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Bramford to Twinstead Reinforcement

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Executive Summary

Purpose of this Report

National Grid Electricity Transmission plc (here on referred to as National Grid) is making an application for development consent to reinforce the transmission network between Bramford Substation in Suffolk, and Twinstead Tee in Essex. The Bramford to Twinstead Reinforcement ('the project') would be achieved by the construction and operation of a new electricity transmission line over a distance of approximately 29km (18 miles), the majority of which would follow the general alignment of the existing overhead line network.

This Transport Assessment (TA) has been produced to support the application for development consent under the Planning Act 2008. The TA documents the assessment taken to understand the effects of the project on the transport network in accordance with the requirements set out in relevant national policy.

Scope of the Assessment

The operational effects in relation to traffic and transport matters have been scoped out of the TA based on the low numbers of staff required to maintain the project. Therefore, the TA focuses on potential effects during construction.

A trenchless crossing is the proposed method for installing the underground cables beneath the Sudbury Branch Railway Line, which would avoid disruption to rail services. The 132kV overhead line would also need to be removed from over the railway line. There is the potential that the Sudbury Branch Railway Line would need to be closed for up to one day for this work for safety reasons. Subject to discussions with National Rail, it is assumed that the closure would be carried out during an off-peak period, either over night or at a weekend. National Grid would liaise with Network Rail to agree any additional measures that may be required as part of the works.

National Grid has also identified the need to temporarily close the River Stour (and disruption to navigation along the river) for safety reasons during lowering of the 132kV conductors and during installation and removal of the temporary bridge. These disruptions are anticipated to be short term in duration (i.e. up to a week).

Therefore, the railway network and navigable rivers are scoped out of the assessment and the scope of the TA is focused on construction impacts on the following receptors:

- Strategic Road Network (SRN) – change in traffic flows;
- Local Road Network (LRN) – change in traffic flows, on street parking and collisions;
- Bus Network – impacts due to change in traffic flows; and
- Walkers, Cyclists, and Horse riders (WCH) – severance.

Results of the Assessment

The TA has set out the following related to the scope of the assessment (as defined above), focused on temporary impacts during the peak period of construction activity in 2025:

- Relevant national, regional and local policy and guidance, which provided a framework for the assessment;

- Existing baseline and future baseline transport conditions;
- The level of construction traffic expected on the road network;
- Requirements for temporary amendments to the road network and Public Right of Way (PRoW); and
- The resultant impact of the project on the road network, bus services, and WCH.

Strategic Road Network

The assessment includes consideration of potential impacts on the A120 and A12, which would provide access to and from LRN construction routes. This assessment indicated that total traffic on the SRN would increase by less than 2% in the AM and PM peak hours during peak periods of project construction activity. It is concluded that there would be no substantial project traffic impacts on the SRN.

Impacts on the Local Road Network

On the LRN, the A1071 corridor between the A1214 and Hadleigh would see the largest increase in construction vehicle numbers; the largest increases travelling in a westbound direction towards the construction sites during the AM peak hour and travelling in an eastbound direction away from the construction sites during the PM peak hour. However, peak traffic levels would be insubstantial – the roads carrying the largest volumes of construction traffic would see increases of only 35 additional vehicle trips one-way per hour.

The construction routes that would experience the largest percentage increase in traffic are generally on minor roads off the A131, A134, and B1113. However, the absolute increase in construction vehicle numbers on these roads would be low with between two and nine additional vehicles per hour during peak periods.

Only four junctions on the LRN exceeded the criteria established to determine potential junction capacity impacts and at all these locations, traffic increases on key arms (and through the junctions as a whole) during peak periods would be less than 9%. Peak levels of construction traffic are only expected to be maintained for a few months and consequently, it is concluded that project traffic impacts would not be substantial, and the project would not cause any substantial capacity issues on the LRN.

A traffic collision review undertaken to develop the baseline for the project indicated that there are no existing road safety issues on any roads expected to be used by construction vehicles. In addition, parking provision for construction workers and construction vehicles would be provided within site compounds. Therefore, there would be no substantial direct impacts on existing on-street parking on the LRN. Any lane closures and traffic management required would be temporary and short-term with diversion routes provided where practicable.

Bus Network

There are 30 bus services which operate daily on proposed project construction routes. The A1071 corridor between the A1214 and Hadleigh would experience the largest traffic increase with 35 additional vehicles in the AM and PM peak hours. Bus service 91 operates on this construction route. Project traffic would not impact upon the operation of this bus service as the percentage increase on this road would not be substantial.

Walkers, Cyclists and Horse Riders Network

The assessment of project impacts on the WCH network considers potential impacts on WCH journey length; severance; and amenity, fear and intimidation.

This assessment has not identified any substantial impacts on severance due to increases in traffic flow resulting from the project. In all but one location this was also the result of the assessment on amenity, fear and intimidation. A single temporary adverse impact was identified on Church Road, Twinstead due to an increase of 96 additional daily vehicle movements during peak periods of construction activity. Measures including the placement of warning signage are proposed along this route to mitigate construction impacts.

There are 30 PRoW that would be temporarily impacted by project construction, requiring short-term closures and diversions. Safe and alternative routes have been identified for each where practicable. No substantial adverse impacts on WCH journey length are expected as a result of these temporary closures.

Conclusion

This TA demonstrates that there would be no substantial adverse impacts upon the transport network. Traffic generated would be limited and the impacts would be temporary during the construction phase of the project.

1. Introduction

1.1 Overview

1.1.1 National Grid Electricity Transmission plc (hereafter referred to as National Grid) is making an application for development consent to reinforce the transmission network between Bramford Substation in Suffolk, and Twinstead Tee in Essex. The Bramford to Twinstead Reinforcement ('the project') would be achieved by the construction and operation of a new electricity transmission line over a distance of approximately 29km (18 miles), the majority of which would follow the general alignment of the existing overhead line network.

1.1.2 This Transport Assessment (TA) has been produced to support the application for development consent under the Planning Act 2008.

1.1.3 The project is located in the East of England and crosses a county administrative boundary defined by the River Stour, with Suffolk County to the east of the river and Essex County to the west. The project lies within three local planning authority areas: the eastern part of the project lies in Mid Suffolk District (Suffolk); the central parts of the project lie in Babergh District (Suffolk); and the proposed grid supply point (GSP) substation and the western part of the project lie in Braintree District (Essex).

1.1.4 The local area is predominantly rural, with large parts of the land under arable use. Ipswich, the county town of Suffolk, lies approximately 5km to the east of Bramford Substation. The towns of Hadleigh and Sudbury lie approximately 1km and 4km to the north of the project, respectively. There are also villages such as Boxford and Leavenheath, as well as a number of hamlets and individual properties within or near to the Order Limits.

1.2 Purpose of the Transport Assessment

1.2.1 A TA is a comprehensive and systematic process that sets out transport issues relating to a project. This TA establishes the baseline transport conditions relevant to the project; identifies the future transport conditions and transport impacts of the project; and illustrates whether mitigation is required for transport issues generated by the project.

1.2.2 The TA has been developed in accordance with consideration of relevant national, regional, and local transport and planning policy, as well as National Policy Statements (NPS) EN-1 (Department of Energy and Climate Change (DECC), 2011a) and EN-5 (DECC, 2011b). Further details can be found in Section 3.2.

1.3 Scope of the Transport Assessment

Temporal Scope (Operational Effects)

1.3.1 All components of the project including the cable sealing end (CSE) compounds and the GSP substation would be unmanned during operation.

1.3.2 Underground cables would be subject to regular checks approximately every three years. This would identify whether cable repairs were required. The overhead line would be subject to annual inspections similar to what is already undertaken for the existing 400kV overhead line. These inspections would be undertaken either from the ground (using a small van) or from the air by helicopter or drone to check for visible faults or signs of wear (as is already undertaken on the existing 400kV overhead line).

1.3.3 The GSP substation and the CSE compounds would require routine site visits to visually inspect condition of equipment, structures and buildings for signs of damage or wear. It is anticipated that the routine maintenance would be undertaken on an annual cycle for each circuit. In addition, there would be maintenance of the auxiliary systems which would be tested monthly and maintained as required. It is anticipated that these visits would be undertaken using a small van.

1.3.4 Based on the above, the operational traffic movements would be limited. On this basis, operational effects have been scoped out of the TA and the remaining sections of the report focus on the construction effects.

Technical Scope

1.3.5 National Grid has identified the need to close the River Stour during construction. There would be short term disruption to navigation along the River Stour for safety reasons during the lowering of the 132kV conductors and during installation and removal of the temporary bridge for construction access. These are anticipated to be short term in duration (i.e. up to a week). Outside of this, there are not anticipated to be effects on navigation and therefore, impacts on river users are scoped out of the TA.

1.3.6 A trenchless crossing is the proposed method for installing the underground cables beneath the Sudbury Branch Railway Line, which would avoid disruption to services. There is the potential that the Sudbury Branch Railway Line would need to be closed for up to one day during the removal of the 132kV overhead line for safety reasons. Subject to discussions with National Rail, it is assumed that the closure would be carried out during an off-peak period, either over night or at a weekend. National Grid will liaise with Network Rail to agree any additional measures that may be required as part of the works. Therefore, the impact upon the operation of train services on the Sudbury Branch Railway Line would be minimal, and this TA does not include any further reference to the railway network.

1.3.7 The parameters and methodology for the assessment are set out in Section 6.2.

1.3.8 The scope of the TA is therefore focused on construction impacts on the following receptors:

- Strategic Road Network (SRN) – change in traffic flows;
- Local Road Network (LRN) – change in traffic flows, on street parking and collisions;
- Bus Network – impacts due to change in traffic flows; and
- Walkers, cyclists, and horse riders (WCH) Network – severance.

Consultation on the Scope of the Assessment

1.3.9 Pre-application discussions have been undertaken with the relevant highway authorities (Suffolk and Essex County Councils) and National Highways regarding the scope and requirements of the TA. These have included traffic and transport thematic meetings which discussed the general assessment process and areas to avoid in the construction routing. A meeting with Essex and Suffolk County Councils also took place in January 2023 to discuss the Traffic Regulation Order Plans and Access, Rights of Way and Public Rights of Navigation Paths. Following the meeting, the plans were issued to the relevant highway authorities for review. No comments had been received at the point of finalising the TA for the application.

1.3.10 The TA Scoping Report (National Grid, 2022) was issued to the relevant highway authorities in May 2022 to outline the scope and method that would be used in the assessment. This set out the indicative TA study area, the proposed traffic survey data to be collected and the proposed methodology. No comments were received from the relevant highway authorities specifically on this document. Although a meeting was held with Suffolk County Council in June 2022 to discuss the scope of the TA and the methodology to be used.

1.4 Consents and Licences

Permit Schemes

1.4.1 Part 3 of the Traffic Management Act 2004 introduced Permit Schemes as an alternative framework to the notification system under the New Roads and Street Works Act 1991 (NRSWA) for highway maintenance and improvements works. The Permit Schemes would work alongside the street work powers set out in Part 3 Article 11 of the draft Development Consent Order (DCO) (**application document 3.1**).

1.4.2 In accordance with Article 11 of the draft DCO (**application document 3.1**) National Grid is proposing to use the Permit Schemes in effect for Suffolk County Council and Essex County Council as the relevant highway authorities, in order to best coordinate the street works required for the project.

1.4.3 A permit application requires information about the activities on streets subject to Special Engineering Difficulty (Schedule 4 of NRSWA), as would works which require temporary multiway traffic lights. Information required includes plans detailing the location of the works, timing and duration of activities, proposed traffic management and details regarding reinstatement.

1.4.4 A permit issued under the Permit Schemes would specify in detail the activity that is allowed. The types of conditions include timing and duration; road space; traffic management provisions; manner in which specified works are to be carried out; consultation and publicity; environmental conditions; and conditions to progress. The relevant highway authorities may also require the promoter to consult with persons likely to have apparatus in the street and comply with any reasonable requirements asked by the apparatus owner.

Traffic Regulation Orders

1.4.5 A Traffic Regulation Order (TRO) would be required for regulating traffic on roads in proximity to the authorised development, including if a road needs to be closed or diverted temporarily during construction. Article 47 of the draft DCO (**application document 3.1**) allows National Grid and its contractor to introduce TRO for the purposes specified in Schedule 12 and, with the consent of the traffic authority, to any other extent for the construction of the authorised development.

1.5 Vehicle Classification Description

1.5.1 A range of construction vehicles would be required on the project that would use the LRN. This would include light goods vehicles (LGV) including cars and vans to deliver smaller items and workers to the site. It would also include Heavy Goods Vehicles (HGV), such as 40 tonne trucks and low-loader units used to deliver larger items such as excavators, construction mats, and Portakabin™-size local welfare units.

1.5.2 The project is assumed to require the following classifications of vehicles:

- Abnormal Indivisible Loads (AIL) – these include the vehicles used to deliver items that cannot be divided into two or more loads to be transported by road. These include the delivery of the super grid transformers to the GSP substation and the cable drum deliveries. AIL require Special Type General Orders (STGO) and relevant documentation and authorisation would be completed through the Electronic Service Delivery for Abnormal Loads system;
- Mobile Cranes and the Piling Rigs – The project is anticipated to use 160 tonne and 250 tonne cranes for the installation and removal of the pylons. A piling rig is also anticipated to be used for construction of the foundations of the pylons, CSE compound, GSP substation and temporary bridges. Both the cranes and the piling low-loader are anticipated to fall within the criteria of the STGO regulations. These vehicle numbers have been included within the construction traffic numbers;
- Heavy Goods Vehicles (HGV), including:
  - Ordinary Goods Vehicle 1 (OGV1): two axles, over 3.5 tonnes and up to 7.5 tonnes gross weight; and
  - Ordinary Goods Vehicle 2 (OGV 2): two or more axles, over 7.5 tonnes gross weight.
- Light Goods Vehicles (LGV).

1.6 Transport Assessment Structure

1.6.1 This TA is structured as follows:

- Chapter 2: Project Description - this provides a brief overview of the main components of the project;
- Chapter 3: Planning Policy Context – this describes the policy context in relation to the traffic and transport impacts of the project;
- Chapter 4: Existing Baseline Transport Conditions – this provides details of the existing local area and site context;

- Chapter 5: Future Baseline – this sets out any changes to the transport networks in the future;
- Chapter 6: Methodology – this set out the approach and methodology used to assess the transport networks.
- Chapter 7: Transport Assessment – this provides details of the assessment of project impacts on the transport network; and
- Chapter 8 – Conclusion – this summarises the findings of the TA.

1.6.2 The TA also refers to information contained within other application documents, key documents including the following:

- Work Plans (**application document 2.5**);
- Access, Rights of Way and Public Rights of Navigation Plans (**application document 2.7**);
- General Arrangement Plans (**application document 2.10**);
- Design and Layout Plans: Temporary Bellmouth for Access (**application document 2.11.12**);
- Design and Layout Plans: Temporary Bridge for Access (**application document 2.11.13**); and
- Construction Traffic Management Plan (CTMP) (**application document 7.6**).

2. Project Description

2.1 Introduction

2.1.1 Environmental Statement (ES) Chapter 4: Project Description (**application document 6.2.4**) provides a detailed description of the project in terms of the infrastructure proposed, where it would be located, what size it would be, permanent and temporary access requirements, and how it would be constructed, operated, maintained, and decommissioned subject to an order granting development consent. This chapter provides a brief overview of the project description, specifically highlighting project characteristics that are relevant to the TA.

2.1.2 The assessment presented within the TA in some places references the Proposed Alignment. This is the indicative design that is shown on the General Arrangement Plans (**application document 2.10**) that has been assumed for the TA. However, it should be noted that the permanent aspects of the project, including pylon locations, are not fixed and could be located anywhere within the Limits of Deviation as defined on the Work Plans (**application document 2.5**). Further details on this are explained in this TA where applicable.

2.2 Project Overview

2.2.1 National Grid intends to reinforce the transmission network between the existing Bramford Substation in Suffolk, and Twinstead Tee in Essex. The reinforcement would comprise approximately 18km of overhead line and 11km of underground cable system. The permanent and temporary transport related features of the project are outlined below, and the key features are shown on the General Arrangement Plans (**application document 2.10**).

Permanent Features of the Project

2.2.2 The permanent transport features of the project that would be in place during operation, include the following:

- Four CSE compounds requiring permanent access routes for operation and maintenance. These would be single-lane access route with passing places to connect each CSE compound to the LRN; and
- GSP substation permanent access route: a permanent access route would be installed to connect the proposed GSP substation and the 400kV single circuit sealing end compound to the A131.

2.2.3 Each permanent access route would require a new permanent bellmouth on the LRN. This would be designed in accordance with relevant highways standards.

Temporary Features of the Project

2.2.4 Temporary transport-related features of the project which are required to facilitate construction activities include the following:

- Site compounds: National Grid is proposing to have a main construction site compound off the A134 at Leavenheath, which would include the site offices, storage areas, parking (including electric vehicles charging points for site vehicles if appropriate) and welfare facilities. Smaller satellite compounds would be required at other locations within the Order Limits, and these are anticipated to include storage for cable drums, soil, machinery and other materials, parking, local welfare facilities and waste management facilities;
- Temporary access points: An access point is where construction vehicles would leave the LRN and access the working area within the Order Limits. National Grid has identified 126 temporary access points, 74 of which make use of existing access points on the LRN. Some of these may need to be widened to create a bellmouth to safely accommodate construction vehicles. Others involve creating new temporary entrances where a current access point does not exist. The proposed access points are shown on the Access, Rights of Way and Public Rights of Navigation Plans (**application document 2.7**) and a generic bellmouth design is shown on the Design and Layout Plans: Temporary Bellmouth for Access (**application document 2.11.12**). The following access points are assumed to be used for AIL deliveries:
  - D-AP2 - Access Point for the Dedham Vale East CSE compound off Rands Road for cable deliveries to the underground cables in Section E: Dedham Vale Area of Outstanding Natural Beauty (AONB);
  - F-AP6 – Access Point for Dedham Vale West CSE compound off the A134 for cable deliveries to the underground cables in Section E: Dedham Vale AONB;
  - G-AP4 – Access Point for Stour Valley East CSE compound off St Edmund's Hill for cable deliveries to the underground cables in Section G: Stour Valley;
  - H-AP20 – Access Point for Stour Valley West CSE compound off the A131 for cable deliveries to the underground cables in Section G: Stour Valley; and
  - H-AP1 – Access point off the A131 for the delivery of the super grid transformers to the GSP substation.
- Temporary access routes: These are routes off the public highway and within the Order Limits that are used by construction vehicles to get between an access point and a specific working area. Temporary access routes may consist of existing access tracks where suitable, use temporary trackway matting to protect the soil or involve construction of a temporary road made out of imported stone; and
- Bridges: Clear span bridges would be used for the temporary access route crossing of the three main rivers (Brett, Box and Stour). The temporary bridges are assumed to be in place for the majority of construction (up to four years). A generic design is shown on the Design and Layout Plans: Temporary Bridge for Access (**application document 2.11.13**).

2.2.5 The TA also makes reference to the following routes (which are shown on Figure 1: Traffic and Transport Study Area):

- Temporary construction routes: These are the proposed routes on the LRN which would be used by construction vehicles between the SRN, i.e. the A12, A14 and A120 and the temporary construction access points and working areas;

- Temporary staff routes: Staff would use an extension of the temporary construction routes that construction vehicles use to access the temporary access points and working area from their point of origin; and
- Temporary AIL routes: Several AIL movements are required including the transportation of transformers to the GSP substation and cable drums to each end of the underground cable sections.

2.3 Working Hours

2.3.1 The TA assumes the following core working hours for construction that are set out within Requirement 7 of the draft DCO (**application document 3.1**):

- 07:00–19:00 Mondays to Fridays; and
- 08:00–17:00 on Saturdays, Sundays and Bank Holidays.

2.3.2 The following operations may take place outside of the core working hours:

- Trenchless crossing operations including beneath highways, railway lines, woodlands or watercourses;
- The installation and removal of conductors, pilot wires and associated protective netting across highways, railway lines or watercourses;
- The jointing of underground cables (save for the cutting of underground cables);
- The completion of operations commenced during the core working hours which cannot safely be stopped;
- Any highway works requested by the highway authority to be undertaken on a Saturday, Sunday or a Bank Holiday or outside the core working hours;
- The testing or commissioning of any electrical plant installed as part of the authorised development;
- The completion of works delayed or held up by severe weather conditions which disrupted or interrupted normal construction activities;
- Activities necessary in the instance of an emergency where there is a risk to persons or property;
- Security monitoring; and
- Surveys.

2.3.3 The core working hours exclude start up and close down activities, which can take place up to one hour either side of the core working hours.

2.4 Construction Routing Strategy

2.4.1 The project has used the road hierarchy to determine the construction routes, prioritising use of the following roads (details are set out in Section 3.3.3):

- Priority 1 roads - the SRN (including the A12, A120 and A14);
- Priority 2 roads - the LRN – A roads; and

- Priority 2 roads - the LRN – B roads.

2.4.2 The project is located in an area of Essex and Suffolk where there are a number of narrow lanes which are less suitable for construction traffic than more major roads. As part of the construction routing strategy, National Grid is proposing to construct a temporary access route off the A131 to provide access for construction vehicles to the Stour Valley West CSE compound and to the working area to the west of the trenchless crossing to the south of Ansell's Grove. This would reduce the number of vehicles needing to use local roads; and the need for modifications to the LRN.

2.4.3 LGV would favour the SRN and A roads where practicable and where this would not lead to excessive trip distance and journey time. It has been assumed that during the daily commute, construction workers (including site-based staff) would follow the same principles as the construction routing. This is anticipated to be encouraged through the use of minibuses that would transport workers between their accommodation and a particular work front. The proposed construction routes between the SRN and the construction access points are shown on Figure 1: Traffic and Transport Study Area.

2.5 Construction Programme

2.5.1 The TA is based on the alternative scenario presented in ES Appendix 4.2: Construction Schedule (**application document 6.3.4.2**). Under the alternative scenario, the GSP substation would be constructed in autumn 2024, subject to development consent. This is considered to be a reasonable worst case construction programme for the purposes of the TA, as it requires a greater number of activities to be undertaken concurrently than the baseline construction schedule. Therefore, this TA has considered the proposed project trip generation and traffic impacts for a peak year of construction in 2025.

2.6 Transport Assessment Study Area

2.6.1 The TA study area includes all roads that have been identified as construction routes for the project between the SRN and the construction access points which are illustrated on the Access, Rights of Way and Public Rights of Navigation Plans (**application document 2.7**). This includes the routes used by construction workers travelling between their accommodation and the Access Points.

2.6.2 The study area for PRoW and WCH routes comprise the routes that lie within, connect to or interact with PRoW within the Order Limits and the construction routes. Figure 1: Traffic and Transport Study Area shows the TA study area.

3. Planning Policy Context

3.1 Introduction

3.1.1 This chapter provides a high-level summary of the relevant policy context for the project at the national, regional, and local levels. Further information regarding planning policy can be found in the Planning Statement (**application document 7.1**).

3.2 National Planning Policy

Planning Act 2008

3.2.1 The Planning Act 2008 establishes the legal framework for applying for, examining and determining applications for Nationally Significant Infrastructure Projects (NSIP) in England and Wales. Section 104 of the Planning Act 2008 outlines the importance of NPS to the decision-making process when applications for development consent are under consideration. In this case there are two relevant NPS. These are:

- The Overarching NPS for Energy (EN-1) (DECC, 2011a); and
- The NPS for Electricity Networks Infrastructure (EN-5) (DECC, 2011b).

National Policy Statements EN-1 and EN-5

3.2.2 NPS EN-1 sets out national policy for energy infrastructure. It discusses generic impacts associated with the transport of materials, goods, and personnel to and from a development during all project phases. Paragraph 5.13.3 states that if a project is likely to have substantial transport impacts the applicant is required to produce a TA. The likely impact from substantial HGV traffic should be identified.

3.2.3 Paragraph 5.13.6 of NPS EN-1 states '*a new energy NSIP may give rise to substantial impacts on the surrounding transport infrastructure and the IPC should therefore ensure that the applicant has sought to mitigate these impacts, including during the construction phase of the development'*. This TA fulfils the requirements for an assessment and review of potential transport impacts required by this policy.

3.2.4 In addition, paragraph 5.13.3 also stipulates that applicants should consult the Highways Agency (now National Highways) and the relevant highway authorities, which are Suffolk and Essex County Councils on the project. National Highways is a statutory consultee in the planning system for development proposals as they are responsible for the maintenance of the SRN. These organisations have been consulted on the project and details can be found in the relevant Statement of Common Ground (**application document 7.3.1** and **7.3.4**).

3.2.5 NPS EN-5 does not contain any specific policy relating to traffic and transport.

Strategic Road Network and the Delivery of Sustainable Development, Circular 12/2022 (SRNC)

3.2.6 The SRNC document is policy in relation to the SRN and may be considered important and relevant to decisions on NSIP. It sets out that a TA must consider existing and forecast levels of traffic on the SRN, alongside any additional trips from committed developments that would impact on the same sections (link or junction) as the proposed development. This TA provides an assessment of the existing and forecasted trips to the SRN (A12/A14 and A120).

National Planning Policy Framework (2021)

3.2.7 The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government (MHCLG), 2021) sets out the government's planning policy at the national level (although it does not contain specific policies for NSIP). Paragraph 111 advises that planning applications should be '*supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed.'*

3.2.8 When referring to sites that may be allocated for development in plans, or specific applications for development, paragraph 108 of the NPPF states that planning policies and decisions should consider whether:

a) 'Appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and location;

b) Safe and suitable access to the site can be achieved for all users; and

c) *Any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree*.'

3.2.9 Within this context, paragraph 109 of the NPPF states that 'Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.'

3.2.10 Chapter 7 of the TA provides an assessment to determine whether there would be severe transport impacts resulting from the project.

3.3 Local Planning Policy

Suffolk Local Transport Plan (LTP) (2012)

3.3.1 The LTP sets out Suffolk County Council's long-term transport strategy for the next 20 years. Suffolk's LTP sets out that freight is a key issue within the county and that Suffolk County Council encourages a modal shift to more sustainable methods of transporting freight.

Essex Local Transport Plan (LTP) (2011)

3.3.2 The Essex LTP sets out that 'the Council will manage the efficient movement of freight within the county by working with operators to ensure that heavy goods vehicles use identified routes and that other freight traffic uses the most appropriate routes and encouraging a shift of freight from road transport to rail transport.'

3.3.3 Essex's LTP states that HGV will be encouraged to use Priority 1 roads (as defined by the County) and where not possible, Priority 2 roads (as defined by the County) will be used. Priority 1 roads comprise the SRN and the inter-urban county roads, and Priority 2 roads comprise those that distribute traffic between the LRN and Priority 1 roads. As set out in Section 2.5, this road hierarchy approach has been used when determining the construction routes.

3.3.4 The transport development management policies in the LTP set out that a CTMP is submitted and agreed prior to the commencement of development. A CTMP has been submitted as part of the application for development consent (**application document 7.6).**

3.4 Transport Assessment Guidance

3.4.1 This TA has been prepared with reference to the following guidance:

- Transport Analysis Guidance (TAG) (Department for Transport (DfT), various publication dates;
- Guidance on Transport Assessments and Statements (MHCLG, 2015); and
- Road Safety Engineering Manual (Royal Society for the Prevention of Accidents (RoSPA), 2023).

4. Existing Baseline Transport Conditions

4.1 Introduction

4.1.1 This chapter provides a summary of the existing baseline transport conditions for each of the transport networks affected by the project. This includes the existing conditions in relation to the highway network characteristics, network operation and performance, personal injury and collision data, vehicle parking data, bus and rail services, and WCH networks.

4.2 Strategic Road Network

4.2.1 The SRN, including the A12 and the A14, provides strategic connections across the east of England and beyond. SRN junctions that have been included within the assessment are as follows:

- A12/A14 Copdock junction;
- A14 Claydon interchange;
- A12 junction 31;
- A12 junction 28;
- A12 junction 26; and
- A131/A120 Marks Farm roundabout.

