Land North-East of Jn10 M42 Motorway, North Warwickshire

784-B033920

Revised Transport Assessment

Hodgetts Estates

February 2023

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TABLE OF CONTENTS

APPENDICES

1.0 INTRODUCTION

1.1 Tetra Tech (TT) have been engaged by Hodgetts Estates to prepare a Revised Transport Assessment (TA) for a major development consisting of 100,000sqm of employment uses and a 150-space lorry park with 400sqm amenity block, located off the A5 Watling Street, north-east of the M42 Junction 10 (M42 Jn10) interchange, in Warwickshire.

1.2 An outline planning application for the development site was submitted to North Warwickshire Borough Council (NWBC). The application (ref: PAP/2021/0663) was validated on 2 December 2021. The application was supported by a TA produced by Bancroft Consulting.

1.3 The TA (dated November 2021) produced by Bancroft Consulting followed extensive scoping discussions with National Highways (NH) and Warwickshire County Council (WCC). As agreed with highway officers at WCC and NH, the Atherstone A5 model prepared by Vectos on behalf of Warwickshire CC for the North Warwickshire Local Plan evidence base was used for trip distribution and the production of No Development and With Development traffic flows.

1.4 The Atherstone A5 model (referred to below as the Vectos model) extends from the eastern part of Tamworth and includes the whole of Dordon and Atherstone. The Vectos model assesses a Reference Case which comprises committed developments and highway schemes in 2026 and in 2031, and a Local Plan case which includes committed developments, local plan allocations, committed highway schemes and additional highway proposals to mitigate the impact of the local plan allocations, including an improvement scheme at M42 Jn10, in 2031. Of particular relevance to this application, the Vectos model includes the A5/ Pennine Way junction, M42 Jn10, A5 Birch Coppice, A5/ Core 42 and the A5/ Long Street junctions.

1.5 The trip rates to be used in the assessment were agreed by Bancroft Consulting with NH and WCC.

1.6 The agreed methodology has been retained for this revised assessment.

1.7 There were some initial scoping discussions between Bancroft Consulting and Staffordshire County Council (SCC) which are reported in Appendix G of the Bancroft TA, but the scope of the TA was not agreed with SCC at that time.

1.8 Based on the outputs from the Vectos Model, and as agreed with NH and WCC, the submitted Bancroft TA assessed the impact of the proposed development at the M42 Jn10, the A5/ proposed site access junction and the A5/ Birch Coppice junction in 2026 and in 2031. The assessment used the 2026 and 2031 Reference Cases, and in 2031, the Local Plan Case.

1.9 The Bancroft TA used LINSIG to assess the individual traffic signal junctions in isolation from each other, and therefore did not model queuing interactions between junctions, platooning of traffic flows on downstream junctions, or the potential effects of blocking back/ lane starvation. Their analysis showed that long queues and delay were predicted on the M42 northbound off-slip, which was at variance with the Vectos model results.

1.10 National Highways in their consultation response dated 31 Dec 2021 to the planning application recommended that planning permission not be granted for a period of 3 months (until 31 March 2022) in order for more information to be submitted. Specifically, in relation to the TA, NH requested the junction models and flow derivations. NH also requested a Stage 1 Road Safety Audit (RSA) and a Walking, Cycling, Horse-Riding Assessment (WCHAR).

1.11 Tetra Tech (TT) was engaged by Hodgetts Estates in January 2022 to reassess the impact of the proposed development on the highway network and provide the additional information requested by NH.

1.12 The transport impacts of the proposed development were discussed with NH, WCC, Bancroft Consulting, Hodgetts Estates and TT on 15 March 2022. From that meeting TT produced a Modelling Strategy Note (dated 18 March 2022, Appendix A refers) in which it was proposed to model the M42 Jn10, the A5/ proposed site access junction, the A5/ Birch Coppice, and the A5/ Core 42 junctions using Transyt 16, a network model which models the interaction of queuing, lane starvation, blocking back effects and platooned arrivals. The Transyt model would be based on 2022 survey data and would be validated. The Modelling Strategy Note was agreed by WCC on 7 April 2022 on the provision that NH are satisfied with a TRANSYT model, NH subsequently confirmed on 11 April 2022 that the Modelling Strategy Note is acceptable.

1.13 Traffic surveys at M42 Jn10, A5/ Birch Coppice and A5/Core 42 took place on Wednesday 23 March 2022 between 07:00 to 09:30 and 16:00 to 18:30. The surveys included manual classified turning traffic flows, lane allocations, green times, queue lengths and saturation flows. A Transyt16 model was prepared and validated using the surveyed data. A Baseline Validation Report dated May 2022 was produced (Appendix B refers) and submitted to NH and WCC for approval which was received from NH and WCC on 1 August 2022.

1.14 Following agreement of the 2022 Transyt model, the model was used to assess the impact of the proposed development. For the No Development scenarios, the model was amended to include the Reference Case flows for 2026 and 2031 and the Local Plan flows and highway proposals for the 2031 as appropriate. For the With Development scenarios, the site access junction was added together with the With Development Reference case and With Development Local Plan flows for 2026 and 2031 as appropriate. The Local Plan improvements for M42 Jn10 included a left turn slip road from the M42 southbound off-slip to the A5 eastbound exit arm. In the Local Plan With Development scenario this was removed when the proposed site access junction was added. The analysis indicated that in the 2031 Reference Case, capacity improvements were needed on the A5 eastbound approach to M42 Jn10. The schemes included in the 2031 Local Plan showed that mitigation was not required to accommodate the proposed development.

1.15 A Transyt Future Year Modelling Report was submitted to NH, WCC and SCC on 2 December 2022 (Appendix C refers). The proposed improvements had a beneficial effect in the AM peak, reducing delays on the A5 eastbound approach to M42 Jn10, in the PM peak there was a small increase in queues and delays on the A5 westbound approach to M42 Jn10. Taking the two peak hours together the overall effect was positive with lower levels of delay.

1.16 In addition to addressing NH's comments, TT also further consulted with SCC. SCC highway officers requested a separate Census based distribution of the generated traffic on the west side of M42 Jn10. Following agreement of the distribution in November 2022 the two A5/ Pennine Way roundabouts required assessment. A South Pennine Way Modelling Report was submitted to SC, NH and WCC on 23 November 2022 (Appendix D refers). The assessment showed that the proposed development had a small impact on the operation of the two roundabouts and that no mitigation works were needed.

1.17 In addition to the highway impact assessments, the opportunities to provide for sustainable transport access to and though the sites have been explored. A WCHAR assessment, as requested by NH, was carried out by an independent consultancy to review the designs, and identify measures which could be considered, (Appendix E refers). The assessment was reviewed by NH on 29 September and a review of the scheme design arising from the Transyt modelling was requested. An updated WCHAR will be submitted.

1.18 A Public Transport Strategy (PTS) was prepared in consultation with the bus operator Stagecoach and WCC Public Transport team. The agreed PTS is appended at Appendix F.

1.19 A Road Safety Audit brief has been prepared and was submitted to NH, WCC and SCC on 22 December 2022. When this is agreed a Stage 1 Road Safety Audit will be carried out.

1.20 This TA has been produced having regard to the advice contained in:

- National Planning Policy Framework (NPPF) published by Ministry of Housing, Communities & Local Government (MHCLG).
- Circular 01/2022 Strategic Road Network and the delivery of Sustainable Development Department for Transport December 2022
- MHCLG's Transport Assessment and Travel Plan guidelines set out in Planning Practice Guidance.
- Design Manual for Roads and Bridges, endorsed by National Highways, specifically chapters CA 185, CD 123, CD 143.
- DfT's LTN 1/20 Cycle Infrastructure Design, 2020.
- The Warwickshire Guide, Warwickshire County Council, 2001.
- Staffordshire Residential Design Guide, Staffordshire County Council, 2000.

1.21 The main purposes of this TA are to establish the traffic impacts of the proposed development on the M42 Jn10, provide an assessment of junctions within Staffordshire to satisfy Staffordshire County Council highways, provide an enhanced set of walking and cycling proposals and produce a public transport strategy for the site.

1.22 This TA draws on Bancroft Consulting's TA and reproduces some sections, as noted where relevant in the text. This Revised TA has been prepared solely in connection with the proposed development. Whilst every reasonable effort has been made to ensure its accuracy, use of the information contained in the report by a third party for any other purpose is entirely at their own risk.

2.0 POLICY

2.1 Sections of this chapter have been extracted from the Bancroft TA, updated where applicable.

National Planning Policy Framework (NPPF)

2.2 The NPFF is the overarching Government guidance on planning with the latest version released in July 2021. In respect of planning obligations, Paragraph 57 states how contributions must only be sought where they meet all the following tests:

> *"a) necessary to make the development acceptable in planning terms;*
>
> *b) directly related to the development; and*
>
> *c) fairly and reasonably related in scale and kind to the development."*

2.3 The NPPF sets out the importance of sustainability, where Paragraph 105 sets out that:

> *"The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making."*

2.4 Paragraph 110 goes on to set out key criteria that development sites should establish. It states:

> *"In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:*
>
> *a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;*
>
> *b) safe and suitable access to the site can be achieved for all users;*
>
> *c) the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code; and*
>
> *d) 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."*

2.5 Paragraph 111 of the NPPF states:

> *"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."*

2.6 Based on the above guidance, developments should only be refused where the residual cumulative transport impacts can be defined as 'severe', or if the traffic increases would cause an unacceptable impact on highway safety.

2.7 Paragraph 112 of the NPPF goes on to set out a list of preferred criteria for applications for development. It recommends that priority is given to pedestrian and cycle movements and minimising the scope for conflict with vehicles.

2.8 Paragraph 113 provides a summary of the above policies and outlines the level of detail that should be provided as part of any application, in relation to highways and transportation. It sets out the following requirements:

> *"All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed."*

2.9 The NPPF is supported by a range of associated Planning Practice Guidance (PPG) documentation. This includes advice on 'Transport evidence bases in plan making and decision taking' (updated March 2015), which provides guidance to assist local planning authorities when assessing strategic transport needs and identifying suitable mitigation within Local Plans. The PPG documentation also includes 'Travel Plans, transport assessments and statements in decision-taking' (updated March 2014). This document provides general advice on the scope of Transport Assessments and where they might be required, considering Paragraph 111 of the NPPF, although it does not include any specific prescriptive guidance for assessments (see below for further details).

DfT Circular 01/2022: The Strategic Road Network and the Delivery of Sustainable Development

2.10 The Circular was published in December 2022, and sets out the policy of the Secretary of State with regard to the SRN when planning authorities are setting policies and making decisions on planning and development proposals. It also sets out how National Highways will engage to assist the delivery of sustainable development. It advises that the circular should be read in conjunction with the NPPF, other national planning policies and guidance, the Manual for Streets and LTN 1/20 among others. The Circular also provides advice on special types of development including roadside facilities.

2.11 Paragraph 6 notes that the SRN has an essential role the transport decarbonisation plan, reduce the need to travel and to make walking, wheeling, cycling a natural first choice. Alongside this Paragraph 7 advises that NH undertakes *"effective engagement in the planning system, to enable the delivery of sustainable development, support the needs of the freight and logistics sector, and mitigate the impact of growth on the natural environment."* It also advises that NH will share evidence and data and will work collaboratively and constructively on development proposals.

2.12 Paragraph 11 defines sustainable development as "*encouraging economic growth while protecting the environment and improving safety and quality of life for current and future generations".*

2.13 In relation to new connections to the SRN, paragraph 19 advises that these should be identified in the local plan process and that NH will need to be satisfied that *"all reasonable options to deliver modal shift, promote walking, wheeling, cycling, public transport and shared travel to assist in reducing car dependency and locate development in areas of high accessibility by sustainable transport modes (or areas which can be made accessible) have been exhausted before considering new connections*". Paragraph 20 says that "*where this has not occurred, there will be no new* *connections on those sections of the network designed for high speed traffic"* except for certain specialised road related schemes. In footnote 10 defines the high speed traffic routes as motorways and all purpose dual carriageways with partially or comprehensively limited access.

2.14 Paragraph 21 sets out a graduated and less restrictive approach to the formation of new connections elsewhere on the SRN, determining each case on its own merits.

2.15 In the context of the proposed development which includes a new connection to the A5, a dual carriageway with a 70mph speed limit, it is important to assess whether the A5 is a high speed traffic route, and the key determinant is the number and type of accesses on the section. Between M42 jn 10 and Dordon Island, a distance of 1.8km there are:

- Access to a disused parking area, farm track and bridleway on the north side
- Separate accesses to 3 private houses on the north side
- Separate accesses to 4 private houses on the south side
- Field access on the south side
- A signal controlled junction to Birch Coppice industrial / distribution estate
- Field access on the north side
- A signal controlled junction to Core 42 industrial / distribution estate
- Access to Quarry Close, a small residential estate on the north side with access through the central reserve.
- Separate accesses to 2 private houses on the north side
- Access to Birch Coppice Miners Social Club on the south side,
- Separate access to some 7 private houses on the south side
- Access to Vicarage Close, a small residential estate on the north side with access through the central reserve
- Accesses to New Street a residential road in Dordon village
- A row of houses on the north and south sides with on street parking on the A5.

2.16 The A5 between M42 Jn10 and Dordon Island has a range of different types of access from field gates to residential streets and industrial estates, the access policy is neither partially or comprehensively limited, and is reflective of the historic development on this section of Watling Street. As such the graduated and less restrictive approach to access formation in Paragraph 21 is appropriate. The development proposals also include measures to improve sustainable access on foot, by bike and by bus, and which will have wide public benefits.

2.17 Paragraph 28 states that *"local authorities should ensure that the SRN is not being relied upon for the transport accessibility of site allocation except where this relates to road side facilities or SRN dependent sectors (such as logistics and manufacturing)"* This indicates that roadside facilities and logistics are land uses which are particularly related to access to the SRN.

2.18 Paragraph 42 advises that *"new development should give priority to walking, wheeling, cycling movements and facilities access to high quality public transport where possible.* In the chapters below a comprehensive walking and cycling improvement scheme is proposed together with direct bus access into the site.

2.19 Paragraph 43 deals with capacity enhancement and confirms *"the company expects development promoters to enable a reduction in the need to travel by private car and prioritise sustainable transport opportunities ahead of capacity enhancements and new connections on the SRN."*

2.20 Paragraph 44 refers to travel plans. The proposed development includes a Framework Travel plan with clear targets and a monitoring regime.

2.21 Paragraph 46 requires that*"new goods distribution centres should make sufficient provision for HGV drivers, which should include overnight parking and an adequate level of welfare facilities.* The proposed development includes a 150 space lorry park with welfare facilities available to all HGV drivers.

2.22 Paragraph 48 advises that *"where a development has not been identified in an up to date local plan, developers should demonstrate that the development would be located in an area of high accessibility by sustainable transport modes and would not create a constraint to the delivery of any planned improvements".* The assessment below demonstrates that the proposed development can be delivered in the Local Plan case.

2.23 Paragraph 81 states *"In areas where there is an identified need[26], the company will work with relevant local planning authorities to ensure that local plan allocations and planning application decisions address the shortage of HGV parking on or near to the SRN. In these circumstances, local planning authorities should have regard to the following spacing requirements:*

1. the maximum distance between motorway facilities providing HGV parking (being service areas, rest areas or truckstops) should be no more than 14 miles; and

2. the maximum distance between APTR [all-purpose trunk roads] facilities providing HGV parking (being service areas or truckstops) should be the equivalent of 20 minutes driving time for HGVs."

2.24 Footnote 23 states: "*This will be informed by regular updates to the Department for Transport's National Lorry Parking Survey and demand assessments undertaken by the company to ensure that appropriate evidence is available on the national picture."*

2.25 At paragraph 82, it states: *"Where the general spacing distances above are met but a need for HGV parking still arises, the Company will support the case to address unmet demand, subject to an assessment of the safety of the proposed access or egress arrangements."*

2.26 Paragraph 74 states *"Roadside facilities perform an important safety function by providing opportunities for the travelling public to stop and take a break during their journey".*

2.27 In considering the location of roadside facilities Paragraph 7677 advises how *"the maximum distance between signed motorway service areas should be 28 miles. ... The distance between services can be shorter, but to protect the safety and operation of the network, the access/egress arrangements of facilities must comply with the requirements of DMRB, which includes provisions in respect of junction separation"*.

2.28 Paragraph 83 addresses the delivery of roadside facilities and the principle of trip generation. It states, "*Roadside facilities should be well-designed to serve passing traffic and not be destinations in* *their own right. Consequently, the Transport Assessment to accompany a planning application for a new or improved facility must show that there would only be a minimal overall increase in trip mileage to be acceptable in this regard. An exception will be made for any predicted increase in HGV mileage, as the provision of facilities that would meet the needs of commercial drivers should be encouraged".*

2.29 Paragraph 84 confirms *"On-line (between junctions) service areas are more accessible to users of the SRN and as a result more conducive to encouraging drivers to stop and take a break. They also help to avoid an increase in traffic demand at junctions with all-purpose roads".* Paragraph 85 then states, *"in circumstances where competing sites are under consideration, on the assumption that all other factors are equal, new facilities must be provided at on-line locations".*

2.30 Table 1 of Annex A provides the 'minimum requirements for roadside facilities to be eligible for signing from the SRN'. These requirements are classified as 'Mandatory' and 'Permitted' for truckstops on all-purpose trunk roads and listed as follows:

- Available at least between 8am and 8pm every day except Christmas Day, Boxing Day and New Year's Day [Mandatory]
- Free parking for minimum of 2 hours for all vehicles permitted to use the facility [Mandatory]
- Segregated parking for refrigerated vehicles with access to appropriate mains electrical supply and noise abatement [Permitted]
- Provision of security monitoring equipment including appropriate lighting and CCTV systems [Mandatory]
- Free-to-use toilets with hand washing facilities, and at least one changing places toilet and one for people with disabilities, and no need to make a purchase during opening hours [Mandatory]
- Shower and washing facilities for HGV drivers (separate provision for men and women), including secure lockers in the shower/washing area. [Mandatory]
- Provision of fuel for petrol and diesel vehicles and EV chargepoints [Permitted]
- Hot drinks and cooked hot food available for purchase during all opening hours for consumption on the premises [Permitted]
- Hot drinks and hot food available at least 8am to 8pm for consumption on the premises [Mandatory]
- Access to free-of-charge telephone for emergency use, Wi-Fi, and power points available for device charging [Mandatory]
- Use as an operating centre for the purposes of the Goods Vehicles (Licensing of Operators) Act 1995 or the Public Passenger Vehicles Act 1981 [Permitted]

North Warwickshire Borough Council Local Plan (Adopted September 2021)

2.31 Chapter 5 of the North Warwickshire Borough Council Local Plan sets out the following objectives for the Local Plan.

1. To secure a sustainable pattern of development reflecting the rural character of the Borough

2. To provide for the housing needs of the Borough
3. To develop and grow the local economy for the benefit of local residents
4. To maintain and improve the vitality of the Market Towns
5. To promote rural diversification
6. To deliver high quality developments based on sustainable and inclusive designs
7. To protect and enhance the quality of the natural environment and conserve and enhance the historic environment across the Borough
8. To establish and maintain a network of accessible good quality Green Infrastructure, open spaces, sports and recreational facilities
9. To ensure the satisfactory provision of social and cultural facilities

2.32 It also presents the following key policies relating to new development.

LP1 Sustainable Development

Planning applications that accord with the policies in this Plan (and where relevant, with other development plan policies including those in Neighbourhood Plans) will be approved without delay, unless material considerations indicate otherwise. Where there are no relevant development plan policies, or the policies which are most important for determining the application are out-of-date, applications will be determined in accordance with the presumption in favour of sustainable development.

Quality of Development / Place

All development proposals must;
- be supported by the required infrastructure
- be consistent with the approach to place making set out through development management policies, including, where relevant
- integrate appropriately with the natural and historic environment, protecting and enhancing rights of way network where appropriate
- demonstrate a high quality of sustainable design that positively improve the individual settlement's character; appearance and environmental quality of anarea;
- deter crime;
- sustain, conserve and enhance the historic environment;
- provide, conserve and enhance biodiversity; and,
- create linkages between green spaces, wildlife sites and corridors.

Development should protect the existing rights of way network and where possible contribute to its expansion and management.

Implementation and Infrastructure

Infrastructure will be sought where it is necessary, directly related to the development and is fairly and reasonably related in scale and kind to the development. It may be related to social, economic and/or environmental issues. Supplementary Planning Guidance and documents will be used to guide provision, Infrastructure requirements are outlined in the Infrastructure Delivery Plan (For clarity, infrastructure projects drawn from the IDP are itemised and indicated to be either critical to the Plan's strategy as a whole, or necessary in association with particular allocations or projects, along with indicative timings are itemised in NWBC26, Appendix A) and the supporting documents contained in Appendix C of the Local Plan. The list is not exhaustive as each will be taken on a site by site basis and will depend on the viability of the scheme. Other site specific measures will be considered at the time of the planning permission. These will be secured through conditions, S106's or other agreements considered appropriate to ensure its delivery. It will be necessary to ensure the ongoing maintenance, where appropriate, of any infrastructure provision.

> Where development is proposed in excess of plan requirements and would assist in the provision of or enabling infrastructure, particularly that related to facilitating development in the long term, or of affordable housing relative to needs, that will carry weight in favour of granting permission.

2.33 Chapter 12 of the Local Plan addresses transport and access plans for North Warwickshire. It identifies how the area is well served by transport links, including road, rail, and air. The following policies are presented in this regard.

> **LP23 Transport Assessments**
>
> Transport Assessments appropriate to the scale of development proposed, will be required to accompany development proposals (including that that is below the indicative threshold in Appendix G). Assessments will also be required where there is a cumulative effect created by additional floor space or traffic movement on the site or in the vicinity, or where there are demonstrable shortcomings in the adequacy of the local transport network to accommodate development of the scale proposed.
>
> These Assessments should address impacts on both the local and strategic highway networks and should be scoped so as to be bespoke to the nature of the development proposals. They should also ensure that proposals provide appropriate infrastructure measures to mitigate the adverse impacts of development traffic and other environmental and safety impacts either individually or cumulatively. Appropriate provision for, or contributions towards the cost of any necessary highway improvements should also be addressed. Widening opportunities to access new developments for all sections of the community will need also to be addressed through the provision and enhancement of public transport services and facilities together with walking and cycling facilities.

> The Assessments should assess the impact on level crossings in the vicinity of the development.
>
> Travel Plans will be required to be submitted alongside these Assessments.
>
> ***Travel Plan***
> Development will be expected to link with existing road, cycle and footpath networks. Developments that are likely to generate significant amounts of traffic and particularly larger developments will be expected to focus on the longer-term management of new trips; encourage the use of public and shared transport as well as appropriate cycle and pedestrian links. Increasing the opportunity to access these developments for all sections of the community should be addressed. This will be secured through a Travel Plan and/or financial contributions which will be secured either through planning conditions or the provisions of Section 106.

LP26 Strategic Road Improvements A5

A study has been undertaken in respect of the future of the A5 Trunk Road and the outcome of this will become a material planning consideration in respect of future development proposals that might impact on the A5.

The Council will work alongside the appropriate Agencies to develop the A5 Strategy and options and funding opportunities for its dualling.

Land to the north of Grendon through Site RH1 will be protected from any development to ensure the dualling of the A5 can take place. If RH1 is brought forward for development no part will prejudice the implementation of the future dualling of this route.

When the dualling of the A5 trunk road has been implemented the existing Watling Street will be downgraded, wherever possible, and walking, including the provision of pedestrian crossings, and cycling routes will be actively encouraged and promoted.

A446

Improvement of the A446 including the dualling over the River Tame will be sought as well as improved cycling links.

2.34 Chapter 13 of the Local Plan addresses development considerations for North Warwickshire. LP27 considers walking and cycling considerations as set out below.

LP27 Walking and Cycling

The Borough Council will develop a Walking and Cycling Strategy.

All developments should consider what improvements can be made to encourage safe and fully accessible walking and cycling.

2.35 The Local Plan identifies two major housing allocations in the local area. Policy H4 Land to the East of Polesworth and Dordon identifies land for at least 2000 new homes and a new primary school and plans for a new distributor road between the A5 and the B5000. Policy H5 Land West of Robeys Lane Tamworth allocated land for 1270 new homes. These two allocations show that there are large scale housing proposals near to the proposed development site which if developed will provide nearby housing for the people near to the major employment corridor that the A5, in the vicinity of M42 Jn10, has become.

2.36 The Local Plan includes a car parking standard Supplementary Planning Document which provides the following advice:

- Industry: 1 standard space per 100m^2, 1 cycle space per 500m^2, 1 motorcycle space plus 1 additional per 10 standard spaces.
- Warehousing: 1 standard space per 150m^2, 1 cycle space per 1000m^2, 1 motorcycle space plus 1 additional per 10 standard spaces.
- For Business Use car parks over 200 spaces, disabled provision is 6 bays plus 2%.

2.37 The Local Plan includes Policy 34 which is set out below and sets out that electric charging points will be provided as part of all relevant proposals and acknowledges a demand for lorry parking in the Borough:

LP34 Parking

Adequate vehicle parking provision commensurate to a proposed development will be expected, as guided by the standards in the Document "Parking Standards". Greater emphasis will be placed on parking provision in areas not served by public transport whilst lower provision within the main towns may be appropriate.

Town Centres

Within the defined Town Centres new residential development must provide the minimum parking spaces necessary to enable and service the development, with 1 parking space per flat or 2 per house. No reduced level of car parking provision will be acceptable unless the following circumstances are clearly evidenced:

- there is spare capacity available in nearby public car parks or adjacent on street car parking (that is available for long stay use); or
- where the exercise of flexibility would assist in the conservation of the built heritage, facilitating a better quality of development and the beneficial re-use of an existing historic building.

Airport Parking

Proposals for remote parking of passengers or visitor vehicles in the Borough will not generally be permissible given existing constraints on parking provision and infrastructure demands. Any such proposals must demonstrate that they would (i) not compromise delivery of the plan strategy as a whole (ii) that there is a clear justification for provision in the location proposed, and (iii) that the benefits of such provision would outweigh any adverse effects, including by consequence of occupying land that could be put to a viable alternative use.

Electric Vehicle Charging points

Electric charging points will be provided as part of all relevant developments to an agreed specification and location dependent on the scheme proposed and applicable technical guidance. Rapid charging points will be provided on sites when located in the public realm. On housing sites homes with on- site parking will provide an electric charging point in an accessible location close to the parking space(s). On commercial sites there will be employee and visitor rapid charging points.

Lorry Parking

Proposals which reduce lorry parking (either informal or formal parking areas) should be accompanied by evidence to support its loss and explore opportunities for alternative provision. In recognition of the Borough's strategic location and demand for lorry parking, the Council will give weight to lorry parking provision and facilities, and opportunities for alternative provision and for improved management in decision-taking.

