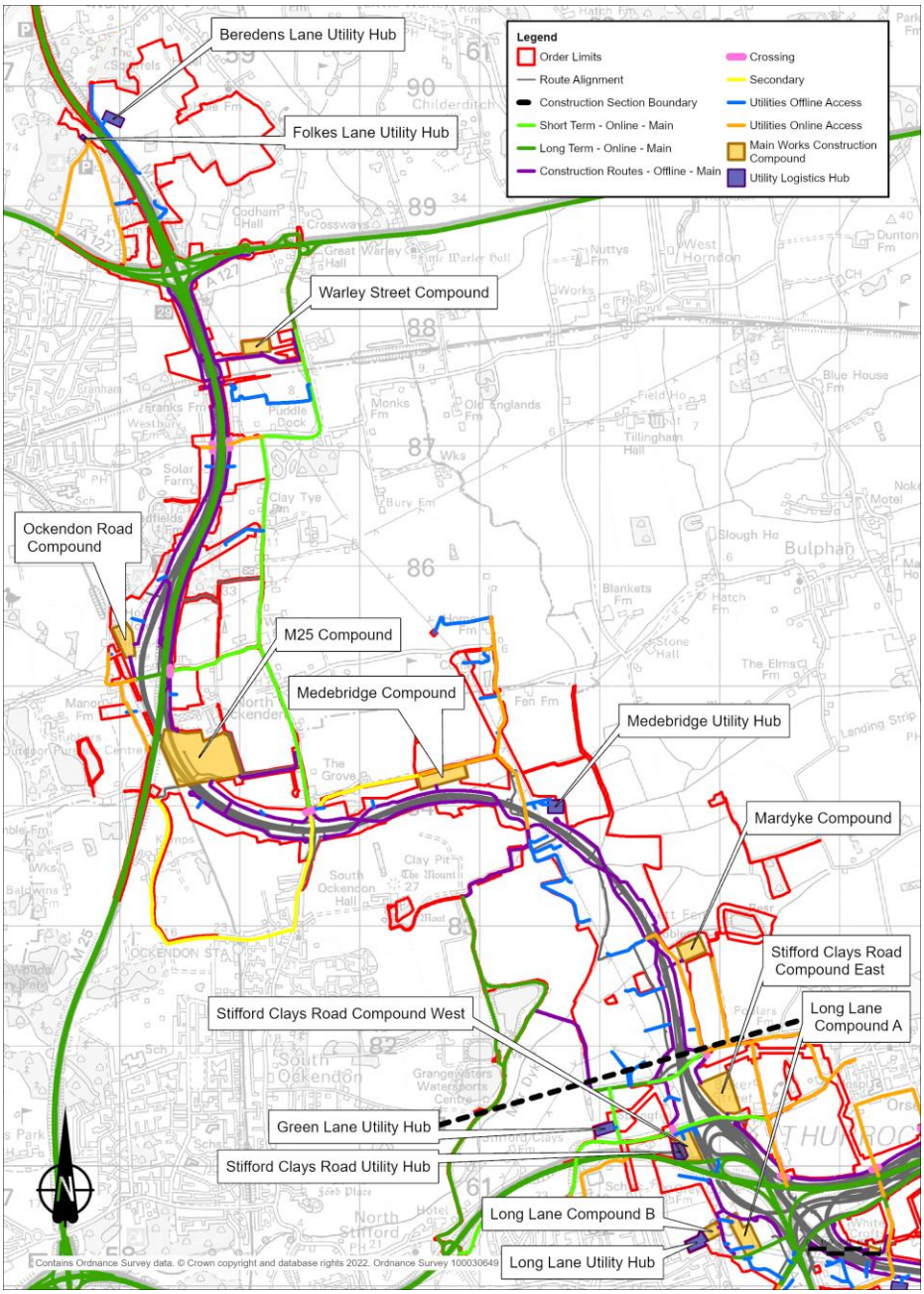


Plate 4.8 Illustrative Compounds, ULH and HGV construction traffic routes including utilities (A13 to M25)



4.2.6 Table 4.1 gives information about the proposed access routes (illustrated on Plate 4.1 to Plate 4.8) to each of the compounds. In other instances, there would only be one phase and in those circumstances, the primary route illustratively referenced in Table 4.1 would be utilised for the full period the relevant compound is operational. Primary access routes in some instances would have two phases, an initial online access route (generally prior to construction of offline routes) and a following primary access route arrangement (post construction of the associated offline route). Generally, once the offline access route is constructed, online usage of the road network would be limited to the SRN. Where this is not possible, some sections of the LRN would continue to be utilised.

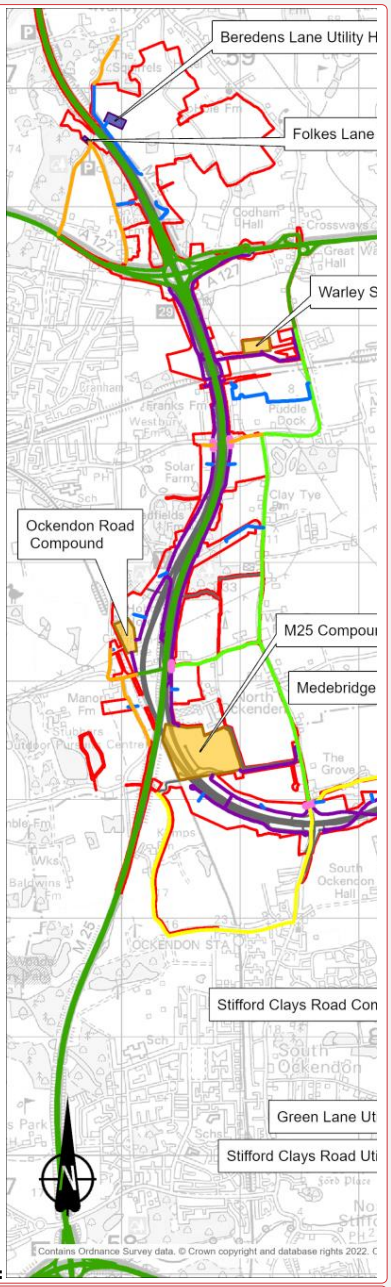
4.2.7 Initial access (short-term) would be in place for up to two years for HGVs as mentioned previously, however Table 4.1 outlines an illustrative period when the offline route is likely to become available for each compound (in several instances the local road network may only be required for less than a year). It should be noted the durations are approximations. It should also be noted that the routes would only be for HGVs. Other vehicles, e.g. staff cars would be able to utilise any suitable route (e.g. initial routes could be used by staff cars throughout the construction period). Once the Contractor is appointed, detailed design would confirm the durations.

4.2.8 The table below also shows secondary routes (as defined in section 4.2.9) in relation to compounds.

4.2.9 Compounds would be used to facilitate specific geographical works. The scopes of these works differ; therefore the operational period of each compound would also differ. The duration outlined in Table 4.1 is for the operational period of the compound (including mobilisation and demobilisation). Main compounds would generally be required for the full construction period (A2 compound, Southern tunnel entrance compound, Northern tunnel entrance compound, Stifford Clays Road compound East and M25 compound). Secondary routes are also shown for those compounds which would have them.

Table 4.1 Illustrative construction compound access routes (HGV traffic)

Compound	Primary route	Duration	Secondary route
Marling Cross compound	Watling Street (A2/M2) – Hever Court Road – Valley Drive	Full period compound is operational	
A2 compound A2 West ULH A2 East ULH	Watling Street (A2EB) (via Gravesend East junction northern roundabout) – Offline Route	Full period compound is operational	Brewers Road and Thong Lane (south of Thong village) via A2 slip roads
Park Pale Lane ULH	Watling Street (A2/M2) – Brewers Road – Park Pale	Full period compound is operational	
Southern tunnel entrance compound	A2 – A289 – Gravesend Road (A226)	Full period compound is operational	



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Compound	Primary route	Duration	Secondary route
A226 Gravesend Road compound	A226	Full period compound is operational	
Shorne Ifield Road ULH	A226 – Offline Route	Full period compound is operational	Watling Street (A2EB) (via Gravesend East junction northern roundabout) – Offline Route - Thong Lane – Offline Route
Milton compound	A226 – Milton Road – Ordnance Road – Canal Road – Norfolk Road – Lane adjacent to Thames and Medway Canal	Full period compound is operational	
Northern tunnel entrance compound Station Road compound	A13 – A1089 – Fort Road – offline access route (new Tilbury2 access road also to be used)	Full period compound is operational	Fort Road – Coopers Shaw Road – Church Road – Station Road. And/or A1013, Buckingham Hill Road, Muckingford Road, Low Street Lane, Station Road (only short-term, initial 9-12 months)
Low Street Lane ULH Muckingford Road ULH	A13 – A1013 – Buckingham Hill Road – Muckingford Road	Full period compound is operational	Fort Road – Coopers Shaw Road – Church Road – Station Road – Low Street Lane. And/or A13 – Brentwood Road – Offline Route – Muckingford Road – Offline Route
Brentwood Road compound Brentwood Road ULH	A13 – Brentwood Road	Full period compound is operational	
Stanford Road compound Hornsby Lane ULH	A1013 – Hornsby Lane and A13 – Brentwood Road – offline route	Full period compound is operational	
Long Lane compound (A&B)	A13 – A1013 – Gammonfields Way – Long Lane – offline route	Full period compound is operational	

Compound	Primary route	Duration	Secondary route
Long Lane ULH			
Stifford Clays Road compound West Stifford Clays Road ULH	A13 – Stifford Clays Road (initial) A13 – private road – offline route – Green Lane – offline route and via temporary M25 offline access routes (once available)	Initial – first 6-12 months Remaining period compound is operational	
Green Lane ULH	A13 – Stifford Clays Road – Green Lane	Full period compound is operational	A13 – private road – offline route – Green Lane – offline route
Stifford Clays Road compound East	A13 – Stifford Clays Road (initial) A13 – private road – offline route – Green Lane – offline route and via temporary M25 offline access routes (once available)	Initial – first 6-12 months Remaining period compound is operational	
Stanford Road ULH	A13 – A1013	Full period compound is operational	
Mardyke compound	Stifford Clays Road – Green Lane (initial) A13 – private road – offline route – Green Lane – offline route and via temporary M25 offline access routes (once available)	Initial – first 6-12 months Remaining period compound is operational	
Medebridge compound Medebridge ULH	A13 – private road – offline route and via temporary M25 offline access routes (once available)	Full period compound is operational	A127 – Warley Street (B186) – St Marys Lane (B187) – Clay Tye Road (B186) – North Road (B186) – track
M25 compound	A127 – Warley Street (B186) – St Marys Lane (B187) – Clay Tye Road (B186) – North Road (B186) (initial) M25 temporary access – offline route	Initial – first 12-24 months Remaining period compound is operational	

Compound	Primary route	Duration	Secondary route
Ockendon Road compound	A127 – Warley Street (B186) – St Marys Lane (B187) – Clay Tye Road (B186) – North Road (B186) – Ockendon Road (initial) M25 temporary access – offline route and section of Ockendon Road	Initial – first 12-24 months Remaining period compound is operational	
Warley Street compound	A127 junction – Warley Street (B186) – offline route and M25 junction 29 – offline route	Full period compound is operational	
Folkes Lane ULH	A127 – Folkes Lane – Offline Route	Full period compound is operational	
Beredens Lane ULH	M25 (M25SB A127 slip road) – Offline Route	Full period compound is operational	

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4.2.10 The routes to site mentioned in this section would be adhered to as far as reasonably practicable. It is understood through discussion with local authorities that in some specific instances where heavy disruption and/or incidents occur on the network, vehicles may need to choose an alternative route. This would mainly be the case for specific, time-critical work activities (e.g. delivery of wet concrete).

4.2.11 Alternative routes would be contained in the TMP submitted to the SoS following consultation with the local authorities.

4.3 Speed limits (SRN and LRN)

4.3.1 Traditionally, narrow lanes within roadworks on the SRN have been accompanied by a maximum speed reduced to 50mph. The Project would seek to retain 60mph where appropriate and where it is safe to do so.

4.3.2 LRN speed limits will be retained subject to the outcomes of discussions with local highway authorities.

4.4 Lengths of traffic management measures (in distance and duration)

4.4.1 To reduce the impact on local road users, the length of traffic management measures would be kept to a minimum and left in situ for the shortest duration as far as is reasonably practicable.

4.4.1 Where it is intended for roadworks to be left in place for defined periods without any construction works being undertaken, e.g. a weekend, the Contractors shall assess whether it is reasonably practicable and safe to remove the traffic management equipment during this period.

4.4.2 A full preliminary list of illustrative traffic management measures (excluding hard shoulder closures and associated localised traffic management for highway gantries) that may be required to construct the Project can be found in Appendix A. It includes approximate extents of the traffic management to be installed, estimated duration of measure and which construction modelling phase they would be undertaken in.

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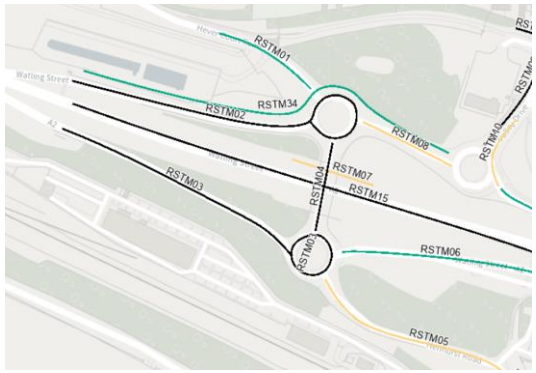
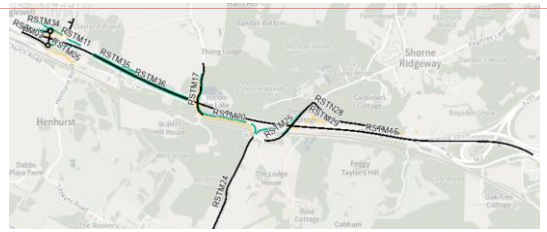
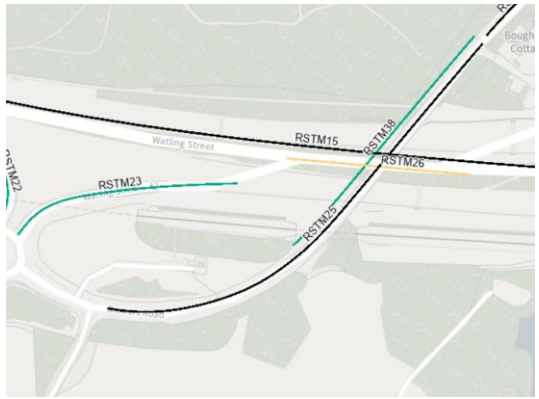
4.4.3 Locations where traffic management measures (as shown in Appendix A for full TM list and plans) are generally to be in place for greater than three months, are shown in Table 4.2 and Table 4.3. Table 4.2 sets out the illustrative traffic management measures for the main works and Table 4.3 sets out the illustrative traffic management measures associated with the utility works. Wherever practicable, traffic management would be shared by main works and utilities works so as to minimise disruption to the travelling public and local communities. When detailing the traffic measures, the Contractor will use the Customer Impact Assessment Tool and Dynamic Roadworks Benchmarking Template in Appendix C & Appendix D respectively.

4.4.4 Where there is a need to install extended lengths of traffic management such as longitudinal trenches, the default length would be 300m sections. The exact length would be determined in the TMP taking into consideration local accessibility, traffic volumes, pedestrian movements and local safety considerations.

4.4.5 The power to impose the traffic management measures listed below will be included the draft DCO (Application Document 3.1) which sets out temporary restrictions, closures, alterations and other regulations of streets (see Article 12). It should be noted that the article 12 of the draft DCO will also include a general power to temporarily close, alter, divert or restrict the use of any street but this will be subject to highway authority approval.

Table 4.2 Illustrative traffic management measures (main works)

Road	Traffic measure envisaged	Diversion route	Envisaged length of TM	Description	Illustrative location of TM
Gravesend East junction (RSTM02, RSTM03 and RSTM04)	Narrow lanes, lane closures and short-term closures	N/A	Includes Gravesend East junction extents	To facilitate the works on and around the Gravesend East junction, lane restrictions on the gyratories would be imposed for approximately 9 – 14 months. The bridge would be approx. 4 months. The works around the Gravesend East junction (particularly north of the A2) are scheduled to be carried out early in the programme. Due to traffic considerations, the northern works would need to be carried out and completed prior to the long-term closure of Brewers rd bridge. The southern roundabout is envisaged to start early in the programme and be completed late in the programme (to ensure existing connections are maintained). As a result, there is likely to be a period of time where little or no activity would take place. During this time, traffic management restrictions would be lifted, however a temporary alignment would be in place which would facilitate existing movements.	

Road	Traffic measure envisaged	Diversion route	Envisaged length of TM	Description	Illustrative location of TM
A2/M2 (RSTM15)	Narrow lanes, hard shoulder closure, reduced speed limit to 50mph	N/A	Circa 4.5km on each carriageway (9km total for westbound (WB) and eastbound (EB)). Approx from Gravesend East junction to eastern extents.	To facilitate the construction of the new M2/A2/A122 junction and widening works. Traffic management on the A2/M2 would be required for approximately two years during the construction period. Note, hard shoulder closure would also be required outside this two-year period.	
Brewers Road bridge (RSTM25)	Closure (bridge only)	Via Three Crutches roundabout and the Gravesend East junction	Circa 300m	The proposed closure of Brewers Road would be required as the alignment of the new bridge is the same as for the existing bridge meaning there is no alternative but to close the road. Although access to Cobham Hall School and Nook Pet Hotel would not be directly affected, there would be an increase in journey times due to the diversion route. The closure is envisaged to be 19 months During the closure, Thong lane would need to be kept open and maintained (with the exception of short-term night/weekend closures).	

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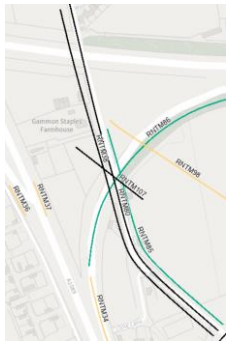
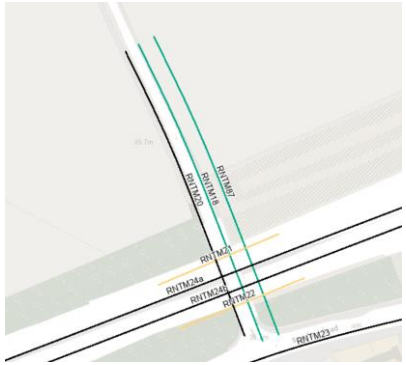
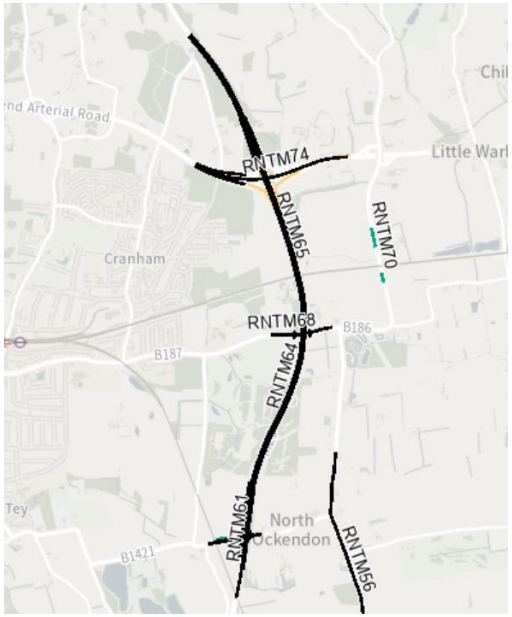
Road	Traffic measure envisaged	Diversion route	Envisaged length of TM	Description	Illustrative location of TM
A13 (RNTM24a and RNTM24b)	Narrow lanes, reduced speed limit to 60mph	N/A	Circa 1.2km	Narrow lanes may be required for tie-in and widening works. It is envisaged the eastbound and westbound carriageways would be constructed at different times in the programme. The duration would be approximately three months for each carriageway.	
Baker Street (RNTM38)	Closure	Via Rectory Road	Circa 450m	The Baker Street closure is proposed to allow the safe construction of scheme elements around the A13. The section between the A13 and A1013 would be closed for approximately 16 months. During this time, Rectory Road would remain open. Access from Stifford Clays Road to Baker Street would be available.	

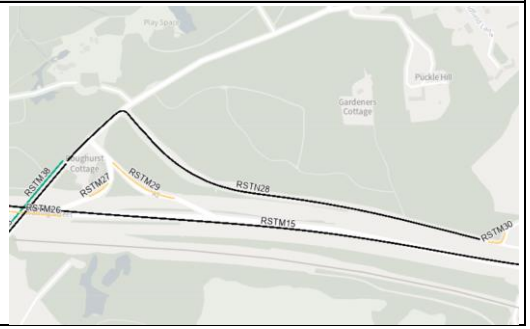
Road	Traffic measure envisaged	Diversion route	Envisaged length of TM	Description	Illustrative location of TM
Rectory Road (RNTM20)	Closure	Via Baker Street	Circa 70m	The proposed closure of Rectory Road would be required as the alignment of the new bridge is the same as for the existing bridge, meaning there is no alternative but to close the road. The bridge section of Rectory Road over the A13 would be closed for approximately seven months. During this time Baker Street would be open and access from High Road and School Lane would be available.	
Ockendon Road (RNTM58)	Closure	Via B186, West Road, Dennis Road, Dennises Lane and Stubbers Lane	Circa 150m	The section of Ockendon Road approximately between the rail bridge and the existing properties would be required for around 19 months. It would be required to allow construction of scheme elements as well as to ensure safe management of significant earthworks in the area to reduce interface between construction and the public. The temporary full closure duration of Ockendon Road shall not exceed 10 months; refer to the commitment in document 7.21 Stakeholders Action and Commitments Register with the Reference SACR-007	

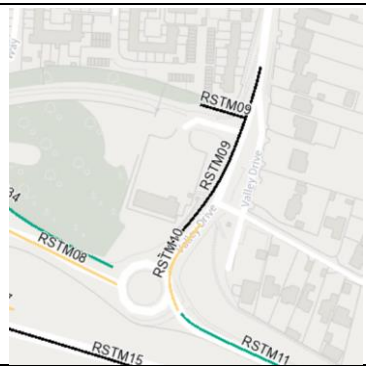
Road	Traffic measure envisaged	Diversion route	Envisaged length of TM	Description	Illustrative location of TM
				Lane closures and the use of traffic lights may also be required to facilitate utility works (RNTM60). These works are envisaged to take 6 months early in the programme. With the possibility of another 6 months later in the programme (although this could coincide with the closure).	
M25 (RNTM64, RNT65 and RNTN61, RNTM62 and RNTM105)	Narrow lanes, hard shoulder closure, reduced speed limit to 50/60mph	N/A	Circa 5.1km northbound (RNTM65 from approx. northern extents shown on M25 to Ockendon Road) and circa 5.8km southbound (RNTM64 from approx. northern extents shown to southern extents shown on M25)	To facilitate works on the M25, traffic management would be required throughout the construction period on the M25 northbound and M25 southbound, including the NB and SB slips north of J29 (RNTM105). RNTM61 and RNTM62 would facilitate the construction of the temporary M25 accesses. See Appendix A for full TM plans.	