Existing Traffic Flows (SRN)

4.2.2 Peak hour DfT traffic counts have been used to provide existing baseline traffic flows on SRN routes that would be affected by the construction traffic.

4.2.3 The largest project construction traffic impact on the A120 is anticipated south of Braintree at the junction between A131 and A120 (refer to Chapter 7 for the assessment results). DfT (2023) count number 90160 is the closest to this location on the mainline carriageway of the A120. This survey baseline is from 2021.

4.2.4 The largest project construction traffic impact on the A12/A14 occurs at the Copdock junction. The closest DfT (2023) traffic count (count number 57241) has been used, which is also from 2021.

4.3 Local Road Network

4.3.1 The LRN relevant to the TA is shown in Figure 1: Traffic and Transport Study Area.

4.3.2 A number of quiet lanes exist in Suffolk. None of the quiet lanes are proposed as construction routes. There are also a number of Protected Lanes (which are protected under local planning policy) within the TA study area. The assessment on Protected Lanes can be found in ES Chapter 8: Historic Environment (**application document 6.2.8**) and is not assessed further within the TA.

Existing Traffic Flows (LRN)

4.3.3 Traffic count surveys were undertaken on the LRN in 2022 during school term-time, avoiding weeks with public and/or school holidays. Two rounds of surveys were undertaken, between 9 and 22 May and between 23 November and 6 December. In some instances, survey periods were extended to additional days due to unforeseen issues such as Automatic Traffic Counters (ATC) being broken. The traffic survey programme included 184 link count surveys. These are shown on Figure 3: Traffic Survey Locations.

4.3.4 Existing baseline traffic data has not been collected on roads where project construction is expected to generate less than 24 daily vehicles during peak periods of activity (further details of construction traffic generation is set out in Section 7.2). Twenty four daily vehicles equates to one vehicle an hour which is unlikely to cause a substantial impact on the LRN. The routes without baseline data are as follows; Washbrook Road, Lower Barn Road, The Street Chattisham, Chattisham Lane, Clay Hill, Woodlands Road, Smallbridge Entry, Wood Lane, Fiddlers Hill, Fordham Road, Plummers Road, Moat Road, Mill Road, Church Road, Sandy Hill, Lower Road, Halstead Lane, Oak Road and School Road.

4.3.5 Data from the traffic surveys was disaggregated by hour, direction and vehicle category. It was used to segment the road network for the purpose of assessment. Segmentation was initially undertaken based on road network characteristics (for example identifying road segments between major junctions) and then refined by splitting segments if they covered multiple traffic count sites with significant differences in traffic flow.

4.3.6 The survey programme indicated that the AM peak hour for the baseline road network is between 0800-0900 and the PM peak hour is between 1600-1700. These hours have been used as the basis for the assessment of project traffic impacts as set out in Chapter 7. The two-way directional baseline traffic flows are shown on Figure 4.

Personal Injury and Collision Data

4.3.7 Personal injury collision data has been obtained for the most recent five-year period unaffected by the Covid-19 pandemic (2015–2019) on the LRN. Data was analysed for roads where the increase in daily total traffic flow due to the project is expected to be 5% or more of future baseline traffic flows, this is based on profession judgement.

4.3.8 These criteria meant that data was analysed for 16 roads. A total of nine collisions were identified along six of these roads during the assessed time-period. These are summarised in Figure 5: Collision Data and Table 4.1. Appendix A: Collision Data Analysis provides further analysis of each of the six routes.

Table 4.1 – Summary of Road Collisions by Route, Count and Year

Route	Number of Collisions Recorded (2015-19)	Years Occurring
A1071/6	2	2018 and 2019
Rands Road	1	2016
The Street, Assington	2	2015 and 2019
Cuckoo Hill	1	2019
Lamarsh Hill	2	2015 and 2019

Route	Number of Collisions Recorded (2015-19)	Years Occurring
Church Road, Twinstead – Eastern Segment	1	2018

4.3.9 The Road Safety Engineering Manual (RoSPA, 2023) provides guidance for identifying collision hotspots. These are defined as locations where four or more collisions have occurred within a 100m diameter over a three-year period. No collision clusters were identified along the 16 construction routes that would be affected by the project and therefore the project is very unlikely to exacerbate any existing road safety issues.

On Street Parking

4.3.10 The LRN used by the construction traffic is rural in nature and there is no evidence of extensive or frequent on-street parking along many roads. On-street parking is concentrated within villages and hamlets such as Earls Colne, Bures, Nayland, and Great Horksley, although many properties in these locations have access to private off-street parking.

4.4 Existing Bus Network

4.4.1 Buses operate on the construction routes and these are summarised in Appendix B: Existing Bus Services in Suffolk and Essex. The appendix shows regular bus services that operate at least daily on an average weekday, with weekend and seasonal services excluded. Some of the bus services listed in Appendix B: Existing Bus Services in Suffolk and Essex, operate across the Suffolk and Essex County boundaries.

4.5 Walkers, Cyclists and Horse Riders

Existing Cycling Network

National and Regional Cycle Network

4.5.1 The LRN affected by the project includes two National Cycle Network (NCN) routes (NCN Route 1 and NCN Route 13) and one Regional Cycle Network (RCN) route (RCN Route 48). NCN Route 1 connects to NCN Route 13 and RCN Route 48 routes in Colchester. The cycle routes are shown on Figure 2: Active Travel Network.

4.5.2 NCN Route 1 is 1,264 miles in length and is the longest cycle route in the UK. It runs indirectly between the Orkney Islands in Scotland and Dover in the south of England and includes on-road and off-road (traffic-free) cycle provision along its length. The route uses Church Lane in Ipswich and travels east to Chattisham and Hadleigh. Between Chattisham and Hadleigh, NCN Route 1 travels along the Hadleigh Railway Walk between Woodlands Road and Station Road. From Hadleigh, NCN Route 1 continues south through Layham, Shelley, Lower Raydon, Higham, Langham, Langham Moor, and continues south to the A12 between Junction 28 and 29 before travelling south to Dover.

4.5.3 NCN Route 13 is 136 miles in length and runs between Dereham in Norfolk and Tower Bridge in London and includes on-road and off-road cycle provision along its length. It uses local and unclassified roads between Sudbury in the north and the A12 in the south, except for a small section on the B1508 Colchester Road. The route is a traffic-free route in Sudbury and travels south through Middleton, Henny Street, Lamarsh, Bures Hamlet, Mount Bures, Fordstreet, Fordham, Eight Ash Green, and on to the A12 at Junction 26.

4.5.4 RCN Route 48 is 2.7 miles long and is an-road cycle route which begins on the B1070 'The Street' in Raydon, Ipswich and terminates at Higham Road/School Lane junction in Colchester where the route becomes NCN Route 1. The route continues along minor roads and provides local cycle connectivity to the national network.

Local Cycle Routes

4.5.5 In addition to the national and regional cycle routes, there are various local routes which provide cycle connectivity on and off road on the construction routes. These include the following:

- Traffic free cycle lanes on the northern side of the A1214 carriageway in Pinewood south-west of Ipswich;
- The South Suffolk Cycle Route (SSCR) through Hadleigh on the High Street connecting to the Hadleigh Railway Walk off-road cycle route. Section A2 of the SSCR runs from Sudbury to Raydon, mostly on local unclassified roads;
- The Painters Trail is a 111km long distance circular cycle route through Dedham Vale and Stour Valley. A section through Holton St Mary's and Assington is on the proposed construction routes;
- Off-road cycle route in Braintree on the B1018 Millennium Way, which crosses the A120 and runs parallel to the A120 and A131 in Braintree; and
- Off-road cycle routes around Great Notley County Park in Braintree, which cross the A120 and provide cycle connectivity through Braintree.

Existing PRoW

4.5.6 There are a number of bridleways, providing access for horse riders in the area. There are also horse-riding stables close to the proposed construction routes including;

- Water Farm Dressage on the B1070;
- LK Breeding equestrian centre on Upper Street, Layham; and
- Oaklands Equestrian horse-riding school on Heathland Road, near the A134.

4.5.7 There are various PRoW that lie within or interact with the PRoW within the Order Limits. These are shown on Figure 2: Active Travel Network. There are three long distance/promoted walks that overlap with the construction routes and/or the PRoW network within the study. These include:

- The Suffolk Way: a 182km walking route between Flatford and Lowestoft. This crosses the Order Limits to the south of Boxford;
- The Stour Valley Path: a 96km walking route which crosses the Order Limits to the north of Lamarsh; and
- St Edmunds Way: a 126km walking route between Manningtree and Brandon via Bury St Edmunds. This follows the Stour Valley Path through the Order Limits.

4.5.8 Hadleigh Railway Walk (which is not a PRoW) is a two-mile local heritage walk along a disused railway line which crosses the Order Limits to the south of Hadleigh.

4.5.9 As part of the previous survey work in 2013, National Grid undertook survey counts at 10 locations across the wider study area to ascertain an indication of typical off-peak and peak usage of the PRoW. In total, 155 users were counted across all locations in June 2013 and 233 were counted across all locations in August 2013. In June, there were 115 pedestrians (including five children), 31 cyclists (including one child) and nine equestrians (all adult). In August, there were 198 pedestrians (including 25 children), 29 cyclists (including four children) and six equestrians (all adult) (see Table 4.2).

4.5.10 Of the 10 locations surveyed, the greatest number of users was observed on the Hadleigh Railway Walk. Fifty seven percent of all users counted across all sites were counted at this location (65% of off peak users and 52% of peak users). Sprotts Farm and Assington were next most popular walking locations. Two of the sites, Henny Back Road and Butlers Hall Farm, had no count returns during either June or August.

4.5.11 The overall use of the monitored PRoW network surveyed was low, with the exception of the Hadleigh Railway Walk which was clearly the most popular route in the area. However, even this route with an average of 10 users an hour was low (peak two-way count was 19 users between the hours of 10:00 and 11:00am during the August weekend count).

Table 4.2 – PRoW Survey Results, 2013

PRoW	Off Peak PRoW User Count Survey (June 2013)			Peak PRoW User Count Survey (August 2013)		
	Walkers	Cyclists	Horse Riders	Walkers	Cyclists	Horse Riders
Burstall	1	0	0	9	0	0
Ram's Farm, Hintlesham	4	0	0	5	0	0
Upper Layham	4	0	0	11	0	0
Hadleigh Railway Walk	69	31	4	81	23	4
Sprotts Farm	14	0	0	30	2	0
River Box	11	0	0	19	0	0
Assington	13	0	5	15	0	2
Stour Valley Path	3	0	0	3	0	0
Henny Back Road	0	0	0	0	0	0
Butlers Hall Farm	0	0	0	0	0	0
Total	**115**	**31**	**9**	**198**	**29**	**6**

4.5.12 Further baseline usage data was collected in September and October 2021 for a sample of the PRoW within the Order Limits. Five PRoW were surveyed for a ten-hour period on a weekday and a weekend day to determine the volume of WCH using each PRoW. These PRoW are located within the underground cable sections of the project, where the impact was anticipated to the greatest and provide an indication of current PRoW usage. They comprise the following locations:

- Byway through Millfield Wood located between Millwood Road and Heath Road in Polstead Heath, (Suffolk) (W-432/033/0);

- Footpath that runs adjacent to the River Box and is located next to Bushy Park Wood in Polstead, (Suffolk) (W-432/020/0);
- Footpath in the Stour Valley which runs from Upper Road to the B1508 St Edmund's Hill, connecting Little Conrad to Bures (Suffolk) (W-171/001/0);
- Footpath between Moat Lane and Henny Road (Essex) (PROW 93_8 and PROW 93_7); and
- Crossroad of footpaths south of Ansells Farm and Henny Back Road in Alphamstone (Essex) (PROW 58_11 and PROW 58_30).

4.5.13 Table 4.3 summarises the number of WCH users that were observed using the PRoW for the surveyed weekday and weekend periods. The data in the table includes users travelling in both directions on each PRoW.

Table 4.3 – PRoW Survey Results, 2021

PRoW	Number of Users Weekday			Number of Users Weekend		
	Walkers	Cyclists	Horse Riders	Walkers	Cyclists	Horse Riders
Millfield Wood (W-432/033/0)	7	0	0	18	2	0
River Box (W-432/020/0)	1	0	0	4	0	0
Stour Valley (W-171/001/0)	3	0	0	1	0	0
Moat Lane (PROW 93_8 and PROW 93_7)	9	0	0	16	0	0
Crossroads (PROW 58_11 and PROW 58_30)	18	0	0	8	0	0

4.5.14 Under 10 walkers per day were observed using two of the PRoW (River Box and Stour Valley) during both the weekday and the weekend surveys, which equates to less than one user per hour over the observation period. Along the other three PRoW, less than 20 walkers per day were recorded on both days, an average of less than two per hour. This represents a very low level of usage along all five routes.

5. Future Baseline

5.1 Introduction

5.1.1 An assessment has been undertaken to determine the anticipated changes to the baseline by 2025, the peak year of project construction activities. This assessment has included consideration of growth in baseline travel demand due to committed development on the LRN and SRN, and the impact of committed interventions on the transport network.

5.2 Committed Developments and Transport Schemes

5.2.1 Committed developments were reviewed as the first step in defining the future baseline. This used the ES Appendix 15.3: Long List of Other Developments (**application document 6.3.15.3**) to identify proposed developments that could generate traffic. This review indicated that it is likely that there would be some limited increases in baseline traffic flows due to new development in certain areas, but the general character of the LRN and SRN is not expected to change. Therefore, growth was forecast using the DfT Trip End Model Presentation Program (TEMPro).

5.2.2 Two key projects with construction programmes that could overlap with the Bramford to Twinstead Reinforcement are the A12 Junctions 19 to 25 widening project and the East Anglia GREEN project and that have the potential to generate cumulative traffic effects with the project. These projects were also identified by consultees as the source of potential cumulative traffic effects during engagement on the development of the TA.

5.2.3 The A12 Junctions 19 to 25 widening project TA indicates that construction activities are expected to add traffic on the SRN on the construction routes. In addition, the A12 project could generate some construction worker trips on the LRN primarily in Chelmsford and Colchester. The construction programme for the project is expected to last from spring 2024 to the end of 2027. However, the application documents that have been submitted for the A12 Junctions 19 to 25 Widening Project, do not suggest there would be any substantial construction impacts on LRN roads north of the A12. No detailed information (only high-level construction forecasts without any details on routing or locations of impacts) associated with the A12 Junctions 19 to 25 widening project was available when this TA was developed and is therefore not considered further in this TA.

5.2.4 No information on construction impacts associated with the East Anglia GREEN project is available at the point of TA authoring. In addition, Bramford to Twinstead Reinforcement construction traffic is expected to peak in 2025, up to two years prior to the anticipated start date of East Anglia GREEN. Therefore, cumulative impacts related to traffic have not been considered further in this TA.

5.3 Strategic Road Network

5.3.1 Traffic growth on the SRN in the future baseline was forecast using TEMPro. The committed developments review referenced in Section 5.2 indicated that TEMPro forecasts were unlikely to be exceeded by operational traffic generation from individual developments.

5.3.2 The resultant TEMPro growth factors for the SRN are summarised in Table 5.1. This indicates that traffic levels in Essex and Suffolk combined are expected to increase by 2.3% in the AM peak hour and 2.8% in the PM peak hour between 2021 and 2025.

Table 5.1 – TEMPRo (v7.2) – SRN Traffic Growth Factors (2021-2025)

Year	Vehicle Type	Growth Factor
2021 to 2025 AM Peak	All	1.023 (2.3%)
2021 to 2025 PM Peak	All	1.028 (2.8%)

5.4 Local Road Network

5.4.1 Traffic growth on the LRN in the future baseline was forecast using TEMPro. The same parameters used to identify SRN factors as described above were applied in this instance with the exception that the base year was adjusted to 2022 to account for the base year of the LRN traffic counts used in the assessment, as referenced in Chapter 5.

5.4.2 The growth factors derived from TEMPro and applied to existing baseline LRN traffic counts are summarised in Table 5.2. These factors are for an average weekday and indicate traffic levels in Essex and Suffolk combined are expected to increase by 1.65% in the AM peak hour and 1.74% in the PM peak hour between 2022 and 2025. The resultant two-way directional future baseline traffic flows are presented on Figure 6: Future Baseline Flow Diagrams.

Table 5.2 – LRN TEMPRo (v7.2) – LRN Traffic Growth Factors (2022-2025)

Year	Vehicle Type	Growth Factor
2022 to 2025 AM Peak	All	1.0165 (1.65%)
2022 to 2025 PM Peak	All	1.0174 (1.74%)

5.5 Bus Routes

5.5.1 No changes have been identified that would potentially affect the future baseline for bus routes for the purpose of this TA.

5.6 Walkers, Cyclists and Horse Riders

5.6.1 No changes have been identified that would potentially affect the future baseline for WCH network for the purpose of this TA.

6. Methodology

6.1 Introduction

6.1.1 This section sets out the methodology for the assessment of the impacts of the project during construction on the transport network. There are no thresholds defined in TA guidance for assessment purposes, therefore the methodology defined in this Chapter is based on profession judgement and knowledge of similar projects.

6.2 Construction Traffic Generation and Routing

Construction Vehicles Overview

6.2.1 Monthly construction vehicle requirements at each access point over the five-year programme were estimated based on assumptions about construction activities and knowledge of requirements on other similar construction projects, which are set out in Appendix C: Traffic and PRoW Assumptions. The same methodology for deriving the construction traffic and staff vehicles has been applied to both the SRN and LRN.

6.2.2 A peak month was identified for the whole programme and a peak monthly forecast was then derived building in contingency for the impact of potential programme slippages. This contingency was developed by assessing a seven-month period centred on the peak month, and then using the peak monthly vehicle requirement at each site access point within that period in the overall peak monthly forecast for the programme.

6.2.3 The peak monthly forecast was then converted into a peak daily forecast assuming an average of 4.3 weeks per month and that construction activity occurs seven days per week. An uplift factor was included in this calculation to allow for some variation in activity on individual days.

6.2.4 The peak daily forecast was then converted to a peak hourly forecast, initially assuming an even trip profile throughout core working hours and then applying an uplift factor to allow for some variation in activity during individual hours.

Construction Staff Overview

6.2.5 A staff resourcing profile was developed for the project over the five-year programme based on assumptions about construction activities and knowledge of requirements on other similar construction projects, which are set out in Appendix C: Traffic and PRoW Assumptions. A requirement during the peak month of 350 on-site staff per day was identified, with an average of around 180 at other times.

6.2.6 Contingency for the impact of potential programme slippages was built into staffing requirements using a similar approach to that applied to the construction vehicle calculations: a seven-month period centred on the peak month was assessed and the peak daily on-site staff requirement at each access point within that period was adopted for the assessment.

6.2.7 The peak daily staff requirement was then converted to a peak staff vehicle requirement using vehicle occupancy factors. This peak daily vehicle requirement was then converted to a peak hourly staff traffic forecast based on assumptions about shift patterns linked to core working hours.

Assumptions Used in the TA

6.2.8 The following assumptions were used to derive the construction vehicle forecasts, based on professional judgement:

- There is no change in the number of daily working hours during summer/winter;
- Inbound construction vehicles making deliveries to site would generate an empty outbound vehicle trip along the same route in the same hour;
- Outbound construction vehicles removing materials from site would generate an empty inbound vehicle trip along the same route in the same hour;
- Analysis of construction traffic generation in the three months before and after the peak construction month (August 2025) has been undertaken, and the highest monthly forecast at each access point in this seven month period has been used in the assessment to capture the potential impact of any programme slippage;
- An uplift of 12.5% has been applied when converting monthly construction traffic estimates to daily estimates, to allow for some variation in the timing of deliveries and removals from construction sites;
- To allow for some variation in the number of trips in each hour, the daily profile has been divided by 11 (noting that core working hours cover a 12 hour period); and
- Construction impacts on the SRN have assumed that all construction traffic is routed in the same direction as the DfT traffic count location as part of a reasonable worst-case assessment.

6.2.9 The following assumptions were used to derive the staff vehicle forecasts:

- There is no change in the number of daily working hours during summer/winter;
- Construction staff vehicles would be parked within site compounds and would therefore not be parked on the public highway;
- No empty staff vehicle movements are assumed to occur, in contrast to the assumptions for construction vehicles as set out above. For example, it is assumed that for each staff journey there is one AM peak movement and one PM peak movement. As opposed to workers being dropped off at site in a minibus and the minibus being driven away empty during the AM peak and arriving empty during the PM peak to collect staff;
- Analysis of the daily peak staff requirement in the three months before and after the peak construction month (August 2025) has been undertaken, and the highest forecast at each construction site in this seven-month period has been used in the assessment to capture the potential impact of any programme slippage;
- 70% of staff would travel between their overnight accommodation and the construction sites by crew minibuses. A crew minibus would have an average occupancy of four members of staff for each trip;
- 30% of staff would travel between their overnight accommodation and the construction sites in cars. Each car would have an average occupancy of one member of staff for each trip;

- Overnight accommodation for 80% of all staff is assumed to be located in Ipswich, with 10% in Braintree, 5% in Sudbury, and 5% in Hadleigh;
- The following staff arrival profile has been used to convert daily vehicle trips to hourly inbound trips in the morning peak:
  - 25% arrive in the hour before core working hours (0600 – 0700);
  - 50% arrive in the 30-minutes following the commencement of core working hours (0700 – 0730);
  - 25% arrive in the following hour (0730 – 0830); and
  - This results in an assumption, based on an even distribution between 0730 and 0830, that 12.5% of staff would arrive in the baseline morning peak hour (0800 – 0900).
- A similar profile has been used to convert daily vehicle trips to hourly outbound trips in the evening peak:
  - 25% depart between 1730 and 1830;
  - 50% depart in the 30-minute period leading up to the end of core working hours (1830 – 1900);
  - 25% depart in the hour after the end of core working hours (1900 – 2000); and
  - This profile would mean that no staff are travelling during the baseline evening peak hour (1600 – 1700). However, to undertake a precautionary assessment it was assumed that 12.5% of construction staff vehicles would be making outbound trips during the evening peak hour, similar to the inbound assumption during the morning peak hour.

Summary of Construction Vehicle Movements

6.2.10 Table 6.1 provides an overview of the calculations used to convert the staff numbers to daily and hourly figures across the whole programme, applying the assumptions summarised above.

Table 6.1 – Overview of the Hourly Staff Numbers

Total Staff Vehicles (One Way)	Staff	Vehicles
Total staff assumed on-site on peak day (accounting for seven-month assessment period as described above)	528	
Assume 12.5% of daily arrivals to arrive/depart during AM/PM peaks	66	
Assume 70% in minibuses (four per minibus) and 30% in own cars (one per car)	66	$=66\times0.7/4+66\times0.3 = 32$

6.2.11 Table 6.2 provides an overview of the calculations used to convert the construction vehicle numbers to daily and hourly figures across the whole programme, applying the assumptions summarised above.

Table 6.2 – Overview of the Hourly Construction Traffic Numbers

Total Construction Vehicles	LGV	HGV
Total peak month (two way movements) (based on seven-month construction period)	9,552	10,352
Total peak day (two way movements)	=9,552/4.3/7 =317	=10,352/4.3/7 =344
Apply a 12.5% uplift to allow for programme slippage (two way movements)	357	387
Total peak hour (divide by 11)	32	35

Traffic Routing Assumptions

6.2.12 The peak daily and hourly construction vehicle forecasts, derived as described above, were then assigned to identified routes on the LRN between temporary access points and junctions on the SRN. The resultant two-way directional construction traffic flows are presented in the flow diagrams on Figure 7: Construction Traffic Flow Diagrams.

6.3 Construction Traffic Assessment Methodology

6.3.1 An assessment has been undertaken to identify the LRN and SRN routes which are anticipated to experience an increase in traffic that is greater than or equal to 5% of future baseline traffic flows during the AM and PM peak hours. A comparison has been made between the one-directional traffic volumes for the 2025 future baseline (without construction traffic) and the 2025 future Do Something (with construction traffic) scenarios and the net and percentage increase in one-directional traffic for each route has been analysed.

Junction Capacity

6.3.2 A junction capacity assessment has been undertaken to establish whether there is a requirement to assess junctions on the LRN in greater detail (i.e. through traffic modelling). The assessment results are provided in Chapter 7 and Appendix E: Junction Capacity Assessment.

6.3.3 The methodology for priority junctions involved three steps which include the following:

- Step 1: Junctions were excluded from the assessment if peak daily construction traffic passing through them amounted to 24 vehicles or less per day;
- Step 2: Indicative capacity thresholds were identified for priority junctions exceeding the Step 1 threshold. This approach is based on the ‘Junction Selection’ guidance in Chapter 2 of the DMRB CD 123 for priority junctions. The thresholds were based on the ranges of two-way Annual Average Daily Traffic (AADT) flows for both major and minor arms of a junction when they intersect;
- Step 3: Identifying the proportional impact of the project construction traffic on junctions on the LRN where capacity thresholds were not applicable. This involved identifying the percentage increases on the major roads at the junctions.

6.3.4 The methodology for roundabouts and signalled controlled junctions involved two steps which include the following:

- Identify the major and minor approaches to the junctions; and
- Identify the proportional impact of the project construction traffic on major and minor approaches to each junction and take a professional judgement on the anticipated impact.

Collisions

6.3.5 The AM and PM peak hour construction traffic increases on the six routes identified through baseline collision analysis, identified in Chapter 4 of this TA, have been analysed qualitatively to establish the potential impact that the project construction traffic would have on road traffic collisions.

6.4 Bus Network

6.4.1 A qualitative assessment has been undertaken of the impact of traffic flow changes on the bus routes on the proposed construction routes, which are summarised in Chapter 4.

6.5 Walkers, Cyclists and Horse-Riders Network

6.5.1 The assessment methodology for WCH follows the approach used as set out in ES Chapter 12: Traffic and Transport (**application document 6.2.12**). This involved an assessment of project impacts on WCH journey length, WCH severance, and WCH amenity, fear and intimidation. The following has been considered as part of the assessment;

- WCH journey length – This has considered the additional length added to journeys made by WCH as a result of the project during construction (e.g. due to PRoW closures), and the expected duration of the impact;
- WCH Severance – This has considered project impacts related to temporary changes in traffic flow on roads during construction, which could hinder WCH when crossing the road. Severance impacts on PRoW are effectively covered in the WCH Journey Length assessment; and
- WCH amenity, fear and intimidation – This has considered project impacts related to temporary changes in traffic flow on roads during construction, which could impact on the pleasantness of WCH journeys.

7. Transport Assessment

7.1 Introduction

7.1.1 This Chapter identifies the construction impacts of the project on the transport network, applying the methodology set out in Chapter 6 with reference to the baseline described in Chapters 4 and 5. Project impacts on the following are considered in turn:

- The SRN;
- The LRN;
- The bus network; and
- WCH.

7.2 Strategic Road Network

Operation and Performance

7.2.1 An assessment of the impact of project construction traffic on the SRN has been undertaken. Figure 7 provides the full details of this assessment, showing forecast peak construction traffic flow on each segment of the SRN either side of the junctions providing access to identified construction routes on the LRN.

7.2.2 The two segments of the SRN that are expected to carry the highest volumes of construction traffic are the A12 between junction 32B and the Copdock junction south-west of Ipswich, and the A120 between Marks Farm Roundabout and Galleys Corner Roundabout on the outskirts of Braintree.

7.2.3 Table 7.1 summarises the forecast changes in traffic flow by direction on these segments due to the project in the 2025 AM and PM peak hours (0800-0900 and 1600-1700, as described in Chapter 4). The change is shown for total traffic flow and for HGV. Table 7.1 shows that the percentage increases on these segments of the A12 and A120 would be less than 2% for total traffic and less than 4% for HGV in both directions in the AM and PM peak hours. Therefore, based on professional judgement, the project would not have a substantial impact upon the operation of the SRN during construction.