Warwickshire Third Local Transport Plan (2011 – 2026)

2.38 Section 1 of the Warwickshire LTP 2011 – 2026 (Part A) explains how it "sets out the transport strategy and policies for the County from 2011 to 2026". Section 3 of the LTP sets out the following revised objectives:

Warwickshire's Local Transport Plan 3 Objectives

1. **To promote greater equality of opportunity for all citizens in order to promote a fairer, more inclusive society;**
2. **To seek reliable and efficient transport networks which will help promote full employment and a strong, sustainable local and sub-regional economy;**
3. **To reduce the impact of transport on people and the [built and natural] environment and improve the journey experience of transport users;**
4. **To improve the safety, security and health of people by reducing the risk of death, injury or illness arising from transport, and by promoting travel modes that are beneficial to health;**
5. **To encourage integration of transport, both in terms of policy planning and the physical interchange of modes;**
6. **To reduce transport's emissions of carbon dioxide and other greenhouse gases, and address the need to adapt to climate change.**

2.39 Table 4.6 at Page 31 of the LTP3 provides a summary of challenges in achieving the objectives.

2.40 Page 54 of the LTP3 sets out the 'Strategy for the A5', stating *"the A5 is an important strategic link which runs along the northern and eastern edge of the County boundary with Staffordshire, Leicestershire and Northamptonshire, and provides access to a number of major industrial areas such as Birch Coppice. Within Northern Warwickshire, the road also provides an important access to the M42/A42, the M69/M1 and the M6 Toll".*

2.41 WCC are in the early stages of updating their Local Transport Plan to LTP4 and have recently consulted on their six key strategies which comprise:

- Active Travel: a strategy to promote walking and cycling in Warwickshire to bring the physical and mental health benefits from these forms of transport to more people and protect the environment.
- Public Transport: how we intend to work with bus and rail companies to improve the existing public transport network in Warwickshire.
- Motor Vehicles: recognising the role of motor vehicles in the county as we move towards more sustainable transport options such as electric vehicles and hydrogen-fueled transport.
- Managing Space: making changes to public spaces to make them more attractive places to be, cleaner and less dominated by vehicles, with the routes that connect them less congested.
- Safer Travel: reducing the number of people injured on Warwickshire's roads and increasing the safety and attractiveness of all travel options.
- Freight Strategy: managing freight movements across the county to promote and grow our successful economy.

2.42 In June 2022 Warwickshire County Council published for consultation their draft Local Cycling and Walking Infrastructure Plan. The report contains updates and formalises the walking and cycling network development plans for each of the main urban areas and sets out a priorities programme of delivery for cycling schemes for the next 10 years.

2.43 The Bus Services Improvement Plan was published in October 2021 and sets out the vision that "Bus services in Warwickshire will better meet the aspirations of local communities by becoming more frequent, more reliable, and better integrated with other travel options. New ticket options, marketing campaigns, promotional fares and supportive local policies will help to drive growth in local bus patronage. Along with emerging technologies and clearer information about bus schedules, all components will help to reduce and simplify the cost of bus travel while sustaining a comprehensive network of bus services across the county.

2.44 The Warwickshire Rail Strategy 2019-2034 provides plans to improve the rail offer in Warwickshire. The Strategy is a non-statutory policy document supporting LTP3, but it is intended it will form part of LTP4, which is in preparation as mentioned above.

Midlands Connect

2.45 The 'Midlands Connect Strategic Transport Plan: Greener, Fairer, Stronger' sets out the future of transport in the Region. Below are a set of the outlined short term priority objectives. The plan identifies requirements for major investment needed, from both the public and private sectors, in programmes for:

- Electric vehicle charging infrastructure;
- Alternative fuels, including natural gas and hydrogen for HGVs;
- Boosting mobility in rural areas;
- Creating more space for passengers and freight on our rail network;
- A 'tap and cap' smart ticketing solution for passengers using buses, trams, bike hire and the rail network across the Midlands (similar to the system used in London).

2.46 The needs of the freight industry are a vital component of the plan with an emphasis placed on both improving infrastructure to support the transport and logistics sector, as well as a focus on how public and private sectors can work together to ensure that the impacts of HGVs on our roads are best managed.

2.47 The Midlands Freight Route Map sets out the current challenges for freight and the work that is being done to deliver solutions and the objectives of the Strategic Transport Plan. In doing so, the report sets out five key objectives that support the Plan:

- Objective 1 'Economy' – Exploit the natural advantages of the region's location and ensure freight is able to support and grow the Midlands and wider economy.
- Objective 2 'Rail Capacity' – Ensure rail capacity, particularly by HS2, benefits rail freight so that the network is able to accommodate a growth in freight moved by rail.
- Objective 3 'Mode Shift' – Where practicable, encourage modal shift to more sustainable modes.

- Objective 4 'Decarbonisation' – Decarbonise freight movements with a particular focus on road freight, contributing to the 'Net Zero' Carbon Target.
- Objective 5 'Integration' – Enhance integration between freight modes to provide a more resilient and effective supply chain.

2.48 The above mentioned opens opportunities such as an improvement of international connectivity, the acceleration of the use of alternative fuels. An investment of rail opportunities, planning access to strategic rail freight interchanges, facilitating urban deliveries and maximising the opportunities of freeports.

Staffordshire County Council

2.49 Although the development site lies outwith Staffordshire CC, and the traffic impact is largely concentrated to the SRN under NH control, the traffic assessment includes two SCC junctions, namely those either side of the Pennine Way overbridge. Therefore, SCC policies have been reviewed in relation to the development.

2.50 SCC's Local Transport Plan 2011 stresses the need for sustainable development, stating in Policy 1.3, *"We will support the adoption of sustainable land-use planning polices and reduce the impact of development where it negatively affects the highway network."* This will be achieved through the following:

- Working with local planning authorities and developers through the Local Development Framework process to:
  - Encourage the design and layout of new development that maximises access by smarter travel modes, especially in urban areas.
  - Improve street design to create inclusive environments, especially in town centres whilst reconciling safety issues.
  - Promote the retrofit of existing developments in order to maximise access by smarter travel modes, especially in urban areas.
  - Seek development mixes and patterns that are accessible to a broad range of services and facilities, which reduce the need to travel by private motor vehicle.
- Working with local planning authorities to include planning obligations which secure highway capacity improvements, pedestrian and cycling facilities, new or improved bus services, demand management measures, public realm enhancements, and travel plans.
- Ensuring that travel plans, when required to support new development, include modal shift targets, annual performance monitoring, remedies and enforcement obligations.

Policy 1.8:

We will improve the efficiency of freight distribution.

This will be achieved through the actions set out in the Staffordshire Freight Strategy (Appendix L).

Improving the Efficiency of Freight Distribution

The movement of goods across and within the county is vital for Staffordshire's economy to prosper. On local roads, freight accounts for between 5% and 10% of all traffic and is the second largest user by mode, behind private motor cars. Between 2006 and 2008, 214,000,000t of freight either originated or was destined for Staffordshire[17]. Given the volume of freigh movement in the county, attempting to improve operations will have benefits for business (in terms of efficiency savings) and residents (in terms of quality of life).

2.51 The Plan includes a policy relating to freight distribution:

2.52 SCC's Local Cycling and Walking Infrastructure Plan 2021-2031 (adopted April 2021) states it *"focuses on identifying where we* [SCC] *should be targeting our investment in infrastructure within the* *compact urban areas of Burton upon Trent, Cannock, Lichfield, Newcastle-under-Lyme, Stafford and Tamworth, which are of a size that can support journey distances that can be made by walking and cycling."*

2.53 In paragraph 2.9, it notes, *"It is considered that Stafford and Tamworth have the most extensive existing cycle networks."* In Tamworth, *"the local cycle network is extensive covering 30 miles within a 12 square mile area and positive progress in encouraging modal shift has been achieved in recent years."*

2.54 At paragraph 2.11, it notes *"Cycling schemes will need to recognise LTN 1/20 which is new national guidance published in July 2020 on delivering high quality cycle infrastructure. In Staffordshire, the two key priorities will be to:*

- *Deliver new LTN 1/20 standard links on the prioritised cycle networks in the six urban areas.*
- *Upgrade existing substandard cycle routes to LTN 1/20 standard on the prioritised cycle network in the six urban areas, tying in where necessary to existing shared use facilities".*

3.0 EXISTING CONDITIONS

Site Location and Surrounding Area

3.1 The development site is located to the north-east of the M42 Jn10 and immediately to the north of the A5 Watling Street. The site lies on open fields with an area of hardstanding in the south and is bounded to the north by village of Birchmoor, to the east by agricultural fields, to the south by the A5 Watling Street and to the west by the M42 motorway. A site location plan is shown at Figure 1 at Appendix G.

Local Highway Network

3.2 Details for this section of the report have been extracted from the Bancroft TA.

3.3 The site is currently primarily served via an access at the A5 frontage. It comprises a 16 metre wide dropped kerb arrangement with an access width of 8m. Given that the A5 is dualled past the site, this junction only accommodates left-in and left-out turning movements. There is a secondary point of access to the east from the A5 opposite Core 42 Business Park (Core 42) and via the existing farm track, which in part also serves as part of Footpath AE46.

3.4 The A5 is a key strategic route that extends between Junction 9 of the M1 Motorway (north of London) and Holyhead in North Wales. In the vicinity of the site, it extends between Tamworth to the north-west and Hinckley to the east. The A5 is dualled as it passes the site with two traffic lanes in each direction, measuring approximately 19.5 metres wide with a kerbed central reserve (approximately 6.4m wide) and footways with street lighting on both sides of the carriageway. Traffic passing the site is subject to the national speed limit, which reduces to 50mph approximately 180m to the east of the existing access. Within Dordon the speed limit on the A5 is 40mph.

3.5 In the vicinity of the site frontage, the eastbound carriageway includes a 90m long layby facility approximately 235m from the roundabout at M42 Jn10. On-site observations suggest this has a capacity of around four articulated lorries. Continuing east there is a bus layby approximately 140m from the parking layby. A further 15m east of this point is a staggered uncontrolled pedestrian crossing that passes through the central reserve. Except for a short section between the parking and bus laybys where a substantial 3m verge exists, the northern edge of the carriageway is bound by the shared footway/cycleway only.

3.6 At the southern edge of the A5 carriageway (westbound flow) a further parking layby exists approximately 320m from the roundabout at M42 Jn10. The layby has a length of approximately 46.6m and can accommodate up to three articulated lorries. On approach to the Jn10 roundabout the westbound carriageway widens from two lanes to four at the signal-controlled stop lines. These comprise a 120m long flare at the off-side lane and a nearside left turn only flared lane that extends for around 50m. The southern edge of the westbound carriageway is also bound only by a footway, with no verge.

3.7 The A5 carriageway includes street lighting and footways/cycleways at both edges. It is also understood that both parking laybys are well used by drivers throughout the week at all times of the day.

3.8 Approximately 580m east of the existing site access, there is a signal-controlled T-junction that serves the Birch Coppice Business Park. The layout includes three lanes on the A5 westbound approach, two for ahead only movements and one for left turns. The A5 eastbound approach comprises four lanes, two for ahead only movements and two for right-turns.

3.9 The minor arm (Danny Morson Way) approach includes three lanes, two for left-turns and one for right-turns. This arrangement also includes another signal-controlled access road adjacent to the minor arm, which extends from the radius of the junction and serves to maintain an existing right of access in favour of land under the control of Hodgetts Estates. Staggered signal-controlled pedestrian/ cycle crossings are located at the eastern side of the junction; Danny Morson Way has uncontrolled pedestrian and cycle crossings. As discussed in greater detail in the 2022 TRANSYT Baseline Validation Report, the junction performs well in the AM and PM peaks in 2022 with traffic progressing through the junction within one cycle. The MOVA set up works well reacting to traffic demands, resulting in varying cycle times and green splits for each phase.

3.10 Some 330m east of the Birch Coppice Junction there is another traffic signal controlled junction serving the Core 42 Business Park, a mixed-use industrial scheme, which is nearly completed with 1 small plot remaining. It was developed by Hodgetts Estates. The layout includes two lanes on the A5 westbound approach and three lanes on the A5 eastbound approach, two for ahead only movements and one for right-turns. The minor arm (Meridian Drive) has a 2 lane approach, one for right turning traffic and one for left turning traffic. Staggered signal-controlled pedestrian/ cycle crossings are located at the eastern A5 arm of the junction and across Meridian Drive. As discussed in greater detail in the 2022 TRANSYT Baseline Validation Report, the junction performs well in the AM and PM peaks in 2022 with traffic progressing through the junction within one cycle. The MOVA set up works well reacting to traffic demands, such that when no vehicles are waiting to turn right out of Core 42, the traffic signal for this phase is not activated, thus ensuring maximum efficiency and minimal delays to drivers.

3.11 Approximately 520m east of the A5/ Core 42 junction there is a roundabout junction with Long Street and Gypsy Lane, known locally as Dordon Island. The A5 speed limit reduces to 40 mph approximately 150m east of the A5/ Core 42 access junction. Long Street extends north from Dordon Island and is subject to a 30 mph speed limit with traffic calming and signage confirming it as being ‘unsuitable for HGVs’. Residential on-street parking restricts the available carriageway width to approximately 3.5m. To the east of Dordon Island, the A5 continues as a single carriageway road with direct frontage access to properties, footways/streetlighting and a 40mph speed limit to Grendon where there is a roundabout junction with Spons Lane and Boot Hill.

3.12 Approximately 360m to the west of the site, the A5 leads to a large grade-separated roundabout with Jn10 of the M42 Motorway, which is fully signal-controlled. As well as linking the M42 with the A5, this junction also provides access to Trinity Road to the south (which leads to Freasley and Tamworth Logisitcs Park) and to Green Lane to the north (which leads to Relay Business Park and Tamworth Moto motorway services area). To the north, the M42 extends to the M1 Motorway for Nottingham, and Derby, and to the south it extends to the M6 Motorway for Birmingham to the south. Pedestrian and cycle crossing across the M42 on and off slips, Trinity Road and at Green Lane are all uncontrolled. There are no pedestrian and cycle crossings of the A5 approaches to the junction. As discussed in greater detail in the 2022 TRANSYT Baseline Validation Report, the junction experiences notable queues and delays on the A5 eastbound approach in the AM peak hour, with queues on average over 30pcu in each lane, and at times the queues extend back beyond the Pennine Way overbridge. All other approaches to the roundabout generally operated well. The roundabout junction operated in a similar manner in the PM peak, although the queues and delays on the A5 eastbound approach are not as extensive, whilst all other approaches generally operated well.

3.13 To the west of M42 Jn10, A5 is known as the Fazely-Two Gates-Wilnecote Bypass. It is a dual carriageway road with street lighting and is subject to the National Speed Limit of 70mph. There are narrow shared foot/cycleways on both north and south sides between Jn10 and the slip roads to Pennine Way,but no footways further west. Eighty metres west Jn10 there is a left turn slip road on the eastbound carriageway to Kensall Green with a substandard diverge lane. Kensall Green provides a route to Green Lane avoiding the traffic signals on the A5 approach to Jn10.

3.14 Some 260m west of Jn10 there is an all-movements interchange with Pennine Way with trumpet form slip roads on both sides of the A5. At the head of each slip road there is a 54m ICD roundabout which are connected by a bridge over the A5. The southern roundabout gives access to Centurion Park, a business park, to the south and to the B5404 Quarry Hill to the west. The B5404 serves the residential areas of Wilnecote, Belgrave and Two Gates. The northern roundabout gives access via Pennine Way to the Stonydelph residential area and other residential areas in eastern Tamworth via the B5000.

Future Highway Schemes – Road Investment Strategy

3.15 The Road Investment Strategy (RIS) is a multi-year investment plan covering the costs of operating, maintaining, renewing and enhancing the Strategic Road Network in five-year time horizons. RIS1 covered the period 2015 to 2020 and RIS2, covering the period 2020 to 2025, is being delivered. Part of RIS2 sets out the research priorities for schemes to be developed for implementation during the RIS3 period (2025 to 2030). One such scheme is the A5 Hinkley to Tamworth Improvement for which proposals are being developed and a Strategic Outline Business Case is being prepared. It is at an early stage in its development, with a request in August 2021 to stakeholders for feedback on the existing issues with the route to help inform the development of options for the schemes.

3.16 As yet no firm proposals have been published. Although WCC state in their consultation response to this application, *“the unallocated proposal currently being considered should be permitted only if it can be satisfactorily demonstrated that the development would not prejudice the design or delivery of any such scheme. It is not considered that the proposal as submitted or revised has adequately demonstrated this.”* It is considered unreasonable to prevent the delivery of development when no firm proposals have been identified.

Future Highway Schemes – A5 Dordon-Atherstone

3.17 National Highways are preparing an improvement scheme for the A5 between Dordon and Atherstone. A copy of the consultation document is appended at Appendix H. Three options were out for public consultation in September and October 2022. The scheme broadly consists of improvements to Dordon Island, an offline new dual carriageway link between Dordon and Grendon, improvements to Grendon roundabout, on line improvements to the A5 between Grendon and Atherstone and improvements to the A5/ Holly Lane roundabout at Atherstone. The main differences between the options are the junction arrangements at Dordon.

Traffic Surveys

3.18 As set out in the Modelling Strategy Note, the Transyt model for the assessment was to be validated using observed 2022 traffic flows, signal timings, queues and where appropriate, saturation flows.

3.19 Traffic surveys were undertaken on Wednesday 23 March 2022 for the AM peak period (7am-9.30am) and PM peak period (4pm-6.30pm) at the following locations:

- M42 Junction 10
- A5 Watling Street / Danny Morson Way (Birch Coppice)
- A5 Watling Street / Meridian Drive (Core 42)
- A5 / Kinsall Green

3.20 The traffic surveys recorded volume and class and captured individual traffic streams. The surveys also recorded queue lengths and signal cycle counts, green times, and saturation flows. The results are described in more detail in the Transyt 2022 Baseline Validation Report attached at Appendix B.

3.21 Bancroft Consulting carried out a radar speedmeter survey of the A5 at the layby adjacent to the site access. The eastbound survey took place between 09:00 and 09:45 on Monday 26 April 2021, recording approach speeds at a point approximately 150m from the proposed site access location. The results were in Appendix M of the Bancroft TA and, for ease of reference, are included at Appendix I of this Revised TA. A total of 200 readings were collected and the corresponding 85th percentile speed was calculated to be 49.6mph (79.8kph). The westbound survey took place on the same day between 10:30 and 11:15, also recording approach speeds at a point approximately 150m from the proposed site access location. Again 200 readings were taken; the corresponding 85th percentile speed was calculated to be 55.1mph (88.7kph). The appropriate DMRB stopping sight distances are therefore 160m for eastbound traffic and 215m for westbound traffic.

3.22 For the SCC assessment, manual classified turning counts and queue observations per lane were carried out at the two Pennine Way roundabouts on Wednesday 5 October 2022. These are described in further detail in the South Pennine Way Modelling Report attached at Appendix D.

Existing Pedestrian and Cycle Movements

3.23 Surveys were undertaken to record the existing pedestrian and cycle movements to gain an understanding of the existing sustainable travel activity in the vicinity of the site, and to inform the WCHAR assessment. On Wednesday 8 June 2022, directional pedestrian and cycle volumes between the hours of 7am and 7pm were recorded at 18 locations in the vicinity of Jn10, Relay Park and Birchmoor. Figure 2 in Appendix G shows the survey locations and results.

3.24 On the A5 passing the site, there were 11 pedestrian movements on the north side and 13 on the south side during the 12-hour survey period. During the same time there were 38 cycle movements on the north side and 51 on the south side.

3.25 At Jn10 of the M42 Motorway, the surveys identified that existing pedestrian movements were low, with 11 pedestrian movements on the northern overbridge over the 12-hour period. There were more cycle movements with 38 movements at the same location over 12 hours.

3.26 In Birchmoor, on Green Lane, there were 188 pedestrian movements and 55 cycle movements.

3.27 In Relay Park, on the cycle path to the north, there were 294 pedestrian movements and 58 cycle movements.

3.28 The Bancroft TA at Appendix R reported a survey of bus passengers using the bus stop adjacent to the site on 23 September 2021 between 7.00am and 7.00pm. During this period no bus passengers were recorded using the stop.

Walking, Cycling and Horse-riding Assessment (WCHAR)

3.29 A Walking, Cycling and Horse-riding Assessment (WCHAR) has been undertaken by Drummond Black Consulting Ltd in July 2022. The findings of the WCHAR informed the design of various sustainable travel elements of the proposed scheme. The WCHAR is attached at Appendix E.

4.0 ACCESSIBILITY

4.1 NPPF was updated and revised in February 2019, replacing the 2012 version of the Framework, then updated again in July 2021. At Paragraph 104 c) NPPF identifies *"opportunities to promote walking, cycling and public transport use are identified and pursued"* for development proposals and at Paragraph 105 it indicates "*opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making"*. The accessibility of the proposed development has been considered based on the guidance in NPPF.

4.2 Some details for this section, including photos, have been taken from the Bancroft TA.

Walking

4.3 In the vicinity of the site, a narrow 1.2m – 1.5m wide footway, extends along the southern edge of the A5 carriageway. This may also be a shared unsegregated cycleway, although the signing is somewhat ambiguous. Along the northern edge of the carriageway, a typically 2m wide shared unsegregated footway / cycleway exists. The June 2022 surveys recorded less than 15 pedestrians in the 12 hour period on each side of the A5.

4.4 To the west, these facilities extend to Jn10 interchange where, the M42 slip road and the Green Lane arms include unsignalised dropped kerbs and tactile paving crossings. There are no pedestrian crossings over the A5 approaches to Jn10. Photos showing the above are provided below.


Existing crossing facilities at M42 Junction 10: Green Lane (left) North Facing Off Slip (right)

Existing footways at site frontage on A5 (left) and at northern edge of M42 Junction 10 (right)

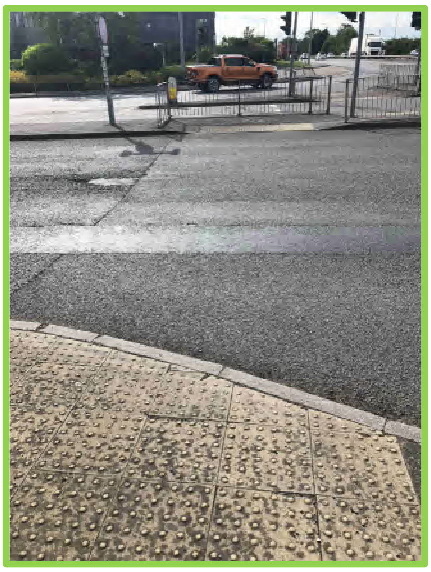
4.5 Figure 3, Appendix G, identifies opportunities for pedestrian travel to the site, based on a 1.95km walking distance (Local Transport Today in October 2017). This is a 24-minute walk at a typical walking speed of 1.3m per second. The catchment area extends north to the B5000/ Common Lane junction, encompassing Birchmoor and the southwestern part of Polesworth which includes a significant amount of residential development, approximately a 16-17 minute walk from the centre of the proposed site using the new footpath from the site entering Birchmoor through Cockspur Street, before heading east along Birchmoor Road, then south on Dordon Road.

4.6 The eastern edge of the catchment drops down from the B5000/Common Lane junction to the west of Common Lane. It then extends further to the east encompassing most of Drodon, including Browns Lane and the southern end of Long Street. This includes local shops and restaurants at Browns Lane along with further residential development. For example, Happy Dinner, FOCHA Turkish Kitchen and Dordon Fish Bar can all be accessed within a 22-23 minute walk from the centre of the site. This would involve exiting the site to the south and heading eastbound on the proposed foot/ cycle way alongside the A5 and the public footpath link to Browns Lane in Dordon. It is also important to note that many of the local roads within Polesworth and Dordon are traffic calmed, helping to keep speeds low and thereby improving conditions for pedestrian movement. Photos showing the above are provided below.

Local shops at Browns Lane (left) and traffic calming on Whitehouse Road (right)

4.7 South of the site, the majority of the Birch Coppice and Core 42 business park sites are within a reasonable walking distance. The two bus stops located within Birch Coppice can be accessed by a 16-17 minute walk from the centre of the proposed site whilst the entrance to Core 42 Business Park can be accessed within a 17-18 minute walk from the proposed site. Access to these areas requires crossing of the A5, which can be done via controlled crossing at the Birch Coppice or Core 42 junctions, or the uncontrolled crossing of the A5 dual carriageway opposite the existing bus stop layby.

4.8 Each of these sites has comprehensive internal pedestrian and cyclist infrastructure to facilitate movement. Photos showing examples of these existing crossing facilities are provided below.



Crossing facilities on A5 at Birch Coppice access (left) and at Core 42 (right)

4.9 The catchment then extends further west via Watling Street to include Relay Park, the Moto services, Centurion Park and a small part of the Stoneydelph residential area.

4.10 The area covered by the catchment north of the A5, west of Jn10, comprises a mixture of residential and employment uses. It is connected to the site via Birchmoor using Cockspur Street and Green Lane, these have footways along the entire length of the route and some sections with a footway on both sides of the carriageway. At the western end of Green Lane, the speed limit changes from 30 mph to national speed limit restrictions as the road splits to the north and south. The existing footway facilities at Green Lane are shown below.

Footways on Green Lane (bridge over M42 motorway)

4.11 Continuing south from this junction the route is via a Permissive Footpath that extends through to the northern edge of the Tamworth Moto service area as a traffic free route. From this, the catchment extends west to include additional residential development within Tamworth. Photos showing parts of the pedestrian route to the south are provided below.

Pedestrian facilities on route south from Green Lane

4.12 Turning right and heading north from the Green Lane junction there is a foot/cycleway which provides various opportunities to cut into the adjacent residential areas and access the Tamworth foot/cycle network. The first of these is a segregated footpath/cycle path which extends through to the eastern edge of the residential estate and then offers convenient access to Pennine Way (B5080).

Pedestrian facilities on route north from Green Lane

4.13 There are a number of Public Rights of Way (PROW) within the surrounding area. Bancroft TA Figure 23, reproduced in Figure 4 Appendix G, shows the designated PROWs in the area.

4.14 Public Bridleway 166/AE45/1 runs along the eastern site boundary in a north / south direction between Birchmoor and the A5 which will be slightly diverted at the southern end to accommodate the new site access as shown at Figure 7 in Appendix G. In addition, Figure 7 also shows how an existing public Footpath (166/AE46/1) which extends east from the centre of the site and arches round to the south will also be slightly diverted. The Footpath connects onto the A5, immediately west of the Core 42 access. Continuing further east along the northern side of the A5 leads to another Footpath 166/AE48/2 that connects northeast into Browns Lane.

4.15 Walking infrastructure upgrades associated with the development (discussed in detail in Chapter 6 below) provides improvements for commuters travelling by foot to the proposed development and to nearby employment areas.

Cycle Travel

4.16 Figure 5, Appendix G, shows a 7.2mi cycle catchment area centred on the site. It demonstrates how a large number of the surrounding residential areas would be within a reasonable cycling distance. This includes the densely populated residential areas east of Tamworth, such as Kettlebrook, Glascote, Glascote Heath, Belgrave, Wilnecote, and Stoneydelph, as well as the majority of Tamworth other than the residential areas on its western edge. To the northeast and east, residential areas within Polesworth, Dordon, Grendon, Baddesley Ensor, and the western residential areas of Atherstone would also be within cycling distance of the site.

4.17 Figure 6, Appendix G, shows an extract from ‘Cycling in Lichfield’ map published online by Staffordshire County Council. It shows how the site is surrounded by a network of cycle facilities, ranging from traffic-free cycle paths through to advisory cycle routes along quiet roads. In the immediate vicinity of the site these facilities include advisory cycle routes at Birchmoor Road and

Trinity Road, shared footway/cycleway at the northern edge of the A5 (including a Toucan crossing at the Birch Coppice access), and further cycle paths routing through the residential areas of Stoneydelph and Glascote Heath. This demonstrates how the proposed development would be well connected to the surrounding local cycle network, ensuring that cycling trips to and from the surrounding site area are within a comfortable distance and with suitable facilities.

Cyclists using existing facilities at A5 passing the site frontage

4.18 Cycle infrastructure upgrades associated with the development (discussed in detail in Chapter 6 below) provide improvements for commuters travelling by bike to the proposed development and to nearby employment areas.

Bus Travel

4.19 The closest bus stop is located at the northern edge of the A5, approximately 200m to the east of the proposed site access, and 650m from the centre of the site. This comprises a bus layby with no flag and pole (photo below refers) and serves eastbound services for Routes 766 and 767. To access westbound services, the closest bus stop is located within the Birch Coppice Business Park, a further 400m east.