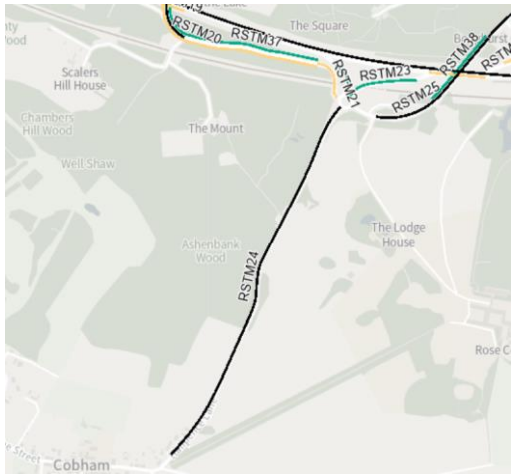
Road	Traffic measure envisaged	Diversion route	Envisaged length of TM	Description	Illustrative location of TM
A127 (RNTM74)	Narrow lanes, reduced speed limit to 50/60mph	N/A	Circa 400m each carriageway (800m total eastbound and westbound)	To facilitate works around the M25 junction 29. Traffic management would be required throughout the construction period.	
A2/M2, A127, A1089, A1013, A13, M25	Multiple night closures, several weekend or similar closures	N/A	See Appendix A	Multiple night and possibly weekend closures required throughout the programme for specific works including bridge works, tie-in works, utilities etc.	See Appendix A
Local roads intersecting the Project mainline	Traffic lights, night closures and weekend closures	N/A	See Appendix A	Construction offline access (haul route) would generally follow the Project mainline trace and, in some instances, would cross the local road network. In such instances, traffic lights or similar would be used to allow construction vehicles to cross. For the local roads, once the new overbridge for the local road is constructed, it is possible in many instances to then remove these traffic control measures by allowing	See Appendix A

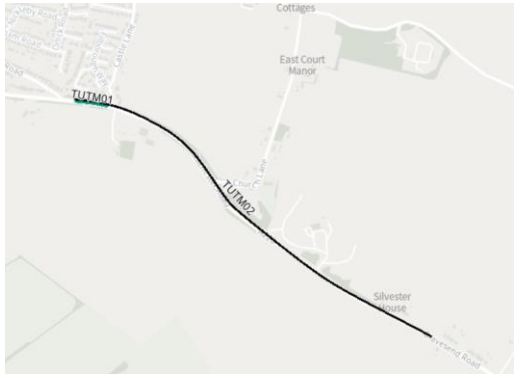
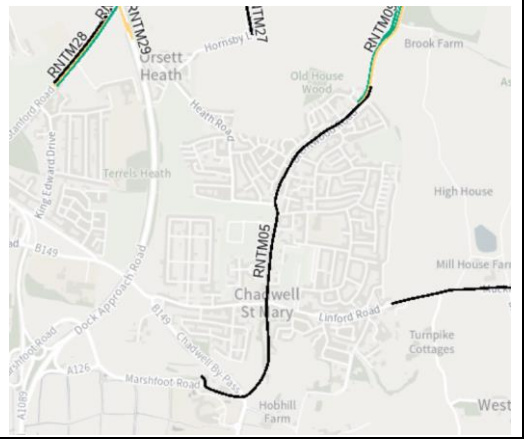
Road	Traffic measure envisaged	Diversion route	Envisaged length of TM	Description	Illustrative location of TM
				construction vehicles to cross under the overbridge. The local road network would be prioritised when placing these measures. Overbridge construction programme for local roads would be prioritised based on traffic counts where practicable. Infrequent night/weekend closures of local roads would be required to carry out specific works (e.g. bridge works, tie-in works, utility works).	

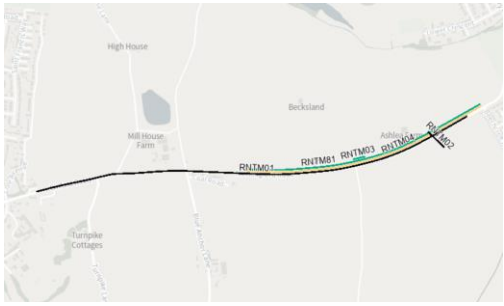
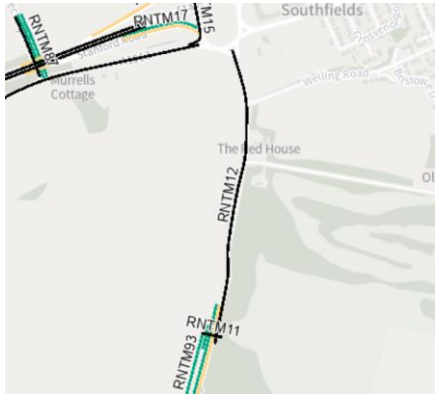
Table 4.3 Illustrative traffic management measures (utilities)

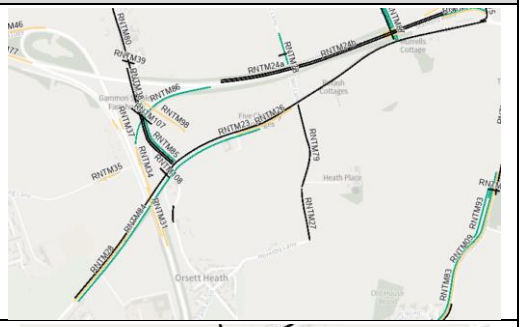
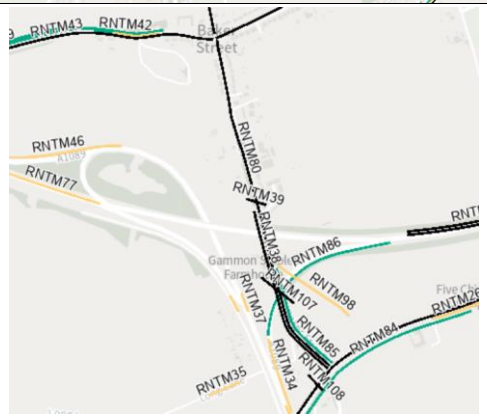
Road	Traffic measure envisaged	Diversion route	Envisaged length of TM	Description	Illustrative location of TM
Park Pale & Brewers Road junction (RSTM28)	Lane closure and traffic lights. Potential short-term closure	N/A	Brewers Road Bridge to Park Pale Overbridge 1.3km of affected road (in 300m sections)	The works are to divert a gas main. Reduced highway capacity in sections due to traffic management measures. Park Pale would not be closed for longer than a night/weekend. Closures would be minimal and infrequent. The works are scheduled to be conducted early in the programme	

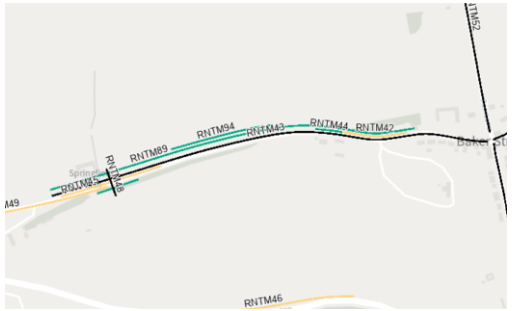
Road	Traffic measure envisaged	Diversion route	Envisaged length of TM	Description	Illustrative location of TM
				and take approximately six months to complete.	
Valley Drive	Lane closure and traffic lights. Potential short-term closure	N/A	Valley Drive roundabout to approx. 150m north of roundabout.	The works are to modify utility networks. The works are scheduled to be conducted early in the programme and completed within a six month period.	

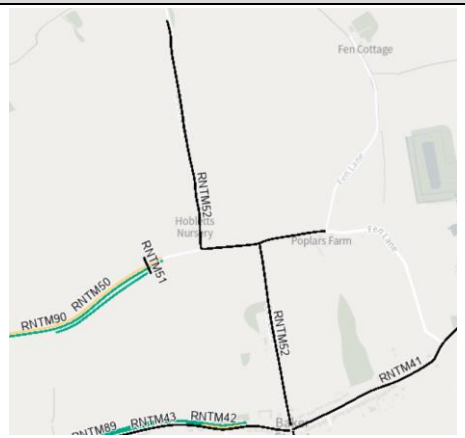
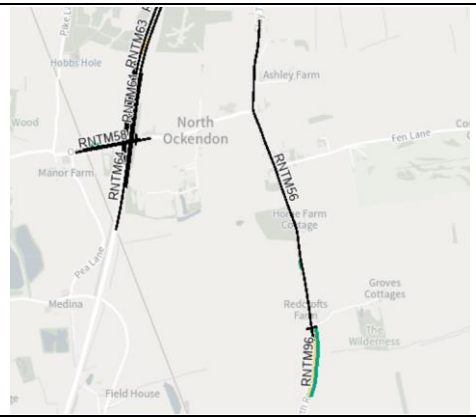
Road	Traffic measure envisaged	Diversion route	Envisaged length of TM	Description	Illustrative location of TM
Halfpence Lane (RSTM24)	Lane closure and traffic lights. Potential short-term closure	N/A	1.1km from Brewers Road Roundabout South 1.1km of affected road (in 300m sections)	The works are to divert a foul water main. Reduced highway capacity in sections due to traffic management measures. Halfpence Lane would not be closed for longer than a night/weekend. Closures would be minimal and infrequent. The works are scheduled to be conducted early in the programme and take approximately six months to complete. Once the works are completed, all traffic management restrictions would be lifted and no further visits would be required for these works.	

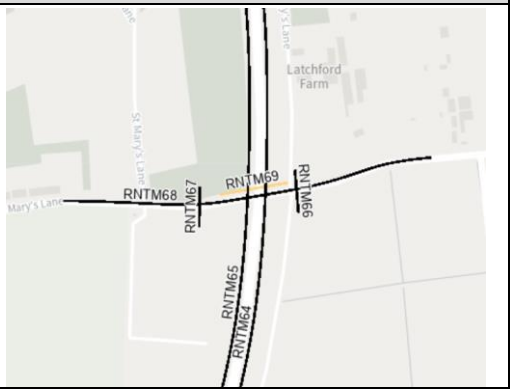
Road	Traffic measure envisaged	Diversion route	Envisaged length of TM	Description	Illustrative location of TM
A226 Gravesend Road (TUTM02)	Lane closure and traffic lights	N/A	1.3km of affected road (in 300m sections)	The works are to establish compound connections for the Southern tunnel entrance and A226 Gravesend Road compounds from those assets located within the A226 boundary and to divert existing assets to enable compound access to be constructed. Reduced highway capacity in sections due to traffic management measures. The works are scheduled to be conducted early in the programme and take approximately nine months to complete.	
Marshfoot Road, Chadwell Hill, Brentwood Road (RNTM05)	Lane closure and traffic lights	N/A	2.4km through Chadwell St Mary. 2.4km affected road (in 300m sections)	The works are to install power supplies for the Project compounds located around the A13 junction (Brentwood Road compound–Mardyke compound). Reduced highway capacity in sections due to traffic management measures. The works are scheduled to be conducted first in the programme and take approximately 12 months to complete. Once the works are completed all traffic management restrictions would be lifted.	

Road	Traffic measure envisaged	Diversion route	Envisaged length of TM	Description	Illustrative location of TM
				Potentially further visits would be required to remove these works near Project construction completion.	
Muckingford Road (RNTM01)	Lane closure and traffic lights	N/A	2km of affected road (in 300m sections)	The works would be to divert utility assets affected by the Project that currently run next to the highway and also carry out widening works for WCH. Reduced highway capacity in sections due to traffic management measures. The works are scheduled to be undertaken in year 2 of the programme and take approximately six months.	
Brentwood Road (RNTM12)	Lane closure and traffic lights	N/A	800m south from the Orsett Cock junction. 800m of affected road (in 300m sections)	The works are to install temporary supplies for the Brentwood Road compound. Reduced highway capacity in sections due to traffic management measures. The works are scheduled to be conducted early in the programme and take approximately six months to complete. Potentially further visits would be required to remove these works near Project construction completion.	

Road	Traffic measure envisaged	Diversion route	Envisaged length of TM	Description	Illustrative location of TM
A1013 (RNTM23)	Lane closure and traffic lights	N/A	2.5km of affected road (in 300m sections). From eastern extents shown on A1013 to western extents shown on A1013)	The works would be to install utility assets and carry out works to the A1013 as part of the Project. In some cases, lane closure may not be required where the road width permits. The works are scheduled to take approximately eight months to complete.	
Baker Street (RNTM80)	Lane closure and traffic lights	N/A	550m of affected road (in 300m sections). From northern intersection with Stifford Clays Rd to A1013.	The works would be to install a telecommunications network for the full length and an electrical network for the southern 150m. Reduced highway capacity in sections due to traffic management measures. The works are scheduled to take approximately five months to complete.	

Road	Traffic measure envisaged	Diversion route	Envisaged length of TM	Description	Illustrative location of TM
High Road (RNTM41)	Lane closure and traffic lights	N/A	900m of affected road (in 300m sections)	The works would be to install a permanent telecommunications network and provide a network supply for Project compounds. Reduced highway capacity in sections due to traffic management measures. The works are scheduled to be conducted early in the programme and take approximately six months to complete. Once the works are completed all traffic management restrictions would be lifted.	
Stifford Clays Road (RNTM43)	Lane closure and traffic lights	N/A	450m of affected road (in 300m sections). From Baker street intersection to approx. Springfield cottages)	The works would be to install discharge connections to the foul water network. Reduced highway capacity in sections due to traffic management measures. The works are scheduled to be carried out early in the programme and take approximately four months to complete. Potentially further visits would be required to remove these works near Project construction completion.	

Road	Traffic measure envisaged	Diversion route	Envisaged length of TM	Description	Illustrative location of TM
Fen Lane & Green Lane (RNTM52)	Temporary full closure (in sections)	N/A	1.8km of affected road (in 300m sections)	Works would be to install compound supplies and discharge connections to the foul water network. Highways closures in approximate 300m sections due to traffic management measures. The works are scheduled to be conducted first in the programme and take approximately nine months to complete. Potentially further visits would be required to remove these works near Project construction completion.	
B186 North Road (RNTM56)	Lane closure and traffic lights	N/A	2km of affected road (in 300m sections)	Works are to install compound and foul water discharge connections. Reduced highway capacity in sections due to traffic management measures. The works are scheduled to be conducted first in the programme and take approximately 12 months to complete. Potentially further visits would be required to remove these works near Project construction completion.	

Road	Traffic measure envisaged	Diversion route	Envisaged length of TM	Description	Illustrative location of TM
St Marys Lane (RNTM68)	Lane closure and traffic lights	N/A	2km of affected road (in 300m sections)	The works would be to divert utility assets affected by the Project currently located next to and within the carriageway. Reduced highway capacity in sections due to traffic management measures. The works are scheduled to be undertaken in Year 1 and 2 of the programme and take approximately nine months to complete.	

4.5 Safety measures

4.5.1 The traffic management would be designed in accordance with the requirements of the 'Department for Transport Traffic Signs Manual and National Highways' 'Roadworks – A Customer View' which outlines the customer principles that National Highways expects to be applied to roadworks.

4.5.2 To protect the health, safety and security of road users and the workforce, traffic management would need to ensure that safety measures have been thoroughly considered.

4.5.3 Traffic management would be designed and implemented to be effective in all lighting conditions, weather conditions and under all envisaged circumstances. The Contractors would demonstrate that their traffic management proposals had been developed to consider alternative options, minimal traffic management measures, safety and space assessments to reduce delays, disruptions and diversions to traffic. Further details of the proposed measures are contained below.

4.5.4 In the event a road has to be closed for construction purposes and therefore requires traffic to be diverted, meetings would be held with the appropriate highway authority as part of the TMF to minimise disruption to road users and communities affected by the diversion.

4.5.5 Provision for potential emergency closure of certain roads would be discussed with the appropriate highways authority in the TMF.

4.5.6 For the purposes of protecting the workforce and the public, the TMP would secure appropriate traffic management measures, including narrow lanes, lane closures, closures with diversions, etc. These measures would introduce safe working zones (through use of cones and/or safety barriers as appropriate) next to the carriageway as required by Chapter 8 of the Traffic Signs Manual (DfT) 2018.

4.5.7 A risk-based approach would be taken when choosing and implementing traffic management measures and access routes to compound areas. This would be dependent on several factors including but not limited to traffic counts, types of, traffic, WCH interface, nearby points of interest (e.g. schools) and will include engagement with relevant authorities.

4.5.8 Where traffic signals or similar would be required to facilitate construction movements such as access to compounds and construction vehicle crossing points, they would be locally controlled to ensure that the LRN has priority in terms of traffic movements. Additionally, when not required operationally the traffic signals would be turned off.

4.5.9 Traffic-signal-controlled pedestrian crossing points or similar would be considered during production of the TMP. This would be subject to discussion and input from the relevant local highway authority at the TMF and included as determined by the TM (i.e. based on road usage, safety considerations, pedestrian usage etc.).

4.6 Local road network

4.6.1 To facilitate construction of the Project, sections of the local road network would need to be used for construction activities. While this would be minimised as far as practicable, there is a requirement to use the LRN for a number of reasons, including:

a. Closures (e.g. to carry out tie-in works for a new overbridge)

b. Traffic lights (e.g. to carry out widening works and/or utility works on one side of the road)

c. Construction access route (e.g. to access compounds prior to construction of temporary haul routes)

4.6.2 In response to stakeholder requests and to help inform local authorities and other stakeholders, the tables in Appendix B briefly describe the proposed works around the LRN during construction as mentioned in Section 4 and in Appendix A.

4.6.3 Working with the relevant local authorities and stakeholders, it is proposed to introduce restrictions for HGVs which would be associated with construction of the Project.

4.6.4 Table 4.4 shows the local roads and the proposed restrictions for HGVs associated with construction of the Project. The routes below have been highlighted through discussions with local authorities, with particular focus on roads which may be used as rat-run routes.

Table 4.4 Proposed restrictions for HGVs

Road	Road section	Type of restriction
Thong Lane	Between the A2 compound access off Thong lane and the A226	HGV ban for deliveries and earthworks associated with main works only (excluding utilities works)
Brewers Road	Between Park Pale and the A226 (including The Ridgeway and Peartree Lane)	HGV ban for all works
Castle Lane	Entire road	HGV ban for all works
The Street (Cobham)	Entire road	HGV ban for all works
Lower Higham Road	Entire road	HGV ban for deliveries and earthworks associated with main works
Rectory Road	From School Lane to Prince Charles Avenue	HGV ban for all works
School Lane	From Mill Lane to Rectory Road	HGV ban for all works
B188 High Road	From Mill Lane to Rectory Road	HGV ban for all works
Prince Charles Avenue	From Rectory Road to the A128 Brentwood Road	HGV ban for all works
Church Lane	Entire road (Ockendon)	HGV ban for all works

Road	Road section	Type of restriction
Beredens Lane	Entire road	HGV ban for all works

4.7 Selection of diversion routes

4.7.1 The provision of traffic management may require diversion routes to be provided as required. The exact diversion route would be subject to engagement with the relevant authorities during the development of the TMP, working to mitigate the potential for the vehicles to use unofficial diversion routes.

4.7.2 Plate 4.9 to Plate 4.13 are illustrative diversion routes during the proposed longer-term closures outlined in Table 4.2. The red extents on the plates show the approximate extent of the closure, the yellow shows the possible diversion route during the closure. Table 4.5 shows information relating to the longer-term diversions routes including the approximate length of the closure, length of diversion rote and increase in journey time.

4.7.3 The diversion route would be determined through discussions with the local highway authority closer to the time as other factors may need to be taken into account to make the decision (e.g. other works in the nearby area which may be external from the Project works).