Table 7.1 – Summary of change in Traffic on key SRN segments during the AM and PM Peak Hours

SRN Road Segment	Traffic Direction	2025 Future Baseline Traffic (total vehicles per direction)	Peak construction Traffic (total vehicles per direction)	Percentage Increase in Traffic	2025 Future Baseline HGV Traffic (total HGVs per direction)	Peak construction traffic (total HGVs per direction)	Percentage Increase in HGVs
AM Peak							
A12 (between junction 32B and Copdock junction)	North-eastbound	2,371	35	1.48%	280	6	2.14%
	South-westbound	2,154	9	0.42%	236	6	2.54%
A120 (between Galleys Corner junction and Marks Farm Roundabout)	Northbound	1,135	9	0.79%	120	2	1.67%
	Southbound	1,669	6	0.36%	125	2	1.60%
PM Peak							
A12 (between junction 32B and Copdock junction)	North-eastbound	2,015	9	0.45%	235	6	2.55%
	South-westbound	2,067	35	1.69%	153	6	3.92%
A120 (between Galleys Corner junction and Marks Farm Roundabout)	Northbound	1,689	6	0.36%	73	2	2.74%
	Southbound	1,389	9	0.65%	59	2	3.39%

7.3 Local Road Network

Traffic Flows

7.3.1 Figure 7 provides the full details of forecast traffic changes on the LRN in the TA study area during the AM and PM peak hours. This data was used to identify road segments where the project is expected to result in an increase in one-way future baseline traffic of 5% or more in either peak hour – these road segments are listed in full in Appendix D: LRN AM and PM Peak Construction Traffic Impacts.

7.3.2 Table 7.2 summarises the road segments in both peak hours where 20 or more construction vehicles per direction are expected to be generated by the project during peak periods of construction activity.

Table 7.2 – AM and PM Peak - Increase in Construction Traffic Numbers

LRN Road Segment - Direction	Increase in Traffic Due to Project Construction (Vehicles)	LRN Road Segment - Direction	Increase in Traffic Due to Project Construction (Vehicles)
AM Peak		**PM Peak**	
A1214 (northern segment) NB	35	A1214 (northern segment) SB	35
A1214 (southern segment) NB	35	A1214 (southern segment) SB	35
A1071 (adjacent to the A14) WB	35	A1071 (adjacent to the A14) EB	35
A1071 (Chattisham) WB	33	A1071 (Chattisham) EB	33
A1071 (Hintlesham) WB	28	A1071 (Hintlesham) EB	28
A1071 (Noman's Farm) WB	27	A1071 (Noman's Farm) EB	27
A1071 (Hadleigh) EB	27	A1071 (Hadleigh) EB	27
A1071 (by Potash Lane) WB	20	A1071 (by Potash Lane) EB	20
A1071 (south of Boxford) WB	21	A1071 (south of Boxford) EB	21
A134 (north of Leavenheath) SB	24	A134 (north of Leavenheath) NB	24
A134 (approach to A1071) SB	24	A134 (approach to A1071) NB	24

7.3.3 This demonstrates that the A1214/A1071 corridor travelling in a northbound/westbound direction (i.e. inbound to the construction sites) would experience the largest increase in traffic during the AM peak hour. An additional flow of 35 vehicles per hour on the A1214 equates to just over one additional vehicle every two minutes. During the PM peak it is the reverse with the A1071/A1214 corridor travelling in an eastbound/southbound (i.e. outbound from the construction sites) experiencing the largest increase in traffic.

7.3.4 Table 7.3 summarises all the road segments where the forecast increase in traffic due to the project is 30% or higher by direction in either peak hour. These road segments are listed in full in Appendix D: LRN AM and PM Peak Construction Traffic Impacts.

Table 7.3 – Percentage Increase in Construction Traffic Numbers

Junction	Percentage Increase in Construction Traffic	Increase in Construction Vehicle Numbers	Junction	Percentage Increase in Construction Traffic	Increase in Construction Vehicle Numbers
AM Peak			**PM Peak**		
Church Road East WB	300%	6	Church Road East EB	120%	6
Rands Road SB,	90%	9	Rands Road NB	113%	9
Bullen Lane EB,	50%	2	Bullen Lane WB	67%	2
Church Road West WB	33%	6	Rands Road SB	57%	4
Old Road WB	33%	2	Church Road West EB	32%	6
High Road NB	30%	3			

7.3.5 Table 7.3 indicates that these percentage increases are high because of the very low 2025 future baseline traffic flows. Across all segments with a forecast increase of 30% or more in either peak hour, the largest absolute change in traffic would occur on Rands Road with an additional nine vehicles per direction in each peak hour. This low level of absolute change would not have a material impact upon the operation or performance of the network.

Junction Capacity

7.3.6 The traffic forecasts summarised above have been used as the basis for an assessment of junction capacity impacts in the study area, including those junctions where construction routes join the SRN. Full details of this assessment are provided in Appendix E: Junction Capacity Assessment.

7.3.7 The implications of traffic increases for junction capacity differ depending on the type of junction impacted. For this reason, the assessment was undertaken in two parts, with priority junctions assessed separately from signalised junctions and roundabouts.

7.3.8 To assess priority junctions, an initial long list was generated of 28 locations where the project would increase traffic through the junction by 24 or more vehicles per day. Most of these junctions are on key A and B roads in Suffolk. This long list was then reduced in two steps as follows:

- A capacity issue was judged to be highly unlikely at junctions with negligible peak hour traffic approaching on the minor arms – 10 locations were eliminated on this basis with reference to baseline traffic data (including a condition that no project construction traffic is forecast to use minor arm approaches at the junction); and

- The remaining 18 junctions were then sifted using a minor arm (lower traffic flow) approach flow threshold (applied to baseline + construction traffic), which was based on DMRB guidance – this threshold for each junction was dependent on the peak hour forecast major road flow, since minor arm capacity reduces as this increases.

7.3.9 The assessment resulted in the identification of four instances where the minor arm capacity threshold would be exceeded in either peak hour. These are summarised in Table 7.4.

Table 7.4 – Priority Junctions Where Minor Roads Operate Above the Capacity Threshold, AM and PM Peak

Junction	Major Road Traffic (Two-Directional)	Minor Road Traffic Towards the Junction	% Increase in traffic on Major Road due to project	% Increase for Minor Road (Towards the Junction)	Estimated Threshold Minor Road flow (one-way)	Above Capacity Threshold	Increase More Than 10% due to project
AM Peak							
A1071/Duke Street	1222	142	6%	2%	140	Yes	No
A134/A1071	1248	368	1%	6%	140	Yes	No
PM Peak							
A134/A1071	1304	336	1%	1%	140	Yes	No
A134/B1068	896	183	6%	1%	170	Yes	No

7.3.10 Table 7.4 illustrates that the A134/A1071 junction would operate above the identified capacity threshold in both the AM and PM peak hours, in addition to the A1071/Duke Street junction in the AM peak and the A134/B1068 junction in the PM peak. However, the table also indicates that in each case, this capacity exceedance is driven by future baseline traffic. Project traffic only accounts for a maximum 6% increase on any arm of any junction flagged.

7.3.11 To assess signalised junctions and roundabouts, an alternative methodology was adopted. The first step was similar to that applied to priority junctions. An initial long list was generated where the project would increase traffic through the junction by 24 or more vehicles per day. Junctions were then assessed based on the percentage change in traffic on each arm due to the project.

7.3.12 Table 7.5 provides a summary of the locations where project construction traffic exceeded 5% of future baseline flow on any arm in either peak hour.

Table 7.5 – Signal-controlled Junctions and Roundabouts with Percentage Increases in Traffic Flow above 5% Due to the Project in Either the AM or PM Peak Hours

Junction	Junction Type	Max % increase on junction approach (one-way) due to project	Max impact junction approach	Baseline traffic on max impact junction approach (one-way)	Construction traffic on max impact junction approach (one-way)
AM Peak					
A1071/A1214	Signalised Junction	8.7%	A1214 (NB approach)	402	35
A1071/B1113	Roundabout	7.5%	A1071 (WB approach)	469	35
PM Peak					
A1071/A1214	Signalised Junction	6.6%	A1071 (EB approach)	527	35
A1071/B1113	Roundabout	6.1%	A1071 (EB approach)	572	35
Copdock junction	Signalised junction	5.8%	A1214 (SB approach)	604	35

7.3.13 As indicated in Table 7.5, there are three locations where the percentage increase in construction traffic exceeds 5% on any approach to a roundabout/signal-controlled junction. However, the largest change is less than 9% and the absolute changes are relatively modest at an additional 35 vehicles per hour in the peak direction.

7.3.14 Therefore, based on professional judgement, it can be concluded that the impact of project traffic on LRN capacity during periods of peak construction activity would not be substantial. In addition, the levels of project traffic assumed in the assessment described above would only be sustained for a relatively short period of time. Construction traffic generation in the peak month of August 2025 (the basis of the assessment described above) is forecast to be 7% higher than in any other month in the construction programme, and 13% higher than all but 5 other months. A high level of contingency has also been included in the forecast, as set out in Chapter 6.

Road Traffic Collisions

7.3.15 As set out in Appendix A: Collision Data Analysis, a baseline collision review was undertaken on roads where the project is expected to increase future baseline traffic flows by 5% or more during periods of peak construction activity. This review identified a total of nine collisions that occurred in the five-year assessment period (2015-2019) on six project construction routes.

7.3.16 The Road Safety Engineering Manual (RoSPA, 2023) provides guidance for identifying collision hotspots. These are defined as locations where four or more collisions have occurred within a 100m diameter over a three-year period.

7.3.17 As summarised in Appendix A: Collision Data Analysis, no collision clusters were identified along the 16 road segments. It could therefore be concluded that there were no existing road safety issues evident in the study area that the project could exacerbate.

7.3.18 Some of the percentage increases in traffic along the 16 route segments would be substantial as shown in Table A.1 in Appendix A: Collision Data Analysis. However, this is largely due to very low levels of baseline traffic. For example the increase in traffic of 178 daily trips along The Street in Assington would amount to less than 20 additional vehicle trips per hour throughout the day, and this level of traffic would only be sustained for a relatively short duration.

7.3.19 Given these routes have no existing road safety issues, it is reasonable to conclude that the project would not have any substantial adverse impact on road safety.

On Street Parking

7.3.20 No changes to on street parking are proposed as a result of direct impacts from the project. It has been assumed that there would be sufficient parking provision for construction workers and vehicles within site compounds, therefore there would be no change in the levels of parking on the LRN. This would reduce potential conflicts between construction vehicles and other parked vehicles.

7.3.21 Lane closures and temporary traffic management may be required during the construction and removal of the access points and bellmouths on larger roads (B roads and above). Smaller roads may require full closure with diversion routes provided where practicable. In both cases, works are assumed to take approximately two weeks during site set up, and a similar duration at the end to reinstate the bellmouth to the previous condition.

7.3.22 As set out in the EIA Scoping Report (**application document 6.5.1-3**), thresholds based on EIA requirements for assessing air quality impacts of road schemes have been set for the assessment of any temporary road closures. None of the temporary road closures exceed the thresholds and therefore require any further assessment. Access would be maintained for residents and other essential users as set out in good practice measure AS03 in the CoCP (**application document 7.5.1**). The impact of these temporary road closures would have only a small temporary impact on parking and resident access.

7.4 Bus Network

7.4.1 No diversions of any bus routes or changes to bus stop locations or services are proposed as a result of the project.

7.4.2 Section 5.2 describes the construction routes (and direction of travel) which are anticipated to experience the largest increases in construction traffic that are 5% and above the future baseline flows. It illustrates that the increase in vehicle numbers across the LRN would be between 1 and 35 additional vehicles one-way during the AM and PM peak hours.

7.4.3 The A1071 corridor between the A1214 and Hadleigh would experience the largest traffic increase with 35 additional vehicles in one direction in both peak hours, travelling westbound in the AM peak and travelling eastbound in the PM peak. Bus service 91 (Ipswich to Sudbury) operates on the A1071 between the A1214 and Hadleigh and continues on the A1071 to Sudbury. Bus stops are located in Hintlesham and Hadleigh and services run once per hour in both directions of travel.

7.4.4 Thirty five additional vehicles during the AM and PM peak hours, which generally equates to one additional vehicle every two minutes, would not impact upon the operation of the bus service on the A1071 corridor as these volumes are not significant enough to impact upon journey times, delay, congestion, or pedestrian severance when crossing the A1071 to access the bus stops. This represents the largest increase in construction vehicle numbers with other LRN roads identified experiencing lower increases. Therefore, the project would not have a substantial impact upon the future operation of the bus network.

7.5 Walkers, Cyclists and Horse Riders Network

7.5.1 The assessment of project impacts on the WCH network follows the assessment undertaken in ES Chapter 12: Traffic and Transport (**application document 6.2.12**). This has assessed impacts on WCH journey length; severance; and amenity, fear and intimidation. Likely changes in WCH journey length due to temporary closures of PRoW during construction have been assessed and the results are summarised in the section below on PRoW impacts.

7.5.2 Likely changes in severance due to temporary increases in traffic flow on roads during project construction have also been assessed. This assessment indicated no substantial impacts on severance due to increases in traffic flow resulting from the project. Many roads in the study area would carry significantly less than 8,000 vehicles per day (future baseline plus construction traffic), which is defined as a threshold for severance impacts in DMRB guidance.

7.5.3 Likely changes in WCH amenity, fear and intimidation due to temporary increases in traffic flow on roads during project construction have also been assessed. The results of this assessment show that the project is expected to have a notable adverse impact (resulting from the forecast increase in total traffic flow) on Church Road, Twinstead (due to the location of residential properties, a village hall and a church along this road). Although the percentage change in daily traffic flow forecast is high, the absolute change would be low (96 additional vehicle movements per day in both directions combined during peak periods of construction activity). Consequently, some minor measures (for example warning signage) are proposed to mitigate this impact.

Cycling Network

National and Regional Cycle Network

7.5.4 There would be no direct impact (e.g. closures) on the NCN and RCN due to activities during construction and these routes would not require closures or diversions.

7.5.5 Although not directly affected by construction activities, some cycle routes that follow the LRN would experience increased traffic during construction, which would have an indirect impact on WCH using these routes. The following sections of NCN and RCN are proposed as construction routes and would experience increased traffic:

- NCN Route 1 – a distance of 0.3 miles on Overbury Hall Road in Lower Layham, Ipswich;
- RCN Route 48 – a distance of 0.1 miles on the B1070 The Street in Raydon, Ipswich;
- NCN Route 13 – a distance of 2.1 miles on Henny Street, Henny Road, Bell Hill, Springett's Hill, Lamarsh Hill and Station Hill between Lamarsh and Bures;

- NCN Route 13 – a distance of 0.6 miles on the Colchester Road in Bures;
- NCN Route 13 – a distance of 1.9 miles on Moat Road, Church Road, Mill Road, and Fiddlers Hill through Fordham, Colchester; and
- The Painters Trail – this includes a section through Holton St Mary's (B10170) and Assington. The Street, Clay Hill, Henny Street, Henny Road, Bell Hill, Springett's Hill, Lamarsh Hill and Colchester Road are on the proposed construction routes. The Painters Trail is the same route as NCN Route 13 along Henny Road so is included in Table 7.6 and Table 7.7 alongside NCN Route 13.

7.5.6 The change in forecast traffic flows on these roads are shown by direction during the AM and PM peak hours respectively in Tables 7.6 and 7.7. It should be noted that where the construction traffic impacts are less than 24 daily vehicles no baseline data has been collected due to the minimal impacts. This is denoted with N/A in Tables 7.6 and 7.7.

7.5.7 The tables indicate that the largest increases in one-way traffic on any of these roads in either peak hour would amount to an additional seven vehicles per hour. This level of increase would not have any substantial impacts on cyclists using these routes. Therefore, the project would not have a substantial impact upon the NCN or RCN during peak periods of construction.

Table 7.6 – Change in Traffic Flows on Key NCN Routes, AM Peak

NCN / RCN Route	LRN	2025 Future Baseline Traffic Volume	2025 Do Something Traffic Volume	Net Increase in Traffic	Percentage Increase in Traffic
NCN Route 1	Overbury Hall Road NB	19	20	1	5%
	Overbury Hall Road SB	16	16	0	0%
RCN Route 48	B1077/5 – Northern segment NB	210	213	3	1%
	B1077/5 – Northern segment SB	220	224	3	2%
	B1077/5 – Southern segment NB	323	326	3	1%
	B1077/5 – Southern segment SB	433	436	3	1%
NCN Route 13	Moat Road NB	N/A	N/A	2	N/A
	Moat Road SB	N/A	N/A	2	N/A
	Church Road NB	N/A	N/A	2	N/A
	Church Road SB	N/A	N/A	2	N/A
	Mill Road NB	N/A	N/A	2	N/A
	Mill Road SB	N/A	N/A	2	N/A
	Fiddlers Hill NB	N/A	N/A	2	N/A
	Fiddlers Hill SB	N/A	N/A	2	N/A
	Henny Street NB	25	31	6	24%

NCN / RCN Route	LRN	2025 Future Baseline Traffic Volume	2025 Do Something Traffic Volume	Net Increase in Traffic	Percentage Increase in Traffic
NCN13/The Painter's Trail	Henny Street SB	26	26	0	0%
	Henny Road NB	29	36	7	24%
	Henny Road SB	34	35	1	3%
	Bell Hill NB	43	50	7	16%
	Bell Hill SB	64	65	1	2%
	Springett's Hill NB	43	50	7	16%
	Springett's Hill SB	64	65	1	2%
	Lamarsh Hill NB	33	40	7	21%
	Lamarsh Hill SB	48	49	1	2%
	Colchester Road NB	228	233	5	2%
	Colchester Road SB	290	298	8	3%

Table 7.7 – Change in Traffic Flows on Key NCN Routes, PM Peak

NCN / RCN Route	LRN	2025 Future Baseline Traffic Volume	2025 Do Something Traffic Volume	Net Increase in Traffic	Percentage Increase in Traffic
NCN Route 1	Overbury Hall Road NB	20	20	0	0%
	Overbury Hall Road SB	19	20	1	5%
RCN Route 48	B1077/5 – Northern segment NB	227	231	3	2%
	B1077/5 – Northern segment SB	226	229	3	1%
	B1077/5 – Southern segment NB	283	286	3	1%
	B1077/5 – Southern segment SB	401	404	3	1%
NCN Route 13	Moat Road NB	N/A	N/A	2	N/A
	Moat Road SB	N/A	N/A	2	N/A
	Church Road NB	N/A	N/A	2	N/A
	Church Road SB	N/A	N/A	2	N/A
	Mill Road NB	N/A	N/A	2	N/A
	Mill Road SB	N/A	N/A	2	N/A
	Fiddlers Hill NB	N/A	N/A	2	N/A
	Fiddlers Hill SB	N/A	N/A	2	N/A

NCN / RCN Route	LRN	2025 Future Baseline Traffic Volume	2025 Do Something Traffic Volume	Net Increase in Traffic	Percentage Increase in Traffic
NCN Route 13 / The Painter's Trail	Henny Street NB	27	27	0	0%
	Henny Street SB	25	31	6	24%
	Henny Road NB	11	13	2	18%
	Henny Road SB	12	15	3	25%
	Bell Hill NB	45	46	1	2%
	Bell Hill SB	46	53	7	15%
	Springett's Hill NB	45	46	1	2%
	Springett's Hill SB	46	53	7	15%
	Lamarsh Hill NB	46	47	1	2%
	Lamarsh Hill SB	27	34	7	26%
	Colchester Road NB	278	286	8	3%
	Colchester Road SB	220	225	5	2%

Local Cycle Routes

7.5.8 There would be no direct impact on local cycle routes as a result of activities during construction and these routes would not require closures or diversions. The Hadleigh Railway Walk would remain open during construction.

7.5.9 The following routes would not be impacted as they consist of off-road cycle provision with limited interaction with vehicular traffic:

- Traffic free cycle lanes on the northern side of the A1214 in Pinewood south-west of Ipswich;
- Off-road cycle route in Braintree on the B1018 Millennium Way which crosses the A120, and runs parallel to the A120 and A131 in Braintree; and
- Off-road cycle routes around Great Notley County Park in Braintree, which cross the A120 and provides cycle connectivity through Braintree.

7.5.10 Two sections of the SSCR A2 are on-road (cyclists are required to travel alongside vehicular traffic) on construction routes. These sections include the following:

- Colchester Road in Bures for a distance of 0.2 miles; and
- The Street in Assington for a distance of 0.3 miles.

7.5.11 Table 7.8 summarises the project impact on traffic flow on these roads by direction in the AM and PM peak hours. The largest change would occur on The Street in the PM peak hour. The project would add an additional 12 vehicle trips southbound and three northbound. This amounts to an additional vehicle every five minutes southbound. This level of increase would not have any substantial impacts on cyclists using these routes. Therefore, the project would not have a substantial impact upon local cycle routes during peak periods of construction.

Table 7.8 – Change in Traffic Flows on The Street in Assington, AM and PM Peak

Local Cycle Route	LRN	2025 Future Baseline Traffic Volume	2025 Do Something Traffic Volume	Net Increase in Traffic	Percentage Increase in Traffic
SSCR A2	**AM Peak**				
	The Street NB	70	82	8	17%
	The Street SB	63	66	3	5%
	Colchester Road NB	228	233	5	2%
	Colchester Road SB	290	298	8	3%
	PM Peak				
	The Street NB	63	66	3	5%
	The Street SB	81	93	12	15%
	Colchester Road NB	278	286	8	3%
	Colchester Road SB	220	225	5	2%

Public Rights of Way

7.5.12 There would be no permanent diversions or closures of PRoW due to the project. Therefore, this section focuses upon the temporary impacts on PRoW (including bridleways) during construction and how these impacts would be managed.

7.5.13 It has been assumed that where a PRoW closure is for two weeks or less, the impact on WCH would be negligible and therefore no further assessment is required.

7.5.14 Appendix F: PRoW Diversions (Table F.1) shows that there are 30 PRoW that are assumed as requiring a closure for between two and 12 weeks (28 would require closures for between two and eight weeks and two would be closed for 12 weeks). Proposed diversions (where practicable) are shown on the Access, Rights of Way and Public Rights of Navigation Plans (**application document 2.7**). Temporary alternative routes would be available using existing PRoW adjacent to and surrounding the impacted routes, as well as existing highway infrastructure (footways) on local roads where off-road routes are not available. Diversion routes have been identified for 22 of the 30 impacted PRoW.

7.5.15 The majority of diversions would be less than 2km. Six PRoW would be diverted over longer distances; the route through Ramsey Wood (4.1km), west of Ramsey Wood (2.8km), the route off the A1071 in Hintlesham (2.2km), the route East of Benton Street (6.2km) and two sections of the PRoW between Pond Hall Road and Benton Street (5.7km and 6.5km). These diversions provide the safest routes for users by using existing PRoW and less trafficked minor roads where practicable.

7.5.16 The assessment of these impacts reported in ES Chapter 12: Traffic and Transport (**application document 6.2.12**) indicates no substantial adverse impacts on any PRoW as a result of temporary closures proposed.

8. Conclusion

8.1.1 The TA has set out the following related to the temporary transport impacts of the project during the peak period of construction activity in 2025:

- Relevant national, regional and local policy and guidance, which provided a framework for the assessment;
- Existing baseline and future baseline transport conditions;
- The level of construction traffic expected on the road network;
- Requirements for temporary amendments to the road network and PRoW; and
- The resultant impact of the project on the road network, bus services, and WCH.

8.1.2 This TA complies with Overarching National Policy Statement for Energy (EN-1) (DECC, 2011a) which sets out that where a substantial impact is anticipated on the surrounding transport infrastructure, mitigation would be required.

8.1.3 The project is expected to generate additional temporary construction traffic during the AM and PM peak hours on the SRN and the LRN. However, peak traffic levels would be insubstantial, as the roads carrying the largest volumes of construction traffic would see increases of only 35 additional vehicle trips one-way per hour. In addition, this level of increase would only be maintained during a small number of months within the construction programme.

8.1.4 The project therefore would not have a substantial impact upon the operation of the road network, bus services, or WCH using the public highway during construction with a single exception: a notable temporary adverse impact on WCH amenity, fear and intimidation on Church Road, Twinstead due to an increase of 96 additional daily vehicle movements during peak periods of construction activity. Measures including the placement of warning signage are proposed along this route to mitigate construction impacts.

8.1.5 A traffic collision review undertaken to develop the baseline for the project indicated that there are no existing road safety issues on any roads expected to be used by construction vehicles. In addition, parking provision for construction workers and construction vehicles would be provided within site compounds. Therefore, there would be no substantial direct impacts on existing on-street parking on the LRN. Any lane closures and traffic management required would be temporary and short-term with diversion routes provided where practicable.

8.1.6 Thirty PRoW would be temporarily impacted by project construction, requiring short-term closures and diversions. Safe and alternative routes have been identified for 22 of these routes. The assessment of these impacts indicates no substantial adverse impacts on any PRoW as a result of temporary closures proposed.

8.1.7 In conclusion, the project is not anticipated to have a substantial impact on the transport network during construction.

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Appendix A: Collision Data Analysis

1.1 Roads Included in the Collision Assessment

1.1.1 The collision assessment has been undertaken with reference to forecast changes in future baseline traffic flow due to the project during peak periods of construction activity. Roads were included if project construction traffic is expected to increase future baseline (2025) daily traffic flow by 5% or more – this resulted in the identification of a long-list of 16 road segments, which are summarised in Table A.1.

Table A.1 – Roads Included in the Collision Assessment

LRN Road	2025 Future Baseline Daily Traffic Volume	2025 Do Something Daily Traffic Volume	Net Daily Increase in Traffic	Percentage Increase in Daily Traffic
Bullen Lane	227	245	18	8%
A1071 (adjacent to Hintlesham Hall)	9010	9473	463	5%
Rands Road	211	354	143	68%
Millwood Road	257	272	15	6%
Stackwood Road	515	545	30	6%
High Road	231	250	19	8%
The Street, Assington	1425	1603	178	12%
Cuckoo Hill	1067	1163	96	9%
Station Hill	2673	2810	137	5%
Lamarsh Hill	845	956	111	13%
Springett's Hill	948	1059	111	12%
Bell Hill	948	1059	111	12%
Henny Road	684	795	111	16%
Henny Street	580	676	96	17%
Church Road, Twinstead - Eastern Segment	90	186	96	107%
Church Road, Twinstead - Western Segment	434	530	96	22%

1.1.2 Personal injury collision data was obtained from the Department for Transport for the most recent five-year period unaffected by the Covid-19 pandemic (2015–2019). Analysis of this data indicated that a total of nine collisions had occurred during this period on six of the 16 road segments, as set out in Table A.2.

Table A.2 – Summary of Road Collisions by Route, Count and Year

Route	Number of Collisions Recorded (2015-19)	Years Occurring
A1071/6	2	2018 and 2019
Rands Road	1	2016
The Street, Assington	2	2015 and 2019
Cuckoo Hill	1	2019
Lamarsh Hill	2	2015 and 2019
Church Road, Twinstead – Eastern Segment	1	2018

1.2 Summary of Collisions

1.2.1 The characteristics of the nine traffic collisions identified on the six road segments are described below.

A1071/6

1.2.2 Two collisions occurred on the A1071/6 segment, one in 2018 which involved one vehicle and the second in 2019 which involved two vehicles. Both collisions occurred within a 40mph speed limit zone, at a give-way T-junction or staggered junction, and while vehicles were undertaking 'ahead' movements.

1.2.3 The collision which occurred in 2018 involved the vehicle travelling in a north to north-east direction of travel while approaching a junction. The collision which occurred in 2019 involved two vehicles which were approaching a junction in opposite directions. Both occurred during daylight conditions with rain during the 2018 collision and fine weather during the 2019 collision, although in both cases road conditions were wet or damp.

Rands Road

1.2.4 One collision took place on Rands Road in 2016 and involved one car making an 'ahead' movement while travelling in a 40mph speed limit zone. The collision did not occur at or within 20m of a junction and involved the vehicle travelling in an east-west direction. The collision occurred during darkness without street lighting and during wet or damp road conditions.

The Street, Assington

1.2.5 The two collisions that occurred on The Street in Assington were in 2015 and 2019 and both collisions involved two vehicles. One collision involved a car and a LGV and the second collision involved a car and pedal cycle. Both collisions occurred in a 60mph speed limit zone, during daylight conditions and while vehicles were undertaking 'ahead' movements travelling in different directions.