Existing bus stop facilities at A5 eastbound

4.20 Table 4.1 below lists the services which call at the A5 Watling Street eastbound bus stop.

Table 4.1: Bus Routes – A5 Watling Street

Route No.	Route Description	Monday to Friday		Saturday	Sunday
		Daytime	Evening	Daytime	
Stagecoach 766/ 767	**Tamworth to Nuneaton** Via Birch Coppice, Dordon, Baddesley Ensor, Grendon, Atherstone, Mancetter, Hartshill	**Every 1-2 hours**	**No Service**	**Every 1-2 hours**	**Every 1-2 hours**

4.21 The 766/ 767 provide direct journey opportunities to a range of large residential areas, where employees may live including Tamworth, Atherstone and Nuneaton.

4.22 There are a pair of bus stops served by the 766 and 767 services at Birch Coppice Business Park, which are approximately 1,300m from the centre of the application site. These stops can be reached by footway along the northside of Watling Street, the controlled pedestrian crossing facility on the A5 and footway through the business park.

4.23 There are two bus stops on Birchmoor Road to the north of the application site which can be reached within an approximate 800m walk from the centre of the application site. The stops can be reached via a proposed footway connection to Cockspur Street / public bridleway AE45 and then continuous footway on Cockspur Street and Birchmoor Road. The eastbound stop provides a flag/ pole arrangement, and the westbound stop provides a flag/ pole arrangement and timetable information. Table 4.2 below lists the services which call at the Birchmoor Road stops.

Table 4.2: Bus Routes – Birchmoor Road

Route No.	Route Description	Monday to Friday		Saturday	Sunday
		Daytime	Evening	Daytime	
Arriva 785/ 786	**Tamworth to Austrey** Via Arrington, Shuttington, Newton Regis, Wartyon, Polesworth	5 morning services then every 2 hours approx	No Service	5 morning services then every 2 hours approx	7 services

4.24 The 785/ 786 services provide direct journey opportunities to Tamworth and other residential areas where employees may live, including Polesworth and Shuttington.

Rail Travel

4.25 Polesworth Station is located approximately 2.8km to the north of the site and has an extremely limited train service with only one train, early morning, per day (Monday to Saturday), and only in one direction (northbound) because the southbound platform is inaccessible.

4.26 Wilnecote Train Station is approximately 3.5km to the west of the site and could be cycled to as part of a shared journey. Tamworth Station is approximately 7km northwest and is at the limit of a reasonable cycle ride, but could be used as part of a shared journey. Both Tamworth and Wilnecote Train Stations operate regular services to key surrounding towns that could fit with conventional working times for employees at the site.

4.27 For freight activities, the site is also close to the Birmingham Intermodal Freight Terminal (BIFT) at Birch Coppice Business Park. This is operated by Maritime Transport and provides a 24/7 operation with capacity for holding 3,000 containers. On a typical weekday, the terminal receives three trains a day from the Port of Felixstowe and two trains a day from the Port of Southampton. This provides a clear opportunity for goods associated with the proposed development to be delivered by rail rather than road, thereby reducing highway impact and increasing accessibility by sustainable modes.

Summary

4.28 The proposed development has good levels of accessibility on foot and by cycling to a range of useful local destinations. With the proposed bus service diversions, the majority of the site will be within an accessible walk distance to bus services that provide regular journey opportunities to a number of useful destinations. The nearby BIFT rail terminal provides an excellent opportunity for rail-road intermodal freight, which could relace of 10% of HGV movements thereby reducing both HGV milage and CO_2 emissions.

4.29 Overall, the accessibility of the site, taking into account the proposed connectivity improvements outlined elsewhere in this report is considered to be very good.

5.0 HIGHWAY SAFETY

Personal Injury Accident Data

5.1 Road traffic collision records for the most recent pre-Covid 3-year period ending the 31 December 2019 have been obtained from Warwickshire County Council (WCC) and Staffordshire County Council (SCC). The study area comprises the A5 from Pennine Way to Core 42Dordon, and includes the M42 Jn10 and proposed site access location.

5.2 Summary details of the accidents are given below (from west to east) and copies of the highway safety records are attached in Appendix J. It should be noted that WCC's records do not specify the factors involved in the accident, so this information is interpreted from the incident descriptions where possible.

Pennine Way Roundabouts & A5 up to Junction 10

5.3 In the assessment period 10 accidents were reported at the Pennine Way roundabouts and on the A5 Fazeley-Two Gates-Wilnecote Bypass, as summarised in Table 5.1 below. Of the 10 accidents, 5 occurred at the Pennine Way South roundabout, 1 at the Pennine Way north roundabout, 3 occurred at the Pennine Way/ A5 slip roads, and 1 at the Kensall Green junction. There were no accidents at the other locations, such as the Pennine Way bridge.

Table 5.1: Pennine Way Roundabouts and A5 Bypass up to Junction 10

<table>
<tr><th>Reference/ Date</th><th>Location</th><th>Lighting</th><th>Dry/ Wet</th><th>Severity</th><th>Casualties</th></tr>
<tr><td colspan="6">Pennine Way South Roundabout</td></tr>
<tr><td>2 – 17149258
16/01/2017</td><td>A5 Roundabout at Junction with Centurion Way</td><td>Dark, Streetlights lit</td><td>Wet/Damp</td><td>Slight</td><td>1 cyclist</td></tr>
<tr><td colspan="6">A car travelling northwest on Centurion Way has collided with a cyclist travelling southwest on the roundabout circulatory.
Factors – Failed to look properly, passing too close to cyclist, horse rider or pedestrian, cyclist wearing dark clothing at night, not displaying lights at night or in poor visibility</td></tr>
<tr><td>4 – 17189916
03/06/2017</td><td>Pennine Way Roundabout junction with Thomas Guy Way</td><td>Daylight</td><td>Dry</td><td>Slight</td><td>1 driver</td></tr>
<tr><td colspan="6">A car travelling southeast at the roundabout was waiting to enter roundabout when a second car has collided with its rear.
Factors – Not reported</td></tr>
<tr><td>5 –18299447
21/04/2018</td><td>Thomas Guy Way A5 northbound exit slip by Premier Inn</td><td>Daylight</td><td>Wet/Damp</td><td>Slight</td><td>1 driver</td></tr>
<tr><td colspan="6">A car travelling to the northwest towards roundabout has braked suddenly and skidded.
Factors – Poor turn or manoeuvre, sudden breaking, loss of control</td></tr>
<tr><td>6 – 18322469
02/07/2018</td><td>Watling Street B5404 Junction with Quarry Hill</td><td>Daylight</td><td>Dry</td><td>Slight</td><td>1 cyclist and 1 driver</td></tr>
<tr><td colspan="6">A car travelling northeast at was stationary at the junction approach on to the roundabout when a cyclist travelling southwest collided with its side.
Factors – cyclist illegal turn or direction of travel and cyclist entering road from pavement.</td></tr>
</table>

7 - 18338615 25/09/2018	Quarry Hill B5404 Junction with Pennine Way	Daylight	Dry	Slight	1 driver
A car approaching the junction on to the roundabout heading northwest failed to look and collided into the rear of a stationary vehicle also travelling northwest. Factors – Failed to look properly.					
Pennine North Roundabout					
3 – 17157293 16/02/2017	A5 Eastbound Junction A5 from Pennine Way B05080	Daylight	Dry	Slight	1 driver
Two cars both travelling southeast towards the junction on to the roundabout circulatory when one of the vehicles broke suddenly resulting in the vehicle behind it colliding with its rear. Factor- Failed to look properly, failed to judge other person's path or speed, following too close, sudden breaking.					
A5 / Pennine Way Slips					
1 – 17143638 04/01/2017	A5 eastbound exit slip to Stoneydelph	Daylight	Wet/Damp	Serious	1 driver
A car travelling south to go ahead was approaching junction when it collided with a car travelling north in the opposite lane due to the first vehicle travelling too fast for the wet conditions. Factors – Travelling too fast for conditions.					
8 – 19400169 28/05/2019	Thomas Guy Way A5 approximately 60 meters from M42 Island	Daylight	Dry	Slight	1 motorcyclist
A motorcyclist travelling northwest on main carriageway was distracted by the light from the sun before falling. Factor – Dazzling sun					
9 – 19868172 18/07/2019	A5 Northbound junction with Stoneydelph exit	Daylight	Dry	Slight	1 motorcyclist
A motorcyclist travelling west was turning left on to the main carriageway when the light from the sun caused the rider to swerve and fall from the motorbike. Factors – Dazzling sun, swerved					
A5 / Kinsall Green					
10 -19887971 07/09/2019	A5 Approx 38 meters south east of junction with Kinsall Green	Daylight	Dry	Slight	1 passenger
A car was travelling southeast on the A5 when it had to break to adjust its speed, another car was travelling closely from behind which resulted in its rear shunting when the first car slowed down. Factors – following too close, failed to look properly, failed to judge other person's path or speed.					

5.4 Of the 5 accidents which occurred at the Pennine Way South roundabout, 3 were on the A5 off-slip approach and 2 were on the Centurion Way approach. Two accidents were shunts, but occurred on different approaches and two involved a cyclist and again both were on different approaches. There are no common factors in the accident reports and the contributory factors are driver or cyclist error rather than inadequate highway design.

5.5 Of the three accidents at the A5 slips the common factor for the two motorcycle accidents was sun dazzle.

5.6 The number of accidents reported is low and inadequate highway design was not a substantive factor.

M42 Junction 10 Interchange

5.7 In the assessment period 17 accidents were reported at the M42 Jn10 interchange, as summarised in Table 5.2 below. The accident locations are shown at Figure J1 in appendix J.

Table 5.2: M42 Junction 10 Interchange

Reference/ Date	Location	Lighting	Dry/ Wet	Severity	Casualties
1 – 400169 28/05/2019	A5 near junction with M42	Daylight	Dry	Slight	1 casualty
A motorcyclist heading northwest had exited the island from the M42, the low sun impaired their visibility causing a loss of control resulting in a collision with a junction maker sign.					
2 – 901455 12/10/2019	A5 near junction with Watling Street	Daylight	Wet/Damp	Slight	4 casualties
A car was stationary at traffic lights on the M42 junction heading westbound when a second car collided with its rear.					
4 – 845291 04/04/2019	Watling Street(A5) – near junction with Relay Drive.	Daylight	Wet/Damp	Slight	1 casualty
A car heading northeast on the A5 quickly changed lanes causing a second car to brake sharply which subsequently led to a moped braking and colliding with the rear of the second car.					
5 – 296034 13/05/2018	Wilnecote Bypass Island at the Junction with Green Lane.	Daylight	Dry	Serious	2 casualties
A car travelling from Tamworth had been waiting at the junction traffic lights on to the M42 roundabout when a second car travelling behind it failed to stop in time colliding with the rear of the waiting vehicle.					
8 - 241282 17/11/2017	A5 at junction with junction 10 M42	Daylight	Dry	Serious	2 casualties
A car heading Northeast on to the M42 had attempted to use the slip road from lane 3 catching the back of a second car which caused the car to lose control resulting in it colliding with a lamppost.					
10 - 165684 05/03/2017	Tamworth A5 at junction with slip road on to the M42	Daylight	Dry	Slight	1 casualty
A vehicle heading northeast bound has changed lanes and pulled into the path of a second vehicle causing it to crash into the nearside barrier.					
11 - 831674 06/02/2019	Watling Street near junction with Trinity Road	Dark Streetlights unknown	Dry	Slight	1 casualty
A cyclist travelling northeast on the A5 heading towards the slip road on the M42 junction has been struck just before the slip road by a heavy goods vehicle.					
13 - 815904 06/02/2019	Watling Street junction with Trinity Road	Dark - Streetlights	Wet/Damp	Slight	1 casualty
A cyclist heading west on the circulatory of the roundabout has been struck by a vehicle which has cut across the cyclist.					
16 - 201279 15/07/2017	Watling Street at junction with M42	Daylight	Dry	Slight	2 casualties
Two cars were heading southeast towards Dordon, on the roundabout one car had driven on lane 3 then into the offside of the second car. This caused the other car to move into the other lane. The cars then stopped in layby.					

<table>
<tr><td>18 - 863408
27/12/2017</td><td>A5 Watling Street Dordon Junction with M42 10</td><td>Dark - Streetlights</td><td>Wet/Damp</td><td>Slight</td><td>2 casualties</td></tr>
<tr><td colspan="6">A car had been driving in lane 1 of M42 island towards the southwest slip road when an HGV also going southwest merged into lane 1 without noticing the car causing a collision.</td></tr>
<tr><td>20 - 869960
06/02/2019</td><td>Watling Street junction with M42 jct 10 island</td><td>Daylight</td><td>Dry</td><td>Serious</td><td>1 casualty</td></tr>
<tr><td colspan="6">A motorcyclist travelling west on the A5 has collided with the rear of a motorbike at the M42 junction as a result of the traffic lights on the roundabout not working (signs displayed this).</td></tr>
<tr><td>21 - 900846
19/11/2019</td><td>Watling Street at junction with Jct 10 traffic island</td><td>Daylight</td><td>Wet/Damp</td><td>Slight</td><td>1 casualty</td></tr>
<tr><td colspan="6">A Heavy Goods Vehicle travelling west has collided with the rear of a stationary car waiting at the junction.</td></tr>
<tr><td>24 - 298660
02/06/2018</td><td>Junction 10 off slip at M42 junction with A5</td><td>Daylight</td><td>Dry</td><td>Slight</td><td>2 casualties</td></tr>
<tr><td colspan="6">A car travelling southwest has collided with the rear of a second vehicle waiting at the junction.</td></tr>
<tr><td>25 - 323746
01/09/2018</td><td>Tamworth Island A5 at junction with 10 with the slip road on to the M42</td><td>Daylight</td><td>Dry</td><td>Slight</td><td>2 casualties</td></tr>
<tr><td colspan="6">An ambulance travelling southeast on the roundabout has activated its sirens. One of two cars travelling northwest has not slowed down and has collided with the ambulance.</td></tr>
<tr><td>27 - 340418
29/10/2018</td><td>Not stated</td><td>Daylight</td><td>Wet/Damp</td><td>Slight</td><td>1 casualty</td></tr>
<tr><td colspan="6">A car was stationary in a queue of traffic when a goods vehicle approaching from behind has collided with the rear of the car.</td></tr>
<tr><td>30 - 151799
10/01/2017</td><td>Junction 10 M42, Island 15 at junction with the A5</td><td>Dark - Streetlights</td><td>Wet/Damp</td><td>Serious</td><td>1 casualty</td></tr>
<tr><td colspan="6">A cyclist going southbound had entered the M42 island, a lorry (also going southbound) has moved into the inside lane before cutting back into the middle lane. The lorry collided with the cyclist.</td></tr>
<tr><td>31 - 187837
15/05/2017</td><td>A5 junction with M42</td><td>Daylight</td><td>Dry</td><td>Slight</td><td>1 casualty</td></tr>
<tr><td colspan="6">A car was travelling southeast on M42 island when it collided with a second cars front drivers' side in the far-left lane.</td></tr>
</table>

5.8 Four of the 17 accidents at M42 Jn10 resulted in serious injury with the remaining 13 resulting in slight injury. Four accidents (24%) occurred during the hours of darkness; the proportion of these accident types is not sufficiently high to be a cause for concern. In seven accidents, a wet/ damp road was recorded, that is 41%, however there were no common locations. Eleven of the seventeen accidents occurred on the circulatory carriageway but occurred at a range of different locations across the interchange, three occurred near to Green Lane and three occurred between the M42 southbound off slip and exit to A5 east. Only one arm of the circulatory had more than one accident occur during the observation period, which was the A5 eastern arm where three accidents were reported.

5.9 Three cycle accidents were reported in the study period, two in he vicinity of the M42 southbound on slip and one near to the A5 east exit.

5.10 The main causes of accidents appear to be driver error: a vehicle pulling into the path of another vehicle and rear end shunts and changing lanes. These occurred at a number of different locations. The number and type of accidents are typical at a large grade separated junction, which carry high volumes of daily traffic.

A5 between M42 Junction 10 and Core 42

5.11 In the assessment period seven accidents were reported on the A5 between the M42 Jn10 and Core 42, as summarised in Table 5.3 below. For ease of reference, accidents have been grouped as involving either eastbound or westbound traffic. From the accident descriptions it can be difficult to geographically locate the incident.

Table 5.3: A5 between M42 Junction 10 and Core 42

Reference/ Date	Location	Lighting	Dry/ Wet	Severity	Casualties
A5 Westbound					
33 - 297756 18/05/2018	A5 near junction with Junction 10 island for M42.	Dark, with Streetlights	Dry	Slight	2 casualties
Two cars travelling west on the A5 from Atherstone to Tamworth, one of the cars drove into the back of the second car causing minor damage.					
34 – 203535 06/06/2017	Watling Street A5 near junction with M42 island	Daylight	Wet/Damp	Slight	1 casualty
A car travelling westbound collided with the rear of another car which was stationary in traffic before the island for the M42 junction.					
36 – 312805 06/07/2018	Dordon A5 near junction with 10 M42	Daylight	Dry	Slight	2 casualties
A goods vehicle heading westbound was in the outside lane of a two-lane stretch, a car was in lane 1 which tried to merge across it had not seen the goods vehicle and collided.					
A5 Eastbound					
32- 861055 23/07/2019	A5 near junction with unclassified road	Daylight	Dry	Slight	2 casualties
Two motorcycles travelling East in the same lane and taking the same exit collided resulting in both riders falling on the carriageway.					
37 – 171965 08/04/2017	Offside Hall End House Dordon A5	Daylight	Dry	Slight	2 casualties
A car going east on the A5 had failed to observe a car in front braking and collided from behind.					
38 – 237864 07/11/2017	A5 junction with Birch Coppice	Dark, Streetlights	Wet/Damp	Slight	1 casualty
A motorcycle was travelling east alongside a car, they both entered using the right-hand slip road into Birch Coppice when the car tried to overtake the motorbike, clipping the bike.					
A5 Direction Unknown					
41 – 274607 01/03/2018	A5 at junction with Birch Coppice Business Park	Dark, Streetlights	Frost/ice	Serious	1 casualty
A car travelling along the A5 and approached traffic lights on green. A cyclist has crossed road in front of the car causing a collision.					

5.12 The number of accidents reported on this 1.3km section of the A5 including 2 signal controlled junctions is low. There are no particular clusters. The incidents that did occur predominantly resulted in slight rather than serious injury. The contributory factors appear to be driver error rather than inadequate highway design.

Summary

5.13 Road accidents in the most recent pre-covid three year period, that is 1 January 2017 to 31 December 2019, have been assessed for the A5 between and including its junctions with Pennine Way, M42 Jn10, and Core 42 has shown that there were:

- 10 accidents on the A5 west of junction 10, including the two Pennine Way roundabouts. There were no significant clusters and contributory factors appear to be driver error rather than inadequate highway design.
- 17 accidents at M42 Jn10. There were no significant clusters and contributory factors appear to be driver error rather than inadequate highway design.
- 7 accidents on the A5 east of Jn10 up to and including Core 42. There were no significant clusters and contributory factors appear to be driver error rather than inadequate highway design.

5.14 It can be concluded that the road network operates within acceptable levels of road safety and that mitigation measures for safety reasons are not required. That said, the proposals on the highway network discussed at Chapter 6 below (A5 speed limit reduced to 50mph, new off-line cycle lanes, separation strip between carriageway and foot/ cycleway, plus signal controlled pedestrian/ cycle crossings on the A5 at the site access and the M42 north facing slip roads plus Green Lane) offer a safety betterment to all road users. It is therefore expected that the increase in traffic due to the proposed development will not pose an unacceptable highway safety risk, and there may be some betterment.

6.0 PROPOSED DEVELOPMENT

Development Masterplan

6.1 The application is in outline for up to 100,000sqm of B8 use, of which up to 10,000sqmcould be flexible E(g)(iii)/B2/B8 use, and a 150 space lorry park and associated 400sqm amenity block, with all matters reserved apart from access. A copy of the latest illustrative masterplan is provided at Appendix K.

6.2 The proposed lorry park would satisfy the mandatory requirements of the DfT Circular 01/2022 Annex A for an APTR Truckstop in terms of:

- Open minimum 12 hours per day between 8am and 8pm every day except Christmas Day, Boxing Day and New Year's Day.
- Free parking for up to 2 hours minimum for all vehicles permitted to use the road served by the facility.
- Provision of security monitoring equipment including appropriate lighting and CCTV systems.
- Free toilets/hand washing facilities with no need to make a purchase.
- Shower and washing facilities for HGV drivers, including secure lockers in the shower/washing area.
- Hot drinks and hot food available 8am to 8pm for consumption on the premises.
- Access to a free-of-charge telephone for emergency use, Wi-Fi and power points available for device charging.

Internal Layout

6.3 The internal layout is illustrative only and will be subject to further reserved matters applications, although the pedestrian and cycle connectivity enhancements are set out in the submitted Design Guide as project commitments ('Design Parameters'). At this stage it can help show how the development site could be arranged and that delivery of the required design elements and parameters is possible.

6.4 As shown within the Illustrative Masterplan, the proposed development would be served by a new access to the A5 and a spine road with a 7.3m wide carriageway and 3m wide shared footway/cycleways on either side. Access to development plots will be provided via priority-controlled T-junctions. The spine road would have street lighting and a 30mph speed limit. The spine road and associated infrastructure would be built to adoptable standards.

Parking

6.5 Car Parking Standards SPD included with the North Warwickshire Borough Council Local Plan (2021) confirms the required car and cycling parking standards for new development. For Industrial uses a minimum of 1 space per 100sqm for cars and 1 space per 500sqm for cycles is required. For Warehousing uses it requires a minimum of 1 car parking space per 150sqm and 1 cycle space per 1,000sqm. The overall proposals would therefore require a provision of:

- 700 car spaces throughout the site (comprising 100 for B2 use and 600 for B8 use),

- along with 110 cycle parking spaces (comprising 20 for B2 use and 90 for B8 use).

6.6 All car parking spaces should measure a minimum of 2.4 x 4.8m, although it is commonplace for 2.5 x 5.0m to be provided and this would be recommended within any final site masterplan.

6.7 The adopted standards also require *“Individual bays for each disabled employee, plus 2 bays or 5% of total capacity, whichever is greater”* for up to 200-bay car parking areas. Beyond this it requires *“6 bays plus 2% of total capacity”*. This approach would be applied to any calculations within the final scheme for development at the site.

6.8 In terms of electronic vehicle (E.V.) charging spaces, these are proposed to be provided for 10% of all car and motorcycle spaces across the site with ducting installed so that a further 15% of spaces are capable of being converted to E.V. charging spaces if required in the future. Full details of the E.V. charging provision would be set out in any final scheme layout, in full compliance with these levels of provision.

6.9 In addition to the above, the adopted parking standards set out minimum requirements of one motorcycle space, plus an additional space for every 10 spaces required by the maximum car parking standard. This would again be a calculated for the final scheme layout. The basic dimensions for setting out motorcycle and scooter parking should typically be based around a footprint of 1.4 x 2.4m per vehicle.

6.10 NWBC has no adopted lorry parking standards for B2 and B8 uses. In lieu of this, reference is made to Northamptonshire County Council’s published guidance on this matter, where at Chapter 10 of its 2016 Parking Standards document (September 2016) it requires the following provision for lorry parking. This lorry parking guidance was not carried through to the current 2019 revision, but 2016 advice a useful general guide. Lorry parking will be dependent on the details of the proposal brought forward at subsequent planning stages.

- B1 / B2 = 1 loading bay per 800sqm plus waiting space at each bay
- B8 over 800sqm = 1 loading bay per 800sqm plus waiting space at each bay

6.11 The Illustrative Site Masterplan at Appendix K shows how a clearance of 50m can be provided at the larger units to accommodate both parking aisles, which would equate to two x 17m long parking bays plus a 16m clearance for turning manoeuvres. This should present sufficient space for lorries to arrive and depart without conflict although any final layout should be assessed with Autotrack.

6.12 As shown on the Illustrative Site Masterplan the appropriate level of car and lorry parking could be accommodated at each unit.

6.13 Cycle parking facilities would be provided throughout the scheme above the minimum standards set out above. This will include a range of cycle parking types at various locations to ensure the needs of future users are adequately met and demand for cycling can be further encouraged throughout the life of the development. In addition, showers and changing facilities would be provided to all units and at the ancillary hub office (available to use by members of the public to encourage walking and cycling to work at neighbouring business parks).

Highway Access

6.14 The proposed site access arrangement is shown in drawings 784-B033920-TTE-00-ZZ-PL-H-0002-P01 and 784-B033920-TTE-00-ZZ-PL-H-0003-P02 attached in Appendix L. The proposed layout has been prepared in accordance with the requirements of CD123 "Geometric Design of At-Grade Priority and Signal-Controlled Junctions". It comprises a new signalised junction from the A5 and includes widening on the A5 to provide 3 approach lanes on the eastern approach, and 3 on the western approach. Fully-signalised pedestrian and cycle crossing of the site access arm is provided as well as a fully signal controlled pedestrians crossing of the A5. In addition, there are pedestrian and cycle improvements along the A5 which are discussed in more detail below.

6.15 There is a 0.7m level difference between the A5 eastbound and westbound carriageways. To form the junction, it will be necessary to raise the level of eastbound carriageway to that of the westbound lane. The necessary vertical alignment of the eastbound carriageway has been assessed and confirmed that the carriageway can be reprofiled in accordance with CD109 Highway Link Design based on a 120kph design speed.

6.16 Paragraph 2.27 of CD123 states that where *"the 85th percentile speed on the approach roads is greater than or equal to 104kph (65mph), a signal-controlled junction shall not be provided"*. The results of the speed survey reported at paragraph 3.21, above, confirm that the 85th percentile approach speeds were 79.8kph eastbound and 88.7kph westbound. Therefore, based on the observed 85th percentile speeds signals are appropriate, although the national speed limit of 70mph applies. As part of the mitigation measures discussion in Section 6 below, it is proposed to extend the existing 50mph speed limit (which commences some 220m east of the site access junction) westwards along the A5 to the Pennine Way overbridge.

6.17 Based on the observed 85th percentile speeds for eastbound traffic, 160m SSD can be provided to the signal heads for approaching traffic exiting from M42 Jn10, and to the back of the predicted queue (see Appendix C Transyt Modelling report for the queue length). SSD visibility of over 215m can be proved in accordance with the westbound 85th percentile traffic speed. Each of the A5 approaches to the junction would include both nearside and off-side primary signal heads and a minimum of two signals would be visible from each stop line.

6.18 The proposed layout shows that the required Junction Intervisibility Zone can be achieved throughout the layout, with a minimum 2.5m setback from each stop line. In accordance with paragraph 7.6 of CD123 the proposed layout has been designed to include 3.5m lane widths throughout (minimum of 3m required).

6.19 All tapers within the proposed layout are provided in accordance with the minimum requirement for 1 in 5m, set out within paragraph 7.8 of CD123. All storage lanes for turning traffic have been designed with consideration of the potential demand for turning traffic. The proposed layout requires the A5 eastbound offside approach lane to merge with the middle lane as it passes through the junction and the return taper complies with the requirements of CD123.

6.20 As required by paragraph 7.16.2 of CD123 the proposed right turn from the A5 (westbound) arm into the site would be separately controlled within the overall staging sequence.

6.21 The proposed access junction will require the removal of the two laybys on the A5 which are mainly used by HGVs. The development proposals include a designated lorry parking area for up to 150 HGVs within the site and will more than off-set the loss of the existing parking laybys which have a maximum capacity of around 7 to 8 lorries.

6.22 As part of the access design the existing bus layby at the northern edge of the A5 (east of the site frontage) has been relocated and designed in accordance with CD169 'The Design of Lay-Bys, Maintenance Hardstandings, Rest Areas, Service Areas and Observation Platforms',

6.23 The access road has a 7.3m wide carriageway with 3m foot/cycleways. At the junction, there are two 3.5m right-turn lanes and one 4m left-turn lane. Along the A5, the foot-cycleway is increased to 3m with a 2m separation strip in compliance with CD143 "Designing For Walking, Cycling And Horse-Riding".