Table 4.5 Proposed diversion route information

Name of road	Approximate length of closure	Approximate length of diversion route	Approximate increase in journey time using proposed diversion route
Brewers Road	0.3 miles	4 miles (north of south) 3.5 miles (south to north)	+5 mins (north to south) +4 mins (south to north)
Baker Street	0.3 miles	2.5 miles	+4 mins
Rectory Road	0.1 mile	2.5 miles	+ 4 mins
Ockendon Road	0.2 miles	5.5 miles	+10 mins

Plate 4.9 Brewers Road closure possible diversion route (north to south)

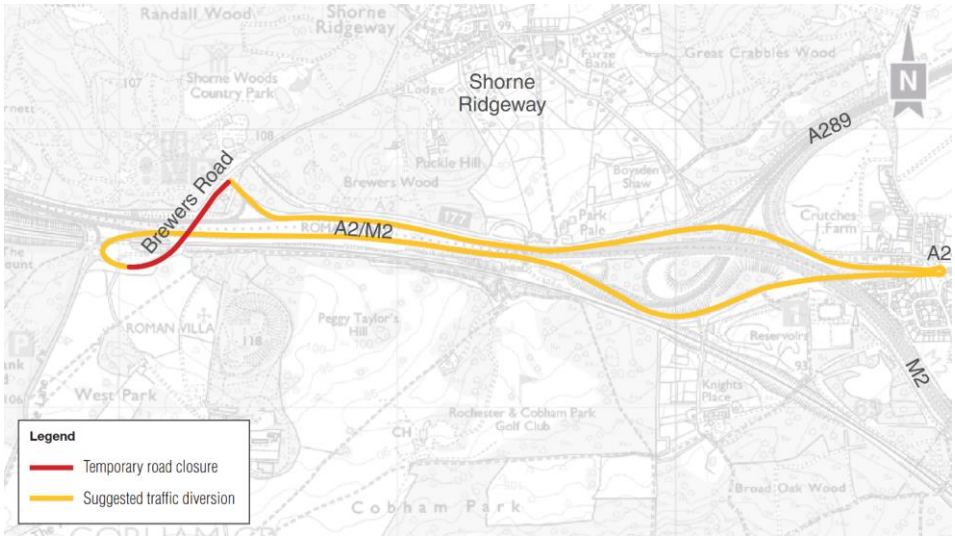


Plate 4.10 Brewers Road closure possible diversion route (south to north)

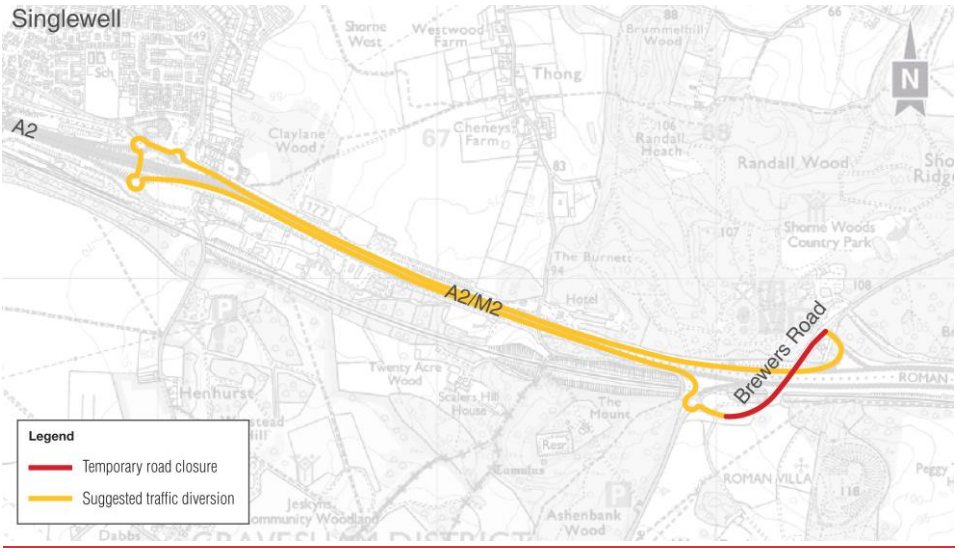


Plate 4.11 Baker Street possible diversion route

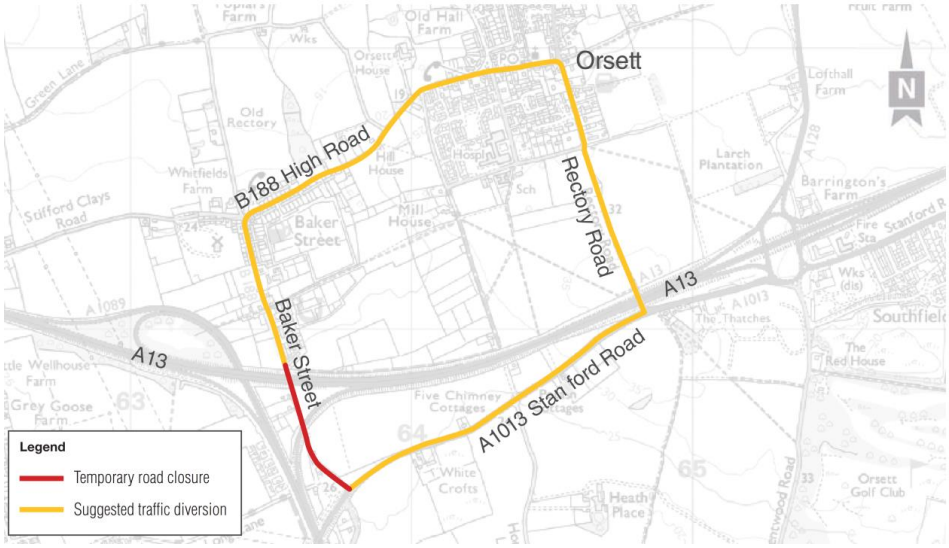


Plate 4.12 Rectory Road possible diversion route

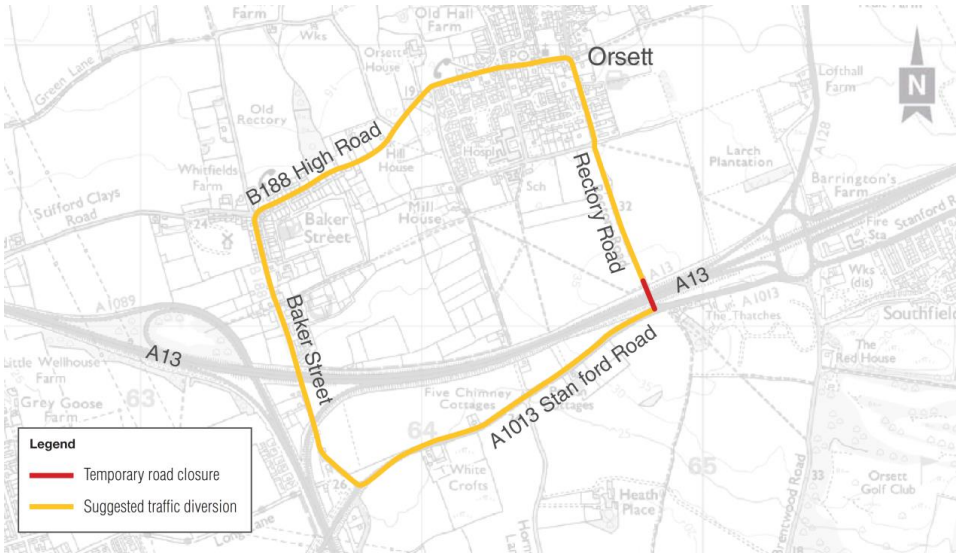
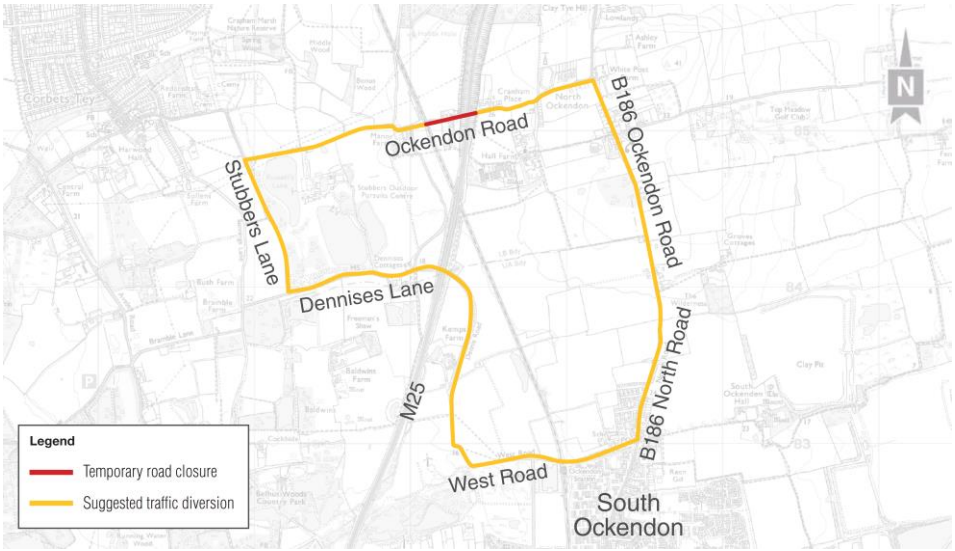


Plate 4.13 Ockendon Road possible diversion route



5 Other considerations

5.1 Public Rights of Way

5.1.1 Schedule 3 (Article 12) of the draft DCO (Application Document 3.1) lists which streets (including PRoWs) and private means of access would be impacted by the Project works. In some cases, a temporary alternative has been identified in Appendix B.

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5.1.2 Schedule 4 (Article 14) of the draft DCO (Application Document 3.1) lists which streets (including PRoWs) and private means of access would be permanently stopped up by the Project. The schedule also includes details of the routes for which a substitute is to be provided by the Project.

5.1.3 Appendix B details measures to be undertaken by NH until completion of and opening of the permanent [PRoW] route.

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5.1.4 Temporary diversion routes, where required, will be subject to engagement with the relevant highway authority during development of the TMP.

5.1.5 The diversion route would be determined through discussions with the local highway authority closer to the time as other factors may need to be taken into account to make the decision (e.g. other works in the nearby area which may be external from the Project works).

5.2 Adjacent roadworks and other traffic management

5.2.1 There are a number of existing frameworks in place to manage interfaces between projects in the area. These include local authority permitting systems, National Highways road booking process.

5.2.2 Table 5.1 highlights a number of significant projects that may have an interface with the construction of the Project (refer to Interrelationship with other Nationally Significant Infrastructure Projects and Major Development Schemes (Application Document 7.17 for further information). Potential/upcoming projects that have interfaces would be considered when appropriate to do so.

Table 5.1 Adjacent projects

Road	Project	Interface
M25	M25 junction 28 National Highways junction improvement scheme	Overlapping traffic management installations Overnight closures and diversion route signing
M25 junction 29 / A127	Brentwood Enterprise Park	Localised junction improvements Overlapping traffic management installation Shared logistic/access routes
A1089 and Station road	Thurrock Flexible Generation Plant	Shared logistic/access routes

5.2.3 The TMF is the forum by which the Project would share its proposals to enable integration with the projects highlighted in Table 5.1.

Deleted: Table 5.1Table 5.1 Adjacent projects

5.3 Significant events and seasonal traffic

5.3.1 As part of engagement, relevant authorities may highlight seasonal peaks and events that they consider require the removal of the traffic management. This would be considered during the development of the TMP as far as reasonably possible. Where this is not possible, these points would be raised and discussed at the TMF.

5.4 Human factors

5.4.1 Once new traffic management is in place, an early drive-through would be undertaken to spot issues, improvements, behaviours and any unintended consequences where appropriate. In addition, traffic management would be patrolled at regular intervals for the duration of the works to monitor behaviour and provide improvements to customer experience.

5.4.2 All decisions and discussions made as part of the development of the TM design by the Contractor would incorporate human factors principles and best practice in relation to all customer groups and across the phases of work covered by the TMP on the Project, to inform key decisions in the development of the TM design.

5.5 Operating lanes

5.5.1 The number of running lanes available at the A2/M2, A13, A127, A1089 and M25 would be maintained at all times, with the exception of full carriageway closures as planned.

5.5.2 Where appropriate, to ensure both road user and workforce safety, the working area in the TM would be protected by a temporary vehicle restraint system.

5.5.3 Narrow running lanes may be required for the temporary traffic management in order to provide a suitable buffer to the work zone. Lane widths would be suitable for HGVs and in accordance with Chapter 8 of the Traffic Signs Manual and any additional requirements detailed in the Design Manual for Roads and Bridges (DMRB) guidance. Where narrow running lanes are proposed consideration should be given to maximising the available space for traffic and widening non-standard/temporary lanes within roadworks in order to improve customer experience and safety.

5.5.4 Consideration should be given by the Contractor – construction preparation to the following to improve customer experience:

a. Improve demarcation of temporary lines, especially at night/in bright sunlight.

b. Improve the visibility of the barrier, especially in narrow lanes.

c. Using temporary lighting during roadworks to improve the visibility of lanes and the barrier.

5.5.5 Partial closures would be required on the local road network. This would require the operation of a two-way signalling system to control traffic flow with the addition of a manual override to ensure that traffic does not back up onto priority

routes. Partial closures shall ensure that one lane is always maintained that is suitable for HGVs.

5.5.6 During full overnight closures, traffic would be diverted along suitable routes agreed ahead of the works. Therefore, the diversion route would be required to be adequate for the types of vehicles that typically use the affected carriageway.

5.5.7 In some instances, hard shoulder running would be required (e.g. when working around the central reservation). The lane widths provided would be in accordance with Chapter 8 of the Traffic Signs Manual.

5.6 Driver compliance

5.6.1 Compliance would be discussed with the police to agree procedures for enforcement where necessary. Further details would be provided by the Contractor during construction, including the potential use of a Temporary Automatic Speed Camera System (TASCAR) including an average speed measuring system.

5.6.2 Consideration would also be given by the Contractor to the use of strategically placed works vehicles with livery similar to that used by the Safety Camera Partnerships to act as a deterrent to road users committing a wilful incursion into the work area.

5.7 Incident management

5.7.1 Part of the GG 182 requirements is the production of a Detailed Local Operating Agreement (DLOA) that includes establishing the roles and responsibilities for incident management, looking at incident identification, response, and recovery.

5.7.2 Incident management for the SRN would be managed under the DLOA whereby should an incident occur, the division of responsibilities with respect to the management and mitigation of the incident is clearly stated.

5.7.3 Incident management for the LRN would be primarily managed by the local highway authority. However, through the development of any local operating agreements, the provision of mutual aid will be considered.

5.7.4 In the event that no agreement can be reached on a DLOA, the Contractor delivering the works would set out the arrangements in its Traffic Management for the approval of the SoS.

5.7.5 The incident management process shall include contingency routing for road users and construction traffic where required.

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. The paragraphs below present the issues that would be considered while analysing the hazards during the construction works on the Project.

5.8.2 Consideration has been given to managing the risk of incursion on the network in accordance with 'Raising the Bar 27: Managing temporary traffic management incursions'. It is considered that the proposed TM measures on the network have the potential to increase the risk of incursion risk. The TMP would require the contractor to consider the measures identified in Table 5.2.

Table 5.2 Incursion risk management

Incursion risks	Proposed control/mitigation measures
Intentional incursion where. • The road user seeks to gain a benefit. • The road user is seeking information. • The road user is seeking refuge. Unintentional incursion where; • A road user follows a works vehicle into the works in error, also known as a 'follow in'. • A road user enters the works area as a result of confusion. • A road user enters the works area or traffic management as a result of a collision or to avoid a collision.	It is anticipated that the following mitigation measures could be used by the Contractor to minimise the opportunities for incursion as a result of driver error: • Use of 'Airlock' system for TM on full carriageway closures. • Workforce education on the safe access into the works area to prevent the likelihood of 'follow ins'. • Increased awareness of entry and exit points, achieved by the use of larger signs and more advance works access signs. • Works accesses not sited where the public could be misled. • Minimise road closures and diversions where practicable, and the suitability of the diversion is to be considered. The longer the diversion route the more likely frustrated motorists would be to attempt a vehicle incursion to avoid a lengthy detour. • Provision of suitable advance warning of closures including use of variable message signs. • Provision of temporary vehicle restraint barrier to reduce the likelihood of an unintentional incursion into the works area as a result of a road traffic collision. • Implement an effective recovery system with regular signing to inform the motorist that they will be recovered free of charge. • Provision of enhanced technology to assist in the identification of intentional incursions which will enable the enforcement of a road closure and allow for possible prosecution of offenders. This could include enhanced CCTV or body-worn cameras. • Strategically placed works vehicles with livery similar to that used by the Safety Camera Partnerships to add a deterrent to

Incursion risks	Proposed control/mitigation measures
	road users committing a wilful incursion into the work area. • Issue all TM operatives placed at entry points with working video recording equipment; to act as a deterrent and aid with enforcement. • Patrol traffic management at regular intervals for the duration of the works to identify areas of cones that have been displaced and may lead some motorists to enter the traffic management in error. • To enable the industry to monitor the effectiveness of the measures used to eliminate or reduce vehicle incursions, all incursions should be reported and entered onto the Airsweb system.

5.9 Emergency Diversion Routes

5.9.1 Emergency diversion routes for the LRN would be discussed and developed during in the Traffic Management Forum. In many instances the preferred emergency diversion route for a given road may change depending on nearby activity (e.g. works, events etc). It is therefore important to ensure the preferred diversion route is discussed and tested where such nearby works, or events are planned to take place.

5.9.2 Emergency diversion routes for the SRN are generally set out by the respective owner and operator. Similar to the LRN this would need to be checked by the operator to ensure the selected route is suitable considering any planned works or other activity on the diversion route.

5.9.3 Emergency diversion routes should be selected based on a number of parameters, namely, ensuring there are no planned works on the route which would restrict usage for the type of traffic envisaged.

6 Preliminary Works

6.1 Overview

6.1.1 Preliminary works are those that would be undertaken between the DCO being granted and commencement of construction as defined by the draft DCO. Article 2 of the draft DCO (Application Document 3.1) provides a definition of commencement and preliminary works. Refer to the CoCP (Section 3 for further information).

6.1.2 For ease of reference, this definition is included here: 'commence' means beginning to carry out any material operation (as defined in Section 56(4) (time when development begun) of the 1990 Act [The Town and Country Planning Act 1990]) forming part of the authorised development other than preliminary works. Preliminary works is defined as operations consisting of archaeological investigations and pre-construction ecological mitigation (including vegetation clearance), environmental surveys and monitoring, investigations for the purpose of assessing and monitoring ground conditions and levels, erection of any temporary means of enclosure, receipt and erection of construction plant and equipment for advanced compound areas, diversion and laying of underground apparatus (except any excluded utilities works) for advanced compound areas, vegetation clearance and accesses for advanced compound areas, and the temporary display of site notices or information and 'commencement' is to be construed accordingly.

6.1.3 The effect of this definition is that some works outside the scope of commencement can be carried out prior to the discharge of the requirements contained in this document. These works are described as preliminary works.

6.1.4 The preliminary works have been identified as works that may be carried out early in the construction programme and that would have negligible or relatively minor environmental impacts. Appendix A lists the envisaged traffic management measures including certain preliminary works (namely, to facilitate construction access). Other than those listed (which are deemed to have higher TM requirements then other preliminary activities) there may be further TM requirements. These are envisaged to largely be in the form of specific short-term measures (day(s)). These measures would be shared with the relevant LA as required and be subject to NRSWA.

6.1.5 The only preliminary works that can be undertaken, and their locations, are listed in the CoCP (Table 2.1).

6.1.6 These preliminary works shall be undertaken in accordance with industry good practice and relevant commitments in the REAC (see Table 3.2 in the CoCP which shows the REAC reference IDs relevant to preliminary works).

6.2 General principles applying to preliminary works

6.2.1 National Highways notes that the preliminary works, though relatively minor compared to the main works, may give rise to the need for traffic management measures. It should be noted that these works would be subject to other controls set out in the Development Consent Order (Application 3.1). This includes the preliminary works CoCP (see chapter [3] of the CoCP). In relation

to traffic management, this includes the use of existing permit schemes (see XYZ), the need for approvals in respect of traffic management measures under articles 12, and 17.

6.2.2 Nonetheless, in order to provide further comfort, Requirement 10 of Schedule 2 to the DCO requires compliance with this chapter of the oTMPfC in relation to the preliminary works. This chapter sets out a number of traffic management measures and controls which will apply to the preliminary works.

6.3 Traffic management measures & controls for preliminary works

6.3.1 This document informs the TMP which would be developed by the Contractor. The below table summarises the commitments within the document which would need to be adhered to for the preliminary works.

Category	Commitment
Traffic Manager role	National Highways would appoint a Traffic Manager whose role would be to ensure that any traffic management required by the Project is planned, delivered, and managed collaboratively, and in adherence to the commitments of the TMP
Traffic management	The Contractor will support interventions and/or changes to traffic management measures required to ensure that disruption is kept to a minimum, at the time of planning, and will identify where continuous improvements need to be implemented.
Management of public rights of way	The management of PRoWs, with respect to their short-term closure and/or diversion, will be done following engagement with the relevant local authority in accordance with the terms of the DCO. Depending on footfall/likely usage, and length and suitability of an alternative route, it will be determined whether a temporary diversion is required and what route it will follow. The DCO will include a requirement that for temporary closures, restrictions, and alterations of streets, there must be a reasonable access for pedestrians going to or from premises abutting a street, or private means of access if there would otherwise be no such access.
Community engagement	National Highways will develop an Engagement and Communications Plan (ECP) that outlines the objectives and processes for engagement and communications with stakeholders.
Community engagement	The Contractors will engage with the local community, particularly focusing on those who may be impacted by the construction, including local residents, businesses and landowners.
Community engagement	The Engagement and Communications Plans will provide a programme of community engagement such as, but not limited to, community drop-in sessions, one-on-one meetings, newsletters and leaflet drops (explaining forthcoming works)
Community engagement	At least two weeks before works being are carried out, Contractors will distribute information sheets detailing expected disruptions and measures being taken to avoid or minimise adverse impacts of the works.
Community engagement	The National Highways Customer Contact Centre will be used to deal with enquires and complaints from the public. This consists of a phone

Category	Commitment
	line, email and website facility. The information line is staffed by Highways England 24 hours a day, seven days a week. The response time for enquiries is 10 working days. The contact number, email and website addresses for the Customer Contact Centre will be displayed on signs adjacent to the construction areas that are clearly visible to the pedestrians and the travelling public.
Traffic Management Forums	The TMF would be established following the granting of the DCO and would be held monthly.
Traffic Management Forums	The Traffic Management Forum would consist of the main works Contractors, utility companies, local authorities, statutory bodies, local highway authorities, public transport operators, emergency services, Highways England maintenance providers and any other affected stakeholders depending on the planned construction phases.
Traffic Management Forums	Two TMFs would be established (roads in Kent and roads north of the Thames) both chaired by the Traffic Manager and would have attendees from the roads and tunnels contractors in each respective area.
Abnormal Loads	Abnormal traffic movements may occur outside of standard working hours. These movements will be discussed with the relevant authority as required and carried out in a way such that will reduce the impact on the local area. Abnormal load routes would be assessed prior to utilisation between the SRN and delivery destination would be assessed prior to use to ensure their routes are suitable. In some cases, temporary modification of the existing road or road assets may be required to accommodate the abnormal load. These temporary modification works would be discussed with the relevant authority as required.
Safety measures	The traffic management will be designed in accordance with the requirements of the Department for Transport DfT Traffic Signs Manual documents and Highways England's document 'Roadworks - A Customer View' which outlines the customer principles that Highways England expects to be applied to roadworks.
Safety measures	Where traffic signals or similar are required to facilitate construction movements such as access to compounds and construction vehicle crossing points, they will be locally controlled to ensure that the LRN has priority in terms of traffic movements where reasonable. Additionally, when not required operationally the traffic signals will be turned off.
Speed limits	LRN speed limits will be retained subject to the outcomes of discussions with local highway authorities
Duration/extent of traffic management	Where it is intended for roadworks to be left in place for defined periods without any construction works being undertaken, e.g. a weekend, the Contractors shall assess whether it is reasonably practicable and safe to remove the traffic management equipment during this period.
Local Impact	The Contractor would adhere to the proposed HGV restrictions as set out in Table 4.4.
Local Impact	The Contractor will ensure consideration to localised impacts, in accordance with Table 2.3, is given where necessary.