1.2.6 The collision which occurred in 2015 involved the car travelling in a west to north-east direction with the LGV travelling in the opposite direction. The collision did not occur at or within 20m of a junction and was during rainy weather and wet road surface conditions.

1.2.7 The collision which occurred in 2019 involved the car travelling in a north-east to south or south-east direction while the pedal cycle was travelling in a south or south-east to north-east direction. The collision occurred at a give-way roundabout junction, during fine weather conditions, and during dry road surface conditions.

Cuckoo Hill

1.2.8 One collision which took place on Cuckoo Hill occurred in 2019 and involved a car and pedal cycle making 'ahead' movements while travelling in different directions on a bend in the road. The car was travelling in a south-west to north direction, while the pedal cycle was travelling in a north to south-west direction. The collision did not occur at or within 20m of a junction but in a 30mph speed limit zone during darkness without street lighting – weather conditions were fine but road conditions were wet or damp.

Lamarsh Hill

1.2.9 The two collisions that occurred on Lamarsh Hill were in 2015 and 2019, at different locations on the road – one involved a single car and the second involved two cars travelling in opposite directions. Both occurred in a 60mph speed limit zone while vehicles were making 'ahead' movements, and neither occurred within 20m of a junction.

1.2.10 One of the collisions occurred during darkness without street lighting and one collision occurred during daylight conditions. The road surface was wet or damp during both collisions, with rain or high winds present during one of the collisions.

Church Road Twinstead

1.2.11 The collision recorded on Church Road in Twinstead occurred in 2018 and involved a car and a LGV both making 'ahead' movements in opposite directions in a 60mph speed limit zone. The collision did not occur at or within 20m of a junction and occurred during daylight conditions, in fine weather conditions with dry road surface conditions.

1.3 Assessment of Project Impact on Collisions

1.3.1 The Road Safety Engineering Manual (RoSPA, 2023) provides guidance for identifying collision hotspots. These are defined as locations where four or more collisions have occurred within a 100m diameter over a three-year period.

1.3.2 As summarised above, no collision clusters were identified along the 16 road segments where the project would increase future baseline traffic by 5% or more. It could therefore be concluded that there were no existing road safety issues evident in the study area that the project could exacerbate.

1.3.3 Some of the percentage increases in traffic along the 16 route segments would be substantial as shown in Table A.1. However, this is largely due to very low levels of baseline traffic – for example the increase in traffic of 178 daily trips along The Street in Assington would amount to less than 20 additional vehicle trips per hour throughout the day, and this level of traffic would only be sustained for a relatively short duration. Given these routes have no existing road safety issues, it is reasonable to conclude that the project would not have any substantial adverse impact on road safety.

Appendix B: Existing Bus Services in Suffolk and Essex

Table B.1 – Existing Bus Services in Suffolk and Essex (2022)

Bus Service	Operator	Route	Typical Weekday Daytime Frequencies
Suffolk Bus Services			
91	Beestons, Ipswich Buses	Ipswich - Sudbury	Generally one service per hour in both directions
93 / 94	Ipswich Buses	Ipswich - Colchester	Generally one service every two hours in both directions
111 / 111A	Mulleys	Hitcham - Ipswich	Four services daily in both directions
120	Hadleigh Community Transport	Whatfield - Ipswich	Once on Thursdays in both directions
379	Chambers	Bury St Edmunds - Hadleigh	Once on Wednesdays in both directions
461 / 462	Hadleigh Community Transport / Chambers	Stowmarket - Hadleigh	Once a day, hours vary from time of day depending on day of the week
700	Felix Taxis and Co	Sudbury Town Service (circular)	Once an hour
715	Felix Taxis and Co	Stanstead - Sudbury	Once on Thursdays in both directions
750, 753, 754	Chambers	Colchester - Bury St Edmunds	1-2 services every hour in both directions
F315 DaRT	A Demand Responsive Transport, operating in the Sudbury – Halstead area.		
Essex Bus Services			
15	Hedingham and Chambers	Lexden – Mark's Tey	4-5 services daily in each direction
42B	First Essex	Braintree – Galleywood Halstead - Chelmsford	Two services every hour 2-3 services per day in both directions
70	First Essex	Chelmsford - Colchester	Once an hour in both directions
82, 82A, 82B	First Essex	Colne Engaine - Colchester	Between four and six services daily
83, 83A, 83B	First Essex	Colchester - Bures	Three services daily from Bures to Colchester; six services in the opposite direction
88, 88A, 88B	First Essex	Colchester - Halstead	Once an hour in both directions

Bus Service	Operator	Route	Typical Weekday Daytime Frequencies
84, 754, 756, 784	Chambers	Colchester - Sudbury	Every 30 minutes to 1 hour in both directions
89	Hedingham	Braintree - Great Yeldham	Once a day in both directions
89X	Chambers	Braintree - Sudbury	Once a day in both directions
223	Flagfinders	Braintree – Sible Hedingham	Once a day in both directions
716	Flagfinders	Castle Hedingham - Colchester	Once a day
SB28	Braintree Community Transport	Braintree - Stisted	Once on Wednesdays in both directions
DaRT 3 Service	A Demand Responsive Transport services with various routes and operational times which operates in Braintree, Halstead, and Sudbury.		

Appendix C: Traffic and PRoW Assumptions

1.1 General Assumptions for Construction Traffic Routing

1.1.1 The construction routing has been identified using basic principles, for example assuming trips would be as direct as reasonably practicable between identified access points and the nearest junction on the SRN, avoiding as far as reasonably practicable the following:

- High sensitivity receptors, including Dedham Vale AONB, town centres (e.g. Hadleigh and Sudbury), Sudbury Air Quality Management Area and Protected Lanes;
- Sections of road susceptible to traffic collisions;
- Very narrow rural roads, which are unsuitable for HGV;
- Roads with sharp bends that large vehicles would struggle to negotiate;
- Roads with signage indicating height, weight, and width restrictions. This has been considered when developing the construction and staff routing; and
- AIL routes have been assumed to be suitable for the use of HGV and may change depending on the delivery port for the cable drums.

1.2 Assumptions for Construction Staff Numbers

- Numbers estimated using knowledge of how many workers are required for construction activities based on other National Grid projects;
- Both sections of the underground cable route would be constructed in parallel and it is typically assumed that the workers would commence both ends of the underground sections and work in towards the middle of the cabling section; and
- Working areas would be operational seven days a week and that construction workers and staff would be on site seven days a week. Staff working patterns are assumed to be twelve days on and two off.

1.3 Assumptions for Construction Vehicle Numbers

- Quantities of materials are based on designs shown on General Arrangement Plans (**application document 2.10**). Additional materials maybe required as a result of required special engineering requirements identified during detailed design once a Main Works Contractor is appointed;
- All HGV number and LGV numbers have been counted from H-AP 20 and would then use the temporary access route off the A131 to access the western side of Section G: Stour Valley;
- Roads with signage indicating height, weight, and width restrictions. This has been considered when developing the construction and staff routing;
- HGV crossings between two opposite access points on the LRN have not been considered as HGV movement numbers;

- Temporary access routes in the cable sections and for the temporary access route off the A131 are assumed to be 7m wide and have a 0.3m depth of stone cover. New overhead line sections are assumed to require a 4m wide and have a 0.3m depth of stone cover. The temporary temporary access route would also require passing bays which are assumed to be 2m wide x 20m long every 150 metres. It is assumed that each pylon may require a stone working area / piling pad, which is assumed to be 25m x 25m x 0.5m. Construction compounds are based on 50m x 50m stoned areas. It is assumed that 20 tons of stone would be delivered by a single HGV;
- It is assumed that access for the 132kV overhead line removal would use a mixture of existing farm tracks and trackway panels to gain access to the working area;
- It is assumed that overhead line conductor drums and steelwork would be delivered on 38 ton articulated lorries with each vehicle carrying four or five overhead line conductor drums;
- The HGV movements include the reasonable worst case assumption that piling is required at each pylon and CSE compound;
- LGV movements includes security provision, servicing welfare units and delivery of small tools and plant;
- Allowance has been made each month for deliveries to each area for maintaining welfare, security provision and maintenance. This would include three weekly visits for:
  - Delivery of fresh water;
  - Cleaning of welfare facilities and removal of effluent; and
  - Re-fuelling of welfare units.
- A reasonable worst case assumption has been made in the event that excess sub-soil needs to be taken offsite where this is displaced by pylon foundations and cannot be reused in situ. The HGV movements assume that 20-30m^3 would be generated at each pylon location;
- It is assumed that water required for the trenchless crossings would be delivered to the site in tankers;
- It is assumed at present that the cable drums would be stored at a local port and transported in small batches to the main site compound and the relevant cable section; and
- Vehicle numbers associated with surveys are not included in the construction vehicle numbers as it is assumed that these would be carried out in advance of construction.

1.4 Assumptions for PRoW Network

- Lane closures and temporary traffic management may be required during the construction and removal of the access points and bellmouths on B Roads and above. Smaller roads may require full closure with diversion routes provided where practicable. In both cases, works are assumed to take approximately two weeks during site set up, and a similar duration at the end to reinstate the bellmouth to the previous condition;

- It is assumed that where a PRoW is identified as being 'stopped up managed' on the Access, Rights of Way and Public Rights of Navigation Plans **(application document 2.7)** that the PRoW would generally remain open except for very short durations of up to one day when closure would be required to maintain safety to members of the public and the workforce. For those PRoW which would need to be managed by a closure and a temporary diversion, reasonable alternative routes have been identified
- The PRoW assessment is based on the Proposed Alignment, which is the design that is shown on the General Arrangement Plans **(application document 2.10)** and a schedule that has been provided (setting out the proposed durations and methods for management of PRoW within the Order Limits (Appendix F: PRoW Diversions) based on the Proposed Alignment and construction assumptions. Based on this information, none of the PRoW would require a long-term closure or diversion.

1.5 Assumptions Used within the Transport Assessment

1.5.1 The following assumptions were used to derive the construction vehicle forecasts:

- There is no change in the number of daily working hours during summer/winter;
- Inbound construction vehicles making deliveries to site would generate an empty outbound vehicle trip along the same route in the same hour;
- Outbound construction vehicles removing materials from site would generate an empty inbound vehicle trip along the same route in the same hour;
- Analysis of construction traffic generation in the three months before and after the peak construction month (August 2025) has been undertaken, and the highest monthly forecast at each access point in this seven month period has been used in the assessment to capture the potential impact of any programme slippage;
- An uplift of 12.5% has been applied when converting monthly construction traffic estimates to daily estimates, to allow for some variation in the timing of deliveries and removals from construction sites;
- To allow for some variation in the number of trips in each hour, the daily profile has been divided by 11 (noting that core working hours cover a 12 hour period); and
- Construction impacts on the SRN have assumed that all construction traffic is routed in the same direction as the DfT traffic count location as part of a reasonable worst-case assessment.

1.5.2 The following assumptions were used to derive the staff vehicle forecasts:

- There is no change in the number of daily working hours during summer/winter;
- Construction staff vehicles would be parked within site compounds and would therefore not be parked on the public highway. This means that no empty staff vehicle movements are assumed to occur, in contrast to the assumptions for construction vehicles as set out above;
- Analysis of the daily peak staff requirement in the three months before and after the peak construction month (August 2025) has been undertaken, and the highest forecast at each construction site in this seven-month period has been used in the assessment to capture the potential impact of any programme slippage;

- 70% of staff would travel between their overnight accommodation and the construction sites by crew minibuses. A crew minibus would have an average occupancy of four members of staff for each trip;
- 30% of staff would travel between their overnight accommodation and the construction sites in cars. Each car would have an average occupancy of one member of staff for each trip;
- Overnight accommodation for 80% of all staff is assumed to be located in Ipswich, with 10% in Braintree, 5% in Sudbury, and 5% in Hadleigh;
- The following staff arrival profile has been used to convert daily vehicle trips to hourly inbound trips in the morning peak:
  - 25% arrive in the hour before core working hours (0600 – 0700);
  - 50% arrive in the 30-minutes following the commencement of core working hours (0700 – 0730);
  - 25% arrive in the following hour (0730 – 0830);
  - This results in an assumption, based on an even distribution between 0730 and 0830, that 12.5% of staff would arrive in the baseline morning peak hour (0800 – 0900);
- A similar profile has been used to convert daily vehicle trips to hourly outbound trips in the evening peak:
  - 25% depart between 1730 and 1830;
  - 50% depart in the 30-minute period leading up to the end of core working hours (1830 – 1900);
  - 25% depart in the hour after the end of core working hours (1900 – 2000); and
  - This profile would mean that no staff are travelling during the baseline evening peak hour (1600 – 1700). However, to undertake a precautionary assessment it was assumed that 12.5% of construction staff vehicles would be making outbound trips during the evening peak hour, similar to the inbound assumption during the morning peak hour.

Appendix D: LRN AM and PM Peak Construction Traffic Impacts

Table D.1 – Change in Traffic on the LRN AM Peak Hour

LRN Road	2025 Future Baseline Traffic Volume	2025 Do Something Traffic Volume	Net Increase in Traffic	Percentage Increase in Traffic
A1214 (northern segment) NB	402	437	35	9%
A1071 (adjacent to A14) WB	469	504	35	7%
A1071 (Chattisham) WB	525	558	33	6%
Bullen Lane EB	4	6	2	50%
Bullen Lane WB	20	23	3	15%
The Street, Burstall EB	42	44	2	5%
The Street, Burstall WB	24	28	4	17%
Church Hill EB	42	44	2	5%
Church Hill WB	24	28	4	17%
A1071 (Hintlesham) WB	259	287	28	11%
Duke Street SB	102	108	6	6%
A1071 (Noman's Farm) WB	261	288	27	10%
Pond Hall Road WB	95	101	6	6%
A1071 (Hadleigh) EB	291	318	27	9%
Overbury Hall Road NB	19	20	1	5%
Rands Road NB	14	18	4	29%
Rands Road SB	10	19	9	90%
A1071 (Hadleigh Heath) WB	319	337	18	6%
Millwood Road NB	10	11	1	10%
Millwood Road SB	10	11	1	10%
Stackwood Road NB	26	28	2	8%
Stackwood Road SB	17	19	2	12%
Heath Road NB	15	16	1	7%
Heath Road SB	17	18	1	6%
A1071 (by Potash Lane) WB	352	372	20	6%
A1071 (south of Boxford) WB	347	368	21	6%
Hadleigh Road SB	21	22	1	5%
A134 (Honey Tye to Nayland) NB	367	384	17	5%

LRN Road	2025 Future Baseline Traffic Volume	2025 Do Something Traffic Volume	Net Increase in Traffic	Percentage Increase in Traffic
High Road NB	10	13	3	30%
High Road SB	10	12	2	20%
A134 (north of Leavenheath) SB	433	457	24	6%
A134 (approach to A1071) SB	418	442	24	6%
The Street, Assington NB	63	66	3	5%
The Street, Assington SB	70	82	12	17%
Cuckoo Hill SB	66	72	6	9%
Station Hill WB	128	134	6	5%
Lamarsh Hill NB	33	40	7	21%
Colne Road NB	62	66	4	6%
Springett's Hill NB	43	50	7	16%
Bell Hill NB	43	50	7	16%
Henny Road NB	29	36	7	24%
Henny Street NB	25	31	6	24%
Bures Road NB	60	64	4	7%
Church Road East, Twinstead, WB	2	8	6	300%
Church Road West, Twinstead WB	18	24	6	33%
Old Road EB	7	9	2	29%
Old Road WB	6	8	2	33%

Table D.2 – Change in Traffic on LRN PM Peak Hour

LRN Road	2025 Future Baseline Traffic Volume	2025 Do Something Traffic Volume	Net Increase in Traffic	Percentage Increase in Traffic
A1214 (northern segment) SB	628	663	35	6%
A1214 (southern segment) SB	604	639	35	6%
A1071 (adjacent to A14) EB	527	562	35	7%
A1071 (Chattisham) EB	603	636	33	6%
Bullen Lane EB	23	26	3	13%
Bullen Lane WB	3	5	2	67%
The Street, Burstall EB	35	39	4	11%
The Street, Burstall WB	42	44	2	5%
Church Hill EB	35	39	4	11%
Church Hill WB	42	44	2	5%

LRN Road	2025 Future Baseline Traffic Volume	2025 Do Something Traffic Volume	Net Increase in Traffic	Percentage Increase in Traffic
A1071 (Hintlesham) EB	384	412	28	7%
Duke Street NB	107	113	6	6%
A1071 (Noman's Farm) EB	378	405	27	7%
Pond Hall Road EB	87	93	6	7%
A1071 (Hadleigh) EB	379	406	27	7%
Clay Lane NB	18	19	1	6%
Overbury Hall Road SB	19	20	1	5%
Rands Road NB	8	17	9	113%
Rands Road SB	7	11	4	57%
Millwood Road NB	12	13	1	8%
Millwood Road SB	9	10	1	11%
Stackwood Road NB	20	22	2	10%
Stackwood Road SB	27	29	2	7%
Heath Road NB	17	18	1	6%
Heath Road SB	20	21	1	5%
A1071 (by Potash Lane) EB	366	386	20	6%
A1071 (south of Boxford) EB	333	354	21	6%
Hadleigh Road NB	22	23	1	5%
Hadleigh Road SB	21	22	1	5%
High Road NB	11	13	2	18%
High Road SB	12	15	3	25%
A134 (north of Leavenheath) NB	424	448	24	6%
A134 (approach to A1071) NB	450	474	24	5%
The Street, Assington NB	81	93	12	15%
The Street, Assington SB	63	66	3	5%
Cuckoo Hill NB	48	54	6	13%
Station Hill EB	131	137	6	5%
Lamarsh Hill SB	27	34	7	26%
Colne Road SB	64	68	4	6%
Springett's Hill SB	46	53	7	15%
Bell Hill SB	46	53	7	15%
Henny Road SB	26	33	7	27%
Henny Street SB	25	31	6	24%

LRN Road	2025 Future Baseline Traffic Volume	2025 Do Something Traffic Volume	Net Increase in Traffic	Percentage Increase in Traffic
Bures Road SB	55	59	4	7%
Church Road East, Twinstead, EB	5	11	6	120%
Church Road West, Twinstead, EB	19	25	6	32%
Old Road EB	7	9	2	29%
Old Road WB	9	11	2	22%

Appendix E: Junction Capacity Assessment

1.1 Priority Junctions

Junction Identification (Step 1)

1.1.1 Junctions which would have an increase in traffic of 24 two-directional vehicles and above per day have been identified and included in the assessment. Junctions which would not were excluded as the impact is considered negligible.

1.1.2 Twenty eight junctions on the LRN would experience an increase of 24 two-directional vehicles or more per day on the major and/or minor arm of the junction. These junctions are identified in Table E.1 which shows that the majority of these junctions are located in Suffolk.

Table E.1 – Junctions with > 24 Two-directional Daily Traffic Flows

Junction Name	Major Road	Minor Road	Location
A1071/The Street	A1071	The Street 3	Burstall
A1071/Washbrook Road	A1071	Washbrook Road	Hintlesham
A1071/Chattisham Lane	A1071	Chattisham Lane	Hintlesham
The Street/Chattisham Lane	The Street	Chattisham Lane	Chattisham
A1071/Duke Street	A1071	Duke Street	Hintlesham
Clay Hill/Duke Street	Duke Street	Clay Hill	Hintlesham
A1071/Lady Lane	A1071	Lady Lane	Hadleigh
A1071/A1141	A1071	A1141	Hadleigh
A1071/Rands Road	A1071	Rands Road	Hadleigh
Overbury Hall Road/Rands Road	Rands Road	Overbury Hall Road	Layham
A1071/Stackwood Road	A1071	Stackwood Road	Hadleigh Heath
A1071/Holt Road	A1071	Holt Road	Polstead Heath
A1071/Hadleigh Road	A1071	Hadleigh Road	Sudbury
A134/A1071	A134	A1071	Sudbury
A1071/Sand Hill	A1071	Sand Hill	Sudbury
A1071/Stone Street Road	A1071	Stone Street Road	Sudbury
A1071/School Hill	A1071	School Hill	Sudbury
A134/The Street	A134	The Street	Assington
A134/B1068	A134	B1068	Leavenheath
A134/High Road	A134	High Road	Leavenheath
B1058 Colchester Road/Cuckoo Hill	B1058 Colchester Road	Cuckoo Hill	Bures

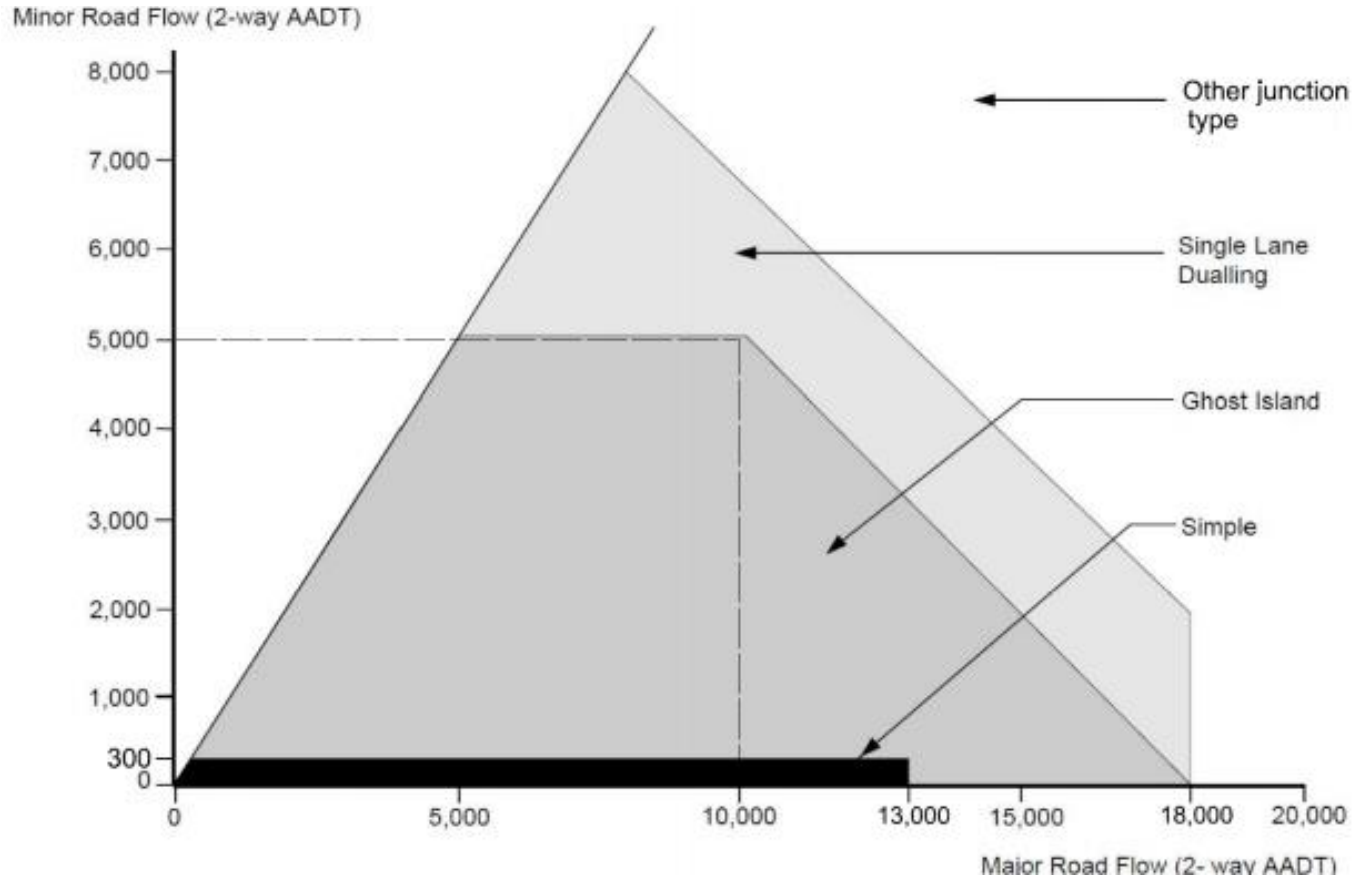
Junction Name	Major Road	Minor Road	Location
B1058 Colchester Road/ Station Hill	B1058 Colchester Road	Station Hill	Bures
Lamarsh Hill/Colne Road/Station Hill	Lamarsh Hill	Colne Road	Bures
A1124/Wood Lane	A1124	Wood Lane	Eight Ash Green
A1124/Bures Road	A1124	Bures Road	White Colne
A131/Watery Lane	A131/1	Watery Lane	Sudbury
A131/Church Road/Old Road	A131/1	Church Road 2 - Western Segment	Twinstead Green
A131/Hedingham Road	A131/1	Hedingham Road	Sudbury

1.1.3 The AM and PM peak hour baseline traffic flows and the future baseline traffic flows with the inclusion of construction traffic for these 28 junctions are shown in Figures 4 and 6.

Capacity Threshold Assessment (Step 2)

1.1.4 The assessment approach is based upon the 'Junction Selection' guidance in Chapter 2 of the DMRB CD 123 (National Highways, 2021). Figure 2.3.1 of CD 123, illustrates the ranges of two-directional Annual Average Daily Traffic (AADT) flows for both major and minor arms of a junction to determine junction capacity.

Illustration E.1 - Range of Two-Directional AADT at Junctions, DMRB CD123



1.1.5 Illustration E.1 shows that a simple T-Junction layout (the simplest junction form) would be below capacity when the minor road AADT remains below 300 vehicles per day and the major road traffic flow is under 13,000 vehicles per day.

1.1.6 However, it is not suitable to apply the parameters shown in Illustration E.1 to establish junction capacity because of peak hour conflicting turning flows and movements. Therefore, assumptions were made to establish a relationship between AADT and peak hour flows, which could be compared to the construction traffic peak hour flows estimated from baseline surveyed flows. This approach was adopted as an initial screening process to eliminate those junctions on the LRN which would not be considered for junction modelling to ascertain capacity in a detailed manner.

1.1.7 Using Chapter 2 of the DMRB CD 123 (National Highways, 2021) a peak hour factor of 10% of AADT of 13,000 vehicles per day on a major road, with a 10% increase due to seasonal variations in traffic, the major road threshold was calculated to be a maximum peak hour flow of 1,430 vehicles per hour.

1.1.8 However, this approach generated irrational thresholds for the minor road primarily because directional splits for the minor road can be highly tidal (dependent upon peak hours). Therefore, using guidance from the Transport Research Laboratory (TRL) Junctions 10 software (TRL, 2021), an acceptable threshold for minor road flow was generated, which would accept gaps of conflicting traffic of around or less than 1,430 vehicles per hour without causing significant delays.

1.1.9 Also, for the minor road flows, peak direction flow towards the junction would dictate the threshold capacity as it would only form conflicting traffic at the junction. Traffic leaving from the junction can be ignored for capacity estimation purposes.

1.1.10 In relation to priority junctions, delays on the minor arm are the result of the minor road traffic needing to give-way to major road traffic and the result of traffic from the major road turning right into the minor road. The next step was to check the minor road capacities which was undertaken by determining whether a simple T-junction would have capacity in a peak hour catering for the minor road approaching flows for a specific two-way movement on the major road.

1.1.11 In terms of the junction layout, worst-case assumptions were made to ensure the methodology for determining capacity was robust, and these included:

- Compact junction layout with minimum minor road visibility;
- Standard 6m wide major road;
- No flare on the minor road;
- No right turning lane or pocket on the major road; and
- To estimate conflicting traffic on the major road, a maximum one-directional traffic flow on a busy section of the junctions was multiplied by two. This value includes a proportion of the major road traffic that would eventually turn left towards the minor road and become non-conflicting traffic.