6.24 To address any concerns regarding the suitability of the proposed layout to accommodate all likely turning manoeuvres, TT Drawings 784-B033920-TTE-00-ZZ-PL-H-0004-P01, attached in Appendix L shows how a 16.5m articulated lorry could satisfactorily manoeuvre between each arm of the junction.

Pedestrian & Cycle Connectivity

6.25 The key emphasis of the NPPF is on the need for all new developments to be sustainable. Part of this requirement for sustainability means providing good opportunities for travel to and from sites by non-car modes, as set out in Section 9 of the NPPF. This is also reflected in the DfT Circular 01/2022 and throughout the NWBC Local Plan policies presented within Section 3 of this Transport Assessment.

6.26 Throughout the site, 3m wide shared foot/cycleways will be provided. Fully-signalised pedestrian/cycle crossings are provided across the mouth of the proposed access junction with the A5 and a fully-signalised pedestrian crossing of the A5 carriageway is to be introduced. Dropped kerbs and tactile paving will be provided.

6.27 The existing shared unsegregated pedestrian/ cycle path on the A5 eastbound carriageway is substandard and will be improved to comply with CD143 "Designing for Walking, Cycling and Horse-riding". This entails widening the path to 3.0m and providing a 2.0m separation strip. As the cycleway approaches the M42 Jn10 interchange, the improvement requires alterations to the highway embankment, as shown at TT Drawings 784-B033920-TTE-00-ZZ-PL-H-0003-P02, 784-B033920-TTE-00-ZZ-PL-H-0004-P01 and 784-B033920-TTE-00-ZZ-PL-H-0005-P01 attached in Appendix L. The drawings also show the eastbound connectivity enhancement with a 3m shared foot/ cycleway connecting to the existing A5 opposite Core 42, near Dordon.

6.28 To provide continuity and connectively for both pedestrians and cyclists it is also proposed to improve pedestrian and cycle facilities on the northern part of Jn10 to comply with CD 143 where possible. Signalised crossing of the north facing M42 slip roads (northbound on-slip and southbound off-slip) and of the Green Lane arm will be provided to replace the current uncontrolled crossing points. There is no space on the north overbridge to improve pedestrian and cycle facilities, but between Green Lane and the A5/ Pennine Way north roundabout the existing narrow footway/ cycle way is to be widened to 2.0m with a 1.5m separation strip where achievable.

There is a short pinch point section (circa 33m) on the A5 westbound approach to Jn10 where, owing to land constraints, a maximum 1.0m separation strip and 1.8m foot/ cycleway is achievable, refer to TT Drawing 784-B033920-TTE-00-ZZ-PL-H-0001-P01 attached in Appendix L, which shows the complete set of improvement works.

6.29 In addition to the improvements discussed above there will be upgraded bridleways and a new footpath/ cycleway on the site between Birchmoor and Dordon, significantly enhancing the sustainable routes available to local residents in the area. The upgraded Bridleways and Footpaths are shown at Figure 2 in Appendix G and are listed below;

- Bridleway AE45
- Footpath AE46, part diverted.
- Footpath AE48

6.30 With the above new infrastructure and enhancements to existing routes in place, not only do they benefit potential users of the proposed development, but they also offer an enhancement for existing residents and people travelling to work in the area as discussed below.

<u>Birchmoor to Dordon</u>

6.31 A community integration route plan showing the connectivity between Birchmoor and Dordon is attached at Appendix M. Without the proposed development it would take an 11 minute cycle ride or 27½ min walk to get from Birchmoor to Dordon and vice versa via Polesworth. With the Bridleway, and Footpath improvements the journey time for cyclists is reduced to 10 minutes and walkers to 25 minutes.

<u>Dordon to Relay Park</u>

6.32 A commuter point to point plan showing the available route choices between Dordon and Relay Park is attached at Appendix M. There are two existing route choices to get to Relay Park, one via Polesworth and Birchmoor and the other via the A5 and M42 Jn10. The latter provides the most direct route, taking a cyclists 15 minutes, although they would have to cross the busy M42 Jn10 at 4 uncontrolled crossings. With the proposed development enhancements, cyclists could use the new cycle path, separated from the A5 carriageway and it would also provide 4 signal controlled crossings at the M42 Jn10. The improvements would also reduce the journey time by 1 minute.

<u>Stoneydelph to Core 42</u>

6.33 A commuter point to point plan showing the available tarmacked route choices between Stoneydelph and Core 42 is attached at Appendix M. There are two existing route choices to get to Core 42, one via Birchmoor, Polesworth and Dordon and the other via the Tamworth Services, M42 Jn10 and the A5. The latter provides the most direct route, taking a cyclists 20 minutes, although they would have to cross the busy M42 Jn10 at 4 uncontrolled crossings. With the proposed development enhancements, cyclists could use the new cycle path, separated from the A5 carriageway and it would also provide 4 signal controlled crossings at the M42 Jn10, or the upgraded Bridleways. Although the improvements wouldn't reduce the journey time for cyclists, they would offer safer and more pleasant routes.

<u>Polesworth to St Modwen Park</u>

6.34 A commuter point to point plan showing the available tarmacked route choices between Polesworth to St Modwen Park is attached at Appendix M. There are two existing route choices to get to Relay Park, one via Birchmoor, Relay Park and M42 Jn10 and the other via Dordon & the A5. The latter provides the most direct route, taking cyclists 23½ minutes, although they would have to cross the A5 at two uncontrolled crossing points. With the proposed development enhancements, cyclists could use the new cycle path running through the centre of the development and the signal controlled crossing points on the A5 (dismounted) at the site access junction. The improvements would make a substantial journey time saving for cyclists to 16½ mins.

Public Transport Connectivity

Bus Travel

6.35 The development proposals include improvements to bus provision. As part of the site access works, the A5 eastbound bus stop has to be relocated approx. 130m further east to comply with CD169. The layby is lengthened, and facilities are improved, including the provision of a modern shelter and a separated cycle bypass behind the waiting area. The existing pedestrian connection and informal crossing over the A5 that serves the bus layby is extended eastwards to the new location.

6.36 A Public Transport Strategy has been prepared by TT and a copy is included in Appendix F. A summary of that document is provided below. The PTS has been agreed by Warwickshire CC and Stagecoach.

6.37 The Stagecoach 766 and 767 bus services operate along the A5 between Tamworth and Nuneaton, and the Arriva 785/ 786 service operates through Birchmoor to the north of the site between Tamworth and Austrey. The stops for these services are not within an accessible walking distance of the whole of the site and improvements to existing bus service provision are therefore proposed.

6.38 The public transport strategy for the site is to extend the Stagecoach 766/ 767 services into the proposed development. The 766/ 767 bus service provides connections to a number of residential areas which draw employees by both car and bus to the area in which the application site lies. These areas include Tamworth, Dordon and Atherstone. The 766/767 already serves Birch Coppice as a diversion from the A5 and clearly is considered to provide a suitable level of service to this large employment site.

6.39 A bus turning area is proposed within the proposed development site, which would be located approximately 200m from the A5/ Site Access junction. The proposed bus turning area would be deliberately located close to the site access junction to reduce the length of the diversion and thereby reduce the impact on existing passengers. The length of the diversion from the site access junction into the site and back out onto the A5 would be approximately 400m.

6.40 The whole of the application site would be within a 400m walk of the proposed bus stop at the bus turning area, which accords with local policy requirements for new developments. The bus extension and proposed bus turning area has been agreed in principle with Warwickshire County Council's Transport Operations team and with Stagecoach. The proposals for the site at M42 Jn10 comply with local and national standards and, if approved, would provide attractive sustainable public transport travel options for employees travelling to and from the site.

Rail Travel

6.41 The site can be classified as 'rail-served' owing to its close proximity to the Birmingham Intermodal Freight Terminal (BIFT) at Birch Coppice Business Park, and can access the rail terminal facilities on the same basis as those currently located within Birch Coppice business park.

6.42 Being rail served provides opportunities for intermodal freight, that is, some of the tonnes lifted can be carried by rail to BIFT and then be transferred to the proposed development site for onwards shipping and distribution. Because some of the freight mileage is by rail, the amount of freight mileage by road may be reduced. The potential for intermodal freight has been assessed by MDS Transmodal and their report (Appendix N refers) estimated using the GB Freight model that:

- The likely rail mode share is 10% owing to the proximity of BIFT, that is a 10% mode shift to rail compared to less well connected locations.
- 10.4 million Km reduction in HGV distance travelled per year.
- 5,800T reduction in CO_2 emissions.

6.43 Although the MDS Transmodal report estimates that 10% of goods lifted could be by rail, this has not been reflected in the transport assessment and the junction modelling of the A5 and M42 Jn10, which means that the assessment can be considered to be robust.

6.44 As noted in Chapter 4, Polesworth Station although the closest station, only has 1 train per day in one direction. Wilnecote and Tamworth Stations have regular and frequent services and are 3.5km and 7km respectively from the site. Access for employees is also possible via cycle, taxi or lift shares and will be promoted through the Framework Travel Plan (see below for further details).

Proposed Highway Improvements

6.45 As set out at Section 7 below, the highway capacity assessment has identified the need for highway improvements at M42 Jn10. These are set out more fully in the Transyt Modelling Note in Appendix C, and summarised in Chapter 7 below. Briefly the proposed highway improvements comprise:

- Widening the A5 eastbound approach to M42 Jn10 to provide 3 lanes.
- Widening the M42 Jn10 circulatory carriageway on the approach to the Green Lane signals to 4 lanes.
- Signal controlled pedestrian and cycle crossing of the Green Lane approach.
- Signal controlled pedestrian and cycle crossing of the M42 northbound on-slip.
- Signal controlled pedestrian and cycle crossing of the M42 southbound off slip.
- Signal controlled pedestrian crossing of the A5 at the proposed site access junction.
- Signal controlled pedestrian and cycle crossing of the proposed site access junction.
- Extended 4 lane flared section on the A5 westbound approach to M42 Jn10.
- Improved shared foot/cycleway on the north side of the A5 between the site access and the Pennine Way north roundabout, including the northern part of Jn10.

- A new separate 3.0m wide shared foot/cycleway between the site access and the A5 near to Browns Lane, Dordon.
- 50mph speed limit on the A5 from a point 120m west of the Pennine Way overbridge to the existing 50mph speed limit west of the site.

6.46 A foot-cycle connection is proposed to Bridleway AE45 and to Footway AE46, both of which lie on the eastern boundary of the site. A new footpath is proposed to connect from AE46 to Barn Close in Dordon. Figure 7, Appendix G, shows the proposed path.

6.47 The development proposals have been subject to a WCHAR assessment in line with GG142 “Walking, cycling and Horse-riding Assessment and Review”, and a copy is attached at Appendix E.

6.48 A Stage 1 RSA will be undertaken in accordance with GG119 “Road Safety Audit” on the proposed access arrangement and off-site improvements. The Audit is submitted under separate cover.

Framework Travel Plan

6.49 In accordance with Paragraph 111 of the NPPF, a Framework Travel Plan has been prepared under separate cover to support the proposed development. The Framework Travel Plan sets out:

- The developers’ commitment to promoting sustainable travel amongst potential new occupants within each of the units.
- A series of actions and measures that will apply to each end-user.
- Appropriate mode share targets.
- A monitoring regime to assess the success of the travel plan.

6.50 A full Travel Plan, bespoke to each occupier, will be prepared during subsequent planning stages and is normally secured via a suitably worded planning condition.

Construction Traffic

6.51 A Construction Environmental Management Plan (CEMP) can be produced, if required, which will set out the details of how construction traffic will be managed on site to minimise disruption to local residents. The document will include the following elements and can be secured though a suitably worded planning condition.

- Outline anticipated daily construction movements.
- Specify likely routing of vehicles to reduce impacts on local residents.
- Site management to control mud, dust, noise, vehicle emissions and waste removal.
- Constructors compound to provide parking of construction vehicles within the site.

Summary

6.52 The proposed development is for up to 100,000sqm of B8 use, of which up to 10,000sqm could be flexible E(g)(iii)/B2/B8 use and a 150 space lorry park and associated 400sqm amenity block, via an outline planning application with all matters reserved apart from access.

6.53 The application is supported by an illustrative masterplan which shows how the site could be developed. The masterplan shows that appropriate levels of car and lorry parking can be provided and suitable connections to the surrounding area can be made. The internal layout of the site will be subject to further Reserved Matters applications in due course.

6.54 The site will be accessed from a new traffic signal junction to the A5 which meets the relevant design guidance. The junction includes signal controlled pedestrian and cycle crossing of the site arm, as well as a signal control crossing of the A5. A Stage1 RSA will be carried out and submitted under separate cover.

6.55 The proposed access junction results in the loss of two laybys, on the A5 which are mainly used by HGVs. This loss is more than compensated by the proposed 150 space lorry park on site.

6.56 The proposed development enhances pedestrian and cycle connectivity by upgrading existing rights of way between Birchmoor and the A5, and to the A5 near Browns Lane, Dordon, as well as a new public footpath/ cycleway to Polesworth. In addition, improved pedestrian and cycle facilities along the north side of the A5 are proposed between the A5/ Pennine Way north roundabout, around the northside of M42 Jn10 and along the A5 to the Browns Lane public footpath.

6.57 The proposed pedestrian and cycle improvements will also benefit local people traveling between Tamworth, Birchmoor, Polesworth, Dordon, Birch Coppice and Core 42.

6.58 A Public Transport Strategy has been agreed with WCC and Stagecoach which means that the 766/767 Tamworth-Nuneaton service will make a short diversion into the site to provide a good level of bus access.

6.59 The site is located close to the BIFT freight rail terminal at Birch Coppice. MDS Transmodal estimate that 10% of the goods lifted is likely to by rail, resulting in lower HGV mileages and CO_2.emssions compared to other less well connected sites.

6.60 The proposed development will also provide highway improvements to reduce levels of queues and delays on the A5 eastbound approach to M42 Jn10, a reduced speed limit, as well as the package of the pedestrian and cycle measures mentioned above.

6.61 The use of sustainable transport measures will be supported by a Travel Plan and a Framework Travel Plan is submitted under separate cover.

6.62 Construction traffic can be controlled through a Construction Environmental Management Plan, which can be secured though a suitably worded planning condition.

7.0 OPERATIONAL ASSESSMENT

Scope of Impact

7.1 The Bancroft TA followed extensive scoping discussions between Bancroft Consulting and NH and WCC. It was agreed that the Atherstone A5 model prepared by Vectos on behalf of Warwickshire CC for the North Warwickshire Local Plan evidence base would be used for trip distribution and the production of No Development and With Development traffic flows. It was also agreed that for the proposed development, detailed assessments of the following junctions would be prepared by Bancroft Consulting.

- M42 Junction 10, 6-arm grade-separated signalised interchange
- A5 / Proposed site access, 3-arm signalised junction
- A5 / Birch Coppice, 4-arm signalised junction

7.2 Following Tetra Tech's (TT) appointment by Hodgetts Estates in January 2022, the transport impacts of the proposed development were discussed with WCC, NH, Bancroft Consulting, Hodgetts Estates and TT on 15 March 2022. From that meeting TT produced a Modelling Strategy Note (dated 18 March 2022, Appendix A refers) in which it was proposed to model the M42 Jn10, the A5/ proposed site access junction, the A5/ Birch Coppice, and the A5/ Core 42 junctions using Transyt16, a network traffic signals model which models the interaction of queuing, lane starvation, and blocking back effects. The Transyt model would be based on 2022 survey data and would be validated. The Modelling Strategy Note was agreed by WCC on 7 April 2022 on the provision that NH are satisfied with the Transyt model, NH subsequently confirmed on 11 April 2022 that the Modelling Strategy Note is acceptable.

7.3 The extent of the assessment agreed with NH and WCC comprised the following junctions:

- M42 Junction 10, 6-arm grade-separated signalised interchange
- A5 / Proposed site access, 3-arm signalised junction
- A5 / Birch Coppice, 4-arm signalised junction
- A5 / Core 42, 3-arm signalised junction

Baseline Transyt16 Model

7.4 Traffic surveys at M42 Jn10, A5/ Birch Coppice and A5/Core 42 took place on Wednesday 23 March between 07:00 to 09:30 and 16:00 to 18:30. The surveys included manual classified turning traffic flows, lane allocations, green times, queue lengths and saturation flows.

7.5 A Transyt16 model was prepared and validated using the surveyed data. The details of the model and its validation are set out in detail in the Transyt 2022 Baseline Validation Report (May 2022) attached at Appendix B.

7.6 The validation report was submitted to NH and WCC for approval. Following some minor changes, the 2022 Baseline Transyt model was agreed by NH and WCC on 1 August 2022.

Transyt16 A5 and M42 Junction 10 Assessment

7.7 Following agreement of the 2022 Baseline Transyt model, it was used to assess the impact of the proposed development on the agreed network.

7.8 The Baseline model was amended to add in the traffic flows from the Vectos model for the following scenarios as agreed:

- Reference Case 2026 AM & PM; No Development & With Development
- Reference Case 2031 AM & PM; No Development & With Development
- Local Plan Scenario 2031 AM & PM; No Development & With Development

7.9 In addition, the Local Plan included the indicative scheme provided by WCC comprising widening the southern overbridge, widening the A5 eastbound approach and providing a left turn slip road from the M42 southbound off-slip to the A5 eastbound exit arm. The Transyt Local Plan No Development scenarios included these changes. In the With Development Local Plan scenario the left turn slip lane was removed owing to the provision of the site access junction. The other aspects of the WCC improvement scheme were retained.

7.10 The amendments to the Transyt model to undertake the Reference Case and Local Plan assessments are set out in detail in the Transyt Future Year Modelling Report at Appendix C. The report also provided a full assessment of the model results.

7.11 As set out in The Strategic Road Network: Planning for the Future (September 2015), an Opening Year and a Future Year assessment is required. Both assessments assume full development of the site and the addition of all committed developments. The 2026 Reference Case provides the Year of Opening Assessment required and the 2031 Reference Case and 2031 Local Plan assessments provide the Future Year Assessments.

<u>2026 Opening Year Assessment</u>

7.12 The results of this assessment are set out in Table 4.1 for the AM peak hour and in Table 4.2 for the PM peak hour of the Modelling report in Appendix C. It shows that the junctions assessed generally have low levels of queues and delays.

7.13 In the AM peak hour, the A5 eastbound approach to M42 Jn10 has a predicted queue of 55pcu in Lane 1 and in Lane 2 with a delay per vehicle of 3 mins 22 sec (Lane 1) and 2mins 36 (Lane 3) The Green Lane approach has a queue of 11pcu and a delay of 2mins 33 sec in Lane 1 and 15pcu and 3mins 22 sec in Lane 2. The effect of development is to increase the queues and delays on the A5 eastbound approach to 107pcu and 6mins 30 secs (Lane 1) to 117pcu and 4 mins 59 secs (Lane 2). The proposed development has no effect on the queues and delays at Green Lane. There are minor to negligible increases elsewhere in the network.

7.14 In the PM peak the junction operates with low levels of queues and delays in the No Development situation, and the effect of the development has minor to negligible increases in queues and delays.

7.15 The proposed site access junction operates well with minor queues and delays in the AM and PM peak hours. In the AM peak the longest queues and delay was 15pcu and 15 secs on the A5 eastbound approach, and in the PM peak hour 25pcu and 56 secs are predicted on the A5 westbound approach.

7.16 A mitigation scheme was devised to address the queuing issues on the A5 eastbound approach to M42 Jn10. It comprises widening the A5 eastbound approach to provide 3 lanes, widening the circulatory carriageway at Green Lane to 4 lanes, effectively implementing the western and north western parts of the WCC Local Plan scheme for the junction albeit with improved pedestrian and cycle facilities. The layout of the proposed improvement scheme is shown at TT Drawing B033920-TTE-00-ZZ-PL-H-0001 Rev P01 in the Modelling Note, and also at Appendix L.

7.17 The effect of the improvement scheme is reported in Tables 4.1 and 4.2 of the Modelling report in Appendix C. In the AM peak the effect of the mitigation scheme is to reduce the queues and delays in Lane 1 and Lane 2 to 3pcu and 10 seconds (Lane 1) and 13pcu and 29 seconds (Lane 2) – a substantial reduction. The impacts elsewhere are negligible.

7.18 With the mitigation scheme, the Year of Opening assessment shows that the impact is not severe.

<u>2031 Future Year Assessment – Reference Case.</u>

7.19 The results of this assessment are set out in Table 4.1 for the AM peak and in Table 4.2 for the PM peak hour of the Modelling report in Appendix C. It shows that the junctions assessed generally have low levels of queues and delays in this scenario.

7.20 In the AM peak hour, the A5 eastbound approach to M42 Jn10 has a predicted queue of 110pcu in Lane 1 and 82pcu Lane 2 with a delay per vehicle of 6mins 14 secs (Lane 1) and 3 mins 52secs (Lane 3). The Green Lane approach has a queue of 21pcu and a delay of 4mins 49 sec in Lane 1 and 18pcu and 3mins 54sec in Lane 2. The effect of development is to increase the queues and delays on the A5 eastbound approach to 157pcu and 8mins 53 secs (Lane 1), and to 145pcu and 6 mins 12 secs (Lane 2). The proposed development has no significant effect on the queues and delays at Green Lane. There are minor to negligible increases elsewhere in the network.

7.21 In the PM peak the junction operates with low levels of queues and delays in the No Development situation, and the effect of the development is minor to negligible increases in queues and delays.

7.22 The proposed site access junction operates well with minor queues and delays in the AM and PM peak hours. In the AM peak the longest queues and delays was 16pcu and 16 secs on the A5 eastbound approach, and in the PM peak 32pcu and 1 min 15 secs are predicted on the A5 westbound approach.

<u>2031 Future Year Assessment – Local Plan Case.</u>

7.23 The Local Plan scenario includes a number of significant improvements to M42 Jn10, in the main these are widening the A5 eastbound approach to 3 lanes, widening the circulatory carriageway at Green Lane to 4 lanes, providing a left turn slip road from the M42 southbound off-slip to the A5 eastbound exit arm, widening the Trinity Way approach to 3 lanes, and widening the southern M42 overbridge to 4 lanes. In the With Development scenarios the left turn slip road was removed.

7.24 The results of the Local Plan assessment are set out in Table 5.1 for the AM peak hour and the PM peak hour of the Modelling report in Appendix C. It shows that the junctions assessed generally have low levels of queues and delays in this scenario.

7.25 In the AM peak hour, the A5 eastbound approach to M42 Jn10 has a predicted queue of 14pcu in Lane 2 and 11pcu in Lane 3 with a delay per vehicle of 32 secs (Lane 2) and 27secs (Lane 3). The

Green Lane approach has a queue of 12pcu and a delay of 2mins 35 sec in Lane 1 and 18pcu and 3mins 54sec in Lane 2. The effect of development is to increase the queues and delays on the A5 eastbound approach to 33pcu and 1mins 37 secs (Lane 2), and to 24pcu and 1 min 4 secs (Lane 3). The proposed development has small effect on the queues and delays at Green Lane increasing them to 15pcu and 3mins 3 secs (Lane 1), and to 18pcu (no change) and 4 mins 5 secs (Lane 2). The A5 westbound approach to A5/Core 42 junction is predicted to have a queue of 73pcu in Lane 1 and 85pcu in Lane 2, with delays 2 mins 38 sec and 3 mins 8 secs respectively. The effect of development is to increase the queue and delays to 87pcu and 3 mins 7 secs (Lane 1) and 92pcu and 3mins 31 sec (Lane 2). There are minor to negligible increases elsewhere in the network.

7.26 In the PM peak the junction operates with low levels of queues and delays in the No Development situation. The only significant queues are on the A5 eastbound approach to M42 Jn10 which has a predicted queue of 34pcu in Lane 2 and 41pcu in Lane 3 with a delay per vehicle of 1 min 37 secs (Lane 2) and 2 mins 27secs (Lane 3); Green Lane which has a queue of 12pcu and a delay of 2mins 35 sec in Lane 1 and 18pcu and 3mins 54sec in Lane 2. The effect of development is to increase the queues and delays on the A5 eastbound approach to 33pcu and 1mins 37 secs (Lane 2), and to 24pcu and 1 min 4 secs (Lane3). The A5 westbound approach to A5/Core 42 junction is predicted to have a queue of 37pcu in Lane 1 and 39pcu in Lane 2, with delays 1 min 31 sec and 1 min 47 secs respectively. The effect of development is to increase the queue and delays to 44pcu and 1 min 51 secs (Lane 1) and 46pcu and 2mins 5 sec (Lane 2). The effect of the development elsewhere is minor to negligible increases in queues and delays.

7.27 The proposed site access junction operates well with minor queues and delays in the AM and PM peak hours. In the AM peak the longest queues and delays was 23pcu and 24 secs on the A5 eastbound approach, and in the PM peak 15pcu and 24 secs are predicted on the A5 eastbound approach.

7.28 The Transyt analysis has shown that the removal of the left turn slip road from the M42 southbound off-slip to the A5 eastbound exit arm from the With Development did not result in long queues at the M42 southbound off slip. The With Development queues and delays on this slip road are 4pcu and 41 secs (Lane 1), 6pcu and 57 secs (Lane 2), 4pcu and 35 sec (Lane 3) in the AM Peak. The PM peak queues and delays are all less than the corresponding AM values.

7.29 The impact of the proposed development in the Local Plan scenario is not severe and no additional mitigation to that identified for the Local Plan scheme is required.

7.30 The proposed development can be delivered without compromising the Local Plan proposals and will deliver some of the required highway improvements needed to mitigate the local plan allocations.

A5/ Pennine Way Assessment

7.31 Further scoping discussions were held with SCC on 21 July 2022. Although SCC had agreed the Vectos model for the NWBC Local Plan, the highway officers requested a separate Census based distribution of the generated traffic on the A5 on west side of M42 Jn10. The Census based assignment of generated traffic was issued on 14 October 2022 and was agreed by SCC on 16

November 2022. SCC also confirmed that only the two A5/ Pennine Way roundabouts required assessment.

7.32 Vectos also confirmed that the southern Pennine Way roundabout had not been calibrated in their model and therefore their results for that junction were not reliable.

7.33 Manual classified turning counts and queue observations per lane were carried out at the two Pennie Way roundabouts on Wednesday 5 October 2022. The performance of the two roundabouts was assessed using TRL's Junctions 10 program. A South Pennine Way Modelling Report was submitted to SCC, NH and WCC on 23 November 2022, and is attached at Appendix D.

7.34 In brief, the model was validated using the 2022 survey information and their performance was assessed using the 2031 Reference Case flows as well as the 2031 Local Plan flows, both with and without development. The results of the assessment shows that the junctions operated with minimal queues and delays and that no mitigation was needed.

Road Safety Implications

7.35 Chapter 5 above provides a detailed review of the road traffic accidents that have taken place within the study area over the pre-covid three year period ending 31 December 2019. Whilst there have been 34 recorded incidents, 17 were at M42 Jn10 were at the Pennine Way roundabouts / slips with the A5, and 7 were between M42 Jn10 and including A5/ Core 42 junction. There was no evidence of any specific ongoing highway safety problem along the A5 or north of Dordon Island at Long Street.