7 Summary

7.1.1 This document is the Outline Traffic Management Plan for Construction for the Project.

7.1.2 The document is designed to provide a framework to the Traffic Management Plan (as developed by the Contractor).

7.1.3 The document lists stakeholder considerations which the TMP would address.

7.1.4 The principles set out in this document are intended to outline the proposed process with regards to traffic management including collaborative working, permitting, local agreements and traffic management planning.

7.1.5 The document outlines National Highways roles and responsibilities and the establishment of the TMF.

7.1.6 The document outlines the illustrative traffic measures for the Project. These measures have been used for assessment purposes within the DCO.

7.1.7 The document outlines proposed restrictions the TMP would consider.

7.1.8 The document outlines other factors for consideration in the TMP including management of PRoWs, adjacent works, drivers, incidents and incursion risk.

References

Highways England (2020). Design Manual for Roads and Bridges, GG 182 Major schemes: Enabling handover into operation and maintenance. Revision 1. Accessed May 2021. https://www.standardsforhighways.co.uk/dmrb/search/8027744b-971d-4ca7-ba6d-cf8fd03201af.

Department for Transport and Highways Agency (2009). Traffic Signs Manual Chapter 8 – Traffic Safety Measures and Signs for Road Works and Temporary Situations. Accessed May 2021. https://www.gov.uk/government/publications/traffic-signs-manual

Raising the Bar 27: Managing temporary traffic management incursions' https://www.gov.uk/government/collections/health-and-safety-for-major-road-schemes-raising-the-bar-initiative

Glossary

Term	Acronym	Explanation
M25 Motorway	**M25**	Orbital motorway that encircles most of Greater London.
Customer relationship	**CRM**	
Construction Area	**CA**	Construction area or compound area
Development Consent Order	**DCO**	Means of obtaining permission for developments categorised as Nationally Significant Infrastructure Projects (NSIP) under the Planning Act 2008.
Heavy Goods Vehicle	**HGV**	A large, heavy motor vehicle used for transporting cargo.
Light Goods Vehicle	**LGV**	Vehicles meeting the Department for Transport VEH04 criteria.
Public Right of Way	**PRoW**	A right possessed by the public to pass along routes over land at all times. Although the land may be owned by a private individual, the public may still gain access across that land along a specific route. The mode of transport allowed differs according to the type of Public Right of Way, which can consist of footpaths, bridleways and open and restricted byways.
Traffic Management	**TM**	National Highways' Traffic Management (directorate)
Traffic Management Plan for Construction	**TMP**	A plan setting out the strategy and measures to be adopted with respect to highway and transportation issues for the Project. The TMP supports the DCO application and would be embedded within the eventual construction contractor documentation and will form an overarching and comprehensive management procedure for the Contractor to adhere to.
Outline Traffic Management Plan for Construction	**oTMPfC**	Outline version of the TMP, setting out the requirements of the TMP
Secretary of State	**SoS**	The Secretary of State has overall responsibility for the policies of the Department for Transport.
Code of Construction Practice	**CoCP**	Contains control measures and standards to be implemented by the Project, including those to avoid or reduce environmental effects.
Local road network	**LRN**	
Strategic road network	**SRN**	The core road network in England managed by National Highways.
High Speed 1	**HS1**	A 109km high-speed railway between London and the UK end of the Channel Tunnel. The line carries international passenger traffic between the UK and continental Europe; it also carries domestic passenger traffic to and from stations in Kent and east London, as well as Berne gauge freight traffic.

Term	Acronym	Explanation
Network Occupancy Management System	**NOMS**	Highways England process for controlling its own and third party works on its road network.
New Roads and Street Works Act 1991	**NRSWA**	Code of practice for the coordination of street works and works for road purposes and related matters
Detailed Local Operating Agreement	**DLOA**	Detailed local operating agreement sets out the responsibilities for all parties involved in the delivery of a scheme
Design Manual for Roads and Bridges	**DMRB**	A comprehensive manual which contains requirements, advice and other published documents relating to works on motorway and all-purpose trunk roads for which one of the Overseeing Organisations (National Highways, Transport Scotland, the Welsh Government or the Department for Regional Development (Northern Ireland)) is the highway authority. For the A122 Lower Thames Crossing, the Overseeing Organisation is National Highways.
Traffic Management Forum	**TMF**	A traffic management forum consisting of the main works Contractors, utility companies, local authorities, local highway authorities, public transport operators, emergency services, National Highways maintenance providers and any other affected stakeholders depending on the planned construction phases
Main works Contractors	**MWC**	The appointed contractor(s) for the main works
Local highway authority	**LHA**	The relevant highway authority responsible for the local area

Appendices

Appendix A TTM Measures

A.1 Proposed traffic management measures

A.1.1 This section lists the illustrative traffic management measures across the Project (excluding hard-shoulder closures for access and localised highway gantry works on the SRN). The list is intended to be extensive however may not capture every measure required across the Project. That being said, those potentially not listed are very likely to be localised and short-term in nature (overnight and/or weekend or similar measures).'

A.1.2 Each traffic management measure is shown illustratively on a drawing. The drawings show the approximate location and extent of the measure as well as the ID. The drawing also shows whether the TM is short term (yellow - generally days to weeks), long term (black - generally months to years) or other (green - a different type of TM/duration e.g. permanent closure of a section)

A.1.3 The corresponding tables in this section have six columns:

a. TM ID – reference for each traffic measure (aligned to respective drawing).

b. Name – name of road or road section.

c. Type – type of traffic management measures which include:

   i. Closure – full carriageway closure of road (in some cases nights/weekends are opted for as traffic levels are generally lower thereby traffic impacts are reduced).

   ii. Contraflow – typically two-way traffic lights closing one half of the road.

   iii. Crossing point – where the haul routes bisect the local road network thereby requiring a crossing point to maintain flow for construction vehicles and public traffic (typically traffic lights).

   iv. Lane closure – single lane closure on given road.

   v. Narrow lanes – maintaining same number of lanes (unless coupled with another measure) but with narrower lanes (generally on the SRN network with associated reduced speed limits).

   vi. Switchover – where the alignment of the road is temporarily or permanently moved from one road alignment to another road alignment. The switchovers to temporary alignments are not envisaged to add more than a couple of minutes to the journey time (e.g. the road may need to be realigned to go around the overbridge works thereby increasing the length of the road by a few hundred metres). The

switchovers to permanent alignments denote switching over to the proposed permanent alignment.

vii. Lane restrictions – exact traffic management measure is not yet known but it is likely that traffic flow would be maintained (i.e. the road would not be closed) however some restriction may be in place.

d. Description – very brief description of measure and works.

e. Estimated duration – the estimated duration the measure is in place for. Note where the duration is nights/weekends, this means the work would be carried out over a night or weekend (e.g. a night could mean 10pm-6am but would be determined via traffic counts and discussion with the relevant LA). Is some cases multiple nights or weekends would be required during the construction period.

f. Phase – this has been provided to give an indication of when the measure would take place within the construction period. It should be noted that this information has been derived from the Project's transport model. This analysis simplified the construction programme into 11 phases. As a result, not all of the proposed traffic management measures align directly with a phase (e.g. a measure may be proposed for five months, but may be most closely aligned to a phase that lasts seven months, or vice versa).

A.1.4 Table A.1 shows the construction traffic phases created to model the proposed traffic management measures.

Table A.1 Traffic model phases

Traffic Model Phases			
	From	**To**	**Months**
Phase 1	Jan-25	Aug-25	8
Phase 2	Sep-25	Feb-26	6
Phase 3	Mar-26	May-26	3
Phase 4	Jun-26	Oct-26	5
Phase 5	Nov-26	Mar-27	5
Phase 6	Apr-27	Aug-27	5
Phase 7	Sep-27	Mar-28	**7**
Phase 8	Apr-28	Nov-28	**8**
Phase 9	Dec-28	Mar-29	**4**
Phase 10	Apr-29	Jul-29	**4**

Traffic Model Phases			
	From	**To**	**Months**
Phase 11	Aug-29	Dec-30	**17**

A.1.5 Plate A.1 to Plate A.2 (2 images) depict the approximate location and extents of the traffic management measures that are envisaged to be required on the road network for roads elements south of the River Thames. Each traffic management measure has an associated ID, shown on the plates. Table A.2 (one image) gives information for each of the traffic management measures relating to the roads south elements including the ID, name of the road/element, the type of traffic management measure, a brief description, the approximate duration of the measure and the construction traffic modelling phase it is assigned to within the construction assessment in the Project's transport model.

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Plate A.1 Roads South traffic management measures location plan (1 of 2)

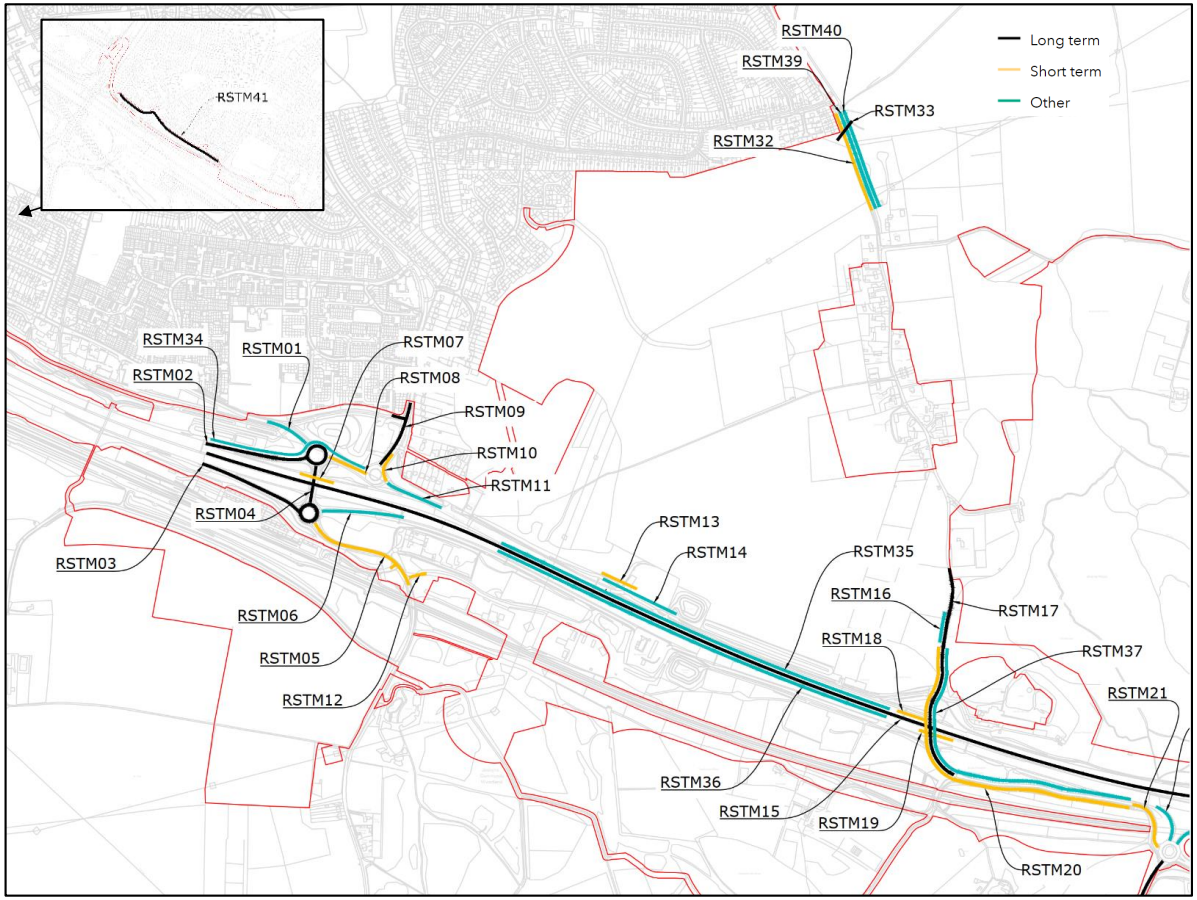

Plate A.2 Roads South traffic management measures location plan (2 of 2)

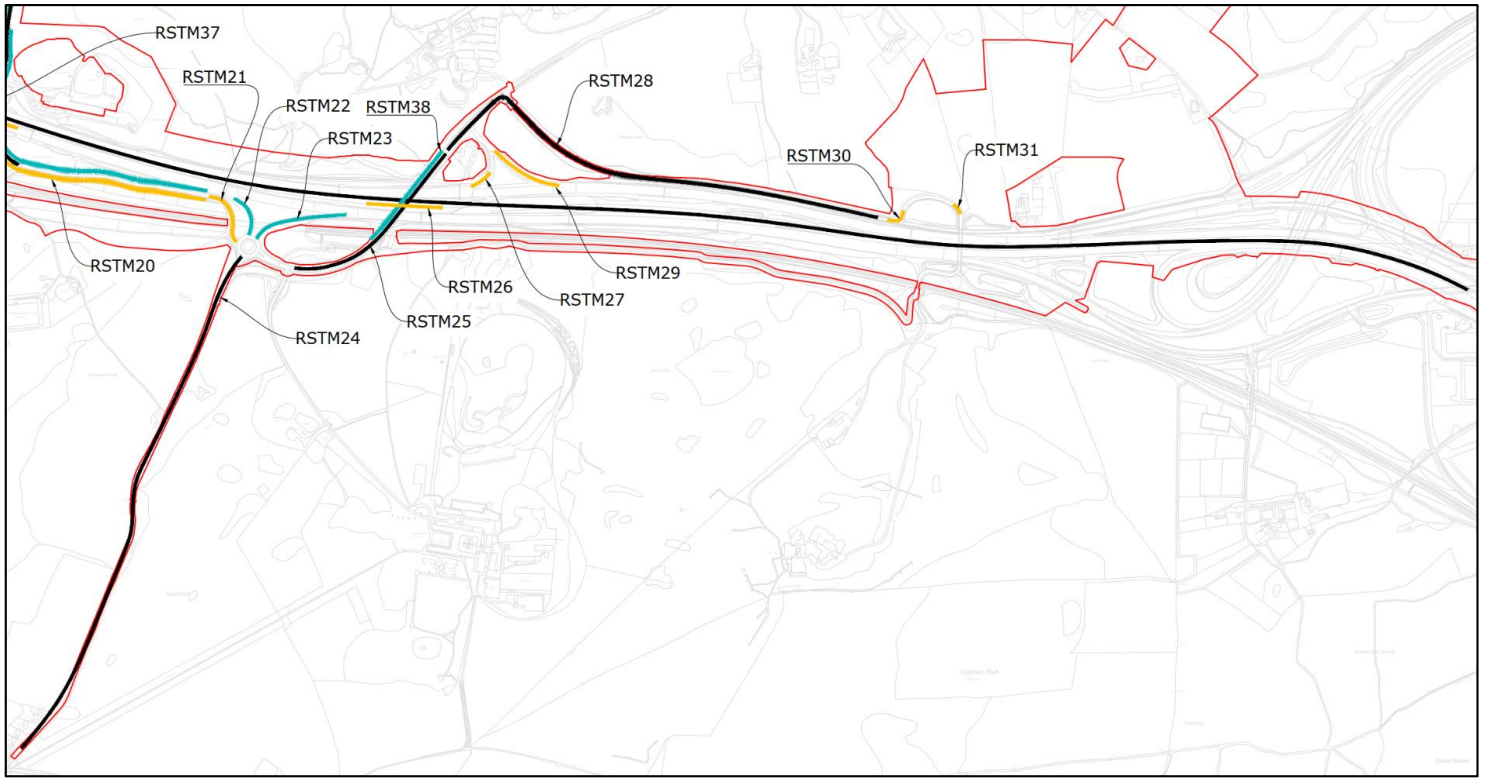

Table A.2 Roads South traffic management measures

TM ID	Name	Type	Description	Duration	Phase
RSTM01	Hever Ct Rd	Closures & lane restrictions	Carry out nearby works & modifications to local utility networks	2 Weeks	1
RSTM02	Gravesend East Junction (North)	Lane restrictions	Carry out nearby works & modifications to local utility networks	9 Months	1
RSTM03	Gravesend East Junction (South)	Lane restrictions	Carry out nearby works	14 Months	1,2
RSTM04	Gravesend East Junction (Bridge)	Lane restrictions	Carry out bridge widening & modifications to local utility networks	4 Months	1
RSTM05	Henhurst Rd	Closures & lane restrictions	Carry out nearby works & modifications to local utility networks	Nights/Weekends	All
RSTM06	A2WB Off-Slip	Closure	Perm closure to new alignment	Nights/Weekends	All
RSTM07	A2	Closure	Bridge widening works	Nights/Weekends	All
RSTM08	Hever Ct Rd	Closure	Carry out nearby works & modifications to local utility networks	Nights/Weekends	All
RSTM09	Valley Drive	Contraflow	Modifications to local utility networks	6 Months	1
RSTM10	Valley Drive	Lane closure	Carry out nearby works & modifications to local utility networks	Nights/Weekends	All
RSTM11	A2EB On-Slip	Closure	Perm closure to new alignment & modifications to local utility networks	Nights/Weekends	All
RSTM12	Access	Closure	Carry out nearby works & modifications to local utility networks	Nights/Weekends	All
RSTM13	A2	Closure	New bridge works & modifications to local utility networks	Nights/Weekends	All
RSTM14	A2EB	HS closure	Construction access works & modifications to local utility networks	2 Weeks	1
RSTM15	A2	Narrow lanes, 50mph	Carry out nearby works & modifications to local utility networks	24 Months	6,7,8,9, 10
RSTM16	Thong Lane	Contraflow	Construction access works & modifications to	1 Week	1

TM ID	Name	Type	Description	Duration	Phase
			local utility networks & installation of temporary connections for A2 compound		
RSTM17	Thong Lane	Contraflow	Modifications to local utility networks	2 Months	1
RSTM18	A2	Closure	New bridge works & modifications to local utility networks	Nights/Weekends	All
RSTM19	A2	Closure	Bridge demolition works & modifications to local utility networks	Nights/Weekends	All
RSTM20	Thong Lane	Closure	Carry out nearby works & modifications to local utility networks	Nights/Weekends	All
RSTM21	Thong Lane	Closure	Carry out nearby works & modifications to local utility networks	Nights/Weekends	All
RSTM22	A2WB On-Slip	Perm Closure	Perm closure to new alignment & modifications to local utility networks	N/A	All
RSTM23	A2WB Off-Slip	Perm Closure	Perm closure to new alignment & modifications to local utility networks	N/A	All
RSTM24	HalfPence Lane	Contraflow (300m sections)	Modifications to local utility networks	6 Months	1
RSTM25	Brewers Rd	Closure	Bridge works & modifications to local utility networks	19 Months	6,7,8
RSTM26	A2	Closure	Bridge demolition works	Nights/Weekends	All
RSTM27	A2EB Off-Slip	Closure	Carry out nearby works	Nights/Weekends	All
RSTM28	Brewers Rd & Park Pale	Contraflow	Modifications to local utility networks	6 Months	2,3
RSTM29	A2EB On-Slip	Closure	Carry out nearby works	Nights/Weekends	All
RSTM30	Park Pale	Closure	Carry out nearby works & modifications to local utility networks	Nights/Weekends	All
RSTM31	Park Pale	Contraflow	Carry out nearby works & modifications to local utility networks	Nights/Weekends	All
RSTM32	Thong Lane	Closure	Bridge works & modifications to local utility networks	Nights/Weekends	All

TM ID	Name	Type	Description	Duration	Phase
RSTM33	Thong Lane	Crossing Point	Allow construction vehicles to cross	Until access under overbridge	1,2,3,4,5,6,7
RSTM34	Gravesend East Junction (Northern Section)	Switchover	Switch to permanent alignment	Weekend	1
RSTM35	A2EB	Switchover	Switch to permanent alignment (maintaining No. of lanes)	Weekend	6
RSTM36	A2WB	Switchover	Switch to permanent alignment (maintaining No. of lanes)	Weekend	8
RSTM37	Thong Lane (Over A2)	Switchover	Switch to permanent alignment	Weekend	9
RSTM38	Brewers Road	Switchover	Switch to permanent alignment	Weekend	8
RSTM39	Thong Lane (Over A122)	Switchover	Switch to temp alignment	Weekend	4
RSTM40	Thong Lane (Over A122)	Switchover	Switch to permanent alignment	Weekend	7
RSTM41	Pepper Hill & Roman Rd	Contraflow (300m) or narrow lanes	Modifications to local utility network	1 Month	1

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A.1.6 Plate A.3 and Plate A.4 depict the approximate location and extents of the traffic management measures that are envisaged to be required on the road network for tunnel elements. Each traffic management measure has an associated ID, also shown on the plates. Table A.3 gives information for each of the traffic management measures relating to the tunnel elements including the ID, name of the road/element, the type of traffic management measure, a brief description, the approximate duration of the measure and the construction traffic modelling phase it is assigned to within the construction assessment in the Project's transport model.