1.1.12 A Junctions 10 model for a simple T-Junction suggests that for a minimum two-directional flow of 500 vehicles per hour on the major road, the minor road can accommodate 200 vehicles per hour (one-directional) travelling towards the junction without generating capacity issues (lower range of threshold). For a simple T-junction where the major road two-directional flow is less than 500 vehicles per hour, the threshold for minor roads does not increase substantially from 200 vehicles per hour. Therefore, it was assumed that a maximum flow on a minor arm would not generate delays if the major road traffic was below 500 vehicles per hour.

1.1.13 When two-directional traffic flows on the major road increase from 500 vehicles per hour to the threshold of 1,430 vehicles per hour, one-directional traffic flow on the minor road would need to be lower than 125 vehicles per hour (higher range of threshold) to not generate delays at the junction.

1.1.14 A fitted curve and an empirical relation have been prepared using the lower and higher thresholds for major and minor road traffic flows. Maximum two-directional flows on the major roads and one-directional flows on the minor roads have been estimated for each LRN junction. The minor road one-directional flows were checked to determine whether they exceeded the threshold estimated using the fitted curve and empirical relation formed between two-directional major road flows and one-directional minor road flows. The formula used to determine whether the threshold has been exceeded is:

Minor road threshold = major road traffic*0.0806+240.32

1.1.15 For those junctions which exceed the threshold, further investigation and junction modelling would possibly be required if the project construction traffic impact is deemed substantial and capacity issues are predicted.

1.1.16 Of the 28 junctions identified in Table E.1, 18 junctions have been assessed for indicative minor road capacity levels, using the capacity thresholds generated, resulting from the project construction traffic for the AM and PM peak hours.

1.1.17 Construction traffic on the minor roads at 14 of the junctions would be below the capacity threshold established for minor roads during the AM and PM peak hours. Those junctions have been excluded from any further analysis as this indicates that there would be no operational issues arising from the construction traffic at those junctions.

1.1.18 Construction traffic on the minor roads at four of the junctions would be above the capacity threshold established for minor roads during the AM and PM peak hours. The results for these four junctions are shown in Table E.2.

Table E.2 – Junctions where the Minor Roads Operate Above the Capacity Threshold, AM and PM Peak

Junction	Major Road Traffic (Two-Directional)	Minor Road Traffic Towards the Junction	% Increase for Major Road	% Increase for Minor Road (Towards the Junction)	Estimated Threshold Minor Road Flow (One-Way)	Above Capacity Threshold	Increase More than 10%
AM Peak							
A1071/Duke Street	1222	142	6%	2%	140	Yes	No
A134/A1071	1248	368	1%	6%	140	Yes	No
PM Peak							
A134/A1071	1304	336	1%	1%	140	Yes	No
A134/B1068	896	183	6%	1%	170	Yes	No

1.1.19 Table E.2 illustrates that the A134/A1071 junction would operate above the capacity threshold established for minor roads in the AM and PM peak hours. The A1071/Duke Street junction would operate above the capacity threshold in the AM peak and the A134/B1068 junction would operate above the capacity threshold in the PM peak. This suggests that with the inclusion of project construction traffic, the junctions would operate above the acceptable capacity levels during the peak hours.

Proportional Impact Assessments (Step 3)

1.1.20 Step 3 was undertaken for the junctions identified in Table E.2, with the proportional impact on these junctions calculated. Table E.3 illustrates that the major and minor roads at all three of the junctions would experience an increase in traffic during the AM and PM peaks in the range of 1% to 6%. The traffic increases on the major and minor arms (and the junctions as a whole) would be less than 10%. Therefore, the project construction traffic impact is not deemed to be substantial and capacity issues would be unlikely arise.

1.1.21 Furthermore, out of the 28 junctions identified in Step 1 that would experience an increase of 24 two-directional vehicles or more per day on the major and/or minor arm of the junction, baseline traffic count data is not available for minor roads at 10 of these junctions.

1.1.22 Therefore, these ten junctions have only been assessed in accordance with Step 3 and the identification of the proportional impact on these junctions using the percentage increases in traffic on the major roads at the junctions.

1.1.23 Table E.3 illustrates the percentage increase in traffic on the major roads, the threshold for the minor roads and demonstrates whether the percentage increase is greater than 10% for these ten junctions.

Table E.3 – Percentage Increase in Traffic on the Major and Minor Roads in the AM and PM Peak

Junction	Major Road	Minor Road	% Increase Major Road	Threshold Minor Road	% Increase more than 10%	% Increase Major Road	Threshold for Minor Road (One-Directional)	% Increase More Than 10%
			AM Peak			PM Peak		
A1071/Washbrook Road	A1071	Washbrook Road	6%	140	No	5%	140	No
A1071/Chattisham Lane	A1071	Chattisham Lane	6%	140	No	5%	140	No
The Street/Chattisham Lane	The Street	Chattisham Lane	17%	230	Yes	15%	230	Yes
Clay Hill/Duke Street	Duke Street	Clay Hill	6%	220	No	6%	220	No
A1071/Lady Lane	A1071	Lady Lane	9%	180	No	7%	170	No
A1071/A1141	A1071	A1141	6%	180	No	6%	180	No
A1071/Sand Hill	A1071	Sand Hill	6%	180	No	6%	180	No
A1071/Stone Street Road	A1071	Stone Street Road	6%	180	No	6%	180	No
A1071/School Hill	A1071	School Hill	6%	180	No	6%	180	No
A1124/Wood Lane	A1124	Wood Lane	1%	170	No	0%	160	No

1.1.24 Table E.3 demonstrates that the percentage increases in the AM and PM peak traffic on the major roads at nine of the junctions would be less than 10% and therefore, project construction traffic would not have a material impact upon the operation of these junctions.

1.1.25 At The Street/Chattisham junction, the percentage increase on the major road (The Street) would be 17% in the AM peak and 15% in the PM peak hours. The larger percentage increases at this junction are the result of low baseline peak traffic flows in the region of 165 vehicles per hour. The junction is currently catering for a low level of peak traffic on the major road and an increase in traffic resulting from the project construction, would inflate the percentage increase.

1.1.26 The junction would likely experience a minor increase in delay whilst operating below available capacity, and therefore, the project would not have a material impact upon the operation of the junction during the AM and PM peak hours.

1.2 Roundabouts and Signal Controlled Junctions

1.2.1 Table E.4 illustrates the percentage increase in traffic on the major and minor approaches to the signalised junctions and roundabouts and the percentage increase as a result of the construction traffic.

Table E.4 – Percentage Increase in Traffic on the Major and Minor Roads in the AM and PM Peak

Junction	Junction Type	Road 1	Road 2	Road 1 Traffic	Road 2 Traffic	% Increase on Road 1	% Increase on Road 2	Road 1 Traffic	Road 2 Traffic	% Increase on Road 1	% Increase on Road 2
				AM Peak				PM Peak			
A1071/A1214	Signalised Crossing	A1214 Northern Segment	A1071/8	437	469	9%	2%	663	562	6%	7%
A134/A131/Northern Road/Shawlands Ave	Roundabout	A134/7	A131/1	624	332	1%	2%	652	412	1%	1%
A131/A134 Newton Road	Roundabout	A131/1	A134/7	373	608	2%	1%	412	624	1%	1%
A131/Great Western Road/B1508	Roundabout	A131/1	B1508/2 - Northern Segment	373	572	2%	1%	412	426	1%	1%
A131/A1124	Roundabout	A131/3 - Northern Segment	A1124/1 - Western Segment	684	499	1%	0%	715	577	2%	1%
A131/A1017	Signalised Crossing	A131/4	A1017	1072	0	1%	0%	1050	0	1%	0%
A131/Broad Road	Roundabout	A131/4	A131/5	1072	671	1%	1%	1050	633	1%	1%
A131/A120	Roundabout	A131/5	A120	671	0	2%	0%	633	0	1%	0%
A1124/A12	Roundabout	A12	A1124	0	462	0%	0%	0	489	0%	0%
A12/A134	Roundabout	A134/1 - Northern Segment	A12	1061	0	2%	0%	1127	0	2%	0%
A12/B1070	Merge (LILO)	A12	B1070/5 - Southern Segment	0	436	0%	1%	0	404	0%	1%
A12/A14/A1214	Signalised Crossing	A14	A1214 - Southern Segment	0	721	0%	1%	0	639	0%	6%
A14/B1113	Roundabout	A14	B1113/1 - Northern Segment	0	620	0%	0%	0	722	0%	0%
A1071/B1113	Roundabout	A1071/8	B1113/1 - Southern Segment	504	270	7%	1%	568	265	7%	1%

Appendix F: PRoW Diversions

Table F.1 – PRoW Closure and Diversion Management

Route Code	PRoW Location	PRoW	Work Activity	Management Duration	Type of Closure	Diversion Route	Length of Diversion (m)	Diversion is on a Construction Route
Suffolk								
W-155/001/0	Bullen Lane, Bramford, Ipswich	Bridleway	Construction/removal of temporary access route, dismantling conductors, erection of new conductors	2 – 4 weeks	Closure with diversion	Adjacent to the existing PRoW	600m	No
W-318/055/0	Off the A1071 in Hintlesham, Ipswich (through Norman's Farm)	Footpath	Erection of new conductor	8 weeks	Closure with diversion	Use of existing off road ProW north of Ramsey Wood and adjacent to Ram's Farm	1971m	Section on the A1071
W-318/056/0	Off the A1071 in Hintlesham, Ipswich (through The Old Hall House)	Footpath	Construction/removal of temporary access route, erection of new conductor	4 weeks	Closure with diversion	Use of existing off road PRoW adjacent to Ram's Farm	854m	Small section on the A1071 north of Ram's Farm
W-318/068/0	North-west of Ramsey Wood, Ipswich (towards Cobbold's Farm)	Footpath	Erection of new conductor	4 weeks	Closure with diversion	Existing PRoW through Ram's Farm and along the A1071	1946m	Along the A1071
W-318/046/0	Route through Ramsey Wood, Ipswich	Footpath	Construction/removal of temporary access route, erection of new conductor, erection of new pylon	4 weeks	Closure with diversion	Existing PRoW routes north and east of Hintlesham Little and Great Woods, and Duke Street and Pond Hall Road	4143m	Sections of Duke Street and Pond Hall Road
W-289/031/0 – two sections closed at different times	Between Pond Hall Road and Benton Street, Hadleigh	Footpath	Construction/removal of temporary access route, dismantling of tower and associated conductor, construction of new tower, erection of new conductor	2 – 4 weeks	Closure with diversion	1) Existing PRoW through Raydon Great Wood, Woodlands Road, Clay Lane, and Pond Hall Road 2) Existing PRoW through Raydon Great Wood (SB), Woodland's Road, Raydon Great Wood (NB), Hook Lane, B1070	1) 5692m 2) 6511m	1) Small section of Clay Lane and Pond Hall Road 2) Small section of the B1070
W-174/010/0	Off Church Hill, Burstall, Ipswich (northern PRoW)	Footpath	Construction/removal of temporary access route, erection of new conductor	4 weeks	Closure with diversion	Church Hill Road and other existing PRoW in Burstall	1667m	Church Hill Road
W-174/011/0	Off Church Hill, Burstall, Ipswich (southern PRoW)	Footpath	Construction/removal of temporary access route, erection of new conductor	4 weeks	Closure with diversion	Church Hill Road and other existing PRoW in Burstall	1676m	Church Hill Road
W-318/031/0	Connection between Hintlesham Hall and A1071, Ipswich	Footpath	Construction/removal of temporary access route	8 weeks	Closure with diversion	Adjacent to existing PRoW	170m	No
W-318/048/0	Off the A1071 in Hintlesham, Ipswich (through Norman's Farm)	Footpath	Erection of temporary pylon RB012T	4 weeks	Closure without diversion	None	N/A	N/A
		Footpath	Erection of new conductor at 4YL010-RB012T	4 weeks			N/A	

Route Code	PRoW Location	PRoW	Work Activity	Management Duration	Type of Closure	Diversion Route	Length of Diversion (m)	Diversion is on a Construction Route
W-318/057/0	Off the A1071 in Hintlesham, Ipswich (east of Ram's Farm)	Footpath	Erection of new conductor at 4YL012B-4YL013A	4 weeks	Closure without diversion	None	N/A	N/A
W-289/046/0	West of Ramsey Wood, Ipswich	Footpath	Erection of new conductor at 4YL014A-4YL015A	4 weeks	Closure with diversion	Uses existing PRoW via Ram's Farm and then along the A1071.	2780m	Section on the A1071
W-174/012/0	East of Church Hill, Burstall, Ipswich	Footpath	Erection of new conductor at RB001-RB002	4 weeks	Closure without diversion	None	N/A	N/A
W-318/014/0	North of Mill Farm, Hintlesham, Ipswich	Footpath	Installation of foundations	4 weeks	Closure without diversion	None	N/A	N/A
		Footpath	Erection of new pylon	4 weeks				
		Footpath	Erection of new conductor at RB005-RB004	4 weeks				
W-318/032/0	East of A1071 in Hintlesham, Ipswich	Footpath	Erection of new conductor at RB007-RB008	4 weeks	Closure without diversion	None	N/A	N/A
W-318/053/0	Off the A1071 in Hintlesham, Ipswich (through Norman's Farm)	Footpath	Construction of temporary access route	4 weeks	Closure with diversion	Uses existing PRoW via Ramsey Wood and Ram's Farm and then along the A1071.	2241m	Section on the A1071
		Footpath	Removal of temporary access route	4 weeks				
W-289/031/0	East of Benton Street, Hadleigh	Footpath	Construction of temporary access route	4 weeks	Closure with diversion	South via Raydon Great Wood, along Woodland's Rd and then north via existing PRoW, Hook Lane and Benton Street	6160m	Section on Benton Street
		Footpath	Removal of temporary access route	4 weeks				
W-432/033/0	Off Heath Road, Polstead Heath	byway	132kV conductor dismantling between PCB044-045	1 day	Closure with diversion	Parallel to existing route	198m	No
		byway	Construction of temporary access route and installation of ducts for underground cable.	4 weeks				
		byway	Removal of temporary access route	4 weeks				
W-432/020/0	Adjacent to the River Box, South of Boxford, Sudbury	Footpath	Construction of Temporary access route and Installation of Ducts for Underground Cable.	4 weeks	Closure with diversion	Close to existing route	338m	No
		Footpath	Removal of temporary access route	4 weeks				
W-362/002/0	Off the B1068 in Leavenheath, Colchester	Footpath	Construction of temporary access route and Installation of ducts for underground cable.	4 weeks	Closure with diversion	Parallel to existing route	220m	No
		Footpath	Removal of temporary access route	4 weeks				
W-362/001/0	Off Harrow Street in Leavenheath, Colchester	Footpath	DNO Connection to CSE compound	4 weeks	Closure with diversion	Parallel to existing route	443m	No

Route Code	PRoW Location	PRoW	Work Activity	Management Duration	Type of Closure	Diversion Route	Length of Diversion (m)	Diversion is on a Construction Route
W-113/007/0	Off Barracks Road, Assington, Sudbury	Restricted byway	Erection of new overhead line conductor at RB041-RB042	4 weeks	Closure without diversion	None	N/A	N/A
W-113/005/0	Off Cuckoo Hill (east of Chestnut Grove), Assington, Sudbury	Footpath	Erection of new overhead line conductor at RB043-RB044	4 weeks	Closure without diversion	None	N/A	
W-171/001/0	East of St Edmund's Hill, Sudbury	Footpath	Construction of temporary access route and installation of ducts for underground cable.	4 weeks	Closure with diversion	Adjacent to existing route	242m	No
		Footpath	Removal of temporary access route	4 weeks				
Essex								
FP 26 58	Easterly direction Off Pebmarsh Road, Bures (towards 'Abbots')	Footpath	Construction/removal of temporary access route, foundation installation and erection of new pylon, transfer of overhead line conductors onto new route, pylon dismantling and foundation removal	4 – 12 weeks	Closure with diversion	Pebmarsh Road, existing PRoW to Henny Back Road, and Henny Back Road	2284m	No
FP 17 118	From A131 towards Old Road, Halstead	Footpath	Construction/removal of temporary access route	12 weeks	Closure with diversion	Existing PRoW, A131, and Old Road	1487m	A131 and Old Road
FP 13 118	From A131, through Nether House Farm to Church Road, Halstead	Footpath	Construction/removal of temporary access route	4 weeks	Closure with diversion	Existing PRoW, A131, Old Road, and existing PRoW	2233m	A131 and Old Road
FP 13 116	South of Lorkin's Farm, off Lorkin's Lane, Twinstead	Footpath	Construction of temporary access route	4 weeks	Closure with diversion	Parallel to existing route	425m	No
			Removal of temporary access route	4 weeks				
FP 7 93	Off Twinstead Road, Bures	Footpath	Construction of temporary access route and installation of ducts for underground cable.	4 weeks	Closure with diversion	Close to existing route	278m	No
		Footpath	Removal of temporary access route	4 weeks				
FP 23 84	North of Twinstead Road, Bures	Footpath	Construction of temporary access route and bellmouth	4 weeks	Closure without diversion	None	N/A	N/A
		Footpath	Removal of temporary access route and bellmouth	4 weeks				

Figures

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Babergh District Council

Braintree District Council

Colchester Borough Council

Tendring District Council

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Sheet 4

Bramford Substation

Section AB: Bramford Substation/Hintlesham

Section C: Brett Valley

Section D: Polstead

Section E: Dedham Vale Area of Outstanding Natural Beauty

Section F: Leavenheath/Assington

Section G: Stour Valley

Section H: Grid Supply Point Substation

A1124/1 - Western Section

A1124/1 - Eastern Section

A1124

A1134/1

A1134/2

A131/4

A131/5

Bures Road

Mill Road

Clare

Acton

Sudbury

Hadleigh

Ipswich

Colchester

Market

Legend

- Section boundaries
- Order Limits
- Local authority districts
- Construction routes to the Strategic Road Network
- Extensions to cover staff commuting
- Existing Bramford Substation

0 1 2 3 4 5 Kilometers

255000
250000
245000
240000
235000
230000
225000

580000 585000 590000 595000 600000 605000 610000 615000

Norwich
Birmingham
Thetford
Cambridge
Ipswich
Stevenage
Colchester
London

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TITLE : Figure 1 Traffic and Transport Study Area Key Plan

CIRCUIT / SITE : Bramford – Pelham & Bramford – Braintree – Bulls Lodge

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A3

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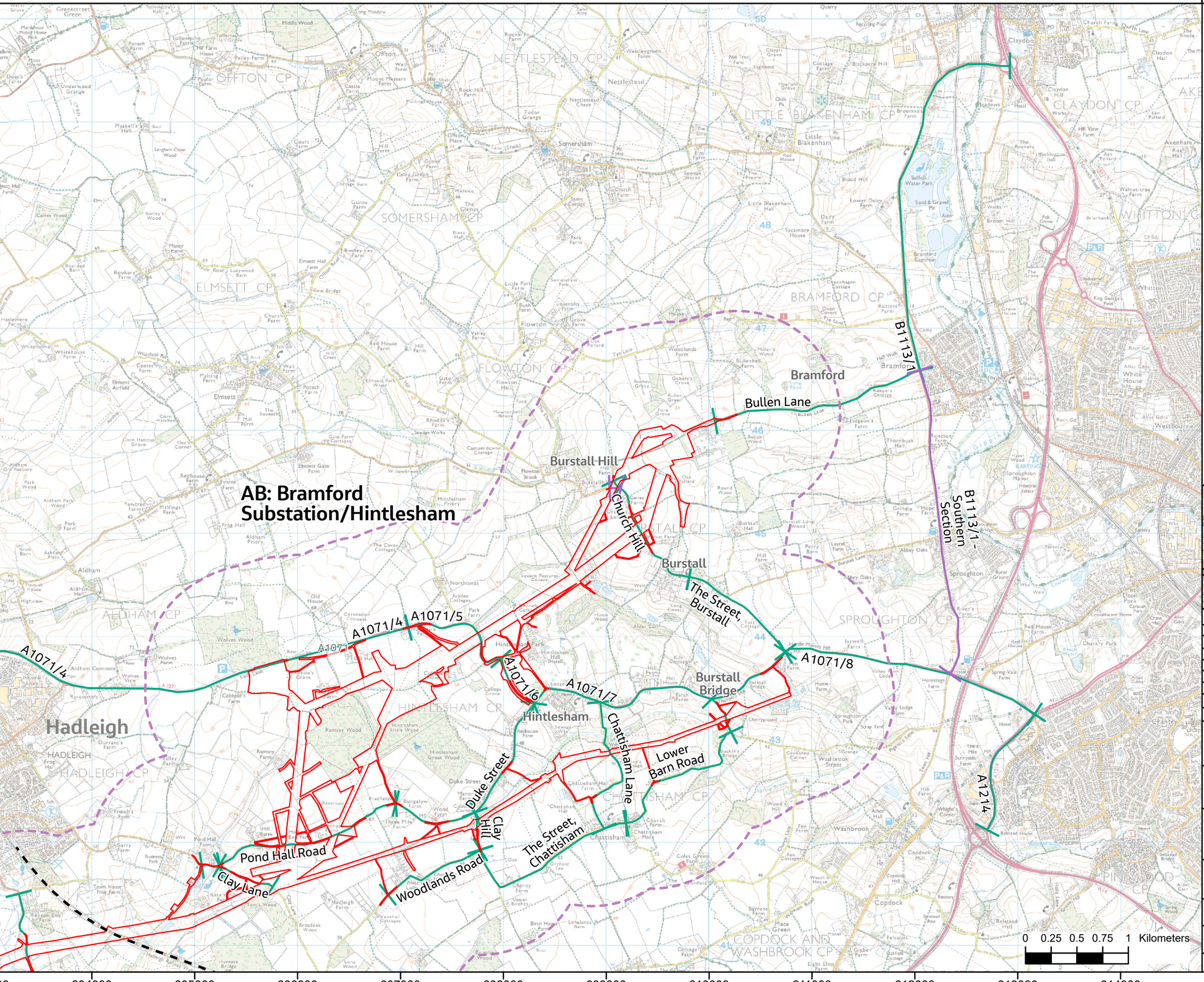
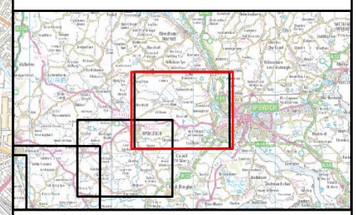
- Section boundaries
- Order Limits
- Study area (1km)
- Construction routes to the Strategic Road Network
- Extensions to cover staff commuting





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TITLE: Figure 1 Traffic and Transport Study Area

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- Section boundaries
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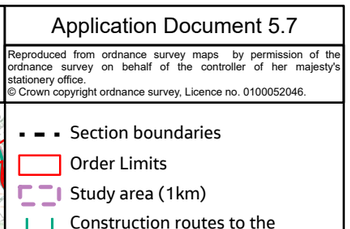

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TITLE:
Figure 1
Traffic and Transport Study Area

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- Section boundaries
- Order Limits
- Study area (1km)
- Construction routes to the Strategic Road Network
- Extensions to cover staff commuting

Sudbury
Great Cornard
Little Cornard
Newton
Assington
Workhouse Green
Lamarsh
Alphamstone
Leavenheath
Boxford
Stoke-by-Nayland
Bures St Mary
Wormingford
Henny Back Road
Church Road, Twinstead – Eastern Section
Losh's Lane
Henny Road
Bell Hill
Springett's Hill
Lamarsh Hill
Station Hill
Colne Road
Lower Road
Sandy Hill
Colchester Road
Cuckoo Hill
The Street, Assington
High Road
Brick Kiln Lane
Hadleigh Road
Holt Road
B1508/2
B1508/1
A134/7
A1071/1
A134/6
A134
A134/5
A134/4
A134/3
A134/2
B1068/1
A1087
F: Leavenheath/Assington
G: Stour Valley

0 0.25 0.5 0.75 1 Kilometers

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- Order Limits
- Study area (1km)
- Construction routes to the Strategic Road Network
- Extensions to cover staff commuting

H: Grid Supply Point Substation

G: Stour Valley

Hedingham Road
Watery Lane
Clay Hill
Old Road
Old Road
Church Road
Twinstead
Church Road, Twinstead - Eastern Section
Loshes Lane
Henny Road
Henny Back Road
Lorkin's Lane
Halstead Lane
Twinstead Road South-Westbound
A131
A131/2
A131/2
A1124/1 - Western Section
B1508/2
Bell Hill
Springett's Hill
Colne Road
Bures Road
Wickham St Paul
Lamarsh
Alphamstone
Halstead
Castle Hedingham
Sible Hedingham
Gestingthorpe
Little Maplestead
Pebmarsh
Bulmer
Middleton
Little Henny
Great Henny
Twinstead
Colne Valley
BRAINTREE DISTRICT

0 0.25 0.5 0.75 1 Kilometers

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Braintree District Council

Colchester Borough Council

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Bramford Substation

Section AB: Bramford Substation/Hintlesham

Section C: Brett Valley

Section D: Polstead

Section E: Dedham Vale Area of Outstanding Natural Beauty

Section F: Leavenheath/Assington

Section G: Stour Valley

Section H: Grid Supply Point Substation

NCN Route 1

NCN Route 13

NCN Route 51

LINK Route 0

RCN Route 48

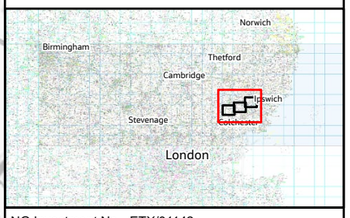
Clare
Acton
Sudbury
Hadleigh
Ipswich
Halstead
Colne Valley
Market

255000
250000
245000
240000
235000
230000
225000

580000
585000
590000
595000
600000
605000
610000
615000

0 1 2 3 4 5 Kilometers

Legend
- Section boundaries
- Order Limits
- Local authority districts
- Existing Bramford Substation
- National Cycle Network (NCN)
- Regional Cycle Network (RCN)



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PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE: Figure 2 Active Transport Network Key Plan

CIRCUIT / SITE: Bramford – Pelham & Bramford – Braintree – Bulls Lodge

GIS

ORIGINATOR DRAWING NO. AAA_BTT_TA_Figure_2_Rev1_KeyPlan

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- Section boundaries
- Order Limits
- Public Rights of Way
- National Cycle Network (NCN)
- Quiet Lanes (Suffolk County)
- Protected Lanes (Braintree District)
- Painters' Trail

AB: Bramford Substation/Hintlesham

C: Brett Valley

Bramford
Burstall Hill
Burstall
Burstall Bridge
Hintlesham
Hadleigh
Upper Layham
Lower Layham
NCN Route 1
A1071
A12
W-155/001/0
W-174/010/0
W-174/011/0
W-155/041/0
W-174/012/0
W-318/013/0
W-318/034/0
W-318/015/0
W-318/063/0
W-318/060/0
W-318/055/0
W-318/052/0
W-318/030/0
W-318/019/0
W-318/035/0
W-318/048/0
W-318/047/0
W-289/025/0
W-318/049/0
W-318/046/0
W-318/039/0
W-318/041/0
W-318/044/0
W-318/042/0
W-185/006/0
W-185/029/0
W-185/003/0
W-185/001/0
W-289/030/0
W-289/031/0

0 0.25 0.5 0.75 1 Kilometers

NG Investment No. ETX/01142

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TITLE: Figure 2 Active Transport Network

CIRCUIT / SITE: Bramford – Pelham & Bramford – Braintree – Bulls Lodge

GIS

ORIGINATOR DRAWING NO. AAA_BTT_TA_Figure_2_Rev1

A3

NG DRAWING No. BT-JAC-020631-500-0113

SHEET NO. 1

NO. OF SHEETS 3

ISSUE: A

SCALE: 1:35000

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
ACTIVE TRANSPORT NETWORK
REGULATION 5(2)(q)
SHEET 2 OF 3
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

Application Document 5.7

- Section boundaries
- Order Limits
- Public Rights of Way
- National Cycle Network (NCN)
- Quiet Lanes (Suffolk County)
- Protected Lanes (Braintree District)
- Painters' Trail