7.36 The proposed improvement schemes at M42 Jn10 and along the A5 are expected to deliver tangible highway safety benefits for both existing and proposed users of the highway network. These can be summarised as follows:

- Widened foot/cycleways between Pennine Way north roundabout and the proposed site access which include a separation strip between vulnerable users and moving traffic mostly in accordance with CD143.
- Signal controlled pedestrian and cycle crossing of the M42 north facing slip roads in accordance with CD143, at the Green Lane arm of M42 Jn10, and at the proposed site access junction.
- Signal controlled pedestrian crossing of the A5 near to the AE55 public footpath south of the A5 and public bridleway AE45 north of the A5, replacing the existing uncontrolled crossing.
- Improved bus stop facilities at the northern edge of the A5, with a layout that segregates cyclists from pedestrians and includes standard merge and diverge tapers and a wider bus stop area.
- Provision of an internal link connecting the A5 to Birchmoor, thus offering a higher quality route for pedestrians and cyclists travelling between the A5 and areas to the north and west including Tamworth.
- Provision of separate (offline) pedestrian/ cycle way between site access and Browns Lane away from the A5 avoiding the 1.0m wide foot/ cycleway at A5/ Birch Coppice.

- Reduction in speed limit to 50mph on the A5 between Pennine Way overbridge and the existing 50mph speed limit east of the proposed site access.
- Removal of existing parking laybys that do not meet current design requirements, in favour of a high-quality lorry parking facility for up to 150 vehicles, to include supporting facilities for drivers.

7.37 The proposals are expected to have a beneficial effect on road safety and therefore provide safe means of access for all users in accordance with NPPF paragraph 110 and will not have, in relation to NPPF paragraph 111, an unacceptable impact on road safety

Summary

7.38 Following TT's appointment, the transport implications were discussed with NH, WCC, Hodgetts Estates and Bancroft Consulting. A Modelling Strategy note was produced which proposed using Transyt16 and new 2022 survey data, and to assess the effect of the development with the Vectos 2026 and 2031 Reference Case and 2031 Local Plan flows. This strategy was agreed by NH and WCC.

7.39 A validated 2022 Transyt16 model was developed, and a validation report was submitted to and agreed by NH and WCC.

7.40 The Transyt assessment showed that in both the 2026 and 2031 Reference Case scenarios, the effect of development was to increase queues and delays on the A5 eastbound approach. A mitigation scheme was developed, which involved widening the A5 eastbound approach to provide 3 lanes, widening the circulatory carriageway at Green Lane to 4 lanes, effectively implementing parts of the WCC Local Plan scheme for the junction, albeit with improved pedestrian and cycle facilities. The mitigation scheme substantially reduced the queues and delays on the A5 eastbound approach, the impacts elsewhere were negligible.

7.41 The 2031 Local Plan scheme included a scheme to improve M42 Jn10. In the With Development scenario the scheme was modified to remove the left turn slip from the M42 southbound off slip to allow the proposed access junction. The Transyt assessment show that the proposed development resulted in minor queue and delay increase on the A5 eastbound approach to M42 Jn10, Green Lane and the westbound approach to A5/ Core 42 junction. Overall, the impacts were not severe, and no additional mitigation was required.

7.42 The proposed site access junction operates well with minor queues and delays in the AM and PM peak hours. In the 2031 Reference Case, the longest queues occur on the A5 westbound approach in the PM peak hour where queues of 32pcu and delays on 1 min 15 sec are predicted. In the Local Plan Case, the longest queues occur on the A5 eastbound approach in the 2031 Local Plan AM peak hour where queues of 20pcu and delays of 26 secs are predicted.

7.43 It was agreed with SCC that the two Pennine Way roundabouts required assessments. A validated Junctions 10 model was prepared using 2022 survey data, and assessed with the Vectos 2031 Reference Case and 2031 Local Plan flows. The development flows were those taken from the Census distribution agreed with SCC. The Junctions 10 model showed that the Pennine Way Roundabouts operated with minimal queues and delays in both with and without development situations.

7.44 The proposed improvement scheme proposals are expected to have a beneficial effect on road safety and therefore provide safe means on access for all users in accordance with NPPF paragraph 110 and will not have, in relation to NPPF paragraph 111, an unacceptable impact on road safety.

7.45 The impact of the proposed development in the Local Plan scenario is not severe and no additional mitigation to that identified for the Local Plan scheme is required.

7.46 The proposed development can be delivered without compromising the Local Plan proposals and will deliver some of the require highways improvements needed to mitigate the local plan allocations.

8.0 SUMMARY AND CONCLUSIONS

8.1 An outline planning application (ref: PAP/2021/0663) for development on land to the north-east of the M42 Jn10 interchange, in Warwickshire for 100,000sqm of employment uses and a 150-space lorry park with 400sqm amenity block was submitted to North Warwickshire Borough Council and was validated on 2 December 2021. The application was supported by a TA produced by Bancroft Consulting. Tetra Tech (TT) was engaged by Hodgetts Estates to prepare a Revised Transport Assessment in January 2022.

8.2 The Bancroft TA (dated November 2021) followed extensive scoping discussions with National Highways (NH) and Warwickshire County Council (WCC). As agreed with highway officers at WCC and NH, the Atherstone A5 model prepared by Vectos on behalf of Warwickshire CC for the North Warwickshire Local Plan evidence base was used for trip distribution and the production of No Development and With Development traffic flows. The trip rates to be used in the assessment were agreed by Bancroft Consulting with NH and WCC.

8.3 The Vectos model includes the areas of Atherstone, Polesworth, Dordon and eastern parts of Tamworth. It includes a Reference Case which comprises committed developments and highway schemes in 2026 and in 2031, and a Local Plan case which includes committed developments, local plan allocations, committed highway schemes and additional highway proposals to mitigate the impact of the local plan allocations, including an improvement scheme at M42 Jn10, in 2031.

8.4 Following TT's appointment, the transport impacts of the proposed development were discussed with WCC, NH, Bancroft Consulting, Hodgetts Estates and TT in March 2022. From that meeting TT produced a Modelling Strategy Note which set out an alternative junction modelling approach which was agreed by NH and WCC in April 2022.

8.5 Traffic surveys at M42 Jn10, A5/ Birch Coppice and A5/Core 42 took place on Wednesday 23rd March between 07:00 to 09:30 and 16:00 to 18:30. The surveys included manual classified turning traffic flows, lane allocations, green times, queue lengths and saturation flows. A validated Transyt16 model was prepared. A Baseline Validation Report dated May 2022 was produced and submitted to NH and WCC in May 2022 which was approved in August 2022. Following agreement of the 2022 Transyt model it was used to assess the impact of the proposed development

8.6 In preparing this TA the local and national policy framework has been reviewed, as has the operation of the highways network and an extensive suite of new surveys were undertaken to support this Revised TA.

8.7 NH have recently consulted on a scheme to upgrade the A5 between Dordon and Atherstone, and NH are exploring the potential for improvements for future implementation in RIS 3 2025 to 2030, but no firm proposals have been made as yet.

8.7.1 The proposed development has good levels of accessibility on foot and by cycling to a range of useful local destinations. With the proposed Stagecoach 766/767 Nuneaton-Tamworth bus service diversion, the majority of the site will be within an accessible walk distance to bus services that provide regular journey opportunities to a number of useful destinations. The nearby BIFT rail terminal provides an excellent opportunity for rail-road intermodal freight. MDS Transmodal estimate that 10% of the goods lifted is likely to be by rail, resulting in lower HGV mileages and CO_2

emissions compared to other less well-connected sites. Overall, the accessibility of the site, taking into account the proposed connectivity improvements outlined elsewhere in this report is considered to be very good.

8.8 Road accidents in the most recent pre-covid three year period, that is 1 January 2017 to 31 December 2019, have been assessed for the A5 between and including its junctions with Pennine Way, M42 Jn10, Birch Coppice, and Core 42. It was concluded that the road network operates within acceptable levels of road safety and that mitigation measures for safety reasons are not required. It is not expected that the increase in traffic due to the proposed development will pose an unacceptable highway safety risk.

8.9 The illustrative masterplan shows how the site could be developed and that appropriate levels of car and lorry parking can be provided, as well as suitable connections to the surrounding area. The site will be accessed from a new traffic signal junction to the A5 which meets the relevant design guidance. The junction includes signal controlled pedestrian and cycle crossing of the site arm, as well as a signal control crossing of the A5. A Stage 1 RSA will be carried out and submitted under separate cover.

8.10 The proposed access junction results in the loss of two laybys on the A5 which are mainly used by HGVs. This loss is more than compensated by the proposed 150 space lorry park on the site.

8.11 The proposed development enhances pedestrian and cycle connectivity by upgrading existing rights of way between Birchmoor and the A5, and to the A5 near Browns Lane, as well as a new public footpath/ cycleway to Barn Close, Dordon. In addition, improved pedestrian and cycle facilities along the north side of the A5 are proposed between the A5/ Pennine Way north roundabout, around the northside of M42 Jn10 and along the A5 to the Browns Lane public footpath. The proposed pedestrian and cycle improvements will also benefit local people traveling between Tamworth, Birchmoor, Polesworth, Dordon, Birch Coppice, St Modwen Park and Core 42.

8.12 The Transyt assessment showed that in both the 2026 and 2031 Reference Case scenarios, the effect of development was to increase queues and delays on the A5 eastbound approach. A mitigation scheme was developed, which involved widening the A5 eastbound approach to provide 3 lanes, widening the circulatory carriageway at Green Lane to 4 lanes, effectively implementing parts of the WCC Local Plan scheme for the junction, albeit with improved pedestrian and cycle facilities. The proposed improvements had a beneficial effect in the AM peak, significantly reducing delays on the A5 eastbound approach to M42 Jn10, in the PM peak there was a small increase in queues and delays on the A5 westbound approach to M42 Jn10. Taking the two peak hours together the overall effect was positive with lower levels of delay.

8.13 The 2031 Local Plan scheme included a scheme to improve M42 Jn10. In the With Development scenario the scheme was modified to remove the left turn slip from the M42 southbound off slip to allow the proposed access junction. The Transyt assessment show that the proposed development resulted in minor queue and delay increases on the A5 eastbound approach to M42 Jn10, Green Lane and the westbound approach to A5/ Core 42 junction. Overall, the impacts were not severe, and no additional mitigation was required.

8.14 The proposed site access junction operates well with minor queues and delays in the AM and PM peak hours. In the 2031 Reference Case, the longest queues occur on the A5 westbound approach in the PM peak hour where queues of 32pcu and delays on 1 min 15 sec are predicted. In the Local Plan Case, the longest queues occur on the A5 eastbound approach in the 2031 Local Plan AM peak hour where queues of 20pcu and delays of 26 secs are predicted.

8.15 It was agreed with SCC that the two Pennine Way roundabouts required assessments. A validated Junctions 10 model was prepared using 2022 survey data, and assessed with the Vectos 2031 Reference Case and 2031 Local Plan flows. The development flows were those taken from the Census distribution agreed with SCC. The Junctions 10 model showed that the Pennine Way Roundabouts operated with minimal queues and delays in both with and without development situations.

8.16 The improvement scheme proposals are expected to have a beneficial effect on road safety and therefore provide safe means on access for all users in accordance with paragraph 110 and will not have, in relation to NPPF paragraph 111, an unacceptable impact on road safety.

8.17 The impact of the proposed development in the Local Plan scenario is not severe and no additional mitigation to that identified for the Local Plan scheme is required. The proposed development can be delivered without compromising the Local Plan proposals and will deliver some of the require highways improvements needed to mitigate the local plan allocations.

8.18 The use of sustainable transport measures will be supported by a Travel Plan and a Framework Travel Plan is submitted under separate cover.

8.19 Construction traffic can be controlled through a Construction Environmental Management Plan, which can be secured though a suitably worded planning condition

8.20 In conclusion, having regard to Paragraphs 110 and 111 of the NPPF, it has been shown that the opportunities to travel by sustainable modes for both workers and the movements of goods have been comprehensively provided for and will be promoted through a Travel Plan, a safe and suitable access for all users can be provided, and that the impacts of the development can be adequately mitigated. Overall, the cumulative residual impact of the development is not severe and there are no unacceptable road safety consequences. As a result, there are no substantive highway reasons to refuse the proposed development.

APPENDIX A MODELLING STRATEGY NOTE

1 INTRODUCTION

1.1 Tetra Tech (TT) have been appointed by Hodgetts Estates to support of their outline planning application for a proposed development of upto 100,000sqm of employment uses and 150 space overnight lorry park (including an associated 400sqm amenity block) on land to the northeast of M42 Junction 10. The application was supported by a Transport Assessment (TA) prepared by Bancroft Consulting, Version C dated November 2021.

1.2 This modelling strategy note follows the meeting held between Warwickshire County Council (WCC), National Highways (NH), Bancroft Consulting, Hodgetts Estates and Tetra Tech (TT) on 15th March 2022. Minutes of the meeting are attached at Appendix A.

2 AGREED SCOPE OF NETWORK

2.1 At the 15th March meeting, it was agreed that further detailed modelling work to test the impacts of the proposed development are required for the following four junctions;

1. M42 Junction 10 Interchange (6 arm grade separated signalised roundabout)
2. A5 Watling Street/ Site Access junction (proposed 3 arm signalised junction)
3. A5 Watling Street/ Danny Morson Way (4 arm signalised junction, known as Birch Coppice)
4. A5 Watling Street/ Meridian Drive (3 arm signalised junction, known as Core 42)

2.2 Junctions 1 to 3 above are the same as those previously agreed during scoping with Bancroft Consulting and are included in the Bancroft TA. Junction 4 has been included within the scope owing to its proximity to Junction 3.

3 CURRENT MODELS

3.1 As previously agreed with NH and WCC, the WCC Atherstone A5 WCC PARAMICS model operated by Vectos will be used to take account of the various network and development changes in the local area. This model was used for the NWBC Local Plan Transport Assessment which has a future assessment year of 2031. The WCC Atherstone A5 PARAMICS model includes the junctions listed in section 2 above. NH and WCC advised that the strategic model should be used to export the traffic flow data for further assessments using detailed traffic signals modelling software such as LINSIG or TRANSYT.

3.2 The Bancroft TA has assessed junctions 1 to 3 in the list at section 2 using LINSIG software, however the junctions have been tested in isolation which therefore does not model queuing interactions between junctions, platooning of traffic flows, nor does it model blocking back and lane starvation effects effectively. Of particular note is the level of queuing shown in the current LINSIG models on the A5 and M42 northbound off-slip approaches which contradict the queuing reported from the Paramics model.

4 VALIDATED 2022 BASELINE MODEL

4.1 TT will model the network of 4 junctions using the TRANSYT 16 software program which models the interaction of queuing, lane starvation, and blocking back effects. The software can also model the effects of uncoordinated traffic signals and intermittent stages. In addition, a simulation mode is also available where individual vehicles are simulated so the queuing effects and lane starvation can be readily identified.

4.2 A 2022 validated baseline model of the existing operational performance of junctions 1, 3 and 4 will be prepared and will provide a sound basis for assessing the performance of the network in future years both with and without the proposed development.

4.3 Full manual classified counts of the three junctions are taking place on Wednesday 23rd March 2022 between the hours 07:00 to 09:30 and 16:00 to 18:30.

4.4 The signal green timings at each stop line will be recorded so that the average green splits, cycle times and offsets can be obtained and then used in the TRANSYT model.

4.5 In addition, cameras will be placed to record vehicles passing over the stop lines and record the saturated queues to enable accurate calculation of the saturation flows in accordance with TRL's Road Note 34. On each approach at least two lanes will be measured where applicable, to establish the nearside and non-nearside lane saturation flow. The observed saturation flows will then be used for the adjacent lanes that were not measured. If the lanes are not fully saturated, TRL's RR67 prediction of saturation flow using geometrical parameters will be used.

4.6 Maximum queue lengths on each approach will also be recorded in 5-minute intervals. The observed queues will provide a useful tool to check the queuing results in the TRANSYT model.

4.7 A model validation note will be issued to WCC and NH for approval prior to running the opening and future year assessments discussed in more details in Chapters 5 and 6.

5 OPENING & FUTURE YEAR ASSESSMENTS – REFERENCE CASE

5.1 As discussed in the meeting an opening assessment year and future design year assessment is required for the reference case, i.e. without the Local Plan generated traffic and associated highway infrastructure. An opening assessment year of 2026 and future assessment year of 2031 has previously been agreed and will be the years used in the forthcoming TRANSYT modelling.

5.2 As agreed, the traffic flows used within the TRANSYT model will be taken from the WCC Atherstone A5 PARAMICS model, the information for this model has been separately circulated to NH and WCC.

5.3 The following scenarios will be modelled in the AM peak (08:00 to 09:00) and PM peak (17:00 to 18:00) periods;

a) 2026 Reference Case - No Development
b) 2031 Reference Case - No Development

5.4 The traffic flows were extracted from the demand flows from the WCC Atherstone A5 PARAMICS model and for ease of reference Bancroft Consulting Figure 10 shows the AM peak flows for scenario a) and Figure 11 shows the PM peak flows also for scenario a) – both attached in Appendix C. Bancroft Consulting Figure 14 shows the AM peak flows for scenario b) and Figure 15 shows the PM peak flows also for scenario b) – both attached in Appendix C. It should be noted that the traffic flows for the Core 42 junction will be obtained from Vectos.

5.5 Each figure shows the total vehicles and HGV vehicles for each turning movement. To convert the flows into Passenger Car Units (PCU) a factor of 2.0 will be applied to the HGV flow value.

5.6 The proposed site access junction as shown at Bancroft Consulting Drawing F19123/07 Rev A attached at Appendix B will be coded into the TRANSYT model to assess the following scenarios;

c) 2026 Reference Case – With Development
d) 2031 Reference Case – With Development

5.7 Bancroft Consulting Figure 12 shows the AM peak flows for scenario c) and Figure 13 shows the PM peak flows also for scenario c) – both attached in Appendix C. Bancroft Consulting Figure 14 shows the AM peak flows for scenario d) and Figure 15 shows the PM peak flows also for scenario d) – both attached in Appendix C. It should be noted that the traffic flows for the Core 42 junction will be obtained from Vectos.

5.8 Following the modelling work, if mitigation is required a scheme will be developed and the model adjusted to incorporate the necessary improvements.

6 FUTURE YEAR ASSESSMENT – LOCAL PLAN CASE

6.1 As discussed in the meeting, and as previously agreed during scooping discussions, a future design year assessment is required for the Local Plan case, which includes all the local plan allocations and associated highway infrastructure. A future assessment year of 2031 has previously been agreed with NH and WCC and will be the year used in the forthcoming TRANSYT modelling.

6.2 The Local Plan highways schemes and PARAMICS model includes a mitigation scheme at Junction 10 shown at Appendix D. It was agreed at the March 2022 meeting with NH and WCC that when assessing the network including the traffic associated with the Local Plan allocations, the scheme at Junction 10 must be included. TT require a CAD drawing of the proposed scheme to take accurate measurements to ensure the TRANSYT model will be updated to accurately reflect the potential highway works.

6.3 The following scenario will be modelled in the AM peak (08:00 to 09:00) and PM peak (17:00 to 18:00) periods;

e) 2031 Local Plan Case - No Development

6.4 The traffic flows were extracted from the demand flows from the strategic PARAMICS model and for ease of reference Bancroft Consulting Figure 18 shows the AM peak flows for scenario e) and Figure 19 shows the PM peak flows also for scenario e) – both attached in Appendix C. It should be noted that the traffic flows for the Core 42 junction will be obtained from Vectos.

6.5 The Local Plan Junction 10 improvement scheme has a segregated left turn slip road arrangement on the A42 southbound off-slip. This arrangement may not be suitable if the proposed site access junction is implemented, therefore an amended Local Plan proposal will be drawn up to remove the segregated left turn slip arrangement to incorporate the site access junction. This will then be coded into the TRANSYT model.

6.6 The following scenario will be modelled in the AM peak (08:00 to 09:00) and PM peak (17:00 to 18:00) periods;

f) 2031 Local Plan Case - With Development

6.7 The traffic flows were extracted from the demand flows from the strategic PARAMICS model and for ease of reference Bancroft Consulting Figure 20 shows the AM peak flows for scenario f) and Figure 21 shows the PM peak flows also for scenario f) – both attached in Appendix C. It should be noted that the traffic flows for the Core 42 junction will be obtained from Vectos.

7 TECHNICAL NOTE

7.1 A Technical Note will be produced detailing the modelling results for all scenarios discussed above. The note will be issued to WCC and NH for review.

APPENDIX A

Minutes Of Meeting

Job Number:	784-B033920
Title:	Land North East of M42 Jn 10
Name of Meeting:	J10 M42
Meeting Held At:	Microsoft Teams
Date and Time:	15th March 2022 – 11:00 to 12:30
Minutes Taken By:	James Warrington and Gareth Wakenshaw
Attendees:	• Ben Simm – National Highways Development Management Lead • Moises Muguerza – WCC Highways • Alan Law – WCC Highways • Tony Burrows – WCC Highways • David Hodgetts – Hodgetts Estates • Nick Bunn – Tetra Tech • Graham Wakenshaw – Tetra Tech • Chris Bancroft – Bancroft Consulting • Doug Hann – WSP • James Warrington – WSP
Apologies:	
Distribution:	All Attendees
Date of Next Meeting:	TBC
Date of Issue:	16th March 2022
File Reference:	\\lds-dc-vm-101\Data\Projects\784-B033920 Land NE of M42 Jn10\40 Communications\42 Meetings

Action	
1	**1. Transport Modelling** 1.1. NB noted that the scoping response had requested that the WCC Paramics modelling be used and that the submitted TA had used LINSIG, that the model results min terms of queues/ delays for in the TA were markedly different to those from Paramics, that the WCC Paramics model had been agreed as part of the local plan process with NH. NB sought clarification on whether the TA could be based on the Paramics assessment.

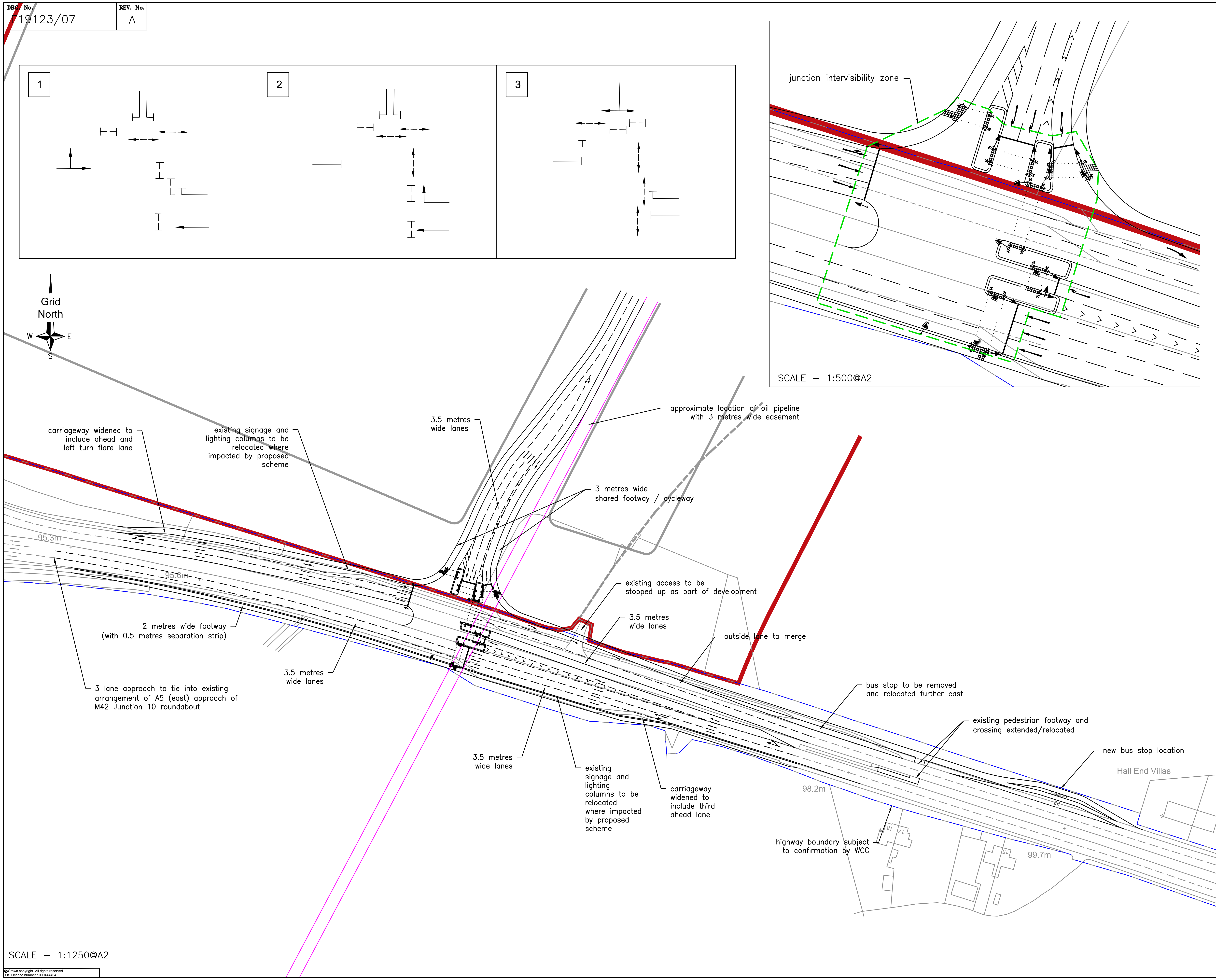
	1.2. BS advised that Paramics should be used to assess the strategic view/ impacts and then export traffic data from those models (modelled and demand flows) to be used in the detailed capacity modelling software (LINSIG/ TRANSYT) as NH signals team would need to check the proposed signal timings. 1.3. AL concurred – this would follow WCC modelling protocol (available online) and is the approach that all assessments take in Warwickshire. AL added that the traffic signals/design services team prefer LINSIG modelling. 1.4. NB noted LINSIG has inadequacies which does not model queuing interactions between junctions (particularly on the A5 and M42 (S)), blocking back and lane starvation effects, and that TRANSYT is a much more sophisticated model which can model all of the above and produce signal timings. BS would accept TRANSYT models as part of the scheme process. 1.5. AL advised that because WCC involvement was limited to the Trinity Way approach to Jn10 and that the rest of the network was SRN they would also be OK with TRANSYT. 1.6. BS said that NH are not clear where the LINSIG model reference case data in the TA comes from and, at this point, the LINSIG modelling should be "*taken with a pinch of salt*" as NH need to see the Paramics modelling outputs in the first instance. 1.7. NB advised that the flows in the LINSIG had come from the WCC Paramics model operated by Vectos. 1.8. BS added that all parties need to develop and agree the modelling strategy/methodology after the meeting. **ACTION – TT to produce Modelling Strategy / Methodology Note** 1.9. BS stated that the Modelling/ Strategy Methodology will be shared with Staffordshire County Council (SCC) as their roads (A5(W) in Tamworth) may be affected and BS is keen for them to be party to discussions. BS advised that Patrick Thomas who is the lead contact at NH for schemes west of J10 is part of BS's team. **ACTION – BS to pick up with SCC at upcoming meetings.** 1.10. BS advised that the future year is either 10 years from date of application or the end of Local Plan period (whichever is greater), and that an Opening Year assessment would also be needed. 1.11. NB confirmed that as previously agreed the future year was 2031 as per the original TA given the application was submitted in 2021 and also 2031 was the assessment year used in the transport modelling for the Local Plan. Paramics modelling for 2031