Plate A.3 Tunnel traffic management measures location plan (1 of 2)

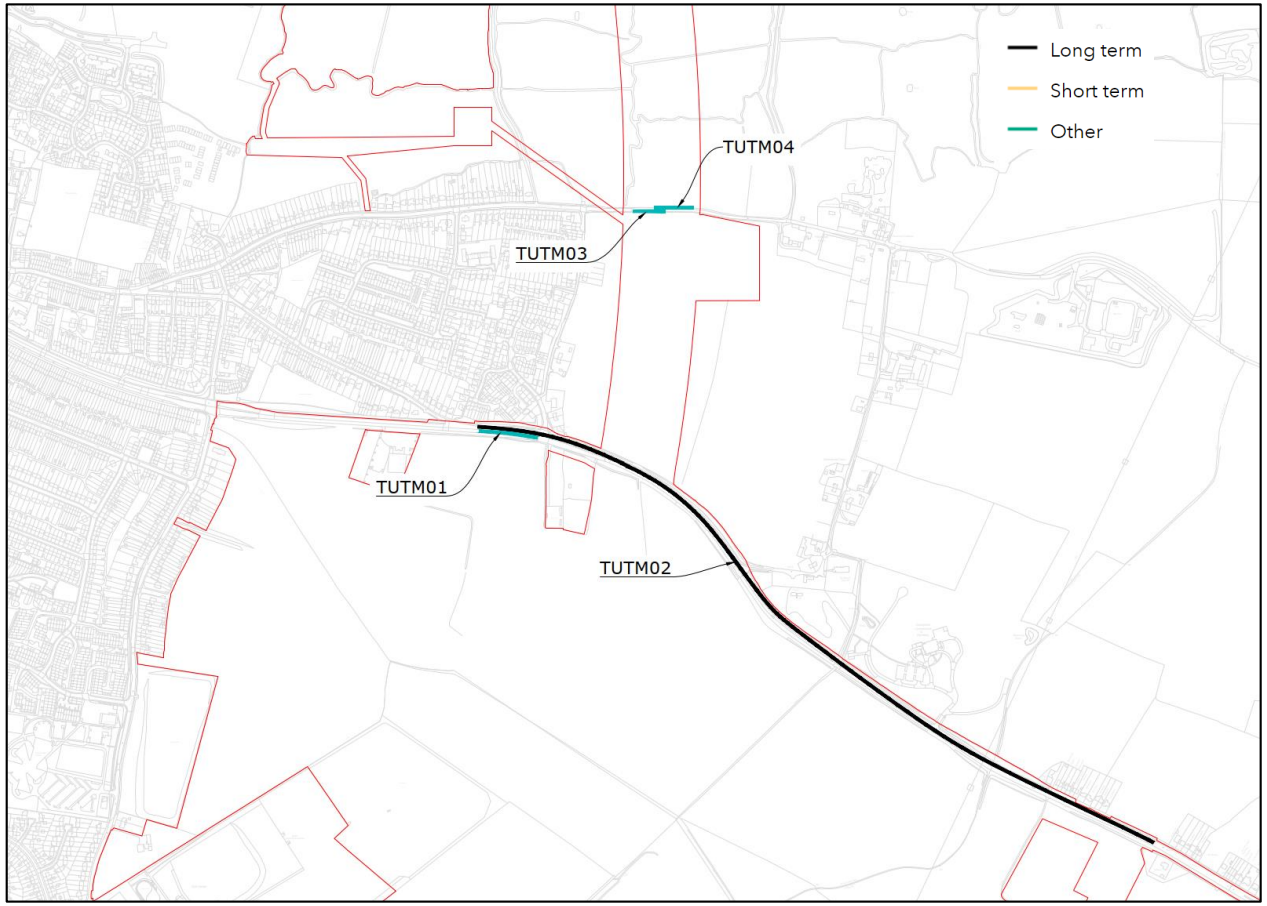

Plate A.4 Tunnel traffic management measures location plan (2 of 2)

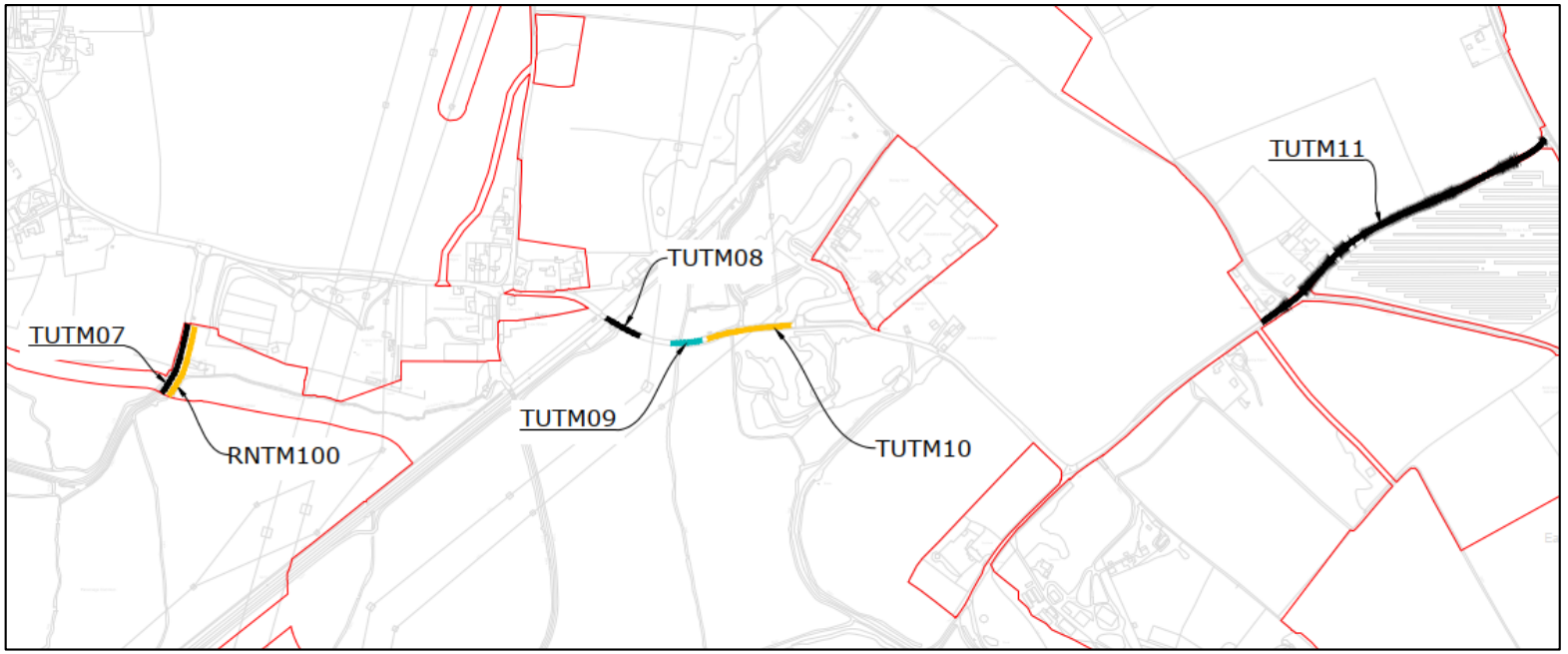

Table A.3 Tunnel traffic management measures

TM ID	Name	Type	Description	Duration	Phase
TUTM01	A226	Contraflow	Construction access works & modifications to local utility networks & installation of temporary connections for Southern tunnel entrance and A226 Gravesend Road compounds	4 Weeks	1
TUTM02	A226	Contraflow (300m sections)	Modifications to local utility networks	9 Months	2,3
TUTM03	Lower Higham Rd	Contraflow	Construction access works & modifications to local utility networks	2 Weeks	1
TUTM04	Lower Higham Rd	Contraflow	Modifications to local utility networks	2 Weeks	1
TUTM07	Cooper Shaw Road	Contraflow (50m)	Modifications to local utility networks	1 Month	1
TUTM08	Station Rd	Contraflow (150m sections)	Modifications to local utility networks & installation of temporary connections for Northern tunnel entrance compound	1 Month	1
TUTM09	Station Rd	Contraflow	Construction access works & modifications to local utility networks & installation of temporary connections for Northern tunnel entrance compound connections	4 Weeks	1
TUTM10	Station Rd	Contraflow	Carry out nearby works & removal of OHL equipment	Nights/Weekends	All
TUTM11	Love Lane/Princess Margaret Rd/Station Rd	Contraflow (300m sections)	Installation of temporary connections for Station Road compound	2 Months	3

A.1.7 Plate A.5 to Plate A.11 (seven images) depict the approximate location and extents of the traffic management measures that are envisaged to be required on the road network for roads elements north of the river. Each traffic management measure has an associated ID, also shown on the plates. Table A.4 give information for each of the traffic management measures relating to the

roads north elements including the ID, name of the road/element, the type of traffic management measure, a brief description, the approximate duration of the measure and the construction traffic modelling phase it is assigned to within the construction assessment in the Project's transport model.

Plate A.5 Roads North traffic management measures location plan (1 of 8)

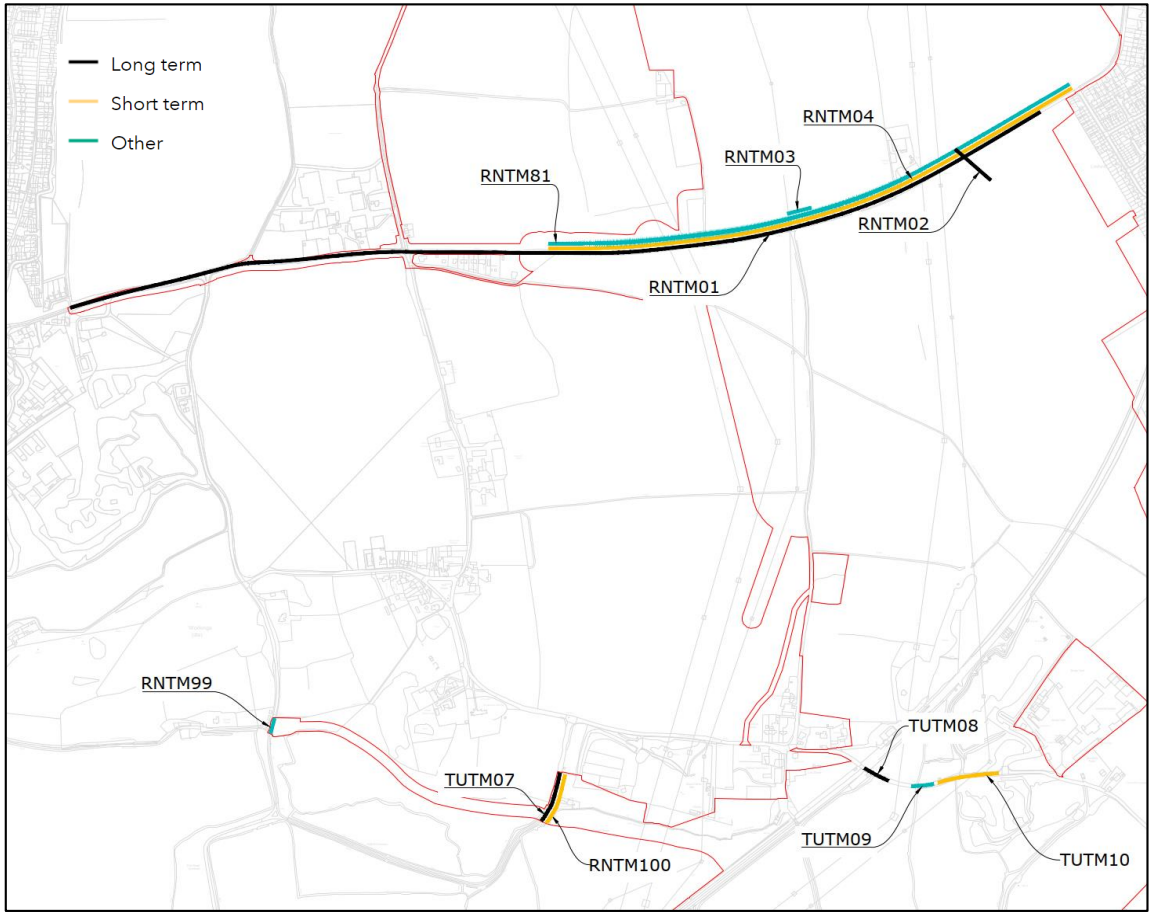

Plate A.6 Roads North traffic management measures location plan (2 of 8)

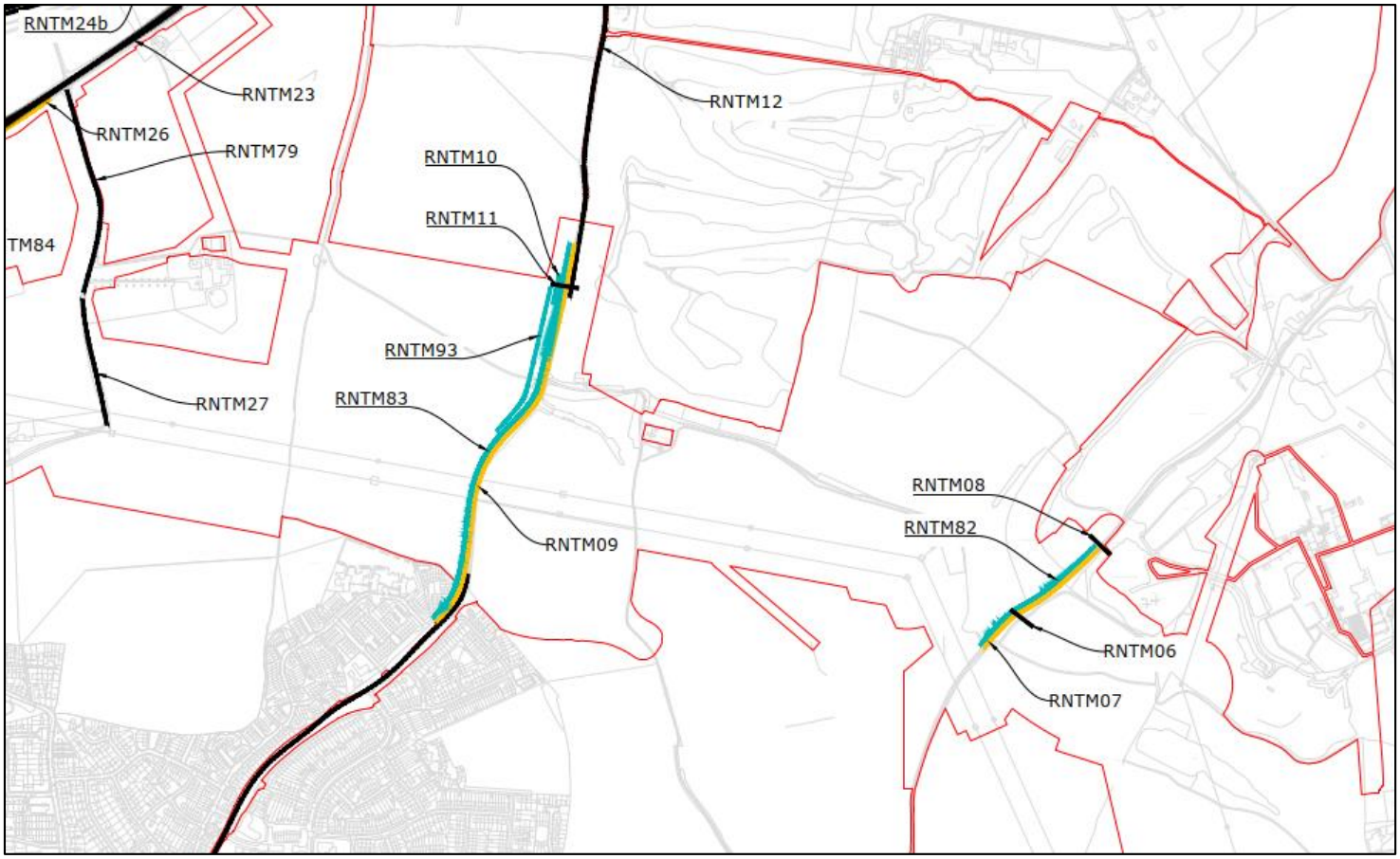

Plate A.7 Roads North traffic management measures location plan (3 of 8)

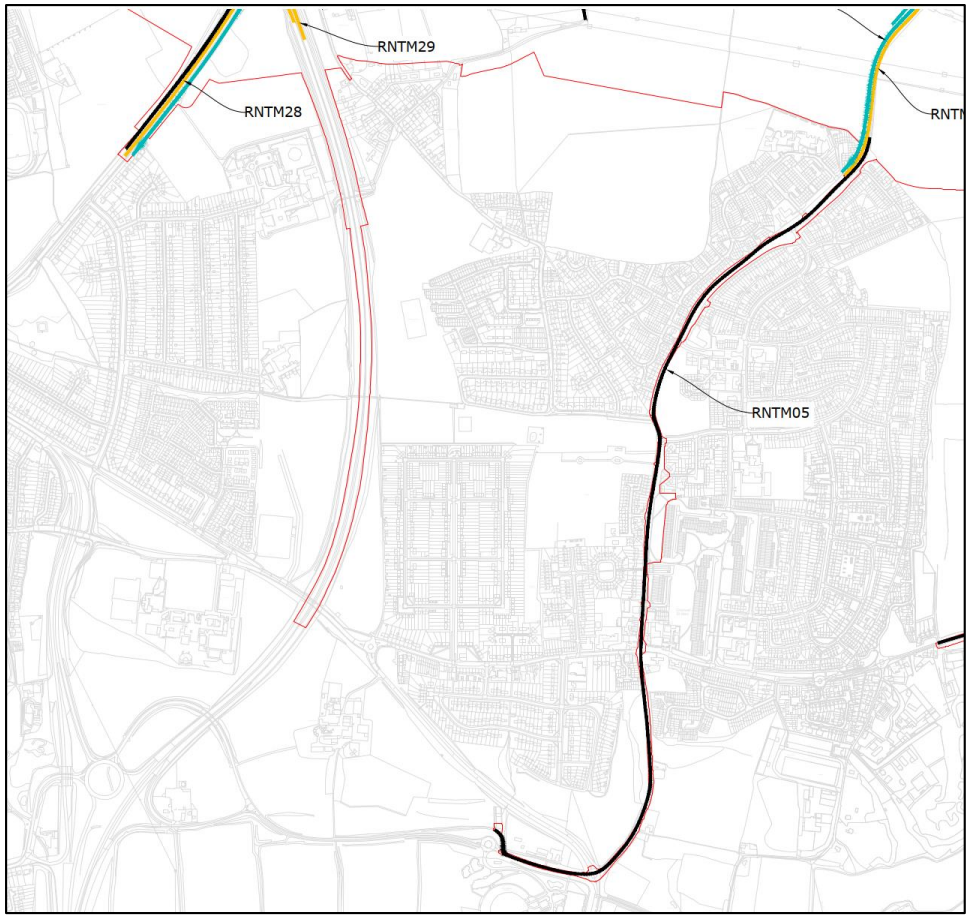

Plate A.8 Roads North traffic management measures location plan (4 of 8)

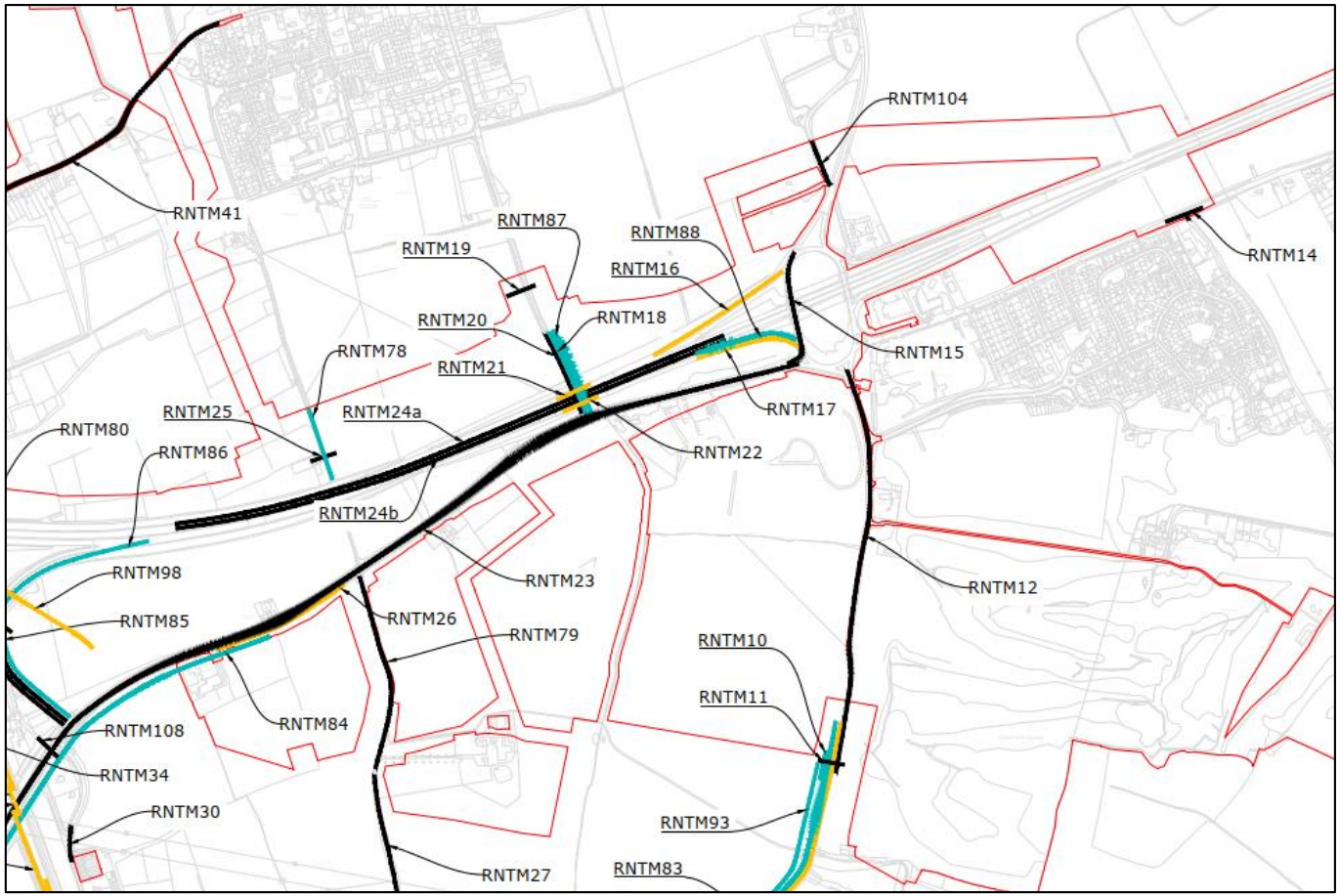

Plate A.9 Roads North traffic management measures location plan (5 of 8)