D: Polstead

F: Leavenheath/Assington

Section E:
Dedham Vale Area of
Outstanding Natural Beauty

W-432/033/0
W-432/032/0
W-432/008/0
W-432/020/0
W-367/002/0
W-367/001/0
W-113/007/0
W-113/006/0
W-113/005/0
W-113/021/0
W-113/001/0
W-171/002/0
W-113/004/0

Polstead Heath
Polstead
Assington
Leavenheath
Boxford
Newton
Lower La

NEWTON CP
BOXFORD CP
POLSTEAD CP
ASSINGTON CP
LEAVENHEATH CP
STOKE-BY-NAYLAND CP
SHELLEY CP
BURES ST MARY CP

A134
A1087

0 0.25 0.5 0.75 1 Kilometers

NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	03/2023	Rev A for DCO Application	GW	FA	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE:
Figure 2
Active Transport Network

CIRCUIT / SITE: Bramford – Pelham & Bramford – Braintree – Bulls Lodge
GIS

ORIGINATOR DRAWING NO.
AAA_BTT_TA_Figure_2_Rev1
A3

NG DRAWING No. BT-JAC-020631-500-0113
SHEET NO. 2
NO. OF SHEETS 3
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SCALE: 1:35000

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
ACTIVE TRANSPORT NETWORK
REGULATION 5(2)(q)
SHEET 3 OF 3
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

Application Document 5.7

- Section boundaries
- Order Limits
- Public Rights of Way
- National Cycle Network (NCN)
- Quiet Lanes (Suffolk County)
- Protected Lanes (Braintree District)
- Painters' Trail

H: Grid Supply Point Substation

G: Stour Valley

Twinstead
Wickham St Paul
Alphamstone
Lamarsh
Workhouse Green

BTELANE78
BTELANE79
BTELANE81
BTELANE82
BTELANE83
BTELANE84
BTELANE85
BTELANE86
BTELANE87

PROW 69_14
PROW 84_18
PROW 84_20
PROW 84_13
PROW 84_22
PROW 84_24
PROW 84_23
PROW 116_2
PROW 116_3
PROW 116_13
PROW 116_15
PROW 116_16
PROW 116_17
PROW 116_11
PROW 118_11
PROW 118_10
PROW 118_13
PROW 93_4
PROW 93_5
PROW 93_7
PROW 58_26
W-372/001/0
W-171/001/0
W-171/002/0

NCN Route 13

A131

0 0.25 0.5 0.75 1 Kilometers

NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	03/2023	Rev A for DCO Application	GW	FA	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE :
Figure 2
Active Transport Network

CIRCUIT / SITE : Bramford – Pelham & Bramford – Braintree – Bulls Lodge

GIS

ORIGINATOR DRAWING NO. AAA_BTT_TA_Figure_2_Rev1

A3

NG DRAWING No. BT-JAC-020631-500-0113

SHEET NO. 3

NO. OF SHEETS 3

ISSUE: A

SCALE : 1:35000

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
TRAFFIC SURVEY LOCATIONS KEY PLAN
REGULATION 5(2)(q)
SHEET 1 OF 1
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

Application Document 5.7

Mid Suffolk District Council

Babergh District Council

Braintree District Council

Colchester Borough Council

Tendring District Council

Sheet 1

Sheet 2

Sheet 3

Bramford Substation

Section AB: Bramford Substation/Hintlesham

Section C: Brett Valley

Section D: Polstead

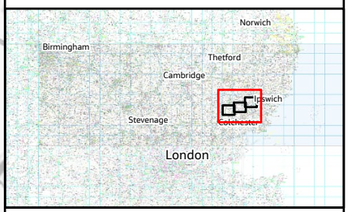
Section E: Dedham Vale Area of Outstanding Natural Beauty

Section F: Leavenheath/Assington

Section G: Stour Valley

Section H: Grid Supply Point Substation

Legend
- Section boundaries
- Order Limits
- Local authority districts
- Existing Bramford Substation



NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	02/2023	Rev A for DCO Application	GW	FA	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE : Figure 3 Traffic Survey Locations Key Plan

CIRCUIT / SITE : Bramford – Pelham & Bramford – Braintree – Bulls Lodge

GIS

ORIGINATOR DRAWING NO. AAA_BTT_TA_Figure_3_Rev1_KeyPlan

A3

NG DRAWING No. BT-JAC-020631-500-0115

SHEET NO. 1

NO. OF SHEETS 1

ISSUE: A

SCALE : 1:125000

0 1 2 3 4 5 Kilometers

255000 250000 245000 240000 235000 230000 225000

580000 585000 590000 595000 600000 605000 610000 615000

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
TRAFFIC SURVEY LOCATIONS
REGULATION 5(2)(q)
SHEET 1 OF 3
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

Application Document 5.7

- Section boundaries
- Order Limits
- Automatic traffic count location
- Construction routes

AB: Bramford Substation/Hintlesham

C: Brett Valley

Bramford
Bullen Lane
Burstall Hill
Church Hill
Burstall
The Street, Burstall
B1113/1
B1113/1 - Southern Section
Burstall Bridge
A1071/7
A1071/8
Hintlesham
Chattisham Lane
Lower Barn Road
A1214
A1071/4
A1071/5
A1071/6
A1071
Duke Street
Clay Hill
The Street, Chattisham
Pond Hill Road
Clay Lane
Woodlands Road
Hadleigh
Upper Layham
Lower Layham
Rands Road
Overbury Hall Road
B1070/5 - Northern Section
A12

0 0.25 0.5 0.75 1 Kilometers

NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	02/2023	Rev A for DCO Application	GW	FA	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE: Figure 3 Traffic Survey Locations

CIRCUIT / SITE			
Bramford – Pelham & Bramford – Braintree – Bulls Lodge			GIS
ORIGINATOR DRAWING NO. AAA_BTT_TA_Figure_3_Rev1			A3
NG DRAWING No. BT-JAC-020631-500-0115	SHEET NO. 1	NO. OF SHEETS 3	ISSUE: A
SCALE: 1:35000			

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
TRAFFIC SURVEY LOCATIONS
REGULATION 5(2)(q)
SHEET 2 OF 3
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

Application Document 5.7

- Section boundaries
- Order Limits
- Automatic traffic count location
- Construction routes

D: Polstead

Section E: Dedham Vale Area of Outstanding Natural Beauty

F: Leavenheath/Assington

Newton
Boxford
Assington
Leavenheath
Polstead
Polstead Heath
Lower La
Thorington Street
Stoke-by-Nayland
Scotland Street
Whitestreet Green
Witnesham Green
Cuckoo Hill
The Street, Assington
High Road
Brick Kiln Lane
Hadleigh Road
Stackwood Road
Rands Road
Millwood Road
Holt Road
Heath Road
A1071/1
A1071/2
A1071/3
A1071/4
A134/7
A134/6
A134/5
A134/4
A134/3
A134/2
B1068/1
A134
A1087
NEWTON CP
BOXFORD CP
POLSTEAD CP
ASSINGTON CP
LEAVENHEATH CP
STOKE-BY-NAYLAND CP
BURES ST MARY CP
SHELLEY CP

0 0.25 0.5 0.75 1 Kilometers

NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	02/2023	Rev A for DCO Application	GW	FA	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE:
Figure 3
Traffic Survey Locations

CIRCUIT / SITE: Bramford – Pelham & Bramford – Braintree – Bulls Lodge
GIS
ORIGINATOR DRAWING NO. AAA_BTT_TA_Figure_3_Rev1
A3
NG DRAWING No. BT-JAC-020631-500-0115
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ISSUE: A
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NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
TRAFFIC SURVEY LOCATIONS
REGULATION 5(2)(q)
SHEET 3 OF 3
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

Application Document 5.7

- Section boundaries
- Order Limits
- Automatic traffic count location
- Construction routes

H: Grid Supply Point Substation

G: Stour Valley

Hedingham Road
Watery Lane
Clay Hill
Old Road
Old Road
Church Road
Twinstead
Church Road, Twinstead - Eastern Section
Loshes Lane
Henny Back Road
Henny Road
Lorkin's Lane
Halstead Lane
Twinstead Road South-Westbound
A131
A131/2
A131/2
B1508/2
B1508/1
Workhouse Green
Lamarsh
Bell Hill
Springett's Hill
Lamarsh Hill
Station Hill
Colchester Road
Cuckoo Hill
Colne Road
Lower Road
Alphamstone

BULMER CP
MIDDLETON CP
LITTLE HENNY CP
GREAT HENNY CP
LITTLE CORNARD CP
GESTINGTHORPE CP
WICKHAM ST PAUL CP
TWINSTEAD CP
GREAT MAPLESTEAD CP
LITTLE MAPLESTEAD CP
ALPHAMSTONE CP
PEBMARSH CP
BURES HAMLET CP
BURES

0 0.25 0.5 0.75 1 Kilometers

NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	02/2023	Rev A for DCO Application	GW	FA	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

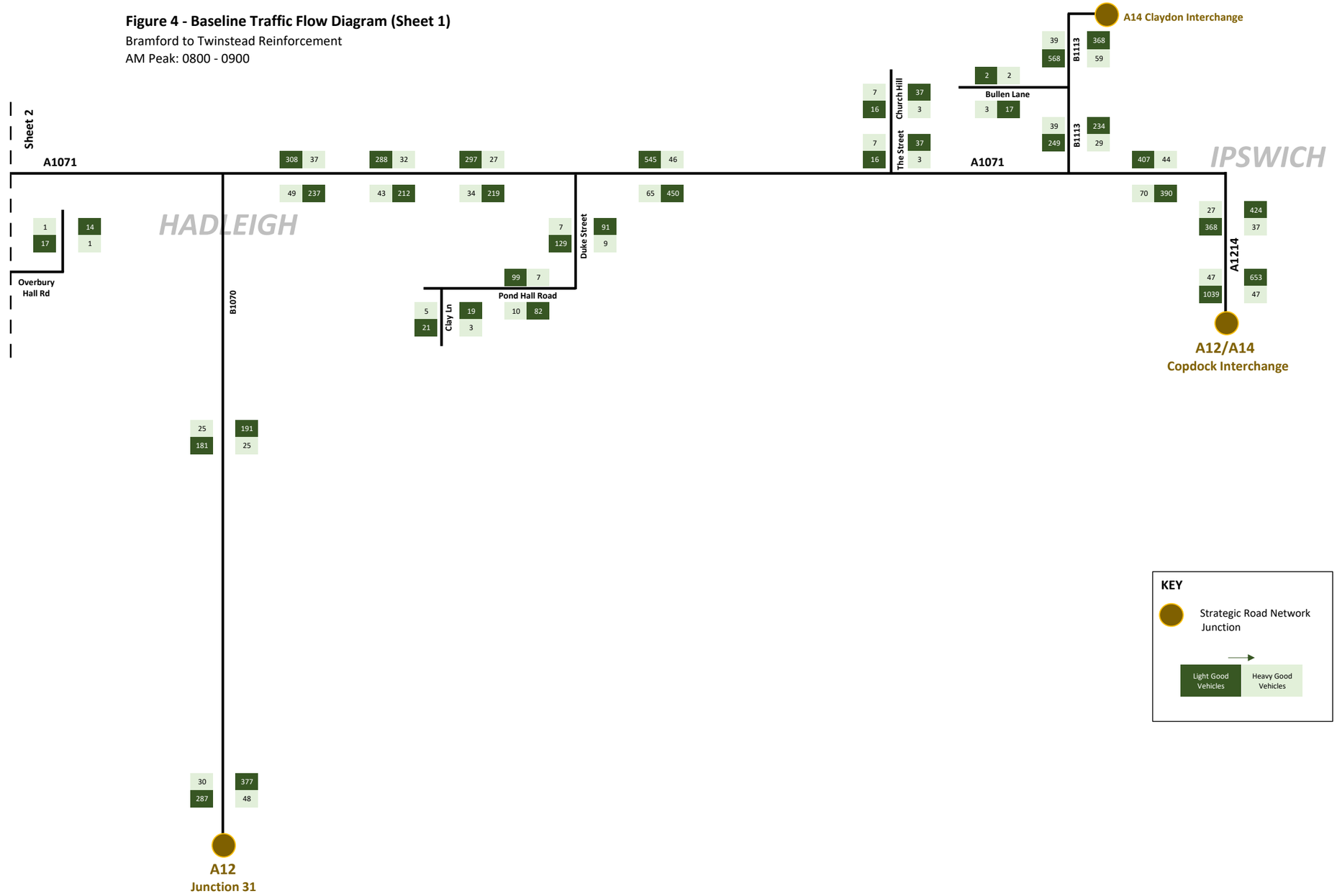
TITLE :
Figure 3
Traffic Survey Locations

CIRCUIT / SITE :			
Bramford – Pelham & Bramford – Braintree – Bulls Lodge			GIS
ORIGINATOR DRAWING NO. AAA_BTT_TA_Figure_3_Rev1			A3
NG DRAWING No. BT-JAC-020631-500-0115	SHEET NO. 3	NO. OF SHEETS 3	ISSUE: A
SCALE : 1:35000			

Figure 4 - Baseline Traffic Flow Diagram (Sheet 1)

Bramford to Twinstead Reinforcement

AM Peak: 0800 - 0900



KEY

Strategic Road Network Junction

Light Good Vehicles

Heavy Good Vehicles

Figure 4 - Baseline Traffic Flow Diagram (Sheet 2)
Bramford to Twinstead Reinforcement
AM Peak: 0800 - 0900

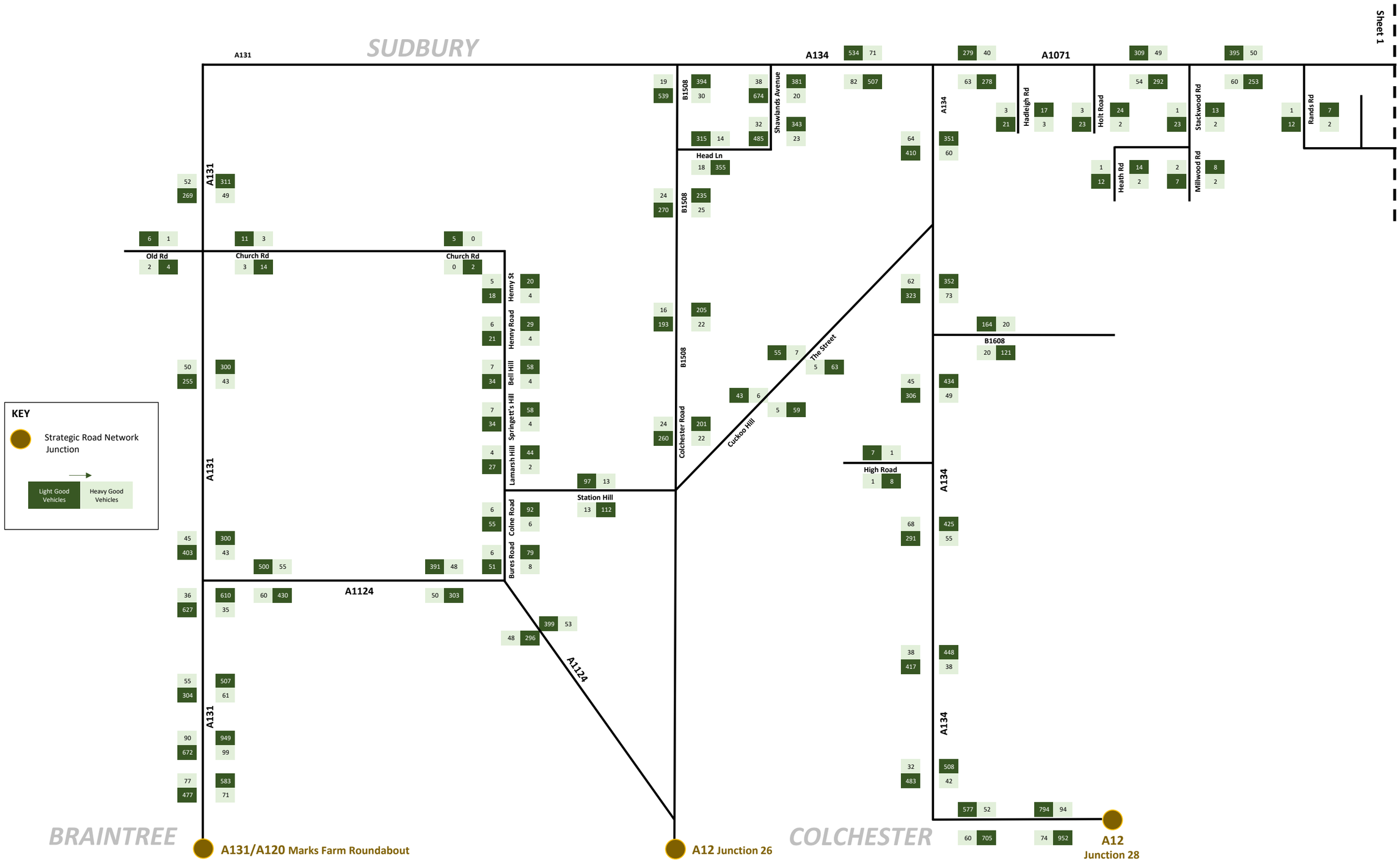
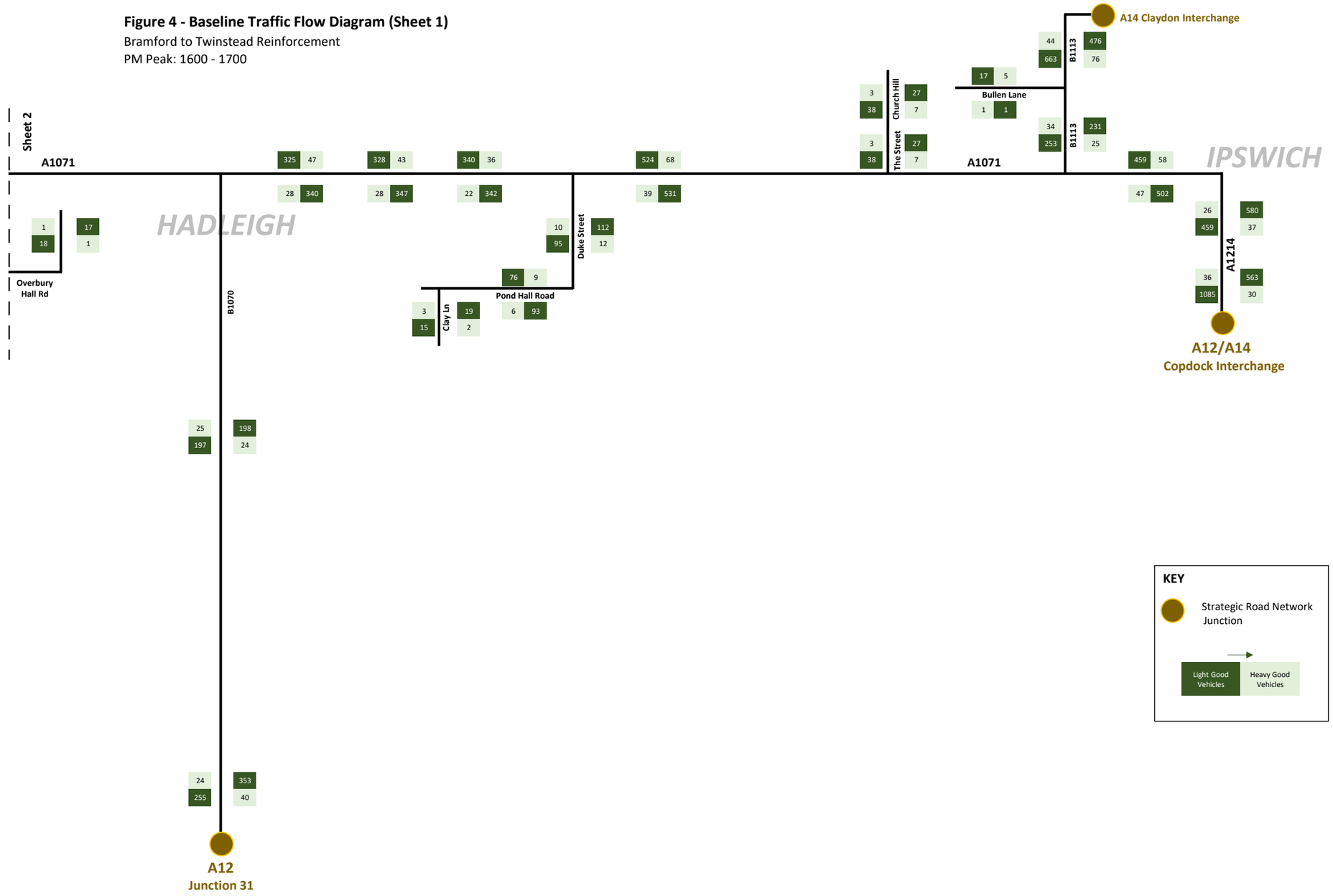


Figure 4 - Baseline Traffic Flow Diagram (Sheet 1)
Bramford to Twinstead Reinforcement
PM Peak: 1600 - 1700



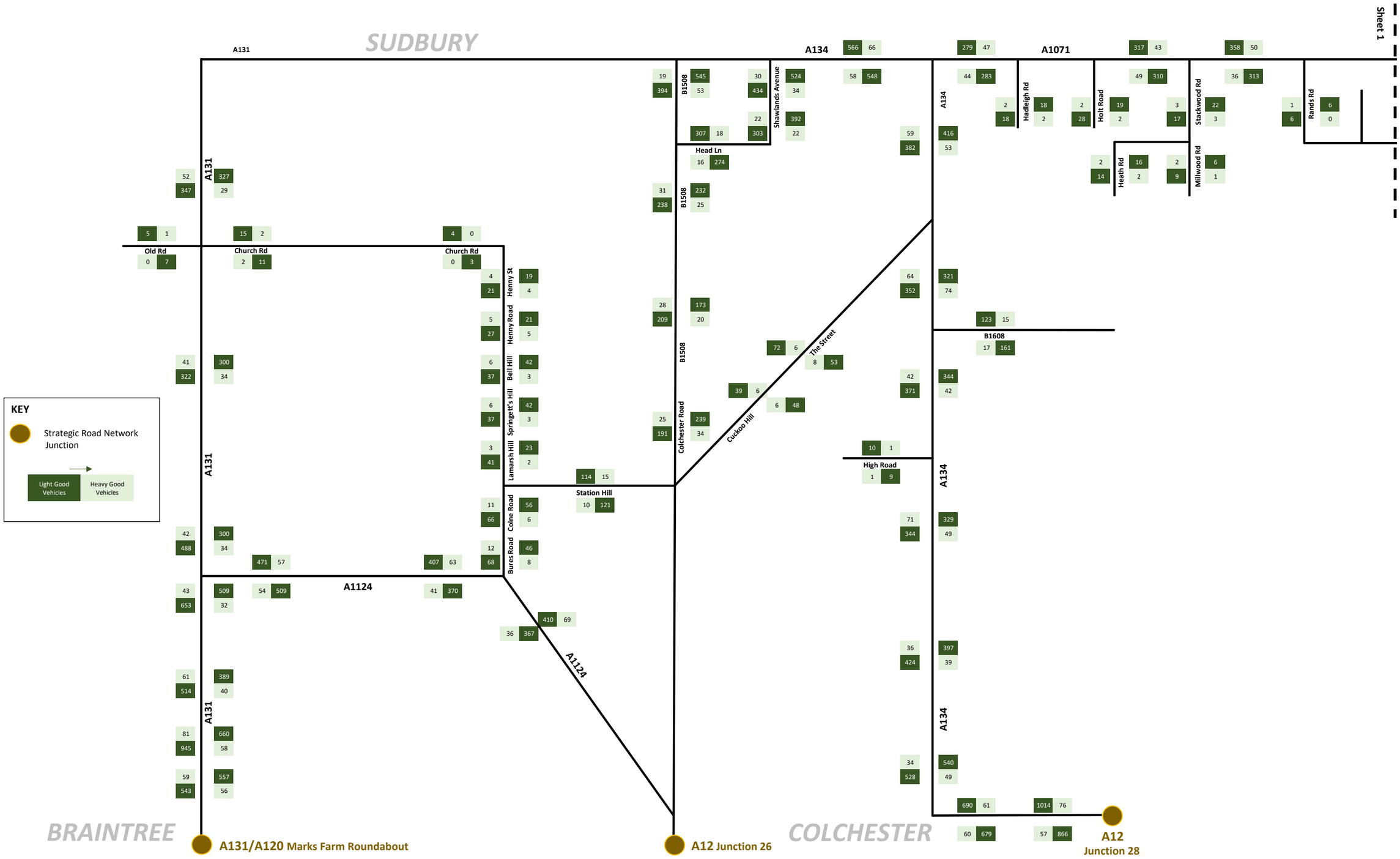
KEY

Strategic Road Network Junction

Light Good Vehicles

Heavy Good Vehicles

Figure 4 - Baseline Traffic Flow Diagram (Sheet 2)
Bramford to Twinstead Reinforcement
PM Peak: 1600 - 1700



NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
COLLISION DATA - KEY PLAN
REGULATION 5(2)(q)
SHEET 1 OF 1
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

Application Document 5.7

Mid Suffolk District Council

Babergh District Council

Braintree District Council

Colchester Borough Council

Tendring District Council

Sheet 1

Sheet 2

Sheet 3

Bramford Substation

Section AB: Bramford Substation/Hintlesham

Section C: Brett Valley

Section D: Polstead

Section E: Dedham Vale Area of Outstanding Natural Beauty

Section F: Leavenheath/Assington

Section G: Stour Valley

Section H: Grid Supply Point Substation

Legend

- Section boundaries
- Order Limits
- Local authority districts
- Existing Bramford Substation

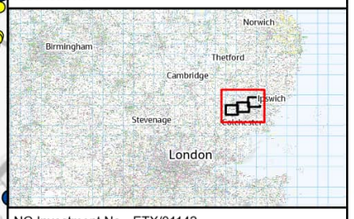
Accidents by severity: 2015-2019

- Fatal
- Serious
- Slight

Construction traffic routes

- Total flow increase >5%
- Other routes

Note: 2019 collision data is the latest available data not skewed by the Covid-19 travel restrictions.



NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	03/2023	Rev A for DCO Application	GW	FA	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE: Figure 5 Collision Data - Key Plan

CIRCUIT / SITE: Bramford – Pelham & Bramford – Braintree – Bulls Lodge

GIS

ORIGINATOR DRAWING NO. AAA_BTT_TA_Figure_5_Rev1_KeyPlan

A3

NG DRAWING No. BT-JAC-020631-500-0114

SHEET NO. 1

NO. OF SHEETS 1

ISSUE: A

SCALE: 1:125000

0 1 2 3 4 5 Kilometers

255000 250000 245000 240000 235000 230000 225000

580000 585000 590000 595000 600000 605000 610000 615000

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
COLLISION DATA
REGULATION 5(2)(q)
SHEET 1 OF 3
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

Application Document 5.7

- Section boundaries
- Order Limits

Accidents by severity: 2015-2019

- Fatal
- Serious
- Slight

Construction traffic routes

- Total flow increase >5%
- Other routes

AB: Bramford Substation/Hintlesham

C: Brett Valley

Note: 2019 collision data is the latest available data not skewed by the Covid-19 travel restrictions.

NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	03/2023	Rev A for DCO Application	GW	FA	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE: Figure 5 Collision Data

CIRCUIT / SITE :			
Bramford – Pelham & Bramford – Braintree – Bulls Lodge			GIS
ORIGINATOR DRAWING NO. AAA_BTT_TA_Figure_5_Rev1			A3
NG DRAWING No. BT-JAC-020631-500-0114	SHEET NO. 1	NO. OF SHEETS 3	ISSUE: A
SCALE : 1:35000			

0 0.25 0.5 0.75 1 Kilometers

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
COLLISION DATA
REGULATION 5(2)(q)
SHEET 2 OF 3
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

Application Document 5.7

D: Polstead

Section E:
Dedham Vale Area of
Outstanding Natural Beauty

F: Leavenheath/Assington

- Section boundaries
- Order Limits

Accidents by severity: 2015-2019

- Fatal
- Serious
- Slight

Construction traffic routes

- Total flow increase >5%
- Other routes

Note: 2019 collision data is the latest available data not skewed by the Covid-19 travel restrictions.

NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	03/2023	Rev A for DCO Application	GW	FA	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE: Figure 5 Collision Data

CIRCUIT / SITE: Bramford – Pelham & Bramford – Braintree – Bulls Lodge

GIS

ORIGINATOR DRAWING NO. AAA_BTT_TA_Figure_5_Rev1

A3

NG DRAWING No. BT-JAC-020631-500-0114

SHEET NO. 2

NO. OF SHEETS 3

ISSUE: A

SCALE: 1:35000

0 0.25 0.5 0.75 1 Kilometers

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
COLLISION DATA
REGULATION 5(2)(q)
SHEET 3 OF 3
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

Application Document 5.7

H: Grid Supply Point Substation

G: Stour Valley

Twinstead

Wickham St Paul

Workhouse Green

Lamarsh

Alphamstone

A131

A1071

BULMER CP
MIDDLETON CP
LITTLE HENNY CP
GREAT HENNY CP
LITTLE CORNARD CP
WICKHAM ST PAUL CP
GESTINGTHORPE CP
TWINSTEAD CP
GREAT MAPLESTEAD CP
LITTLE MAPLESTEAD CP
ALPHAMSTONE CP
PEBMARSH CP
BURES HAMLET CP

- Section boundaries
- Order Limits

Accidents by severity: 2015-2019

- Fatal
- Serious
- Slight

Construction traffic routes

- Total flow increase >5%
- Other routes

Note: 2019 collision data is the latest available data not skewed by the Covid-19 travel restrictions.

0 0.25 0.5 0.75 1 Kilometers

NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	03/2023	Rev A for DCO Application	GW	FA	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE: Figure 5 Collision Data

CIRCUIT / SITE: Bramford – Pelham & Bramford – Braintree – Bulls Lodge

GIS

ORIGINATOR DRAWING NO. AAA_BTT_TA_Figure_5_Rev1

A3

NG DRAWING No. BT-JAC-020631-500-0114

SHEET NO. 3

NO. OF SHEETS 3

ISSUE: A

SCALE: 1:35000

Figure 6 - Future Baseline Flow Diagram (Sheet 1)

Bramford to Twinstead Reinforcement

AM Peak: 0800 - 0900

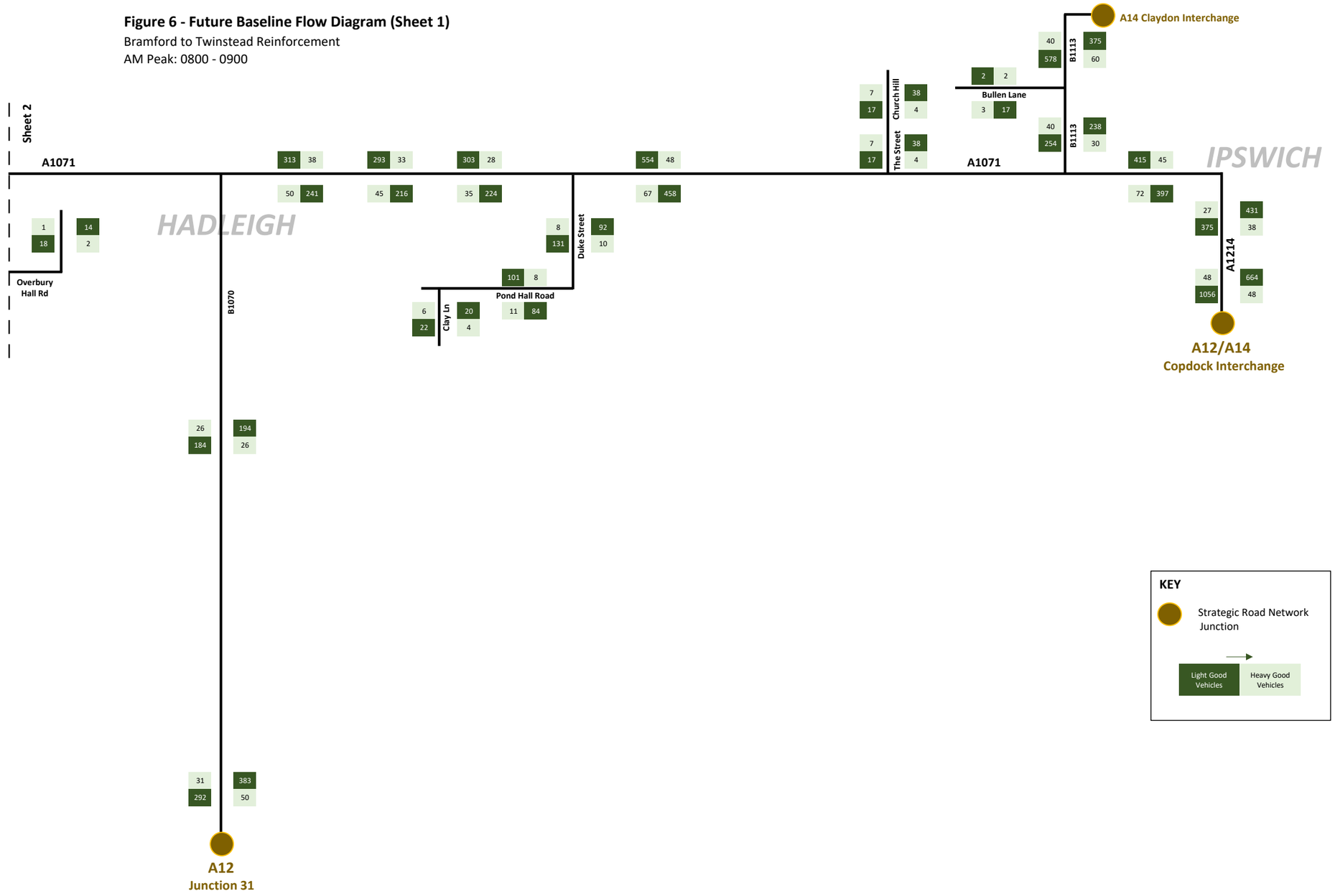


Figure 6 - Future Baseline Flow Diagram (Sheet 2)
Bramford to Twinstead Reinforcement
AM Peak: 0800 - 0900

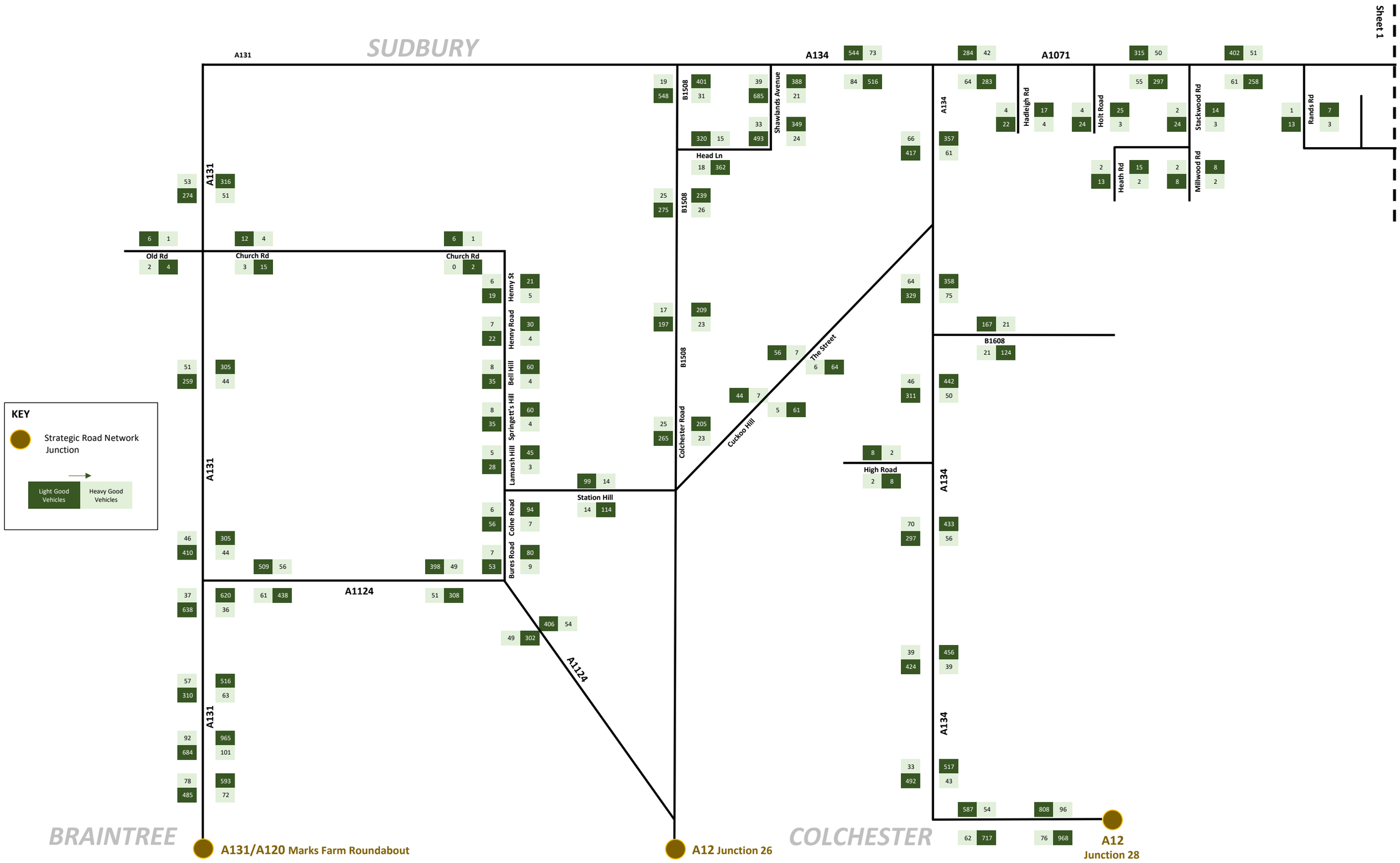


Figure 6 - Future Baseline Flow Diagram (Sheet 1)

Bramford to Twinstead Reinforcement

PM Peak: 1600 - 1700

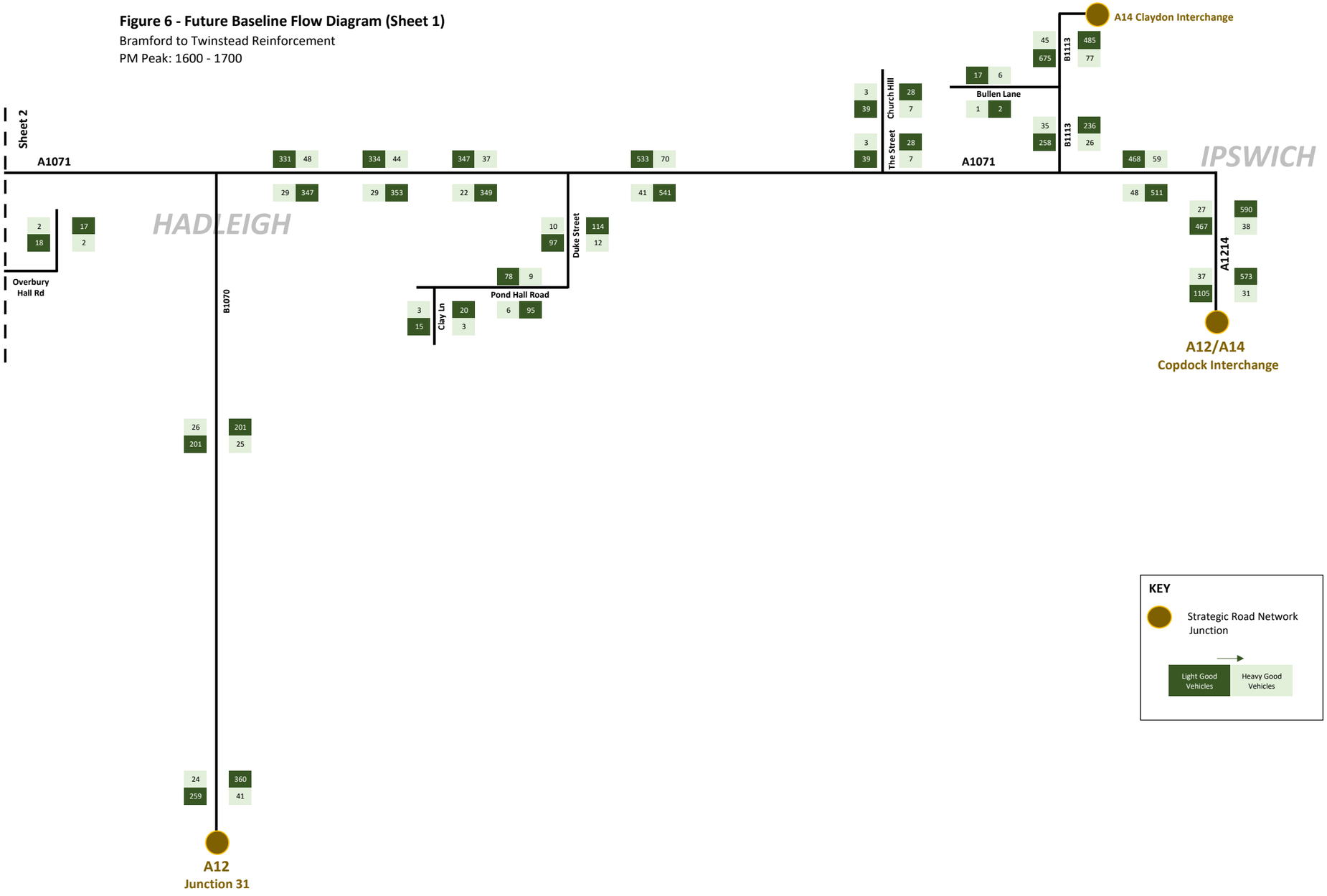


Figure 6 - Future Baseline Flow Diagram (Sheet 2)
Bramford to Twinstead Reinforcement
PM Peak: 1600 - 1700

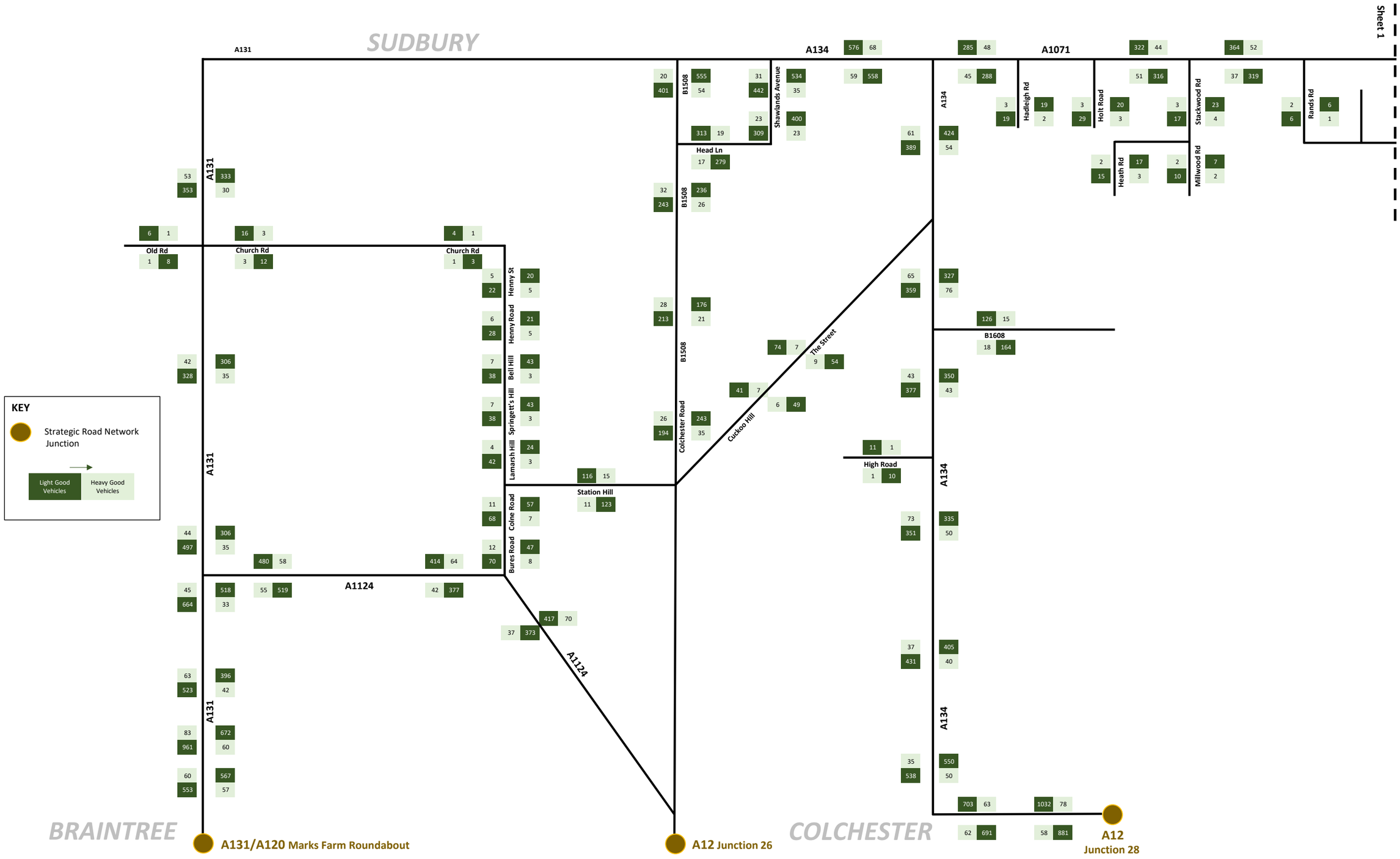
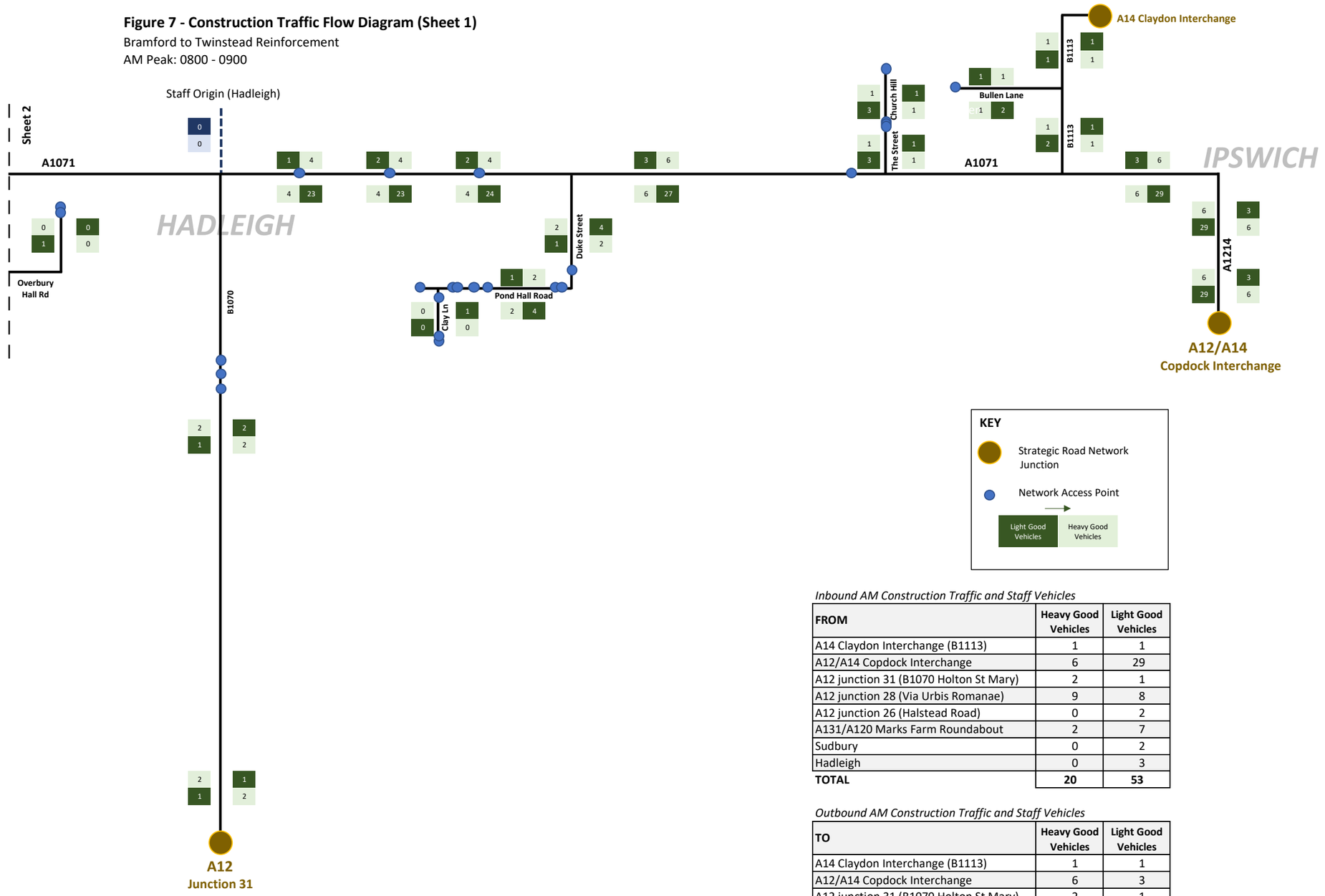


Figure 7 - Construction Traffic Flow Diagram (Sheet 1)
Bramford to Twinstead Reinforcement
AM Peak: 0800 - 0900



Inbound AM Construction Traffic and Staff Vehicles

FROM	Heavy Good Vehicles	Light Good Vehicles
A14 Claydon Interchange (B1113)	1	1
A12/A14 Copdock Interchange	6	29
A12 junction 31 (B1070 Holton St Mary)	2	1
A12 junction 28 (Via Urbis Romanae)	9	8
A12 junction 26 (Halstead Road)	0	2
A131/A120 Marks Farm Roundabout	2	7
Sudbury	0	2
Hadleigh	0	3
TOTAL	**20**	**53**

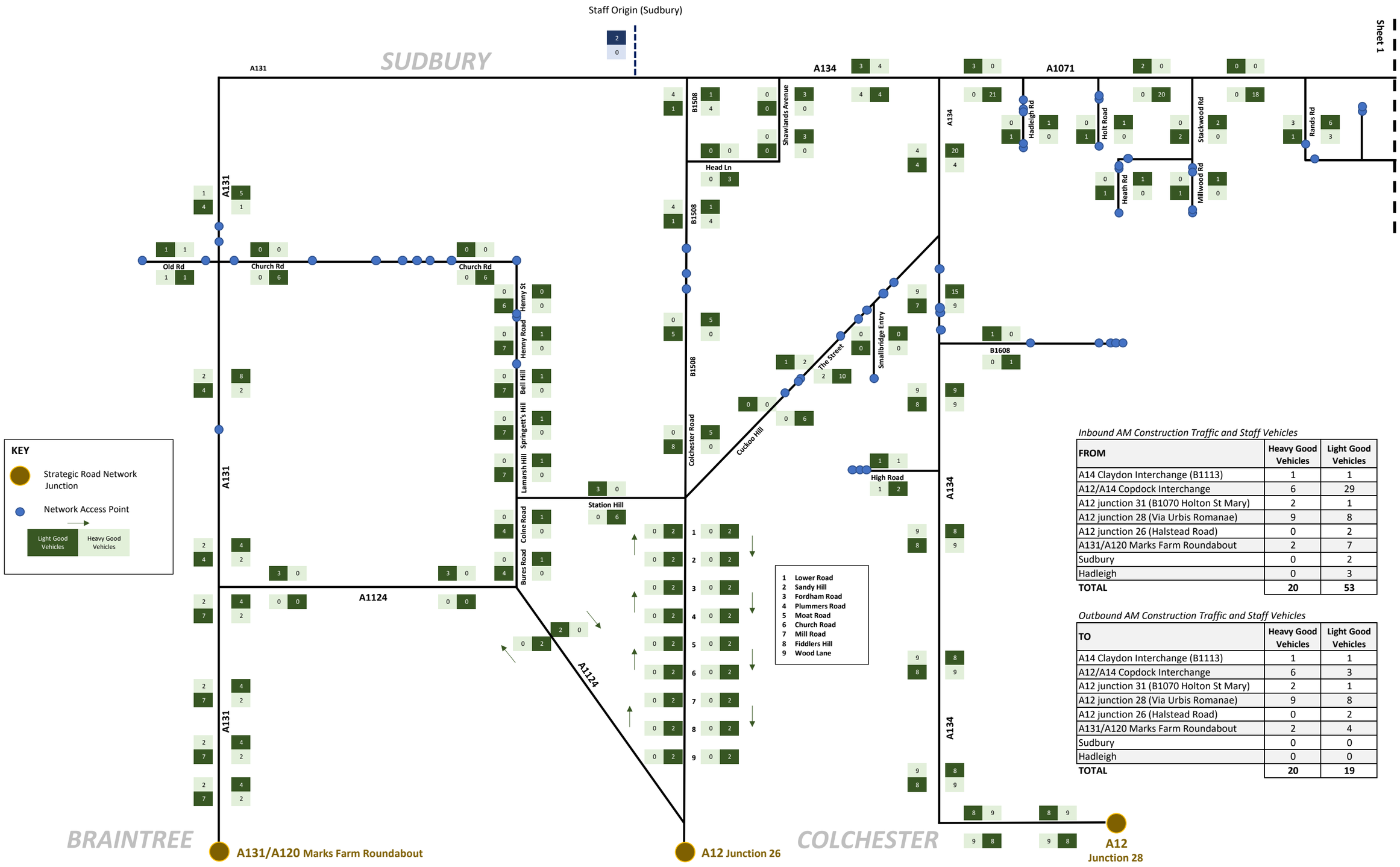
Outbound AM Construction Traffic and Staff Vehicles

TO	Heavy Good Vehicles	Light Good Vehicles
A14 Claydon Interchange (B1113)	1	1
A12/A14 Copdock Interchange	6	3
A12 junction 31 (B1070 Holton St Mary)	2	1
A12 junction 28 (Via Urbis Romanae)	9	8
A12 junction 26 (Halstead Road)	0	2
A131/A120 Marks Farm Roundabout	2	4
Sudbury	0	0
Hadleigh	0	0
TOTAL	**20**	**19**

Figure 7 - Construction Traffic Flow Diagram (Sheet 2)

Bramford to Twinstead Reinforcement

AM Peak: 0800 - 0900



Inbound AM Construction Traffic and Staff Vehicles

FROM	Heavy Good Vehicles	Light Good Vehicles
A14 Claydon Interchange (B1113)	1	1
A12/A14 Copdock Interchange	6	29
A12 junction 31 (B1070 Holton St Mary)	2	1
A12 junction 28 (Via Urbis Romanae)	9	8
A12 junction 26 (Halstead Road)	0	2
A131/A120 Marks Farm Roundabout	2	7
Sudbury	0	2
Hadleigh	0	3
TOTAL	**20**	**53**