	Reference Case and 2031 Local Plan with and without development had been undertaken. 1.12. NB advised that TT can take the flows from the Paramics models and input them to the LINSIG/ TRANSYT model. Identify where the mitigation is required and develop a scheme (drawing) and then assess the benefit of the scheme in the LINSIG/ TRANSYT model. 1.13. BS and AL confirmed that there may not be a need to extract the signal timings and improvement scheme and re-run through the Paramics model. The signals team may accept the LINSIG/ TRANSYT models satisfactorily asses the mitigation scheme.
2	**2. J10 Improvement Scheme** 2.1. NB advised that the Paramics model for the Local Plan scheme includes an improvement at J10. NB shared the J10 improvement plan that had been provided by Vectos which has 4 lanes on the southern overbridge and a segregated left turn slip from the M42 (N) approach to the A5(E). NB also made reference to the Kier scheme (3 lanes on southern overbridge) provided with the McDonald's application adjacent to Tamworth MSA. 2.2. BS clarified that the position remains that *"there is no improvement scheme identified at present for J10"* – BS appreciates there has been some confusion caused, particularly from the McDonald's scheme and Kier improvement scheme being published in the public domain. 2.3. NB sought clarification as to whether: a) there is not a scheme and TT should look at an improvement scheme; or b) is there a pipeline scheme that could be used. 2.4. BS advised that the pipeline scheme is too far-off and is a non-starter for assessing this application. BS is trying to clarify what is going on from various departments, but the position is to review the junction as it is now and assess what TT's mitigation strategy is. 2.5. AL notes that as part of the modelling there is a requirement to undertake a Local Plan scenario assessment. From WCC's perspective, they require a Local Plan scenario and therefore the modelling must be run based on all the infrastructure included in the Infrastructure Delivery Plan, that is, the Local Plan J10 scheme - 4 lanes on the southern overbridge and a segregated left turn slip). 2.6. BS agreed that there will need to be a reference case without the Local Plan and a Local Plan case including all Local Plan traffic and infrastructure schemes (including

	the Jn10 scheme) both cases to be assessed with/ without the proposed development. 2.7. NB identified that the Vectos Paramics model currently has all these scenarios and the flows from the model can be presented and shared in the proposed methodology report. **ACTION TT to develop and circulate proposed methodology on this basis.** 2.8. NB further noted that the proposed A5/Site access junction may have an effect on the segregated left turn slip in the Local Plan Jn10 scheme and TT would assess suitable alternative arrangements. **ACTION TT**
3	**3. Site Access Junction** 3.1. BS advised that modelling and mitigation requirements needs resolving in the first instance as he considers that will have implications on proposed access junction. Therefore, BS has held off requesting WCHAR assessments and RSA's up to this point. 3.2. BS added that NH are concerned by introducing a new signalised junction along the A5 as it is an important an exceptionally busy route. 3.3. NB sought clarification whether the BS's view on the proposed access was of the principle of the access or the management of the implications. 3.4. BS advised that having regard to the Circular (that trunk roads are not to be treated like motorways) that the issue was not of principle, but of managing the impacts. Modelling remains the key next step to ultimately understanding access requirements. 3.5. AL added that a key concern for WCC would be that this development / access requirements does not prejudice potential future improvements for J10 and that a signalised junction near to J10 could present an issue. WCC have an indication of junction improvements from the IDP that would mitigate the Local Plan flows. 3.6. AL advised that when HS2 proposals were being considered, some of the land HE/TT are looking at was included as part of potential improvements works (however not preferred options). 3.7. NB Noted that Local Plan Jn10 scheme may need amendment to accommodate the access junction. He also noted that there were no firm proposals for the upgrade to Jn10 and that development shouldn't be prevented for "potential" future schemes. 3.8. DWH pointed out that HE owns the whole frontage north of the A5 between Jn10 and the edge of Dordon (as well as land south of the A5 in this location) and so there is

	plenty of land available that could be utilised as part of future potential mitigation package of works. 3.9. BS concluded that NH would much rather we reached an agreement on highways and mitigation requirements to avoid an appeal scenario. 3.10. NB identified that TRANSYT modelling will model the queuing back effects from the site access junction to J10 and so the impact of the new junction can be assessed to a high level of certainty.
4	**4. Other Points** 4.1. NB mentioned there is currently a 50mph zone in the vicinity of Birch Coppice and Core 42 accessed and queried whether there is potential to extend the speed limit to Jn10? BS not aware of any such discussion but will check with colleagues. **ACTION BS** 4.2. BS advised that if a further meeting is required to give him as much notice as possible.
5	**5. Key Actions** • **TT/ WSP to circulate meeting notes** • **BS to raise the application / proposals with Staffordshire County Council at upcoming meeting.** • **TT to submit a modelling Methodology Strategy Note.** • **BS to check with colleagues the possibility of speed reduction on A5.**

APPENDIX B



NOTES:

- = above ground vehicle detector
- = two aspect nearside pedestrian signals with push button
- = kerbside detector
- = on-crossing detector
- = three aspect signal with primary visor
- = three aspect signal with secondary visor
- = primary signal with filter arrow

REV.	DATE	DESCRIPTION	DWN	CHK'D
A	28.04.21	UPDATED PEDESTRIAN ISLAND DIMENSIONS	WM	CJB

CLIENT

HODGETTS ESTATES

CONTRACT

PROPOSED EMPLOYMENT LAND NORTHEAST OF J10 M42, NORTH WARWICKSHIRE

TITLE

PROPOSED SITE ACCESS LAYOUT (WITH EASEMENT SHOWN)

BANCROFT CONSULTING

Bancroft Consulting Ltd
Jarodale House
7 Gregory Boulevard
Nottingham
NG7 6LB

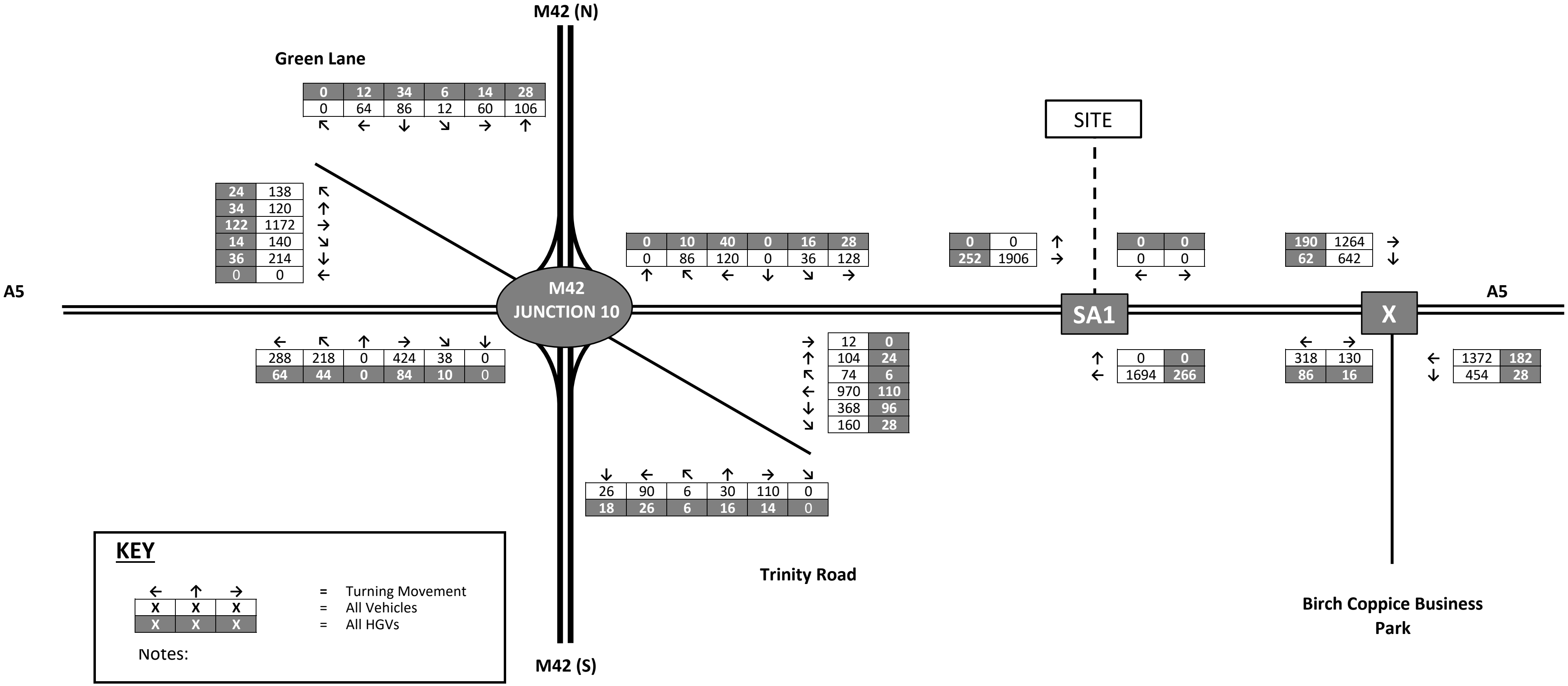
t 0115 9602919
f 0115 9648201
e office@bancroftconsulting.co.uk