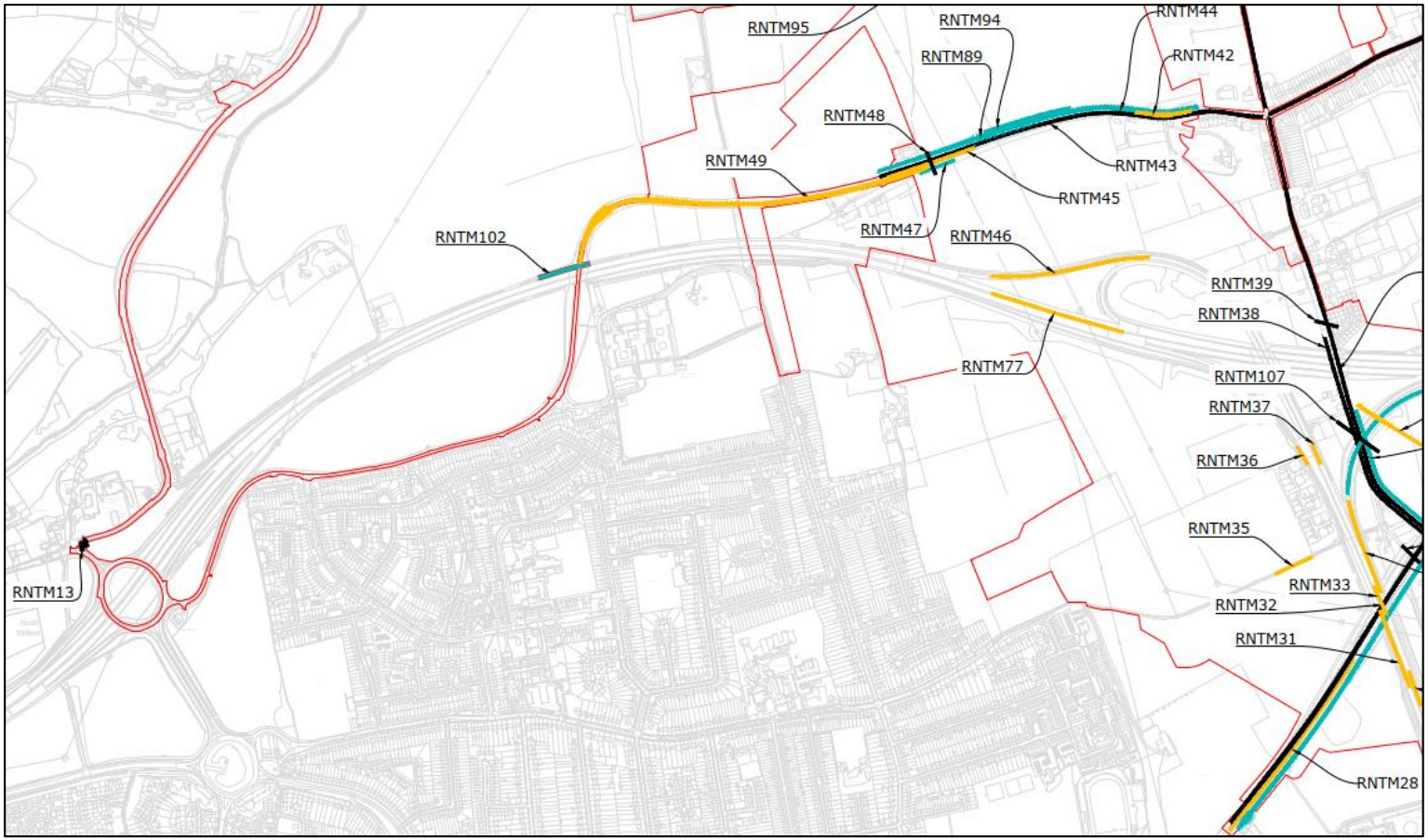

Plate A.10 Roads North traffic management measures location plan (6 of 8)

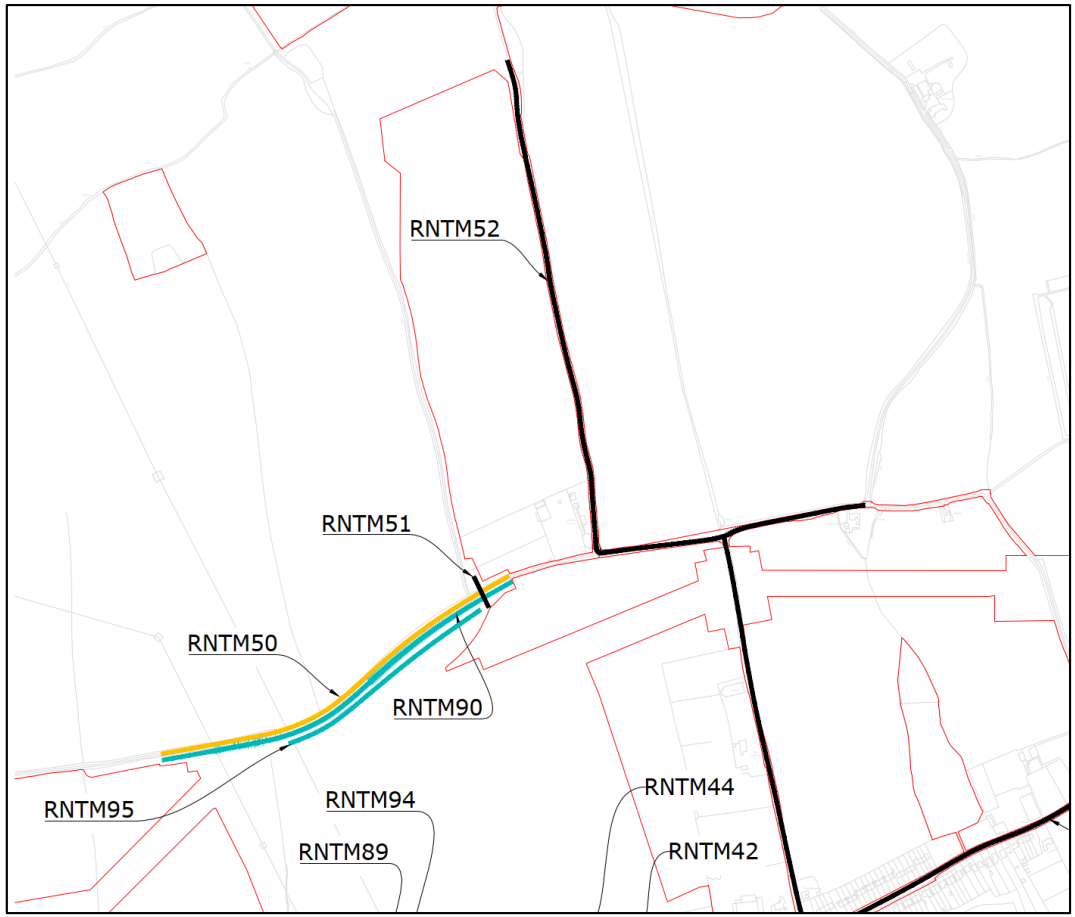

Plate A.11 Roads North traffic management measures location plan (7 of 8)

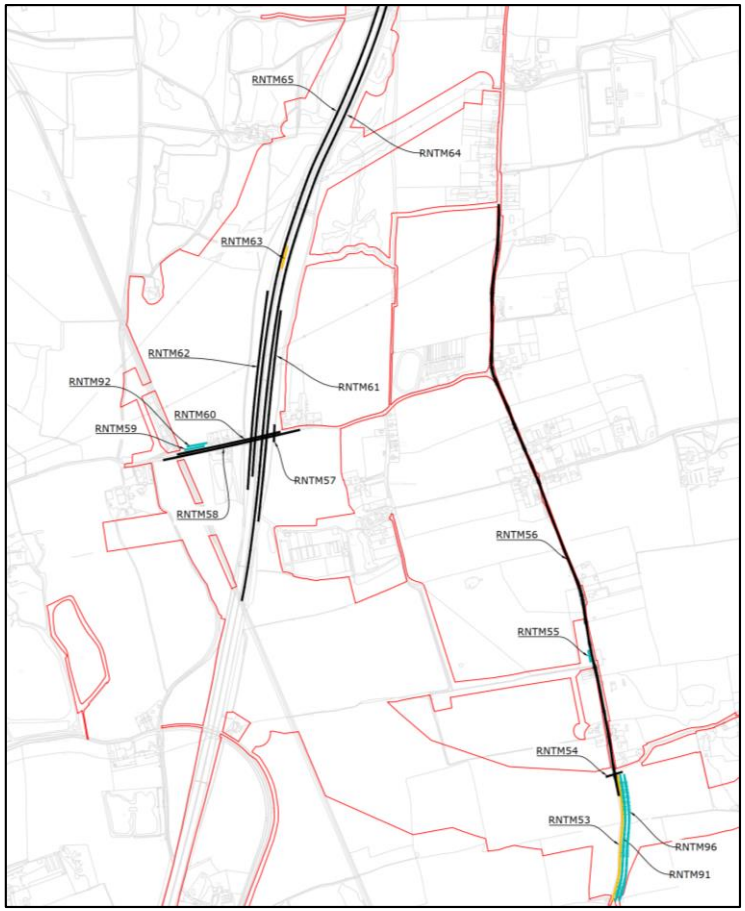

Plate A.12 Roads North traffic management measures location plan (8 of 8)

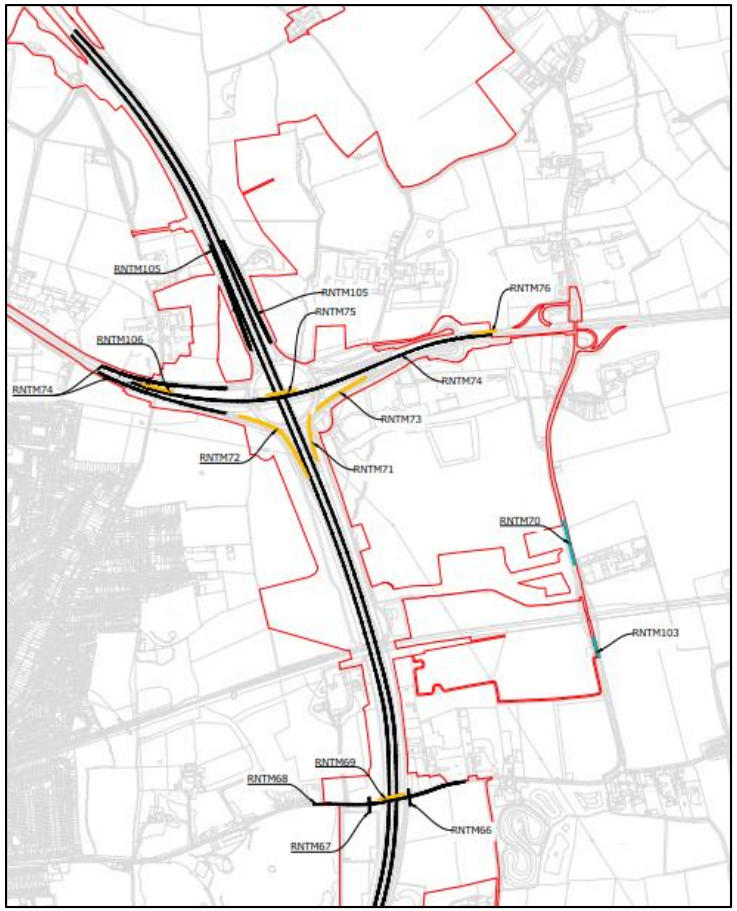

Table A.4 Roads North traffic management measures (1 of 3)

TM ID	Name	Type	Description	Duration	Phase
RNTM01	Muckingford Rd	Contraflow (300m sections)	Carry out nearby works & modifications to local utility networks	6 Months	3,4
RNTM02	Muckingford Rd	Crossing Point	Allow construction vehicles to cross	Until access under overbridge	1,2,3,4
RNTM03	Muckingford Rd	Contraflow	Construction access works & modifications to local utility networks	1 Week	1
RNTM04	Muckingford Rd	Closure	Bridge works & modifications to local utility networks	Nights/Weekends	All
RNTM05	Marshfoot Rd/Chadwell Hill/Brentwood Rd	Contraflow (300m sections)	Installation of new electricity network for Brentwood Road to Mardyke compound	12 Months	1,2
RNTM06	Hoford Rd	Crossing Point	Allow construction vehicles to cross	Until access under overbridge	1,2,3,4, 5,6
RNTM07	Hoford Rd	Closure	Bridge works & modifications to local utility networks	Nights/Weekends	All
RNTM08	Hoford Rd	Crossing Point	Allow construction vehicles to cross	Until access under overbridge	1,2,3,4, 5,6
RNTM09	Brentwood Rd	Closure	Bridge works & modifications to local utility networks & installation of temporary connections for Brentwood Road compound	Nights/Weekends	All
RNTM10	Brentwood Rd	Contraflow	Construction access works & installation of temporary connections for Brentwood Road compound	4 Weeks	1
RNTM11	Brentwood Rd	Crossing Point	Allow construction vehicles to cross	Until access under overbridge	1,2,3,4, 5,6

TM ID	Name	Type	Description	Duration	Phase
RNTM12	Brentwood Rd	Contraflow (300m sections)	Modifications to local utility networks & installation of temporary compound connections	6 Months	1
RNTM13	Medebridge Rd	Lane restrictions	Install traffic measures for construction vehicles	4 Months	1
RNTM14	A1013	Contraflow	Construction of a new permanent access & modifications to local utility networks	1 Month	1
RNTM15	Orsett Cock Rbt	Lane restrictions	Temporary modifications to local utility networks	1 Month x 2	3, 10
RNTM16	A13EB Off-Slip	Closure	Carry out nearby works	Nights/Weekends	All
RNTM17	A13WB On-Slip	Closure	Carry out nearby works	Nights/Weekends	All
RNTM18	Rectory Rd	Closure	Installation of new high pressure gas pipeline	2 weeks	2
RNTM19	Rectory Rd	Crossing Point	Allow construction vehicles to cross	Until access under overbridge	1,2,3,4,5,6,7,8,9
RNTM20	Rectory Rd	Closure	Bridge works	7 Months	9
RNTM21	A13	Closure	Bridge works	Nights/Weekends	All
RNTM22	A13	Closure	Bridge demolition works & modifications to local utility networks	Nights/Weekends	All
RNTM24a	A13EB	Narrow lanes, 60mph	Carry out nearby works	3 Months	10
RNTM24b	A13WB	Narrow lanes, 60mph	Carry out nearby works	3 Months	9
RNTM25	Mill Lane	Crossing Point	Allow construction vehicles to cross	Until A13EB tie in works	1,2,3,4,5,6,7,8,9,10
RNTM26	A1013	Closure	Carry out nearby works & modifications to local utility networks & installation of temporary connections for Stanford Road compound	Nights/Weekends	All
RNTM27	Hornsby Lane	Perm closure	Perm closure to new alignment &	N/A	1,2,3,4,5,6,7,8,9,10,11

TM ID	Name	Type	Description	Duration	Phase
			modifications to local utility networks		
RNTM28	A1013	Closure	Carry out nearby works	Nights/Weekends	All
RNTM29	A1089SB	Lane Closure	Carry out nearby works	Nights/Weekends	All
RNTM30	Heath Road	Lane restrictions	Carry out nearby works & modifications to local utility networks	1 Month	5
RNTM31	A1089NB	Lane closure	Carry out nearby works	Nights/Weekends	All
RNTM32	A1089	Closure	Bridge demolition works & removal of OHL equipment	Nights/Weekends	All
RNTM33	A1089	Closure	Bridge works & removal of OHL equipment	Nights/Weekends	All
RNTM34	A13WB to A1089SB	Closure	Carry out nearby works	Nights/Weekends	All
RNTM35	Long Lane	Closure	Carry out nearby works & modifications to local utility networks & installation of temporary connections for Long Lane compounds	Nights/Weekends	All
RNTM36	A1089NB Off-Slip to A13WB	Closure	Bridge works	Nights/Weekends	All
RNTM37	A1089	Closure	Bridge works	Nights/Weekends	All
RNTM38	Baker Street	Closure	Carry out nearby works	9 Months	3,4
RNTM39	Baker Street	Crossing Point	Allow construction vehicles to cross	Until A13EB tie in works	1,2,3,4,5,6,7,8,9,10
RNTM41	High Road	Contraflow (300m sections)	Modifications to local utility networks & installation of temporary connections for Stifford Clays road compounds (east and west)	6 Months	1
RNTM42	Stifford Clays Rd	Closure	Carry out nearby works & modifications to local utility networks & installation of temporary connections for Stifford Clays road compounds (east and west)	Nights/Weekends	All

TM ID	Name	Type	Description	Duration	Phase
RNTM43	Stifford Clays Rd	Contraflow (300m sections)	Modifications to local utility networks & installation of temporary connections for Stifford Clays road compounds (east and west)	4 Months	1
RNTM44	Stifford Clays Rd	Contraflow	Construction access works & modifications to local utility networks & installation of temporary connections for Stifford Clays Road compounds (east and west)	2 Weeks	1
RNTM45	Stifford Clays Rd	Closure	Carry out nearby works & modifications to local utility networks	Nights/Weekends	All
RNTM46	A13EB Off-Slip to A1089SB	Closure	Carry out nearby works & modifications to local utility networks	Nights/Weekends	All
RNTM47	Stifford Clays Rd	Contraflow	Construction access works & modifications to local utility networks	1 Week	1
RNTM48	Stifford Clays Rd	Crossing Point	Allow construction vehicles to cross	Until access under overbridge	1,2,3,4,5,6,7
RNTM49	Stifford Clays Rd	Contraflow (300m sections)	Modifications to local utility networks & installation of temporary connections for Stifford Clays West road compound West	Nights/Weekends	1
RNTM50	Green Lane	Closure	Bridge works & modifications to local utility networks & installation of temporary connections for Stifford Clays West road compound West	Nights/Weekends	All
RNTM51	Green Lane	Crossing Point	Allow construction vehicles to cross	Full period	1,2,3,4,5,6,7,8,9,10,11
RNTM52	Fen Lane/Green Lane	Closure (in sections)	Installation of temporary compound connections	9 Months	1,2
RNTM53	B186	Closure	Bridge works & modifications to local	Nights/Weekends	All

TM ID	Name	Type	Description	Duration	Phase
			utility networks & installation of temporary connections for Medebridge and M25 compounds		
RNTM54	B186 North Road	Crossing Point	Allow construction vehicles to cross	Until access under overbridge	1,2,3,4, 5,6,7
RNTM55	B186	Contraflow	Construction access works & modifications to local utility networks & installation of temporary connections for Medebridge and M25 compounds	4 Weeks	1
RNTM56	B186	Contraflow (300m sections)	Installation of temporary compound connections for Medebridge and M25 compounds	12 Months	1,2
RNTM57	Ockendon Rd	Crossing Point	Allow construction vehicles to cross	Full period	1,2,3,4, 5,6,7,8, 9,10,11
RNTM58	Ockendon Rd	Closure	Bridge works & earthworks logistics route & modifications to local utility networks	19 Months	4,5,6,7
RNTM59	Ockendon Rd	Contraflow	Construction access works & modifications to local utility networks & installation of temporary connections for Ockendon Road compound	2 Weeks	1
RNTM60	Ockendon Rd	Contraflow	Modifications to local utility networks & installation of temporary connections for Ockendon Road compound	6 Months x 2	1,6
RNTM61	M25SB	Narrow lanes	Construction access works	7 Months	3,4
RNTM62	M25NB	Narrow lanes	Construction access works	7 Months	3,4
RNTM63	M25	Closure	Bridge works & removal of OHL equipment	Nights	All

TM ID	Name	Type	Description	Duration	Phase
RNTM64	M25SB	Narrow lanes, 60mph	Carry out nearby works	41 Months	3,4,5,6,7,8,9,10
RNTM65	M25NB	Narrow lanes, 60mph	Carry out nearby works	28 Months	5,6,7,8,9,10
RNTM66	St Marys Lane	Crossing Point	Allow construction vehicles to cross	Full period	1,2,3,4,5,6,7,8,9,10,11
RNTM67	St Marys Lane	Crossing Point	Allow construction vehicles to cross	Full period	1,2,3,4,5,6,7,8,9,10,11
RNTM68	St Marys Lane	Contraflow	Carry out nearby works & modifications to local utility networks	9 Months	2,3
RNTM69	St Marys Lane	Closure	Bridge works & modifications to local utility networks	Nights/Weekends	All
RNTM70	B186	Contraflow	Construction access works & modifications to local utility networks	4 Weeks	1
RNTM71	M25SB On-Slip	Closure	Carry out nearby works	Nights/Weekends	All
RNTM72	M25NB Off-Slip	Closure	Carry out nearby works	Nights/Weekends	All
RNTM73	A127WB Off-Slip	Closure	Carry out nearby works	Nights/Weekends	All
RNTM74	A127	Narrow lanes, 50mph	Carry out nearby works & modifications to local utility networks	33 Months	3,4,5,6,7,8
RNTM75	A127	Closure	Bridge works & modifications to local utility networks	Nights/Weekends	All
RNTM76	A127	Closure	Bridge works & modifications to local utility networks	Nights/Weekends	All
RNTM77	A13	Closure	Modifications to local utility networks	Nights/Weekends	All
RNTM78	Mill Lane	Closure	Modifications to local utility networks	2 Weeks	2
RNTM79	Hornsby Lane	Contraflow (300m sections)	Modifications to local utility networks	2 Months	2