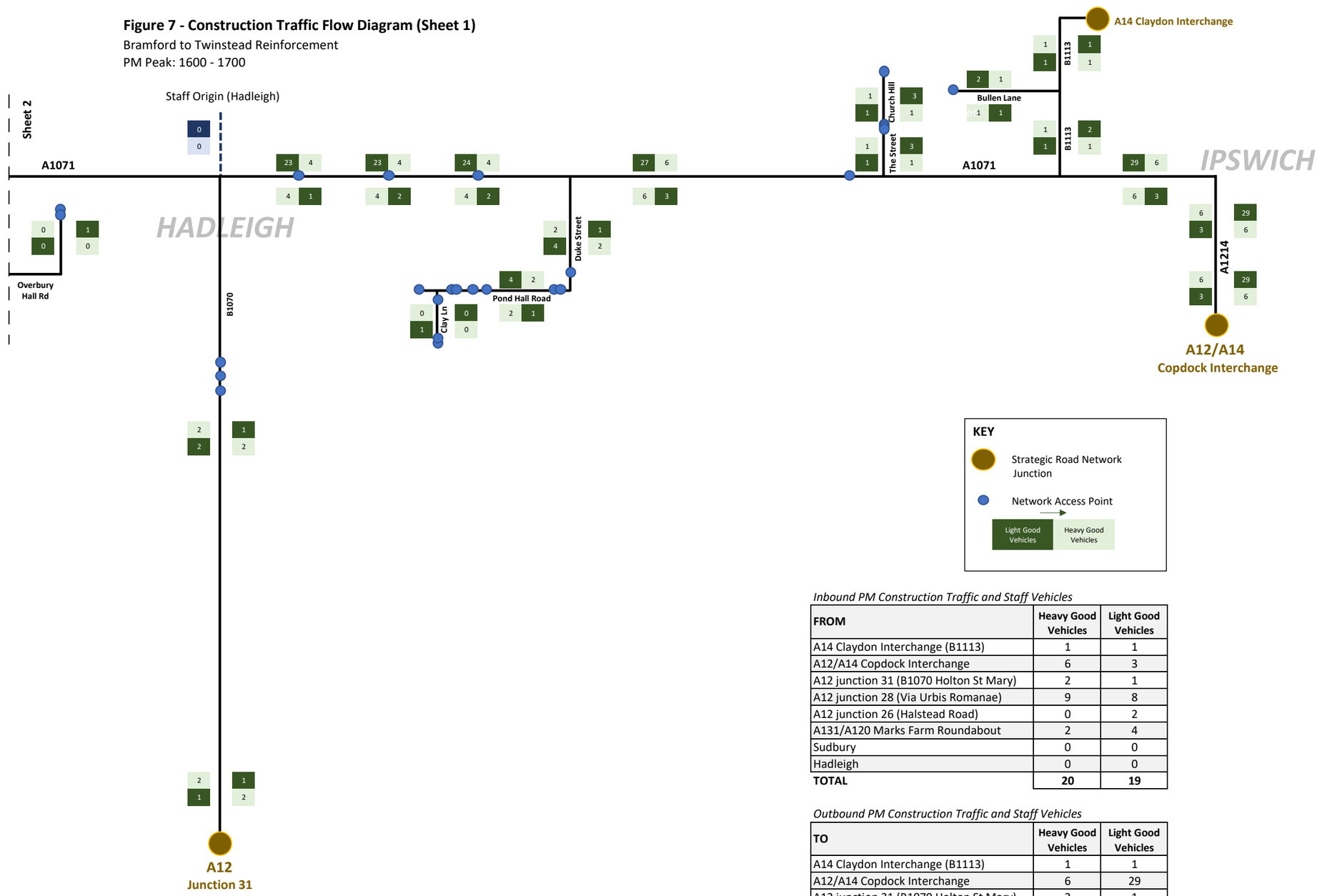
Outbound AM Construction Traffic and Staff Vehicles

TO	Heavy Good Vehicles	Light Good Vehicles
A14 Claydon Interchange (B1113)	1	1
A12/A14 Copdock Interchange	6	3
A12 junction 31 (B1070 Holton St Mary)	2	1
A12 junction 28 (Via Urbis Romanae)	9	8
A12 junction 26 (Halstead Road)	0	2
A131/A120 Marks Farm Roundabout	2	4
Sudbury	0	0
Hadleigh	0	0
TOTAL	**20**	**19**

Figure 7 - Construction Traffic Flow Diagram (Sheet 1)

Bramford to Twinstead Reinforcement

PM Peak: 1600 - 1700



Inbound PM Construction Traffic and Staff Vehicles

FROM	Heavy Good Vehicles	Light Good Vehicles
A14 Claydon Interchange (B1113)	1	1
A12/A14 Copdock Interchange	6	3
A12 junction 31 (B1070 Holton St Mary)	2	1
A12 junction 28 (Via Urbis Romanae)	9	8
A12 junction 26 (Halstead Road)	0	2
A131/A120 Marks Farm Roundabout	2	4
Sudbury	0	0
Hadleigh	0	0
TOTAL	**20**	**19**

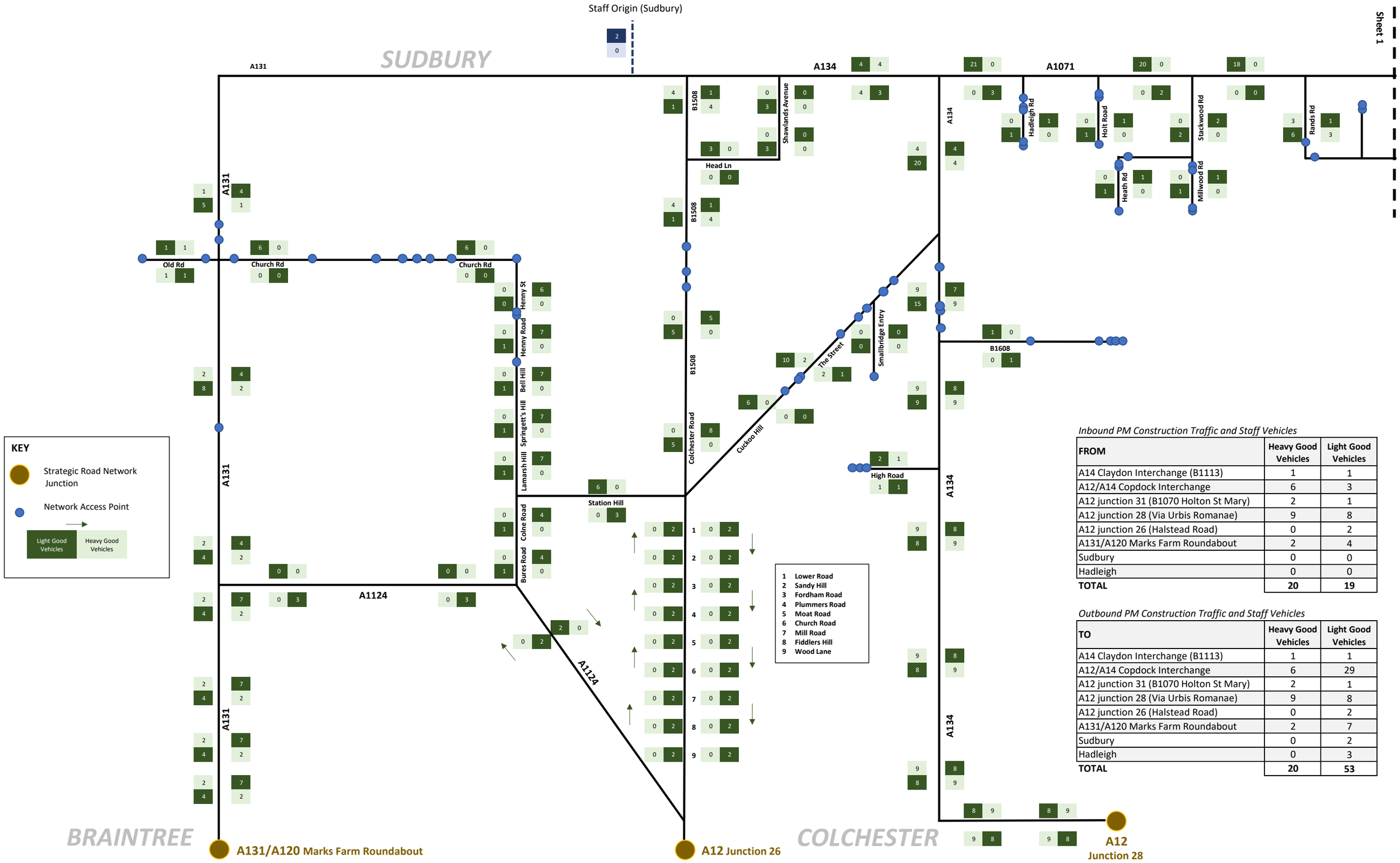
Outbound PM Construction Traffic and Staff Vehicles

TO	Heavy Good Vehicles	Light Good Vehicles
A14 Claydon Interchange (B1113)	1	1
A12/A14 Copdock Interchange	6	29
A12 junction 31 (B1070 Holton St Mary)	2	1
A12 junction 28 (Via Urbis Romanae)	9	8
A12 junction 26 (Halstead Road)	0	2
A131/A120 Marks Farm Roundabout	2	7
Sudbury	0	2
Hadleigh	0	3
TOTAL	**20**	**53**

Figure 7 - Construction Traffic Flow Diagram (Sheet 2)

Bramford to Twinstead Reinforcement

PM Peak: 1600 - 1700



Inbound PM Construction Traffic and Staff Vehicles

FROM	Heavy Good Vehicles	Light Good Vehicles
A14 Claydon Interchange (B1113)	1	1
A12/A14 Copdock Interchange	6	3
A12 junction 31 (B1070 Holton St Mary)	2	1
A12 junction 28 (Via Urbis Romanae)	9	8
A12 junction 26 (Halstead Road)	0	2
A131/A120 Marks Farm Roundabout	2	4
Sudbury	0	0
Hadleigh	0	0
TOTAL	**20**	**19**

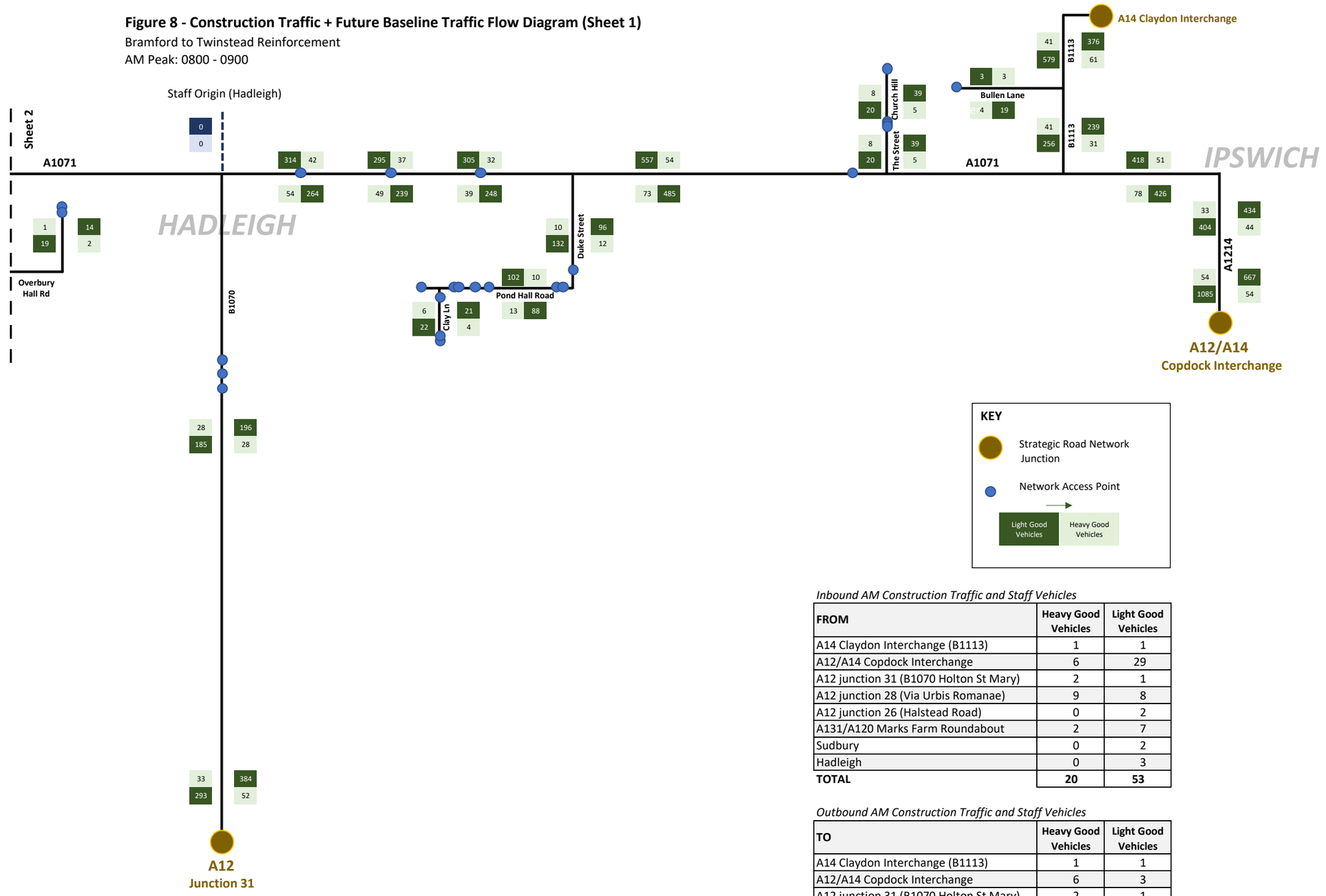
Outbound PM Construction Traffic and Staff Vehicles

TO	Heavy Good Vehicles	Light Good Vehicles
A14 Claydon Interchange (B1113)	1	1
A12/A14 Copdock Interchange	6	29
A12 junction 31 (B1070 Holton St Mary)	2	1
A12 junction 28 (Via Urbis Romanae)	9	8
A12 junction 26 (Halstead Road)	0	2
A131/A120 Marks Farm Roundabout	2	7
Sudbury	0	2
Hadleigh	0	3
TOTAL	**20**	**53**

Figure 8 - Construction Traffic + Future Baseline Traffic Flow Diagram (Sheet 1)

Bramford to Twinstead Reinforcement

AM Peak: 0800 - 0900



Inbound AM Construction Traffic and Staff Vehicles

FROM	Heavy Good Vehicles	Light Good Vehicles
A14 Claydon Interchange (B1113)	1	1
A12/A14 Copdock Interchange	6	29
A12 junction 31 (B1070 Holton St Mary)	2	1
A12 junction 28 (Via Urbis Romanae)	9	8
A12 junction 26 (Halstead Road)	0	2
A131/A120 Marks Farm Roundabout	2	7
Sudbury	0	2
Hadleigh	0	3
TOTAL	**20**	**53**

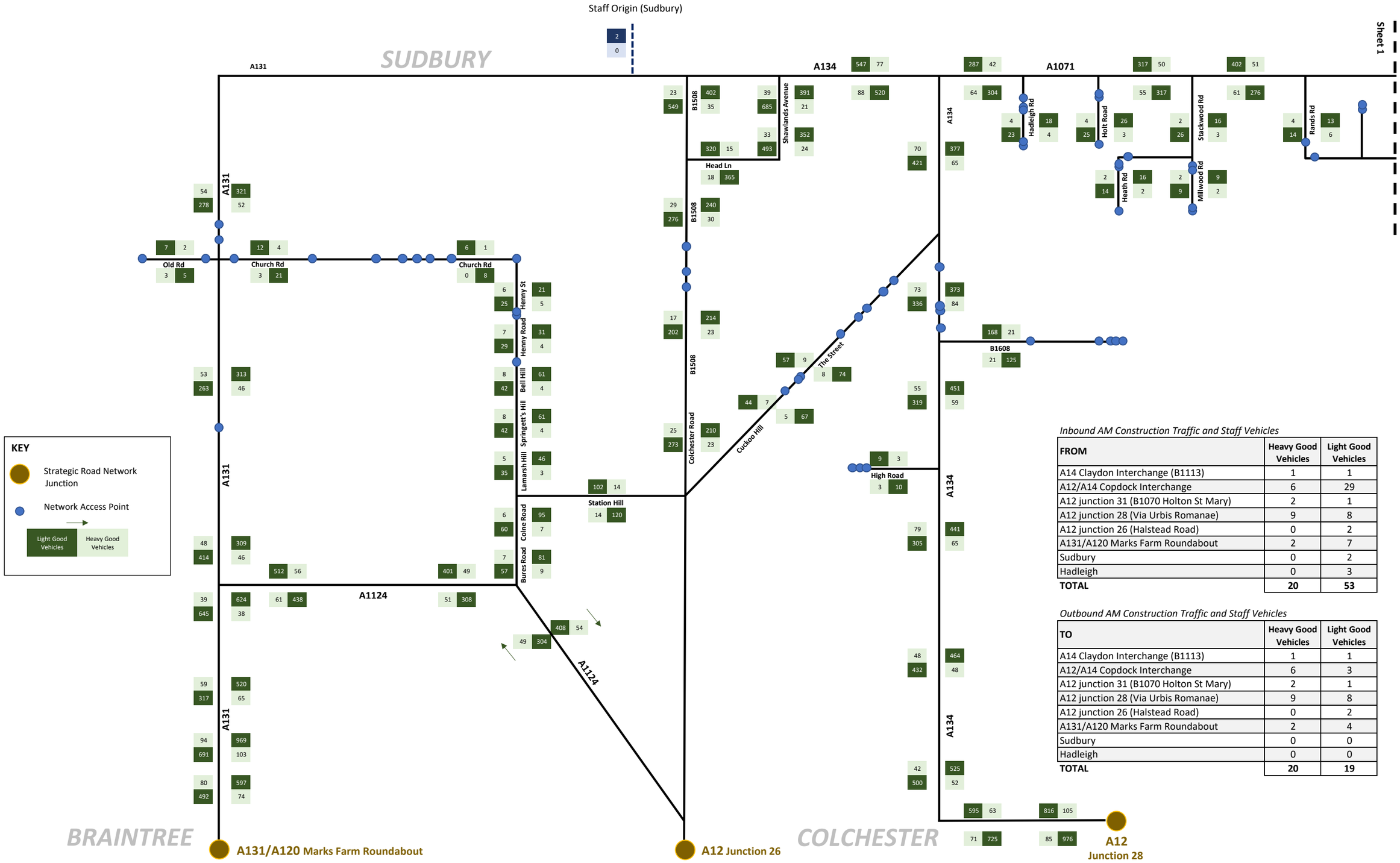
Outbound AM Construction Traffic and Staff Vehicles

TO	Heavy Good Vehicles	Light Good Vehicles
A14 Claydon Interchange (B1113)	1	1
A12/A14 Copdock Interchange	6	3
A12 junction 31 (B1070 Holton St Mary)	2	1
A12 junction 28 (Via Urbis Romanae)	9	8
A12 junction 26 (Halstead Road)	0	2
A131/A120 Marks Farm Roundabout	2	4
Sudbury	0	0
Hadleigh	0	0
TOTAL	**20**	**19**

Figure 8 - Construction Traffic + Future Baseline Traffic Flow Diagram (Sheet 2)

Bramford to Twinstead Reinforcement

AM Peak: 0800 - 0900



Inbound AM Construction Traffic and Staff Vehicles

FROM	Heavy Good Vehicles	Light Good Vehicles
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Hadleigh	0	3
TOTAL	**20**	**53**

Outbound AM Construction Traffic and Staff Vehicles

TO	Heavy Good Vehicles	Light Good Vehicles
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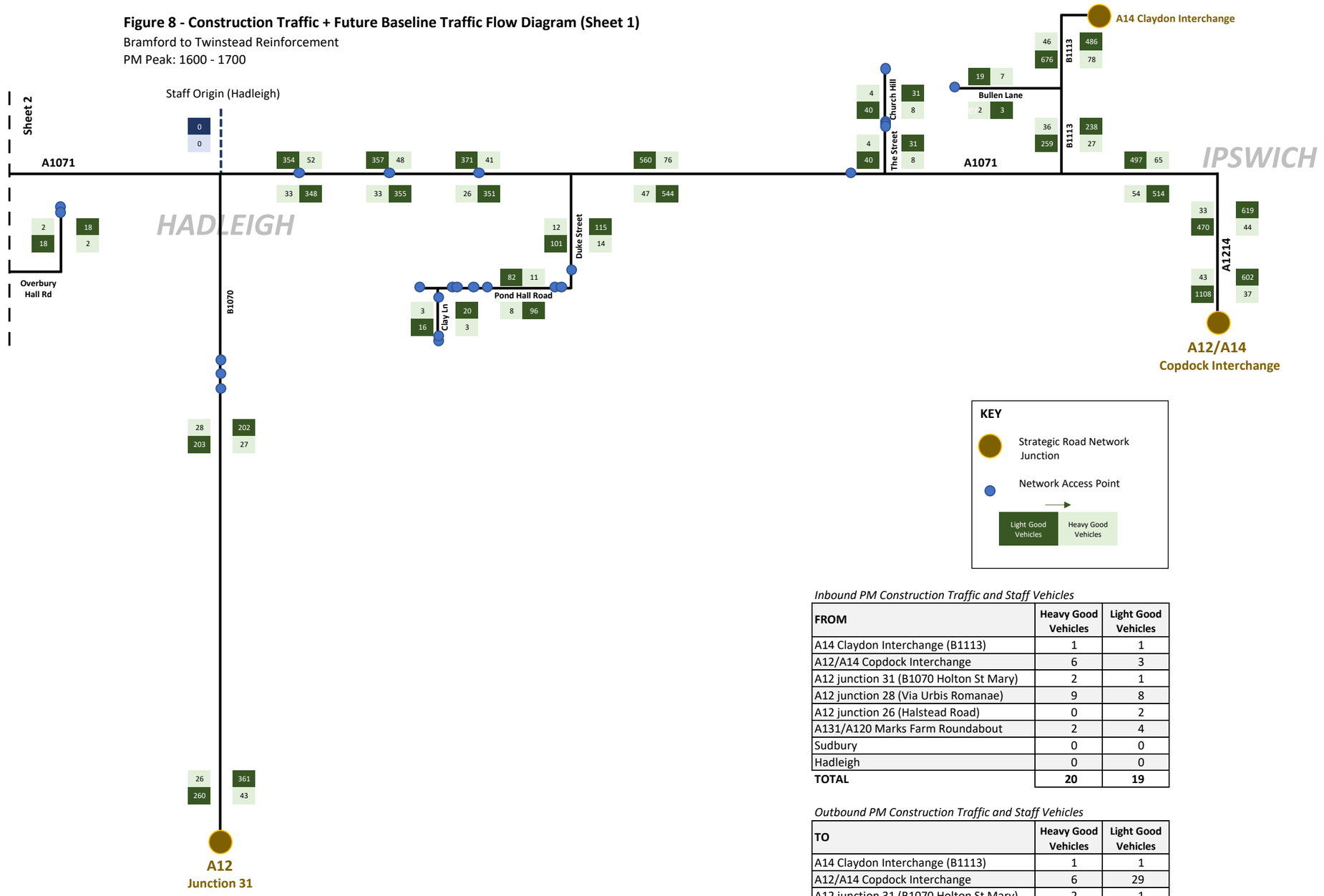
A12 junction 28 (Via Urbis Romanae)	9	8
A12 junction 26 (Halstead Road)	0	2
A131/A120 Marks Farm Roundabout	2	4
Sudbury	0	0
Hadleigh	0	0
TOTAL	**20**	**19**

Figure 8 - Construction Traffic + Future Baseline Traffic Flow Diagram (Sheet 1)

Bramford to Twinstead Reinforcement

PM Peak: 1600 - 1700



Inbound PM Construction Traffic and Staff Vehicles

FROM	Heavy Good Vehicles	Light Good Vehicles
A14 Claydon Interchange (B1113)	1	1
A12/A14 Copdock Interchange	6	3
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Outbound PM Construction Traffic and Staff Vehicles

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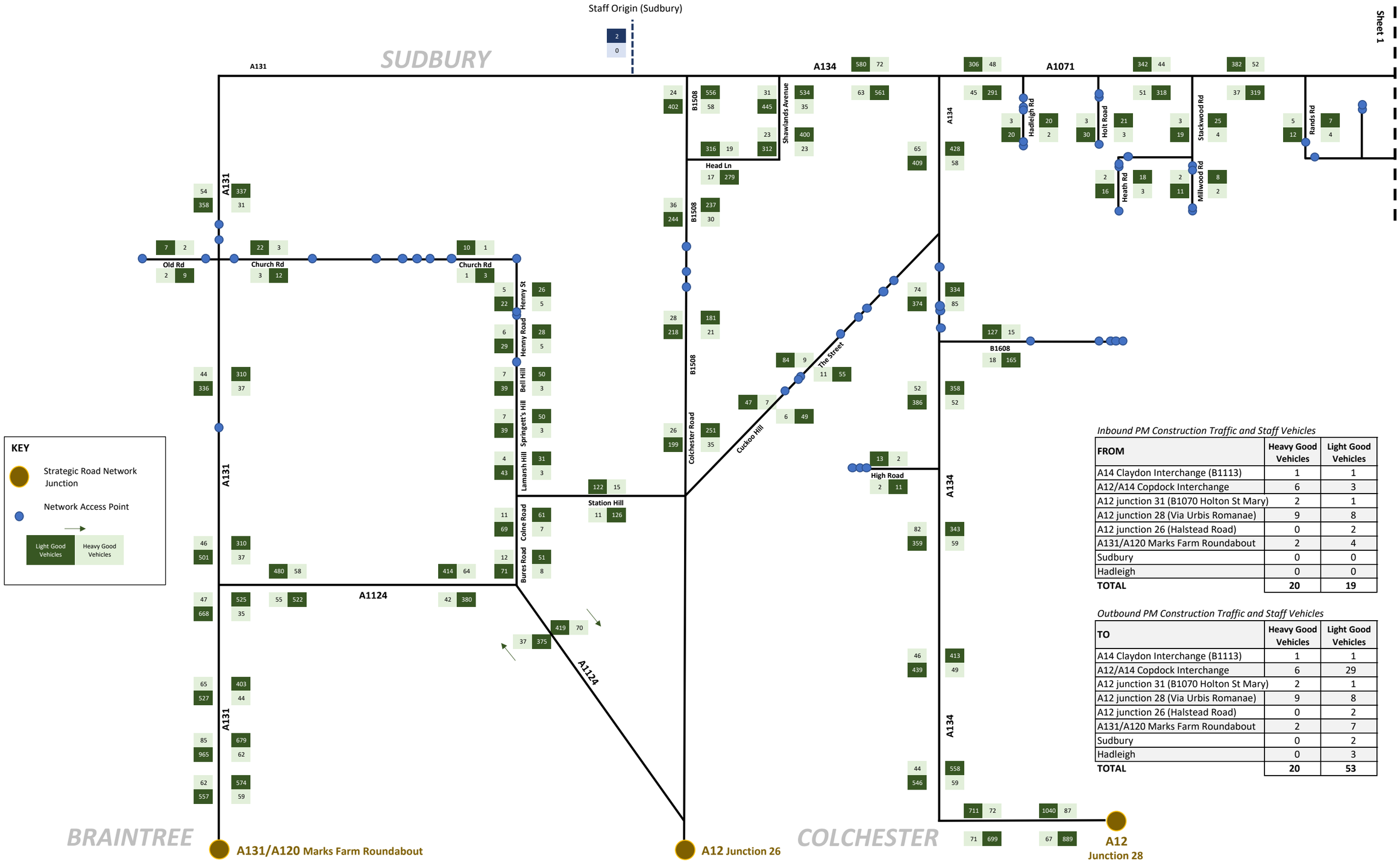
Sudbury	0	2
Hadleigh	0	3
TOTAL	**20**	**53**

Figure 8 - Construction Traffic + Future Baseline Traffic Flow Diagram (Sheet 2)

Bramford to Twinstead Reinforcement

PM Peak: 1600 - 1700



KEY

- Strategic Road Network Junction
- Network Access Point
- → Light Good Vehicles / Heavy Good Vehicles

Inbound PM Construction Traffic and Staff Vehicles

FROM	Heavy Good Vehicles	Light Good Vehicles
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A12/A14 Copdock Interchange	6	3
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A12 junction 26 (Halstead Road)	0	2
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Sudbury	0	0
Hadleigh	0	0
TOTAL	**20**	**19**

Outbound PM Construction Traffic and Staff Vehicles

TO	Heavy Good Vehicles	Light Good Vehicles
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A12 junction 26 (Halstead Road)	0	2
A131/A120 Marks Farm Roundabout	2	7
Sudbury	0	2
Hadleigh	0	3
TOTAL	**20**	**53**

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National Grid plc
National Grid House,
Warwick Technology Park,
Gallows Hill, Warwick.
CV34 6DA United Kingdom

Registered in England and Wales
No. 4031152
nationalgrid.com