DRAWN BY	
NAME (PRINT)	DATE
WM	16.03.21

CHECKED BY	
NAME (PRINT)	DATE
CJB	16.03.21

SCALE	AS SHOWN	STATUS	PRELIMINARY
DRG. NO.	F19123/07	REV	A

APPENDIX C



BANCROFT CONSULTING

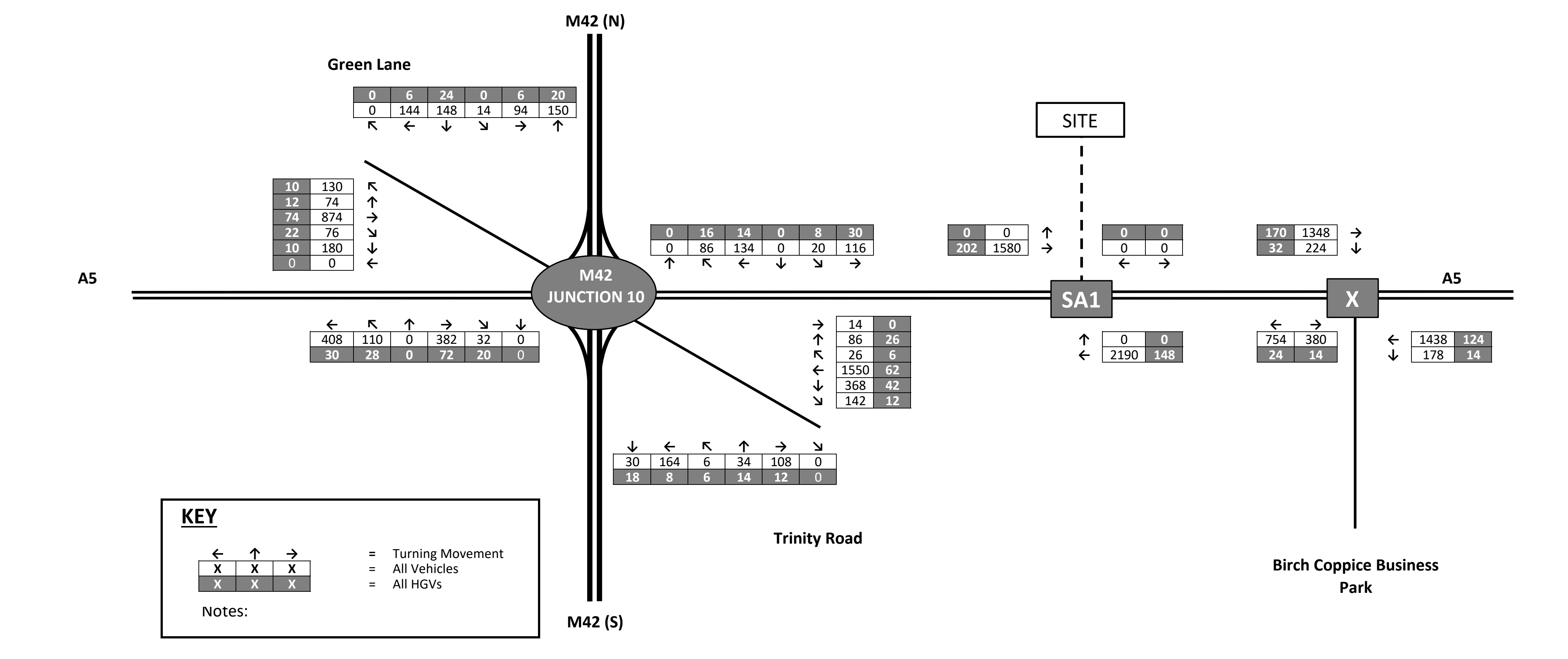
FIGURE 10

2026 REFERENCE - AM PEAK (0800 TO 0900) - DEMAND FLOWS

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB



BANCROFT CONSULTING

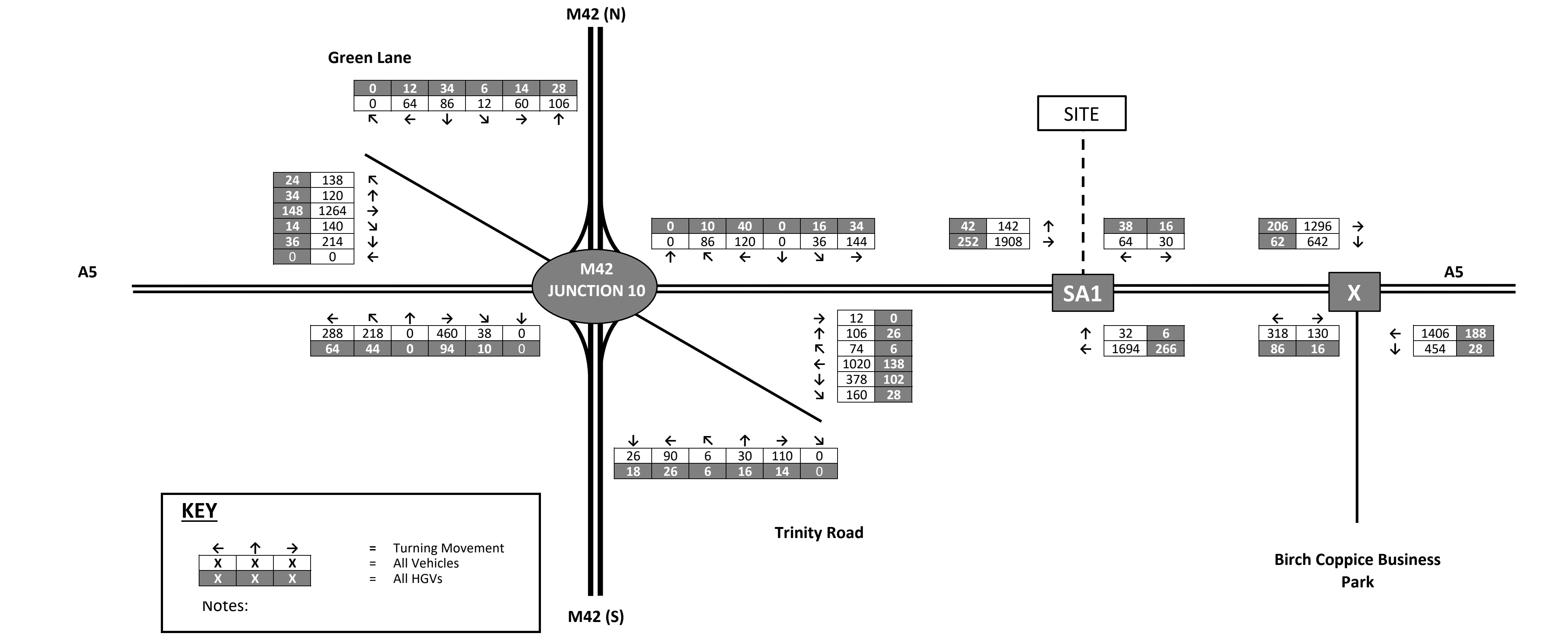
FIGURE 11

2026 REFERENCE - PM PEAK (1700 TO 1800) - DEMAND FLOWS

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB



BANCROFT CONSULTING

FIGURE 12

2026 REFERENCE + DEVELOPMENT - AM PEAK (0800 TO 0900) - DEMAND FLOWS

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB

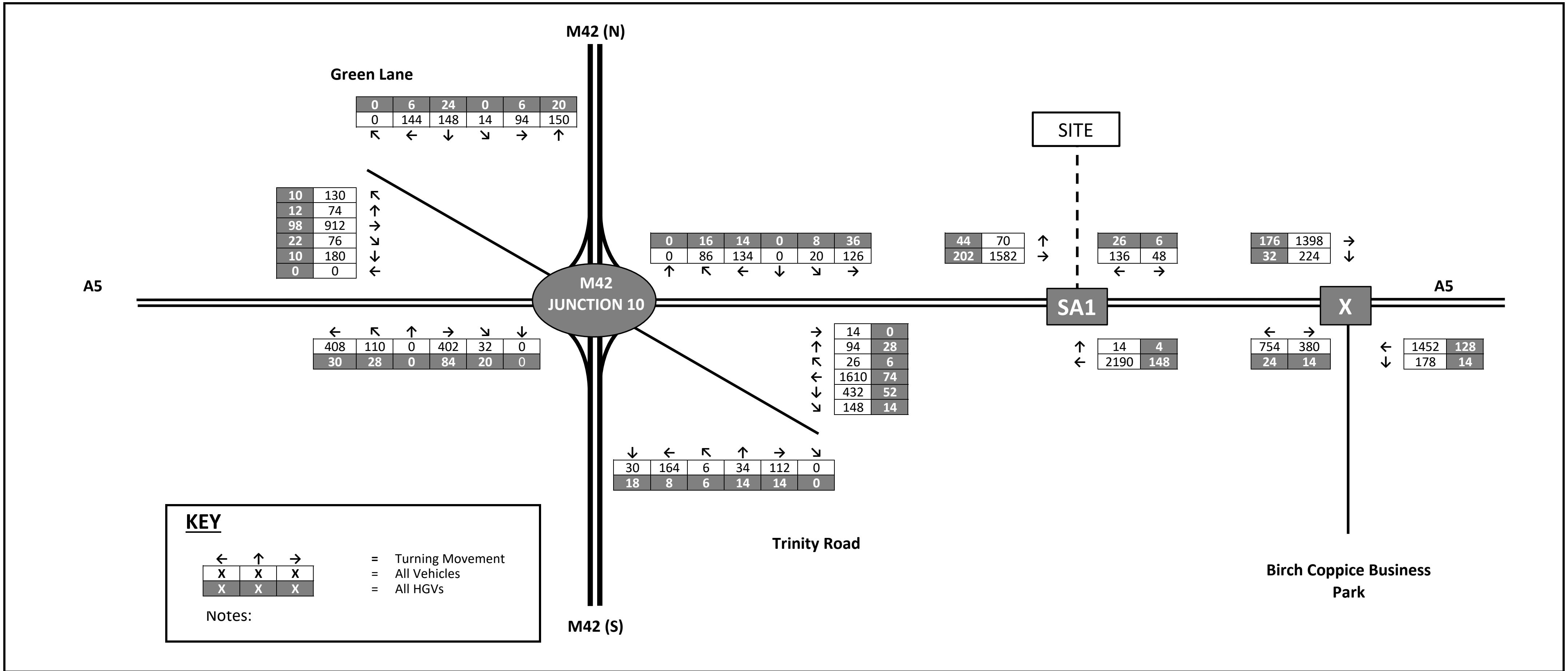


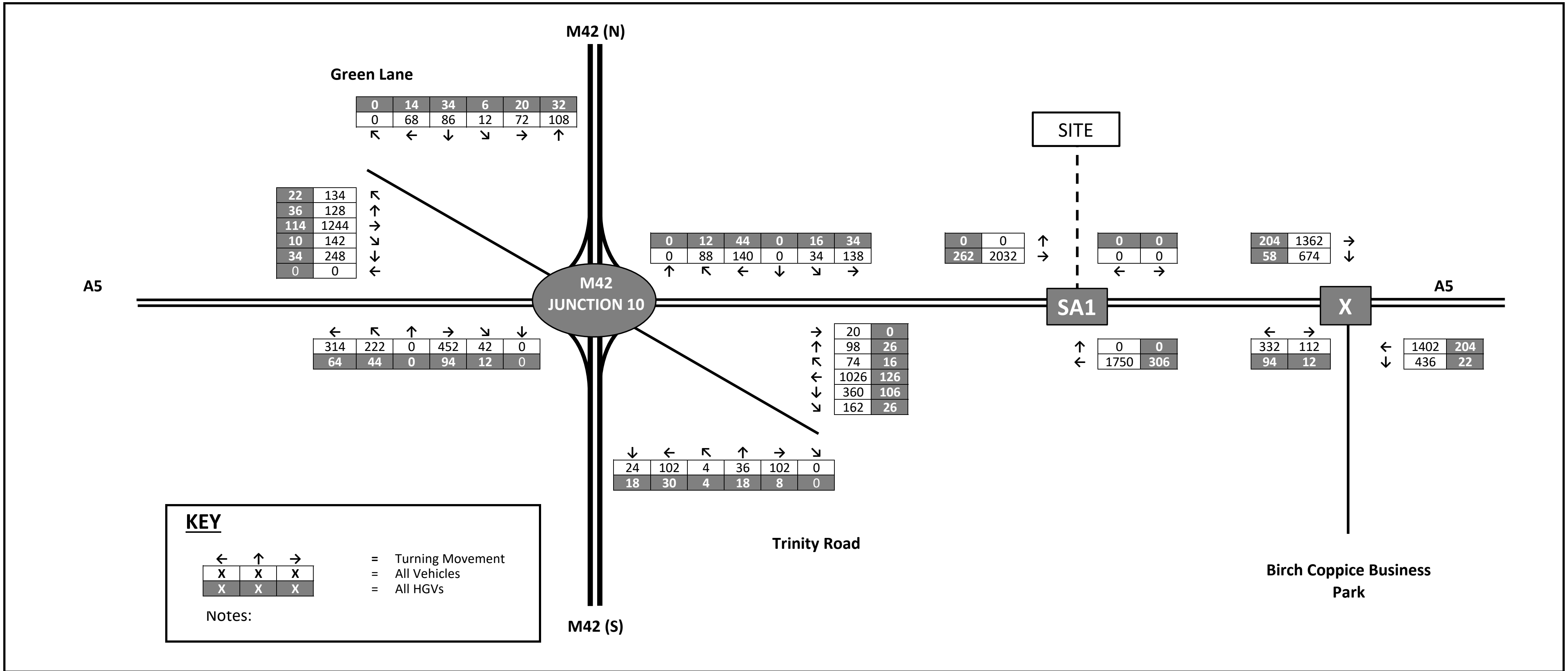
FIGURE 13

2026 REFERENCE + DEVELOPMENT - PM PEAK (1700 TO 1800) - DEMAND FLOWS

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB



BANCROFT CONSULTING

FIGURE 14

2031 REFERENCE - AM PEAK (0800 TO 0900) - DEMAND FLOWS

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB

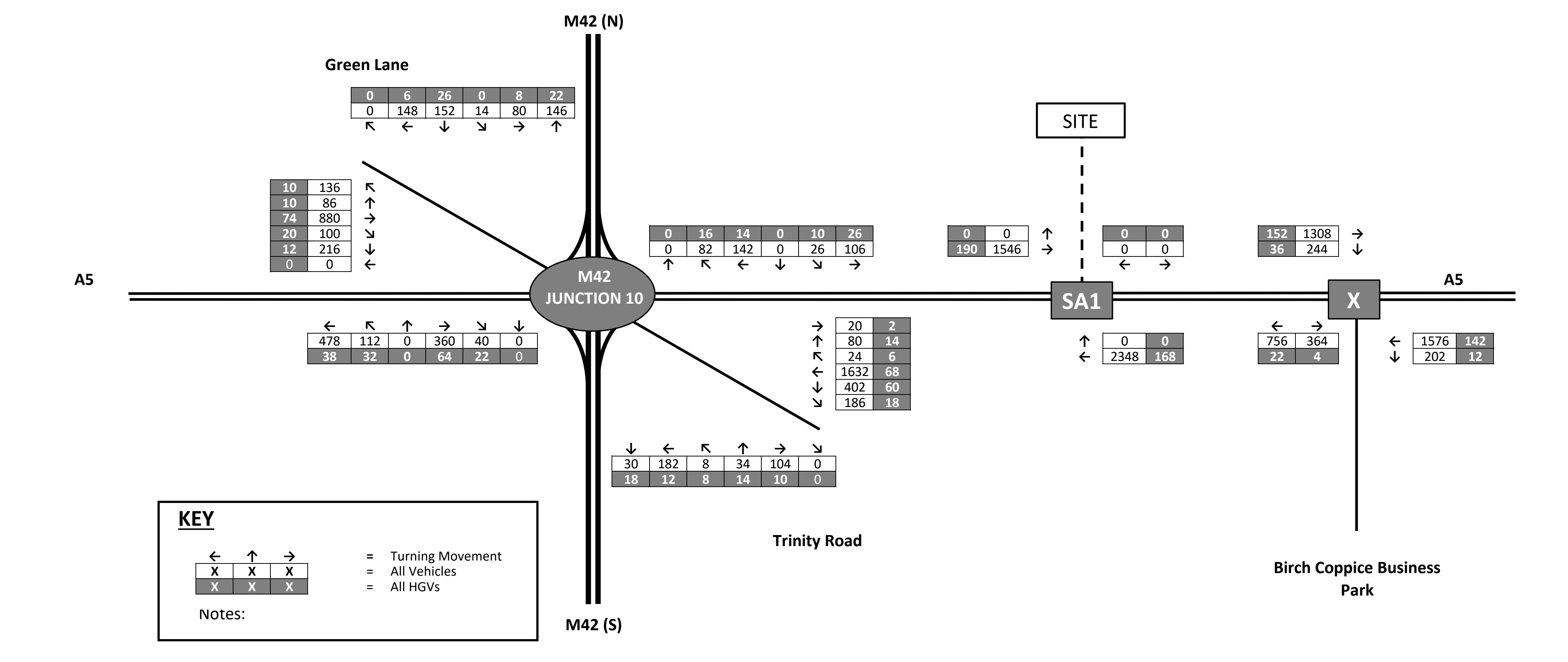


FIGURE 15

2031 REFERENCE - PM PEAK (1700 TO 1800) - DEMAND FLOWS

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB

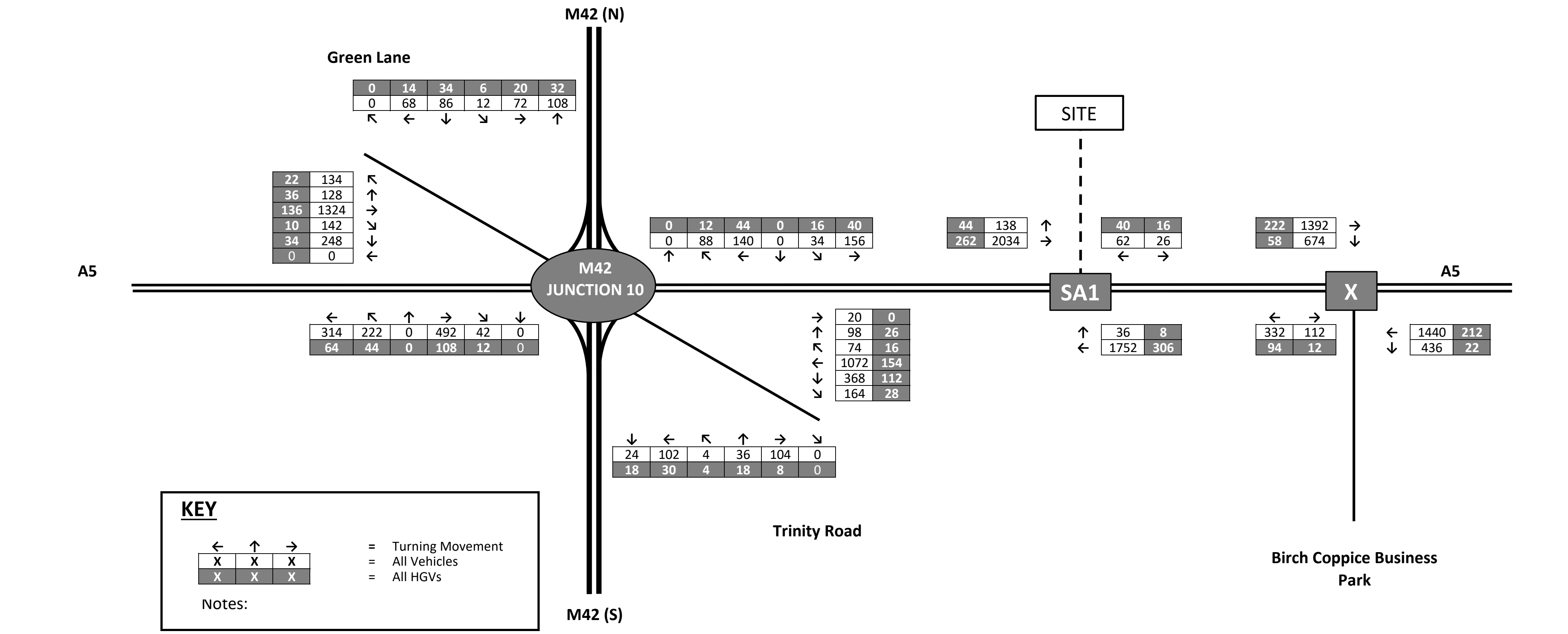


FIGURE 16

2031 REFERENCE + DEVELOPMENT - AM PEAK (0800 TO 0900) - DEMAND FLOWS

LAND NORTH OF THE A5, DORDON

BANCROFT CONSULTING

JOB NUMBER: F19123

DRAWN BY: CAB

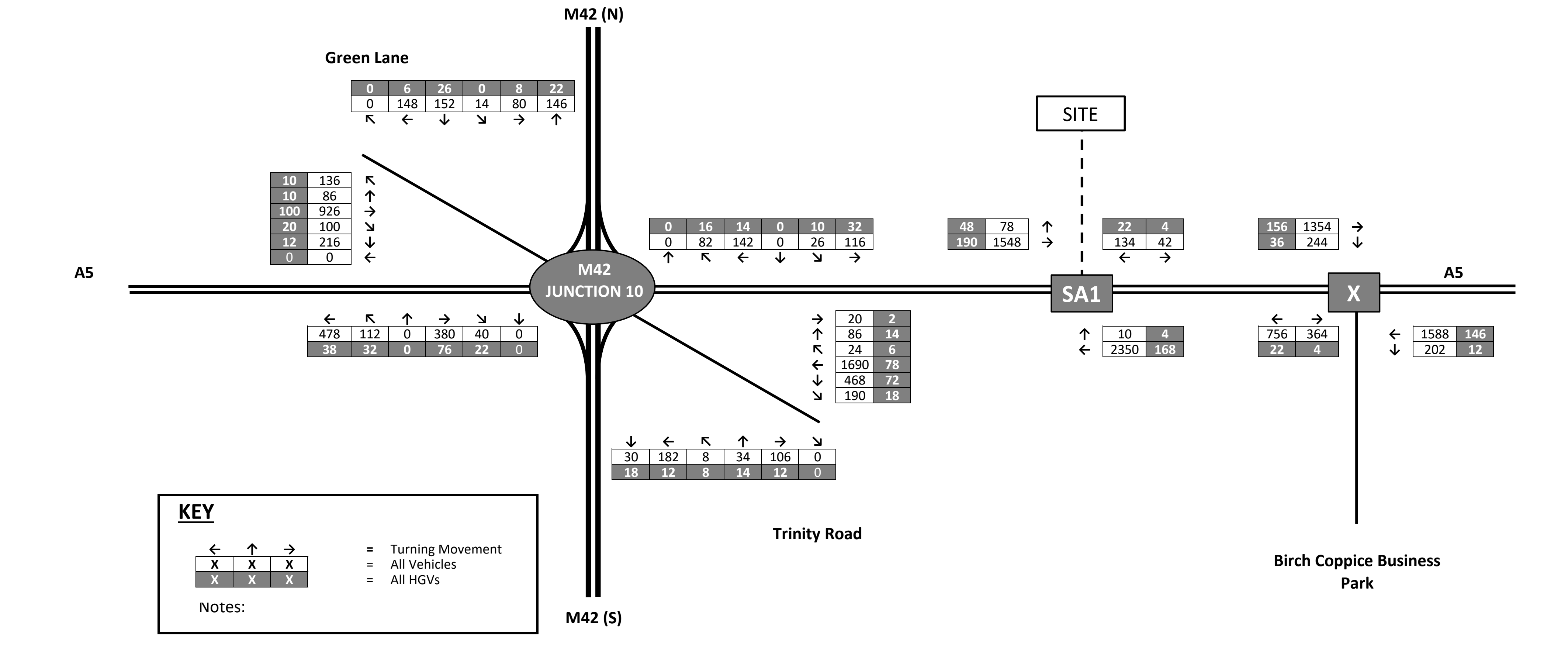


FIGURE 17

2031 REFERENCE + DEVELOPMENT - PM PEAK (1700 TO 1800) - DEMAND FLOWS

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB

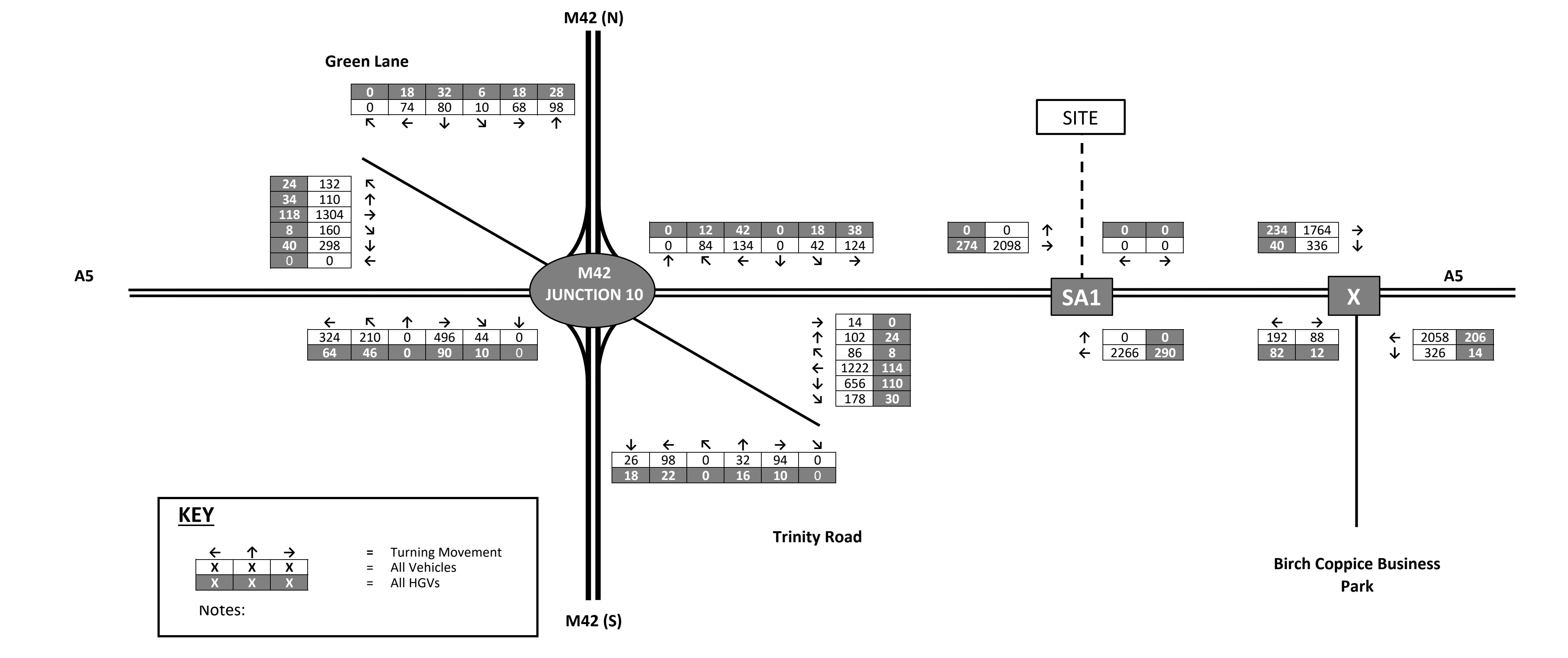


FIGURE 18

2031 LOCAL PLAN - AM PEAK (0800 TO 0900) - DEMAND FLOWS

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB

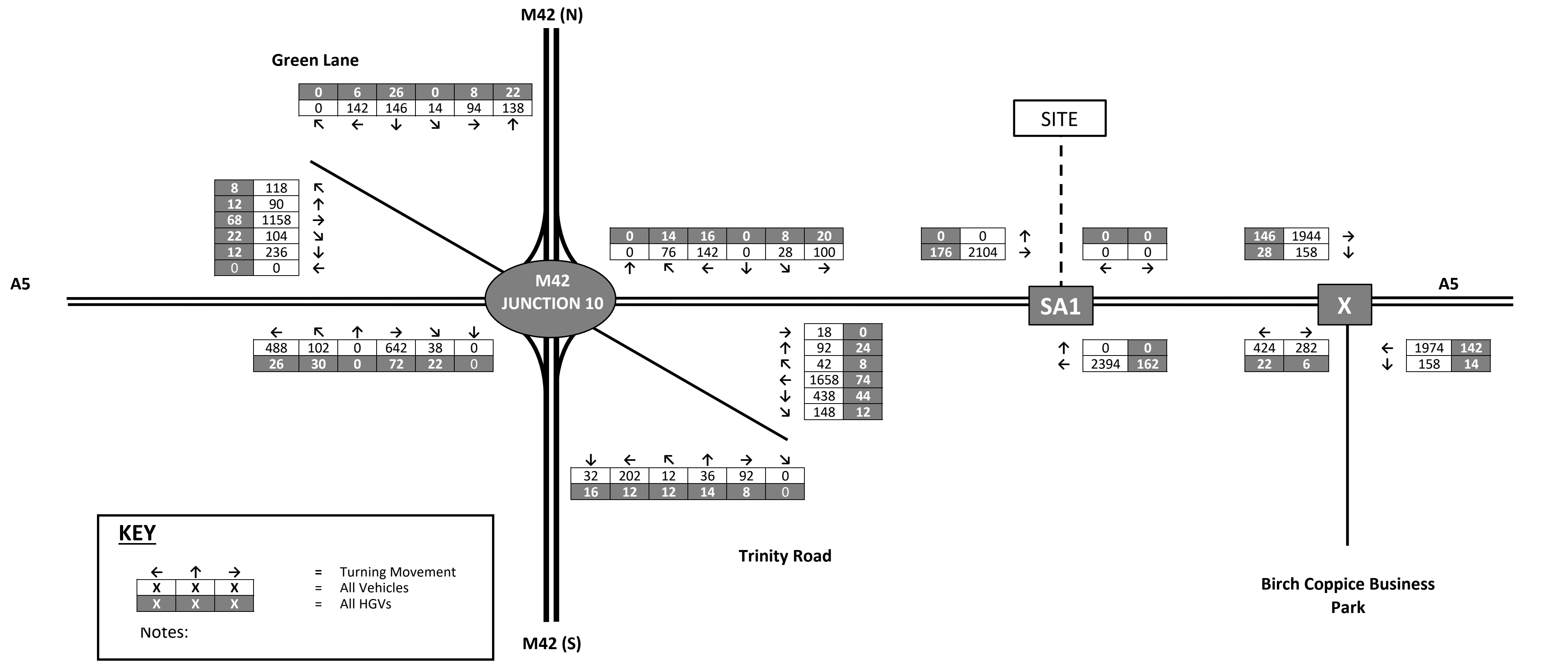


FIGURE 19

2031 LOCAL PLAN - PM PEAK (1700 TO 1800) - DEMAND FLOWS

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB

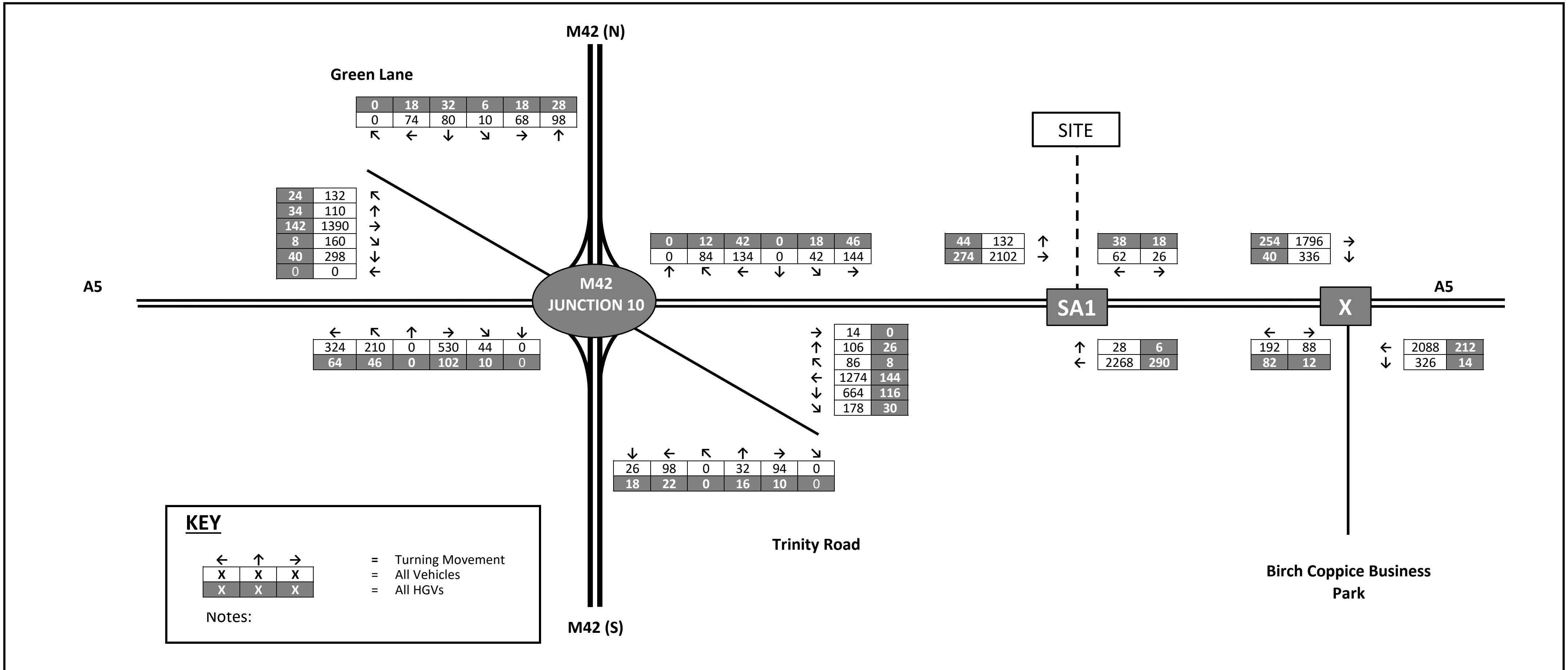


FIGURE 20

2031 LOCAL PLAN + DEVELOPMENT - AM PEAK (0800 TO 0900) - DEMAND FLOWS

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB

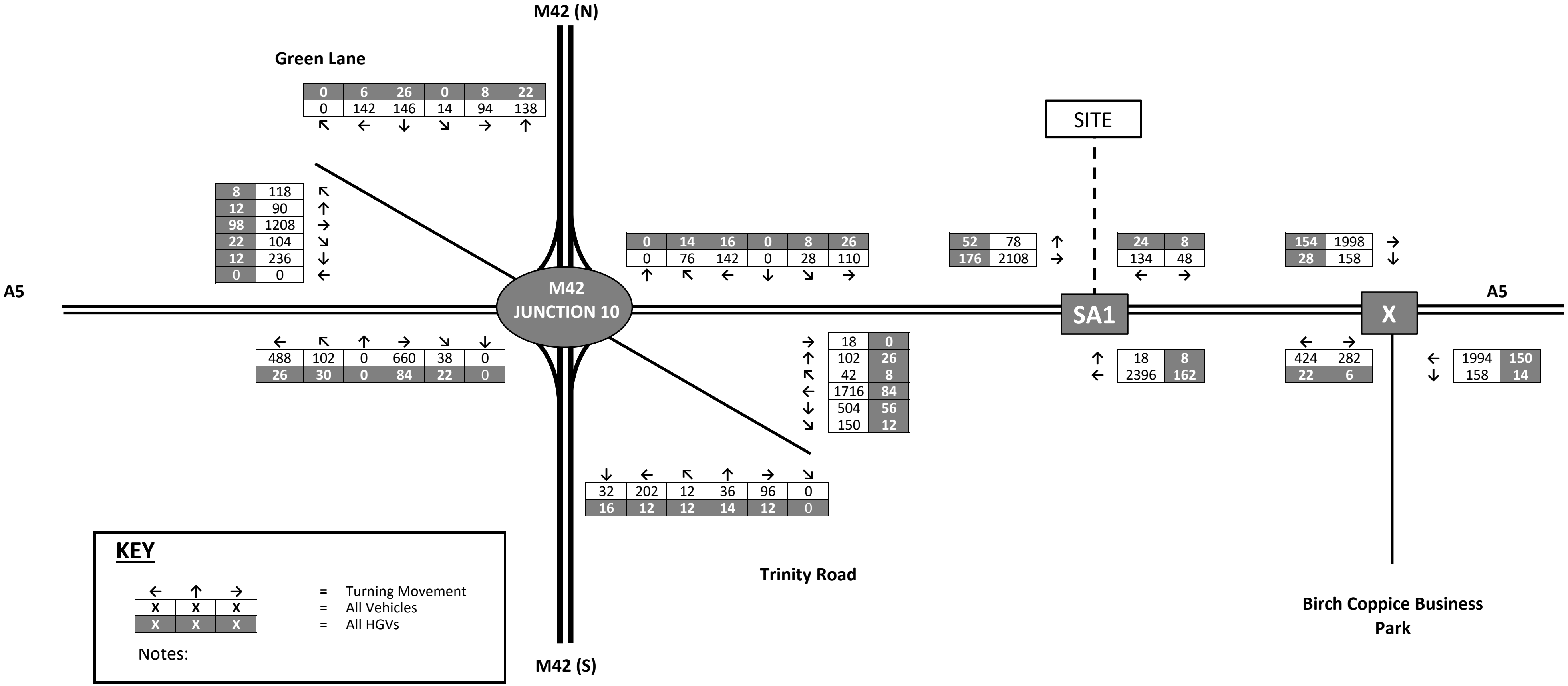


FIGURE 21

2031 LOCAL PLAN + DEVELOPMENT - PM PEAK (1700 TO 1800) - DEMAND FLOWS

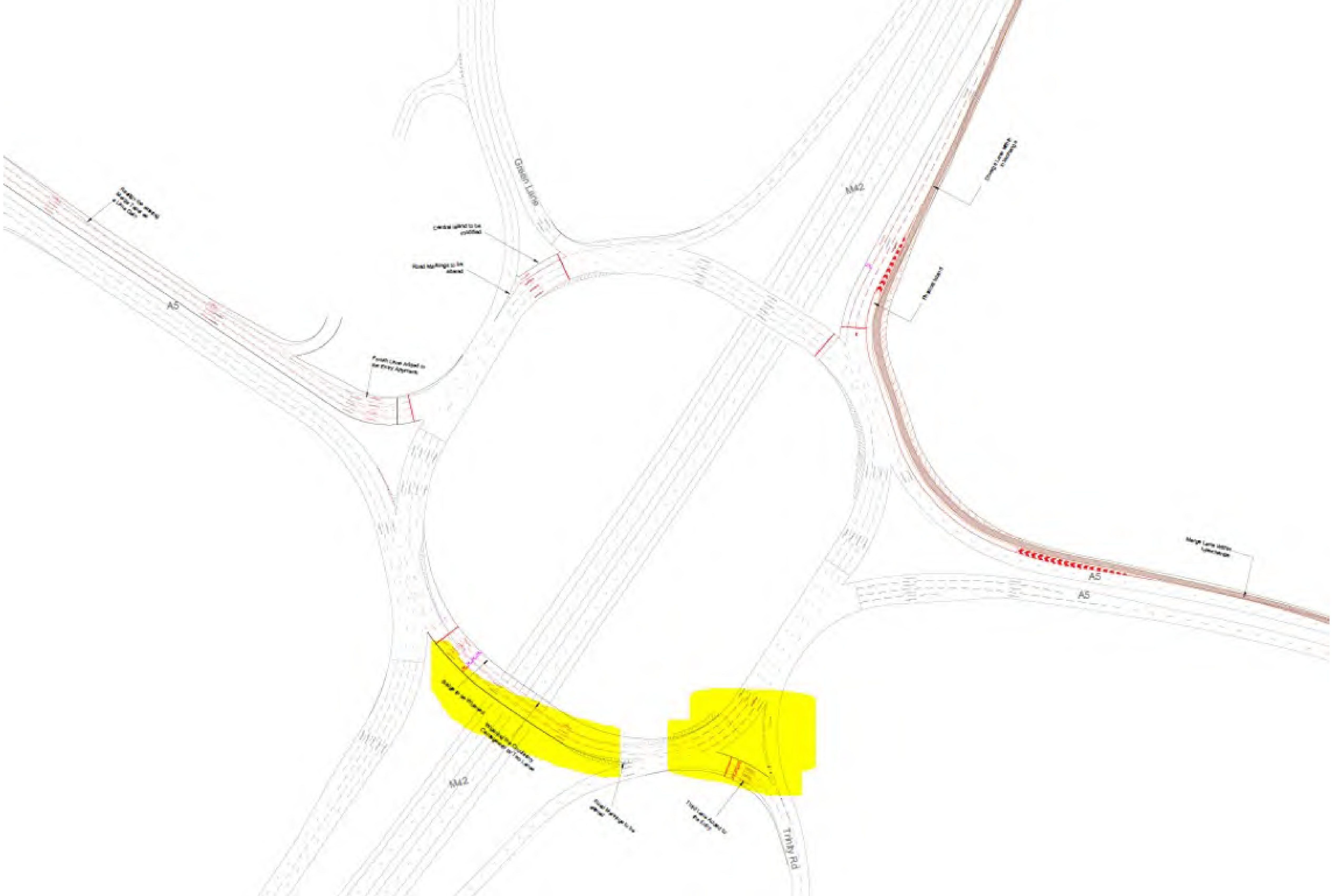
LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB

APPENDIX D

Image 1 – M42 Junction 10, Local Plan Improvement Scheme



APPENDIX B TRANSYT 2022 BASELINE VALIDATION REPORT

1 INTRODUCTION

1.1 Tetra Tech (TT) have been appointed by Hodgetts Estates to provide technical support for their outline planning application for a proposed development of upto 100,000sqm of employment floorspace and 150 space overnight lorry park (including an associated 400sqm amenity block) on land north-east of M42 Junction 10. The application is also supported by a Transport Assessment (TA) prepared by Bancroft Consulting, Version C dated November 2021.

1.2 This 2022 Baseline Validation Report follows on from the TT Modelling Strategy Note, dated 18th March 2022. The Note was approved by Warwickshire County Council (WCC) and National Highways (NH).

2 AGREED SCOPE OF NETWORK

2.1 It has been agreed that in order to test the traffic impacts of the proposed development, the following four junctions are required to be included in the TRANSYT model.

1. M42 Junction 10 Interchange (6 arm grade separated signalised roundabout)
2. A5 Watling Street/ Site Access junction (proposed 3 arm signalised junction)
3. A5 Watling Street/ Danny Morson Way (4 arm signalised junction, known as Birch Coppice)
4. A5 Watling Street/ Meridian Drive (3 arm signalised junction, known as Core 42)

2.2 The first stage is to set up a validated 2022 baseline model of the existing operational performance for junctions 1, 3 and 4. This provides a reliable basis for assessing the performance of the network in future years both with and without the proposed development.

3 2022 SURVEY DATA

Traffic Flows

3.1 Full manual classified traffic counts of the three junctions took place on Wednesday 23rd March 2022 between the hours 07:00 to 09:30 and 16:00 to 18:30. The numbers of surveyed vehicles were converted to passenger car units (pcu's) and the peak hour periods were determined. The AM peak hour was 07:30 to 08:30 and Figure 1 attached in Appendix A shows the turning flows. The PM peak hour was 16:00 to 17:00 and Figure 2 attached in Appendix A shows the turning flows.

3.2 The surveys also captured the lane allocation of traffic on each of the approaches, for example where there is a choice of lanes to a particular destination, the vehicles were counted per lane. This lane-specific allocation of vehicles has been used in the model set up to ensure the correct proportion of traffic is assigned to the approach lanes. The excel data can be provided on request.

3.3 Although the overwhelming majority of drivers used the correct lane allocations, this was not the case on the A5 eastbound approach to Junction 10 and some late lane changes were observed. On the eastbound A5 approach the nearside lane (prior to the short flared lane) is indicated for Green Lane, M42 North and the A5 east, and the offiside lane indicated for Trinity Road and the M42 South. In the AM peak hour 1526pcu (76%) are indicated for the nearside lane and 486pcu (24%) are indicated for the offside lane. The imbalance in traffic flows and the Pennine Way on-slip means that drivers use the offside lane and undertake a lane change to the nearside lane between the Pennine Way on-slip and the stop line. The model has been set up to facilitate these lane change manoeuvres. A small proportion of drivers changed lanes after the stopline on the circulatory carriageway to get into the correct lane for exit. In the AM peak 8% switched lanes post stop line and in the PM peak this was 5%. The model has been set up to facilitate this proportion of traffic using the approach lane not as allocated on the ground and switching downstream.

Queues

3.4 The maximum queue on each lane was reported in 5-minute intervals. The average of the maximum queues was calculated for the AM and PM peaks to establish a typical maximum queue across both 1-hour periods. Figure 3 attached in Appendix A shows the average maximum queues on each lane during the AM and PM peak hours. The excel data can be provided on request.

Signal Timings

3.5 The green signal timings up to each stop were recorded.

- M42 Junction 10

3.6 The junction operates under MOVA control and so each pair of approach/ circulating stop lines has varying cycle times. Some of the approaches are coordinated, so that as one approach's cycle time alters for traffic demands then the downstream signals do so accordingly. For example, the A5 eastbound approach is coordinated with the downstream Green Lane circulatory stop line, where the A5 receives a green signal typically 5 secs after the Green Lane circulatory receives a green which helps clear the queue before the A5 eastbound traffic arrives there. Both nodes typically operated under a 74 secs cycle time in the AM peak and 78 secs in the PM peak.

3.7 Likewise the A5 westbound and the downstream Trinity Way circulatory stop line are coordinated so that the Trinity Way stop line receives a green before the A5 westbound approach. Both nodes typically operated under a 74 secs cycle time in both the AM peak and PM peaks.

3.8 The northbound and southbound slip roads, and their associated circulatory stop lines, are not coordinated with other nodes. In the AM peak hour the northbound slip operates on a typical 64 secs cycle and the southbound slip road on a 55 secs cycle time. In the PM peak hour the northbound slip operates on a typical 73 secs cycle and the southbound slip road on a 56 secs cycle time.

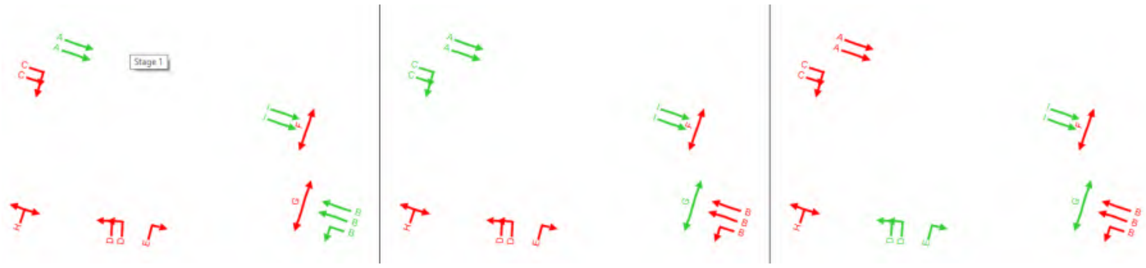
3.9 The model has been set up with the average cycle times and coordination where applicable. In addition, the typical average green splits have been used for each stop line.