TM ID	Name	Type	Description	Duration	Phase
RNTM80	Baker Street	Contraflow (300m sections)	Modifications to local utility networks	6 Months	1,2
RNTM81	Muckingford Rd	Switchover	Switch to permanent alignment	Weekend	4
RNTM82	Hoford Rd	Switchover	Switch to permanent alignment	Weekend	6
RNTM83	Brentwood Rd	Switchover	Switch to permanent alignment	Weekend	7
RNTM84	A1013	Switchover	Switch to permanent alignment	Weekend	9
RNTM85	Baker Street	Switchover	Switch to permanent alignment	Weekend	10
RNTM86	A13WB to A1089SB	Switchover	Switch to permanent alignment	Weekend	9
RNTM87	Rectory Rd	Switchover	Switch to permanent alignment	Weekend	9
RNTM88	A13WB On-Slip	Switchover	Switch to permanent alignment	Weekend	9
RNTM89	Stifford Clays Rd	Switchover	Switch to permanent alignment	Weekend	7
RNTM90	Green Lane	Switchover	Switch to permanent alignment	Weekend	8
RNTM91	B186 North Road	Switchover	Switch to permanent alignment	Weekend	8
RNTM92	Ockendon Rd	Switchover	Switch to permanent alignment	Weekend	7
RNTM93	Brentwood Rd	Switchover	Switch to temp alignment	Weekend	4
RNTM94	Stifford Clays Rd	Switchover	Switch to temp alignment	Weekend	5
RNTM95	Green Lane	Switchover	Switch to temp alignment	Weekend	6
RNTM96	B186 North Road	Switchover	Switch to temp alignment	Weekend	4
RNTM97	Baker Street	Switchover	Switch to temp alignment	Weekend	5
RNTM98	Baker Street	Closure	Carry out bridge works	Nights/Weekends	7,8,9,10
RNTM99	Gun Hill	Closure	Modifications to local utility network	2 Weeks	1
RNTM100	Cooper Shaw Rd	Closure	Modifications to local utility network	Weekend	1

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TM ID	Name	Type	Description	Duration	Phase
RNTM102	A13EB	Single lane closure	Modifications to local utility network	2 Weeks	1
RNTM103	B186	Contraflow	Modifications to existing field access	2 Weeks	2
RNTM104	A128 Layby Access	Closure	Modifications to existing field access	2 Months	1,2
RNTM105	M25 Slips	Narrow lanes, 60mph	Carry out nearby works	12 Months	7,8,9
RNTM106	A127 & Slips	Closure	Carry out nearby bridge works	Nights/Weekends	All
RNTM107	Baker Street	Crossing Point	Allow construction vehicles to cross	After A13 underpass	5,6,7,8,9
RNTM108	A1013	Crossing Point	Allow construction vehicles to cross	After A13 underpass	5,6,7,8,9

Appendix B WCH Mitigation Measures

B.1.1 Table B.1 below details measures to be undertaken until completion of and opening of the permanent routes.

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Table B.1 WCH Measures

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Route Reference	Nature of effect	Mitigation measures
Footway north side A127 eastbound off slip	Temporary closure	Footway to be maintained where it passes through the order limits. Alternatively, if a closure of the existing route is deemed necessary then provide a suitable temporary diversion of the route locally around the working area prior to closure.
BR183	Permanent closure and diversion	Provide a suitable alternative route linking Brentwood and Cranham within 1 year of closing the existing route. Preferred alternative route as shown on the sketch included within this appendix. It is noted this route includes the new bridge (Work No. 9Y as shown on Work Plans Sheet 45) to provide a new bridleway link over the A127 between points 45/5 and 45/6 as detailed on the Rights of Way and Access Plans Sheet 45. Alternative routes or sequence may be proposed but these must be agreed with the relevant Local Authority.
FP176	Temporary closure	As per BR183.
Thames Chase culvert (undesignated recreational route)	Temporary closure	Maintain access to undesignated recreational route linking Thames Chase Forest Land either side of the M25 or provide and maintain suitable temporary diversion prior to closure of the existing route. Preferred temporary diversion route as shown on the sketch included within this appendix. Alternative routes or sequence may be proposed but these must be agreed with the relevant Local Authority.
FP231	Permanent closure and diversion	Open permanent diversion route linking points 45/3 and 45/4 as shown on the Rights of Way and Access Plans Sheet 42 within 1 year of closing the existing route. Alternative routes or sequence may be proposed but these must be agreed with the relevant Local Authority.

Route Reference	Nature of effect	Mitigation measures
FP136	Permanent closure	Route may be closed temporarily for safety reasons between points 34/5 and 34/6 as shown on Rights of Way and Access Plans Sheet 38. This is to facilitate the utilities diversion works in the area and construction of the new bridge to carry FP136 over the A122. The scope of works includes Work No. G8, OH7, OHT8, MU62 to MU64 and 8C as detailed on Works Plans Sheet 38. Open the permanent diversion route between points 34/5 and 34/6 as shown on Rights of Way and Access Plans Sheet 38 at the earliest practicable opportunity following completion of these works. Alternative routes or sequence may be proposed but these must be agreed with the relevant Local Authority. The period of severance caused by the temporary closure shall not exceed 2.5 years.
BR219	Temporary closure	Route may be closed temporarily for safety reasons between points 34/3 and the intersection with the proposed new construction access route that links Medebridge Road with Green Lane (approx. 550m south of point 33/7) as shown on Rights of Way and Access Plans Sheets 35, 38 and 41. This is to facilitate the utilities diversion works in the area, construction of the viaduct that carries the A122 over the river Mardyke and construction of the new bridge to carry FP136 over the A122. The scope of works includes Work No. G8, OH7, OHT8, MU62 to MU64, 8B and 8C as detailed on Works Plans Sheet 38. Open the permanent diversion route between points 34/3 and 33/7 as shown on Rights of Way and Access Plans Sheets 35, 38 and 41 or provide a temporary diversion route at the earliest practicable opportunity following completion of these works. The preferred temporary diversion route follows the proposed new routes linking points 34/3, 34/5, 34/4, 34/6, 33/5 and 33/7 as shown on Rights of Way and Access Plans Sheets 35, 38 and 41. It is noted that this temporary route may not be suitable for all users. Alternative routes or sequence may be proposed but these must be agreed with the relevant Local Authority. The period of severance caused by the temporary closure shall not exceed 2.5 years.
BR161 (Green Lane)	Temporary closure	Maintain access to existing bridleway except where short term closures are required for safety reasons to facilitate utilities diversion works including Work No. G8, OH6, OH7, OHT7, MU58, MU60, MUT13, MUT23 and MUT24 as detailed on Work Plans Sheets 33 and 34 or provide and maintain a temporary diversion route to maintain connectivity between points 32/1 and 33/4 as shown on the Rights of Way and Access Plans Sheet 33. The preferred temporary diversion route is shown on the sketch included within this appendix. Alternative routes or sequence may be proposed but these must be agreed with the relevant Local Authority.

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Route Reference	Nature of effect	Mitigation measures
BR206	Permanent closure and diversion	Provide and maintain suitable alternative bridleway route linking Baker Street and Mill Lane or provide suitable private means of access to maintain access to Mill Lane for horse riders associated with Foxhounds Riding School and landowners identified north of the A13 between Baker Street and Mill Lane prior to closure of the existing route. The preferred temporary diversion route is shown on the sketch included within this appendix. Alternative routes or sequence may be proposed but these must be agreed with the relevant Local Authority.
FP93	Permanent closure and diversion	Footpath connection to be retained during construction or provide suitable alternative route via temporary diversion prior to closure of the existing route.
FP82	Permanent closure and diversion	Footpath connection to be retained during construction or provide suitable alternative route via temporary diversion prior to closure of the existing route.
FP97	Temporary and permanent closure	Maintain footpath access between Long Lane and Ron Evans Memorial Field via existing route or by temporary diversion around the working area, except where short term closures are required for safety reasons.
BR223	Temporary and permanent closure	Route to be temporarily closed to the public but access to be maintained to travellers site throughout, while residents remain onsite.
FP79	Temporary and permanent closure	Provide and maintain suitable alternative route via temporary diversion prior to closure of the existing route. Preferred diversion route as shown on the sketch included within this appendix. Alternative routes or sequence may be proposed but these must be agreed with the relevant Local Authority.

Route Reference	Nature of effect	Mitigation measures
BR58	Permanent closure and diversion	Route may be closed temporarily for safety reasons between the existing level crossing at the Tilbury Loop Railway line and a point approximately 250m west of Low Street Lane. This is to facilitate the utilities diversion works in the area, construction of the viaduct to carry the A122 over the Tilbury Loop Railway and the new Muckingford Road bridge. The scope of works includes Work No. OH3, OH4, OH5, OHT2, MU28, MU33 to MU36, MUT6, 5B and 6B as shown on Works Plans Sheets 23 and 24. Open the permanent diversion route between points 16/1 and 16/2 (as shown on the Rights of Way and Access Plans Sheet 23) or provide a temporary diversion route at the earliest practicable opportunity following completion of these works. The preferred temporary diversion route is shown on the sketch included within this appendix. It is noted that this temporary route may not be suitable for all users. Alternative routes or sequence may be proposed but these must be agreed with the relevant Local Authority. The period of severance caused by the temporary closure shall not exceed 2.5 years.
FP61	Permanent closure and diversion	Route may be closed temporarily for safety reasons between Low Street Lane and Beechcroft Avenue. This is to facilitate the utilities diversion works in the area, construction of the viaduct to carry the A122 over the Tilbury Loop Railway and the new Muckingford Road bridge. The scope of works includes Work No. OH3, OH4, OH5, OHT2, MU28, MU33 to MU36, MUT6, 5B and 6B as shown on Works Plans Sheets 23 and 24. Open the permanent diversion route linking points 16/1, 16/2 and 16/3 (as shown on the Rights of Way and Access Plans Sheets 23 and 24) or provide a temporary diversion route at the earliest practicable opportunity following completion of these works. The preferred temporary diversion route is shown on the sketch included within this appendix. Alternative routes or sequence may be proposed but these must be agreed with the relevant Local Authority. The period of severance caused by the temporary closure shall not exceed 2.5 years.
FP200	Permanent closure and diversion	Open new routes between points 13/13 to 14/6 and 13/11 to 13/12 (as shown on Rights of Way and Access Plans Sheet 22 and 23) to connect FP200 to BR58 prior to closure of the section of FP200 that extends between points 14/6 and A9. Alternative routes or sequence may be proposed but these must be agreed with the relevant Local Authority.

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Route Reference	Nature of effect	Mitigation measures
NS169	Permanent closure and diversion	Provide and maintain a suitable alternative route connecting Riverview Park and Gravesend with Shorne Woods Country Park within one month of closing the existing route except where short term closures are required for safety reasons. The preferred diversion route uses the proposed new routes that connect points 5/10, 5/12, 10/10, 10/12, 6/45, 6/46, 6/26 and 6/25 as shown on the Rights of Way and Access Plans Sheets 6 and 11. It is noted that this requires a route to be maintained across the proposed Project route approximately at the location of Thong Lane and that this will need to be adapted to facilitate the construction of the proposed Thong Lane bridge (Work No. 3B as shown on Works Plans Sheet 11). Alternative routes or sequence may be proposed but these must be agreed with the relevant Local Authority.
NS167	Permanent closure and diversion	As per NS169.
NS174	Permanent closure and diversion	As per NS169.
NCN177	Permanent closure and diversion	Provide and maintain a suitable alternative diverted shared footway/cycleway route connecting Rochester and Gravesend prior to closure of the existing NCN 177 commuter route. The preferred temporary diversion route runs to the south of the A2 linking points 11/1, 11/7, 11/3, 11/4, 11/9, 11/8, 5/14, 5/3, 5/9, 12/3, 6/11, A11, 6/44, 6/46, 6/48, 8/21, 8/22, 6/35, 8/25, 8/26 and 10/4 as shown on Rights of Way and Access Plans Sheets 3, 4, 5 and 6. Alternative routes or sequence may be proposed but these must be agreed with the relevant Local Authority.
NCR177	Temporary closure	Unable to commit further at this stage
NS161	Temporary closure	Footway to be maintained where it passes through the order limits. If a closure of the existing route is deemed necessary, then provide a temporary local diversion of the route around the working area prior to closure.

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B.1.2 The below figures show sketches of proposed temporary diversions during construction

Plate B.1 Preferred Alternative Route during BR183 Temporary Closure

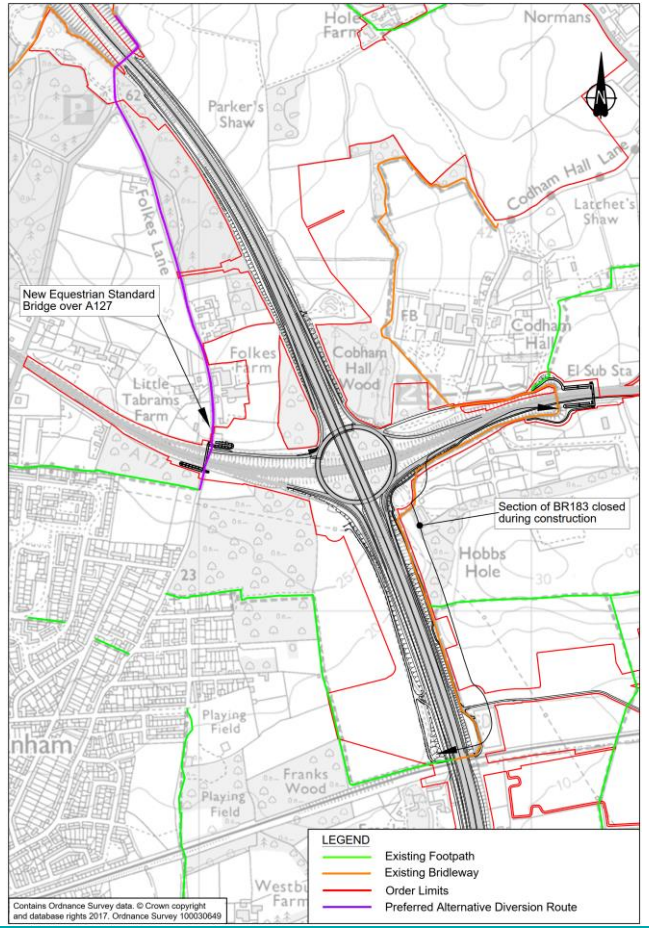


Plate B.2 Preferred Temporary Diversion Route for Thames Chase Culvert

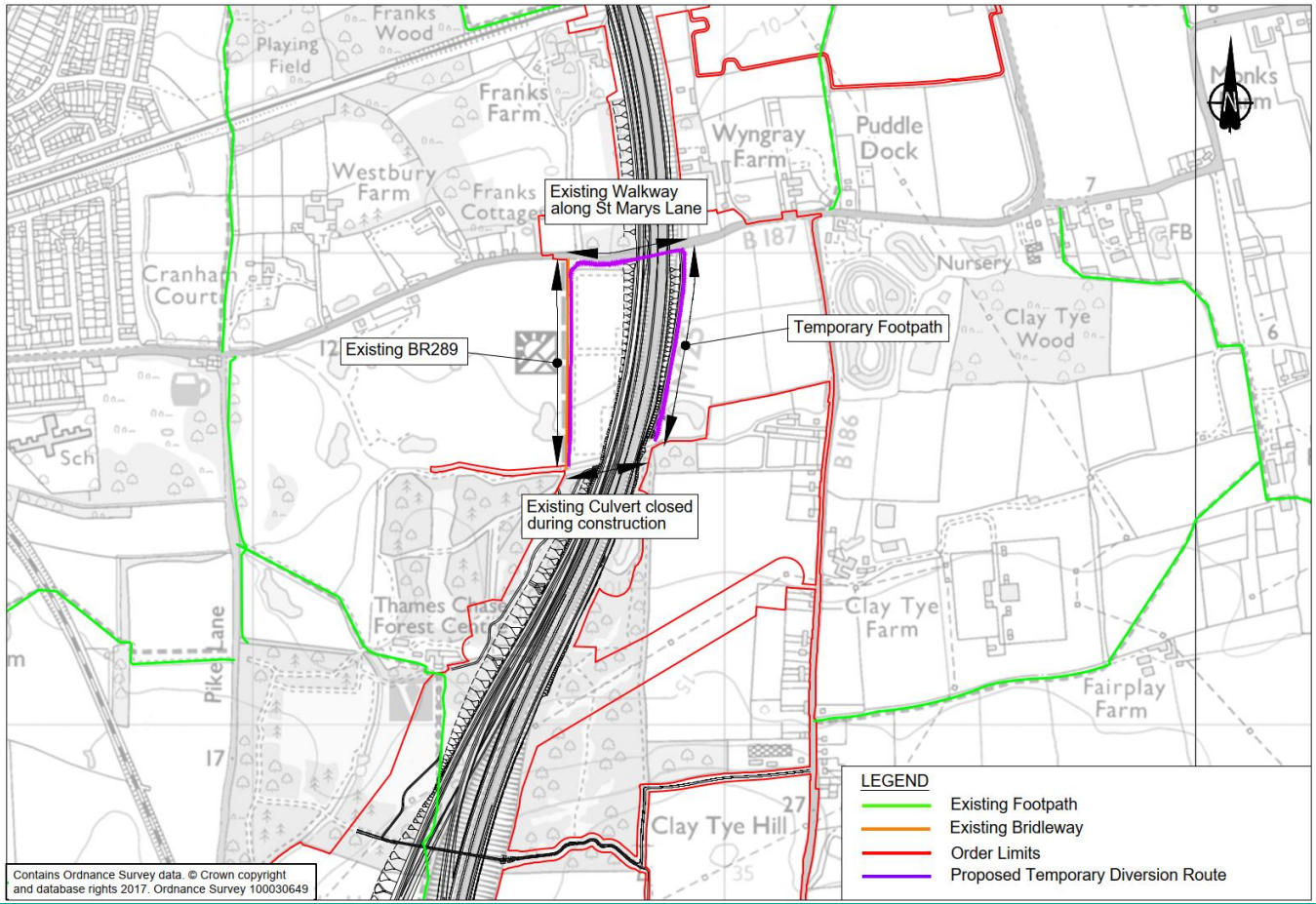


Plate B.3 Preferred Temporary Diversion Route for BR161

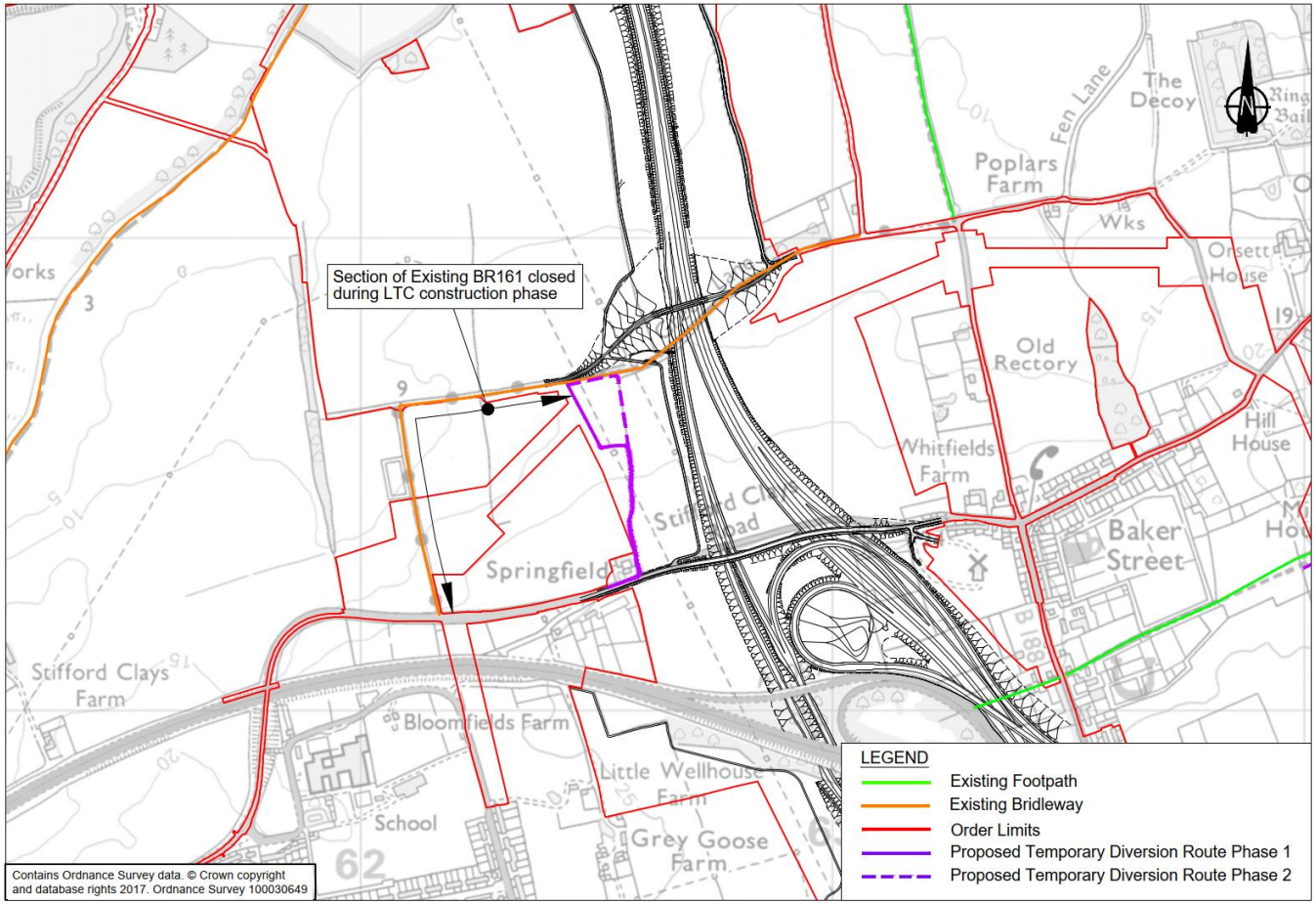


Plate B.4 Preferred Temporary Diversion Route for BR206

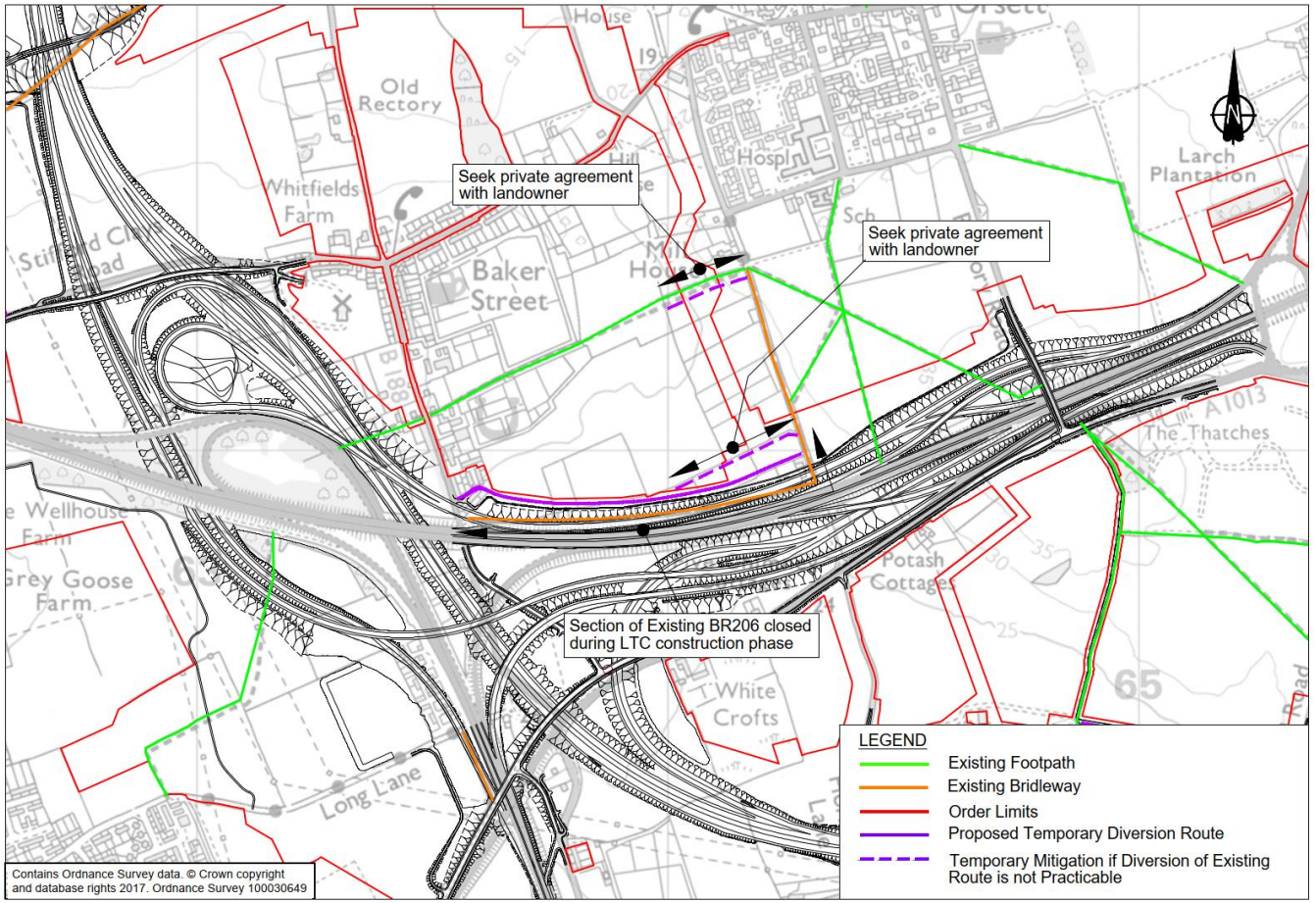


Plate B.5 Preferred Temporary Diversion Route for FP79

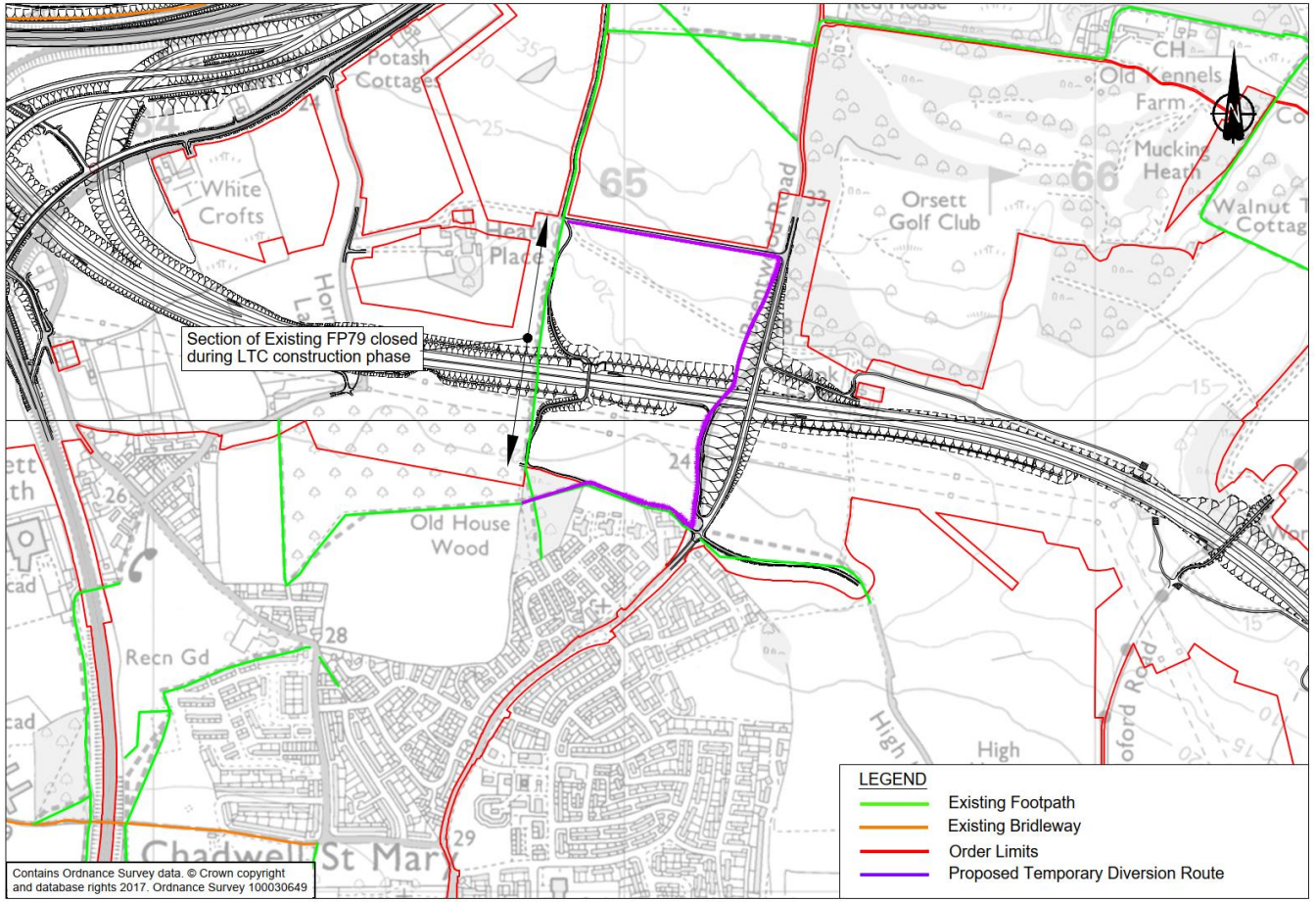


Plate B.6 Preferred Temporary Diversion Route for BR58 & FP61

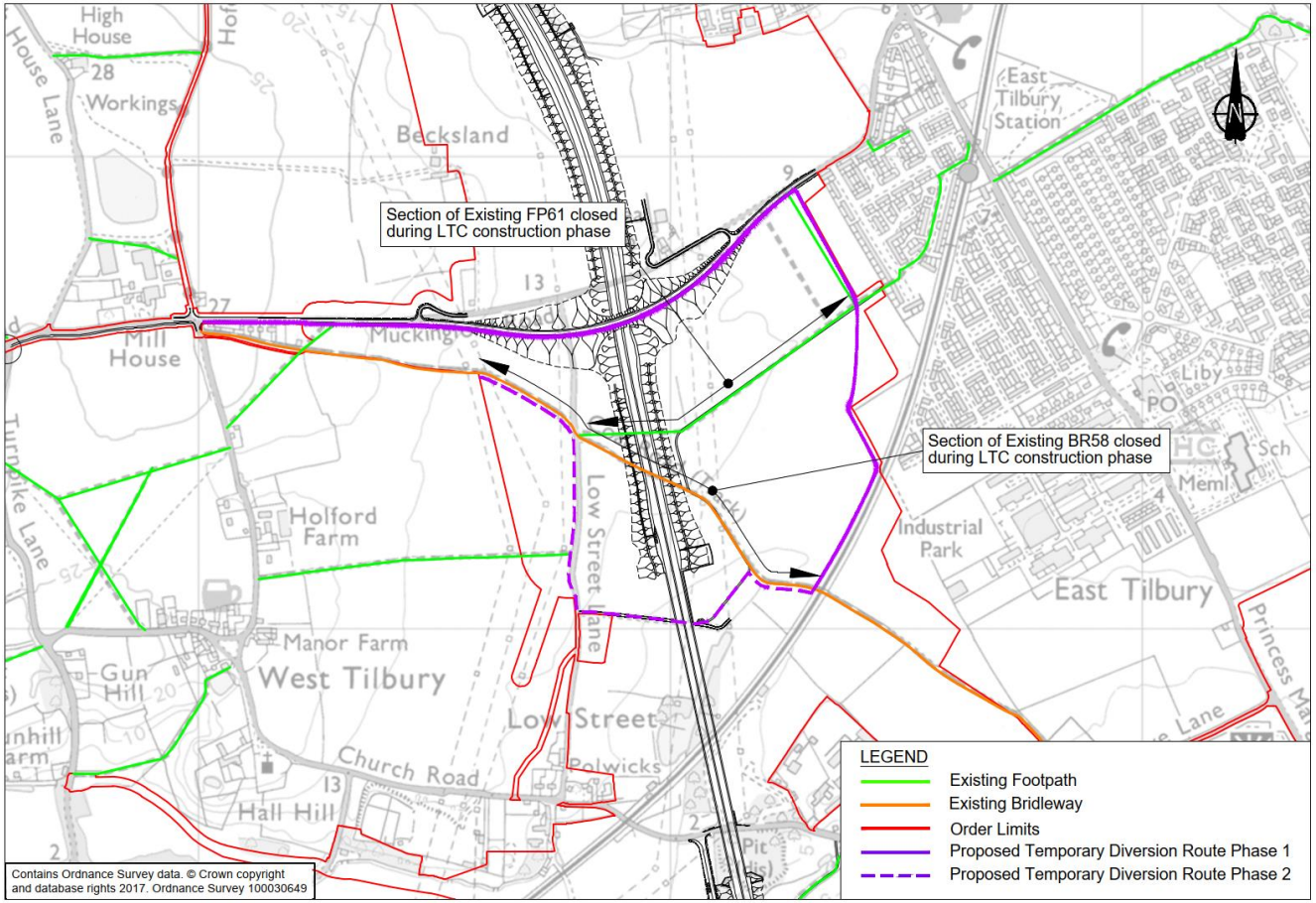
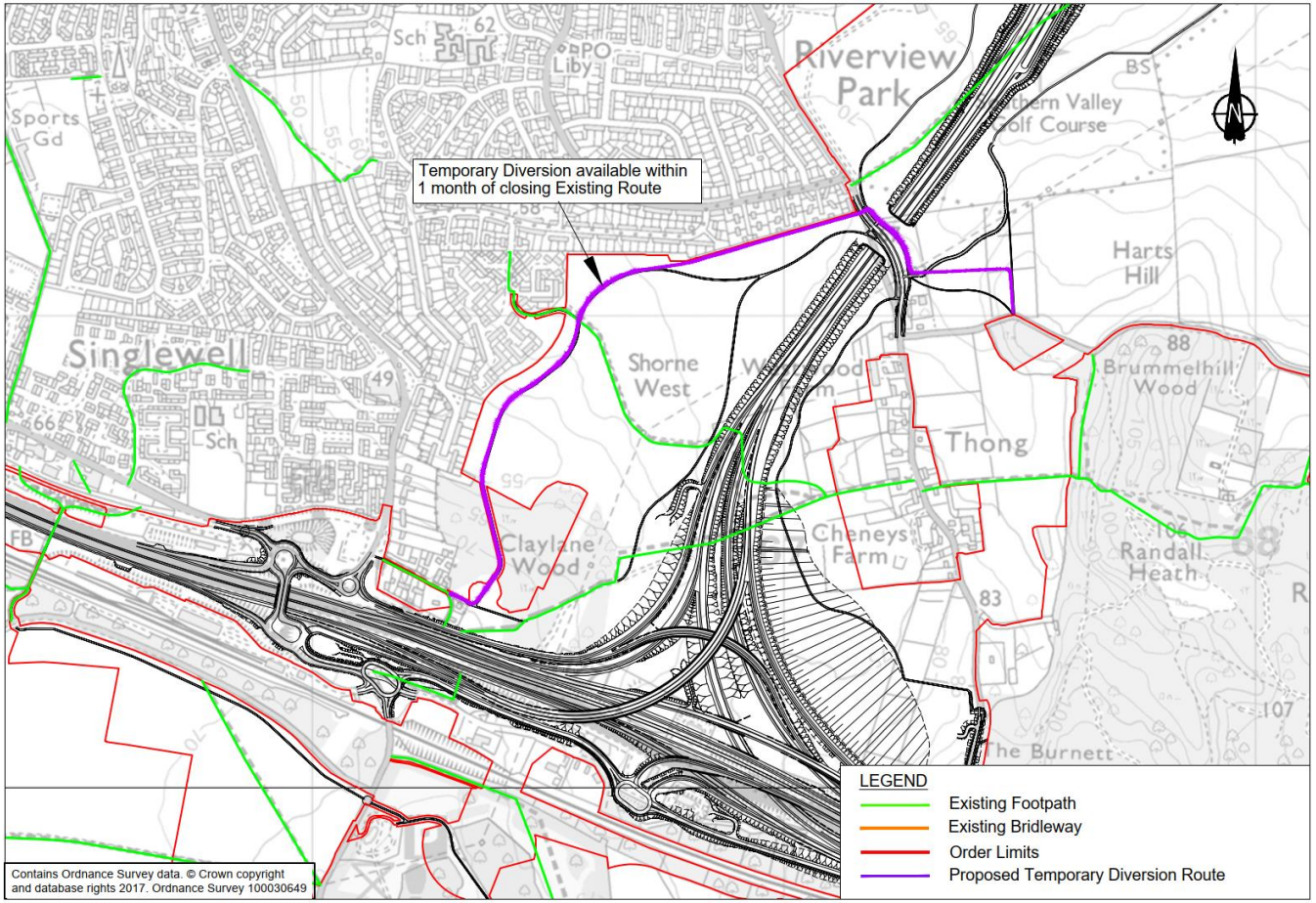


Plate B.7 Preferred Temporary Diversion Route for NS167, NS169 & NS174



Appendix C Customer Impact Assessment Tool

C.1.1 The Customer Impact Assessment Tool in Appendix C is taken from the Roadworks a Customer View (RACV) Implementation Toolkit. This should be completed to provide an indicator of the level of impact anticipated by the project on each customer group. The TMP should take account for the requirements of the customer groups rated as red and amber within this appendix, high and medium impact respectively.

a. Consider the impact of the roadworks (and the associated construction traffic) on the different types of road users and rate the level of impact:

Table C.1 Impact of roadworks and associated construction traffic on different types of road users and level of impact

	Road user type (e.g. commuters, leisure drivers, freight, etc.)	**Level of impact**		
		High	**Medium**	**Low**
1	Commuters		X	
2	Leisure drivers		X	
3	HGVs		X	
4	Disables car driver		X	
5	Bus/Coach services		X	

a. Consider the impact of the roadworks (and the associated construction traffic) on the communities and rate the level of impact:

Table C.2 Impact of roadworks and associated construction traffic on communities and level of impact

	Community (e.g. commuters, leisure drivers, freight, non-motorised users, etc.)	Level of impact		
		High	Medium	Low
1	Commuters		X	
2	Leisure drivers		X	
3	HGVs		X	
4	Disables car driver		X	
5	Bus/Coach services		X	
6	Walkers, cyclists, and horseriders		X	

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a. Consider the impact of diversion routes on road users and communities and rate the level of impact:

Table C.3 Impact of diversion routes on road users and communities and level of impact

	Customer type (e.g. commuters, leisure drivers, freight, industrial estates, residents, local authorities, retail parks, schools, stadiums, local events, landowners etc.)	Level of impact		
		High	Medium	Low
1	Commuters		X	
2	Leisure drivers		X	
3	HGVs		X	
4	Disables car driver		X	
5	Bus/Coach services		X	
6	Walkers, cyclists, and horseriders		X	

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Appendix D Dynamic Roadworks Benchmarking Template

D.1.1 Table D.1 below defines the Dynamic Road Works Benchmarking RAG rating descriptions for the 5 Visions in accordance with the Dynamic Road Works Benchmarking Template v2.0. The criteria below will be used to monitor traffic management measures.

Table D.1 RAG Descriptions for Visions

	Green (aligned to vision)	Amber (just outside vision)	Red (well outside vision)
Speeds	Over 50% of the project (in distance and time) is at the permanent speed limit	Less than 50% is at the permanent speed limit, but there is clear evidence showing what alternative methods of construction were used.	Less than 50% is at the permanent speed limit, and there is no evidence showing what alternative methods of construction were used.
Length	The total length of TM on anyone 'journey' (i.e. on 2 arms of a roundabout that could form a realistic journey) is shorter than 6km, or 1 link if on a motorway. Or the total length of TM is more than 6km (or 1 link if a motorway) but there is evidence the increased length is proportional to a reduced delivery time. Or the total length of TM is more than 6km (or 1 link if a motorway) but the additional length is operating at a minimum of 60mph. AND the average journey time created by the road works is not more than an additional seven minutes thirty seconds.	The total length of TM is more than 6km (or 1 link if a motorway) and there is evidence that the reduced delivery time is halfway proportional to the increased length. e.g. a fifty percent increase in length for a 25% reduction in the time taken to deliver the additional length. AND the average journey time created by the road works is not more than an additional seven minutes thirty seconds.	The total length of TM is more than 6km (or 1 link if a motorway) and there is no evidence of reduced delivery time even halfway proportional to the increased length, nor is the additional length a minimum of 60mph. AND/OR the average journey time created by the road works is more than an additional seven minutes thirty seconds.

	Green (aligned to vision)	Amber (just outside vision)	Red (well outside vision)
Closures & diversions	No more than 1 full closure (including slip road closures) every 3 months And / or the diversion route has a comparable journey time, and impact on communities along the diversion route are minimal	No more than 1 full closure (including slip road closures) every month	More than 1 full closure (including slip road closures) every month
Delivering quicker	Benefits are delivered to the customer before full opening (NA if offline project) AND construction is undertaken at least 6 days a week AND restrictions are lifted during embargo periods (unless full productivity is maintained)	Benefits are delivered to the customer before full opening (NA if offline project) OR construction is undertaken at least 6 days a week OR restrictions are lifted during embargo periods (unless full productivity is maintained)	No benefits are delivered to the customer before full opening (NA if offline project) NOR is construction undertaken at least 6 days a week NOR are restrictions lifted during embargo periods (and full productivity isn't maintained)
Explaining activity	There is evidence of a comprehensive on-road/off-road communications approach, which updates customers as required of activities undertaken, works completed and progress made.	Evidence of an off-road only communications approach, which updates customers as required of activities undertaken, works completed and progress made.	No evidence of a communications approach which updates customers as required of activities undertaken, works completed and progress made.

Dynamic Road Works Benchmarking Scores

Table D.2 Dynamic Road Works Benchmarking

Vision	Green/ Amber/ Red/ NA/ Not yet known	Project Evidence for RAG Rating
Speeds Varying the speed limits so they are appropriate for the work taking place	Green	The project covers a large distance in terms of the road network when including both the SRN and LRN. Speed limit reductions are envisaged to be in place for certain sections of the SRN (namely the A2, A13, A127 and M25 where narrow lanes are proposed) for a certain period of time within the overall construction programme.
Length Shortening the length of roadworks	Amber	The maximum length of TM is envisaged on the M25 at approx. 4-5km. There are other measures proposed in the nearby area e.g. A127 and some local roads. Taking that into consideration a rating of Amber would be appropriate.
Closures and diversions Appropriate use of full road closures (including slip road closures) and associated diversions	Red	There are likely to be more than 1 full closure every three months due to the size of the project and interface with both the SRN and LRN. It should be noted that full closures could and often do take the form of an overnight closure of a road rather than a longer-term closure. (Refer to Appendix A which outlines the envisaged traffic management measures, including approximate duration where applicable)
Delivering quicker Delivering road works quicker	Amber	There will be certain segments of the project that will be completed earlier and opened to the general public earlier than the full scheme opening date (namely new local road overbridges).
Explaining activity Explaining clearly what activities are, or are not, taking place	Green	This document outlines the committed mechanisms in place for engaging and communicating with stakeholders, namely via the TMF. The CoCP details further communication requirements.

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