3.10 The simulation mode feature in TRANSYT 16 facilitates the use of different cycle times at each set of traffic signals as the model simulates a full hour run and reports the average queues and delays over the full hour.

- A5/ Birch Coppice

3.11 During the AM and PM peak hours the A5/ Birch Coppice junction operated on 3 stages as shown below on Image 3.1. The junction is under MOVA control and so reacts to traffic demands resulting in varying cycle times and green splits for each phase. The access adjacent to Birch Coppice was never called during either peak hour, whilst the Birch Coppice access was called every cycle.

Image 3.1: A5/ Birch Coppice – Observed Staging Sequence

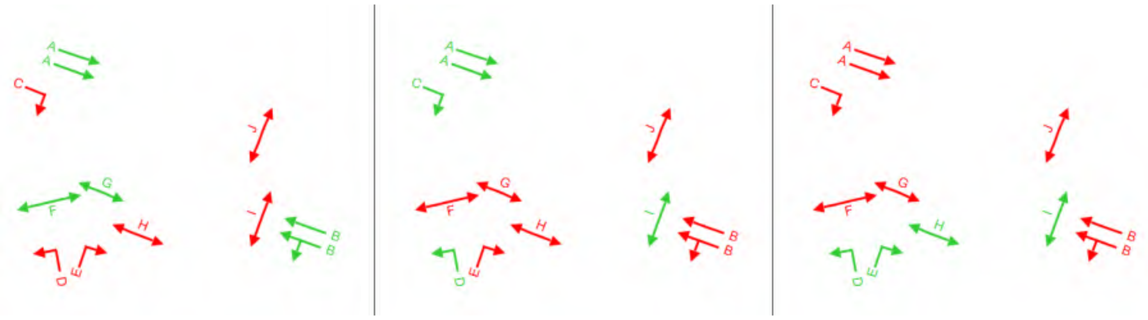


3.12 The typical cycle time in the AM peak hour was 93 secs and in the PM peak it was 99 secs.

- A5/ Core 42

3.13 During the AM and PM peak hours the A5/ Core 42 junction operated on 3 stages as shown below on Image 3.2. The junction is under MOVA control and so reacts to traffic demands resulting in varying cycle times and green splits for each phase. Core 42 is partly occupied and as such the traffic flows turning right out of Core 42 are low (7pcu in the AM peak and 18pcu in the PM peak), the demand for stage 3 (Phase E) is infrequent across the peak hours. In the AM peak stage 3 was called once every 10 cycles on average and in the PM peak once every 3 cycles. As stage 3 is rarely called the A5 eastbound movement receives a green signal for long periods in excess of 10 minutes. The simulation mode in TRANSYT 16 facilitates intermittent occurrences of stages, therefore this feature has been used to reflect the observed operation.

Image 3.2: A5/ Core 42 – Observed Staging Sequence



3.14 In the AM peak phase B in stage 1 typically operated with a green time of 56 secs and 53 secs in the PM peak, whilst the left turn (phase D) in stage 2 typically received a green for 10 secs in the AM peak and 13 secs in the PM peak. Given the intermittent stage 3 it is difficult to determine an average cycle time, therefore a 90 sec cycle time for the AM and PM peaks has been used.

3.15 The intergreen and minimum phase green timings have been extracted from the signals controller specifications. The specifications are attached in Appendix B.

Saturation Flows

3.16 Cameras were located to give a view of vehicles passing over the stop lines and enable calculation of the saturation flows in accordance with TRL's Road Note 34. On each approach, and where applicable, two lanes were measured to establish separate nearside and non-nearside lane saturation flows.

3.17 Upon review of the camera footage it was apparent that for some approaches it was not appropriate to calculate saturation flows for a number of reasons;

- The lane in question was lightly trafficked and thus there was not a saturated queue for a meaningful sample to be collected in accordance with Road Note 34.
- On approaches with a short flare, drivers approaching in the single upstream lane then chose one of the flared lanes, as a result neither lane was fully saturated, for example the nearside lane at the A5 westbound approach to Junction 10.

- The green time was short, thus a sufficient sample could not be obtained.

3.18 Where saturation flows have been calculated for a lane, it was applied to the adjacent lane if the vehicles in it travelled in the same direction, for example at the Trinity Way circulatory stop lines the two nearside lanes travel to the M42 South have been allocated the same saturation flow while the 2 offside lanes turning right to go over the bridge have been allocated the same saturation flows.

3.19 Where a saturation flow has not been calculated, for example A5 left turn to Birch Coppice, TRL's Research Report 67, the prediction of saturation flows for road junctions controlled by traffic signals, dated 1986 has been applied using on site geometries extracted from the as-built drawings.

3.20 At the Core 42 junction, the A5 right turn in saturation flow as well as the left and right turn out saturation flows have been taken from the equivalent traffic movements at the Birch Coppice junction. The reason for this was because the TRL RR67 saturation flows appeared to be on the high side (2,080pcu on the left turn out, 1,980pcu on the right turn out for example) and therefore it was considered robust to use the observed saturation flow at the similar Birch Coppice junction.

3.21 The saturation flow calculations are attached in Appendix C. The saturation flows used per lane are summarised on the 2022 TRANSYT modelling results at Table 4.1 for ease of reference.

4 2022 BASELINE TRANSYT MODELS

4.1 The TRANSYT model has been developed using satellite imagery as a base, and the traffic streams (representing the lanes) have been created by copying the road network structure. The base map has been scaled so that all of the traffic streams have the correct lengths to represent the existing network. Image 4.1 below shows the TRANSYT model network and Figure 4a in Appendix A shows the M42 Junction 10 in more detail whilst Figure 4b shows the Birch Coppice and Core 42 junctions in more detail.

Image 4.1: TRANSYT Model Network

4.2 TRANSYT reports the Mean Maximum Queue (MMQ) which is the "average" maximum back of queue position across taken across each time segment throughout the hour. The delay is also reported which is the average delay experienced per vehicle each time segment. In simulation mode, the Degrees of Saturation (DoSs) are not calculated, as there is no specific value that can be calculated for these, for example the capacity of a traffic stream depends not only on saturation flow but also on the lane configuration for turning movements. A low DoS could mean that the flow is low compared to the capacity (i.e. the usual interpretation), but could also mean that the flow is low because it is restricted due to the lane configuration/ movements. As a result of this the performance of the junctions is judged on the MMQ and average delay per vehicle.

4.3 Table 4.1 attached in Appendix D summarises the 2022 AM and PM peak hour results per lane.

2022 AM Peak Summary Results

4.4 The most notable queues and delays are experienced on the A5 eastbound approach to the M42 Junction 10. It was clear from watching the camera footage that the approach is congested during the peak hour with queues predominantly in the nearside lane and extending west beyond the Pennine Way overbridge. The majority of traffic is in the nearside lane in order to be in the correct lane at the stop line for circulating the roundabout. As discussed in Chapter 3 above, a proportion of drivers use the offside lane to skip the nearside queue and then merge back to the nearside lane when nearer to the stop line, with a small proportion changing lanes after the stop line. The modelled queues in the nearside lane are longer than those observed (56pcu vs 37pcu) whilst the offside lane modelled queue is slightly less than the observed queue (21pcu vs 33cpu). The modelled queues are considered a fair representation of the existing conditions.

4.5 All other approaches and circulatory lanes on Junction 10 operate reasonably well across the hour and the modelled queues are considered a good match to the observed. There are instances in the model when the queuing does extend back momentarily from one stop line to the previous, slightly affecting the performance of the junction and this is considered accurate upon observation of the surveyed videos. The simulation model runs can be demonstrated on a Teams call if necessary.

4.6 The A5/ Birch Coppice junction works well and the modelled queues are considered a good match to the observed queues.

4.7 Likewise the A5/ Core 42 junction works very well and the modelled queues are considered a good match to the observed queues.

4.8 The 2022 AM peak model is considered a good base to use and amend for the future 2026/ 2031 Reference Case and 2026/ 2031 Local Plan scenarios.

2022 PM Peak Summary Results

4.9 The PM peak operates in a very similar manner to the AM peak with the most notable queues and delays experienced on the A5 eastbound approach to the M42 Junction 10, although not quite as extensive. Again, it was clear from watching the camera footage that the approach is congested during the peak hour with queues predominantly in the nearside lane and extending west beyond the Pennine Way overbridge. The modelled queues are similar to those observed and it is considered a fair representation of the existing conditions.

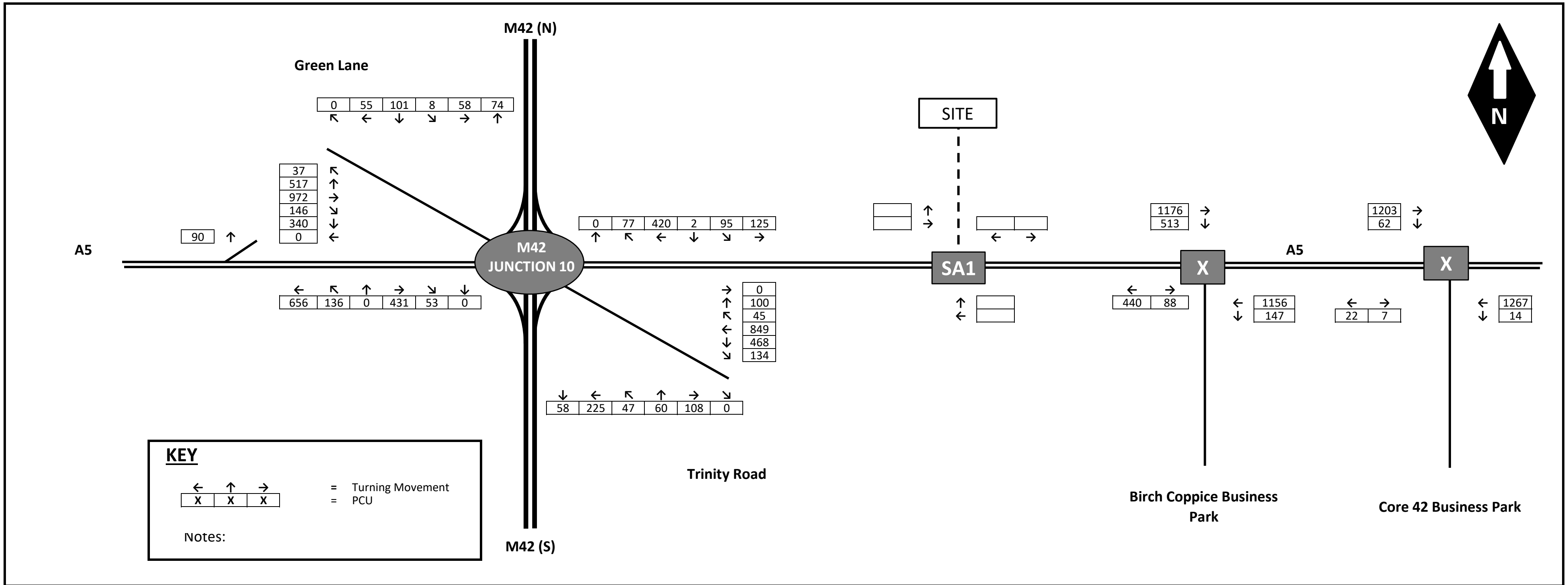
4.10 Similarly, all other approaches and circulatory lanes on Junction 10 operate reasonably well when averaged over the hour and the modelled queues are considered a good match to the observed. There are instances in the model when the queuing does extend back momentarily from one stop line to the previous, slightly affecting the performance of the junction and this is considered accurate upon observation of the surveyed videos. The simulation model runs can be demonstrated on a Teams call if necessary.

4.11 The A5/ Birch Coppice junction works well and the modelled queues are considered a good match to the observed queues. As expected there is slightly more queuing on the Birch Coppice exit approach as a result of the workforce finishing for the day.

4.12 Likewise the A5/ Core 42 junction works very well and the modelled queues are considered a good match to the observed queues.

4.13 The 2022 PM peak model is considered a good base to use and amend for the future 2026/ 2031 Reference Case and 2031 Local Plan scenarios.

APPENDIX A



TETRA TECH

FIGURE 1

2022 AM PEAK (0730 TO 0830) - DEMAND FLOWS

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH

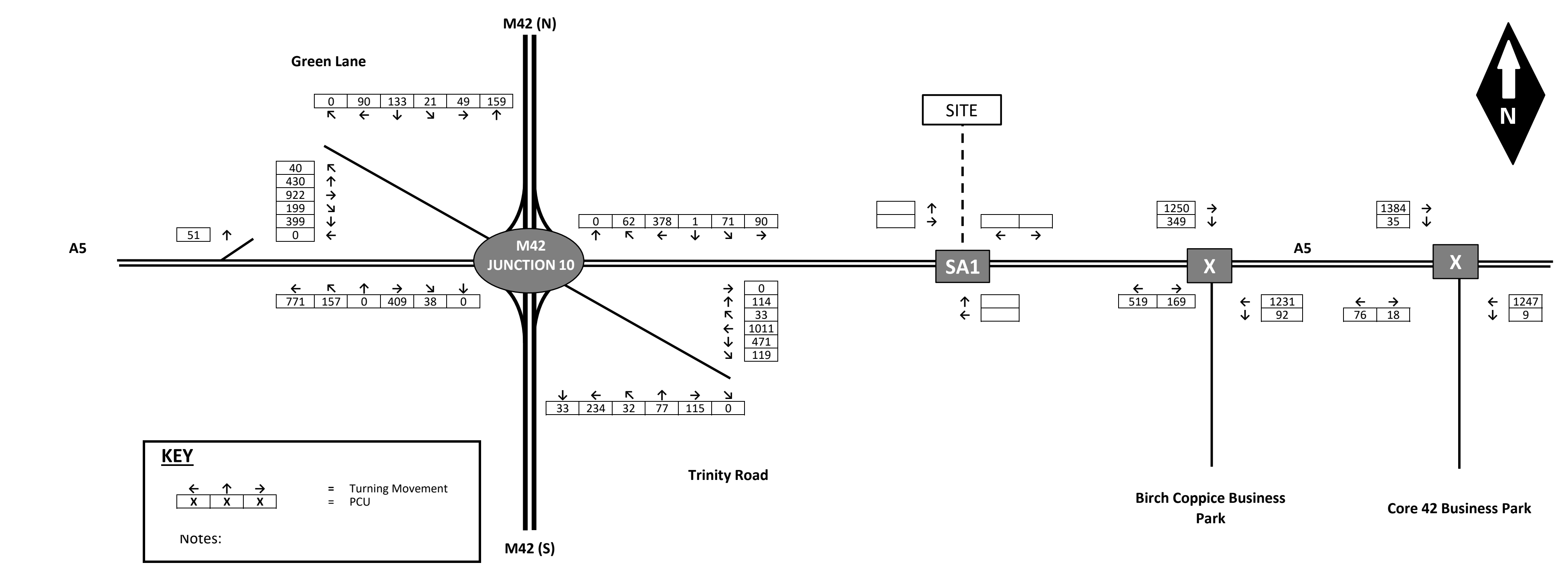


FIGURE 2

2022 PM PEAK (1600 TO 1700) - DEMAND FLOWS

Land North East of M42 Junction 10

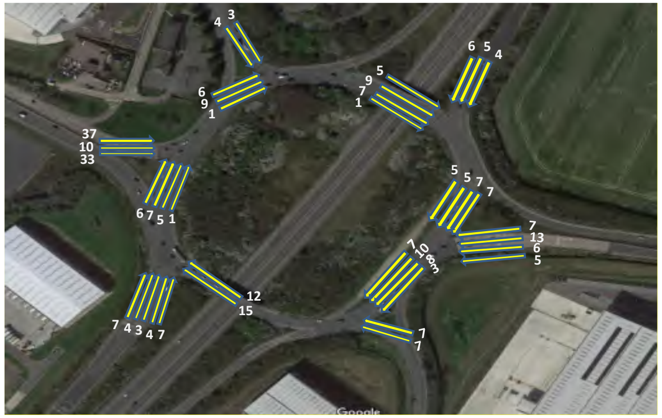
JOB NUMBER: 784-B033920

DRAWN BY: JH

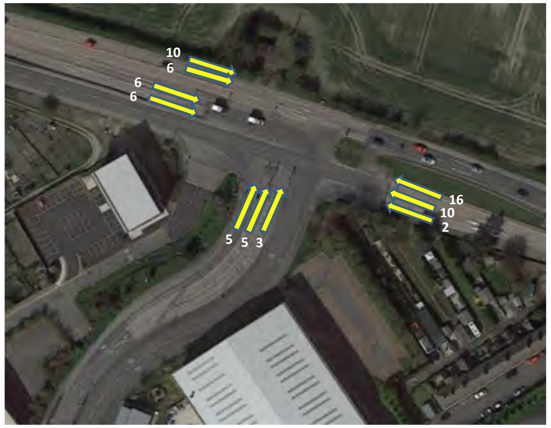
TETRA TECH

AM Peak Hour (07:30 to 08:30) Average Queue
(Average of the maximum Queue in 5 minute periods)

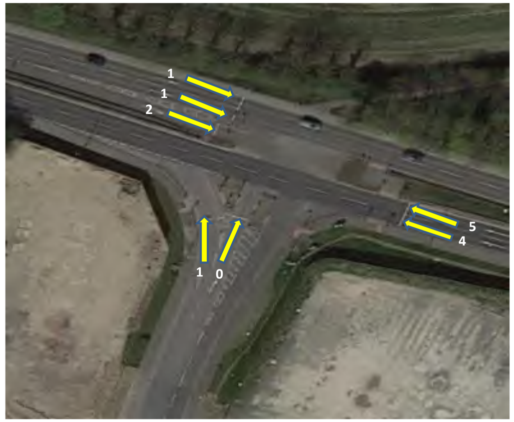
M42 Junction 10 Interchange



A5 Watling Street/ Danny Morson Way (Birch Coppice)

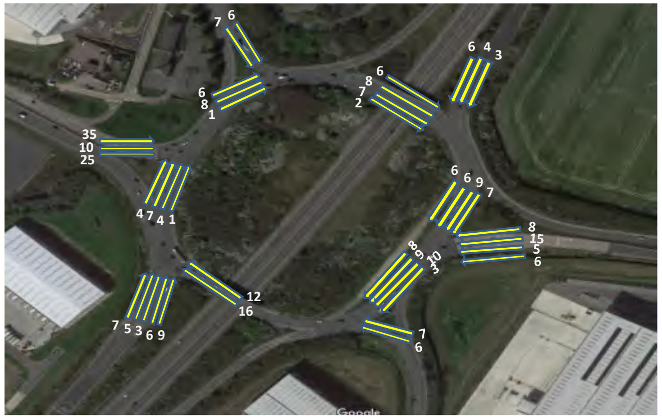


A5 Watling Street/ Meridian Drive (Core 42)

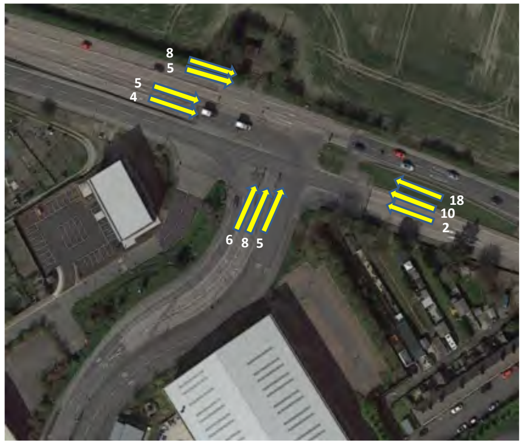


PM Peak Hour (16:00 to 17:00) Average Queue
(Average of the maximum Queue in 5 minute periods)

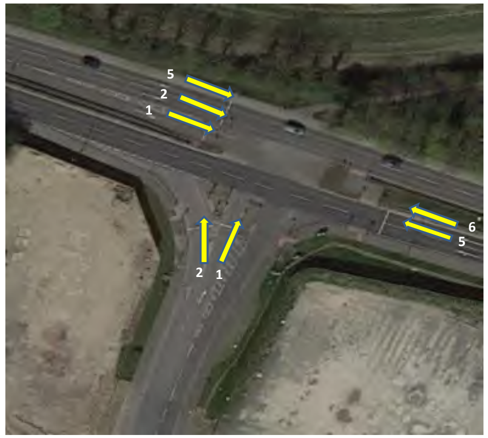
M42 Junction 10 Interchange



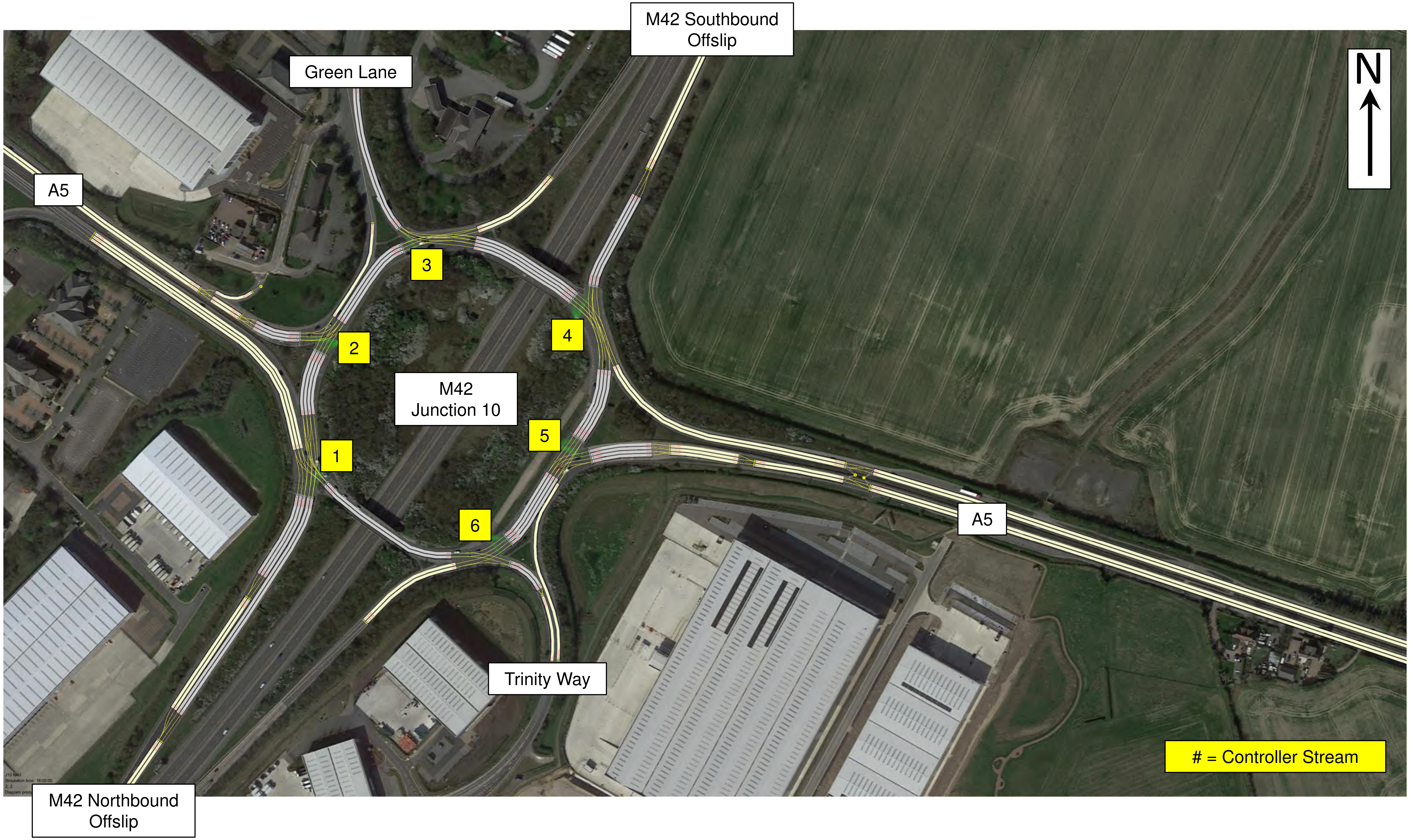
A5 Watling Street/ Danny Morson Way (Birch Coppice)



A5 Watling Street/ Meridian Drive (Core 42)



Land North East of M42 Junction 10	Figure 3
Average AM & PM Peak Hour Queue Results	TETRA TECH



Land North East of M42 Junction 10

TRANSYT Network – M42 Junction 10

Figure 4a

TETRA TECH

Land North East of M42 Junction 10

TRANSYT Network – Birch Coppice & Core 42

Figure 4b

TETRA TECH

APPENDIX B

Telent traffic controller configuration forms

Customer: AMEY AREA 9 MAC

Intersection description: M42 JUNCTION 10 A5 DORDON ISLAND TAMWORTH WEST SIDE - SCN 210

Telent tender no.: **Telent works order no.:**

Customers order no.: 157078 **Dated:**

Customers engineer: JULIAN SMITH / PAULO MALARA / ROGER HACKER

Customers telephone no.: 07718511436 **Ext:**

Equipment installation by: TELENT

Slot cutting by:

Civil works by:

Configuration no.: CFGM0187 **Issue:** **Configuration engineer:** SIMON WINTER

General Data

Power supply data	
Mains voltage	48 Volts
Mains frequency	50 Hz
Peak current	0.0 Amps
Dimming voltage	160

Solar switch data

Detector timing set data	Set 1	Set 2	Set 3	Set 4
Call delay period (Seconds)	10.0	10.0	10.0	10.0
Cancel delay period (Seconds)	10.0	10.0	10.0	10.0
DFM active times (Hours or minutes)	24H	24H	24H	24H
DFM inactive times (Hours or minutes)	24H	24H	24H	24H

British summertime change data

BST start week	13	BST end week	43

Options

Is manual disable via handset option required?	No
Inhibit pedestrian demand delay in FVP mode?	No
Inhibit pedestrian demand delay in PTM mode?	No
Limit handset warnings to UTC enabled warnings?	No

Configuration notes

ELV OPTIMA
===========

SEE SEPERATE SHEET FOR CONFIGURATION DETAILS

Configuration history

Issue	Date	Description
1.00	23/10/12	INITIAL CONFIGURATION
1.01	23/10/12	INTERMEDIATE EDIT
1.02	23/10/2012	Intermediate edit
1.03	25/10/2012	Intermediate edit
1.04	05/11/2012	Intermediate edit
1.05	10/11/2012	Intermediate edit
1.06	19/11/2012	Intermediate edit
2.00	03/09/2014	Changes as per updated spec 30-5-13 Additional Phases Added
2.01	19/09/2014	Intermediate edit
2.02	07/02/2015	Intermediate edit

Phase data 1

Phase Id	Road Name(s)	Phs. type	Appearance assoc'ted type	Appearance assoc'ted phase(s)	Termination assoc'ted type	Termination assoc'ted phase(s)	Restart allowed	App. in man
A	M42 NORTHBOUND OFF SLIP	T	0		0		No	0
B	SOUTH BRIDGE WESTBOUND GYRATORY	T	0		0		No	0
C	A5 EASTBOUND	T	0		0		No	0
D	WESTSIDE A5 GYRATORY	T	0		0		No	0
E	GREEN LANE	T	0		0		No	0
F	WEST SIDE GREEN LANE GYRATORY	T	0		0		No	0
DA	ALL RED STREAM 1	G	0		0		No	0
DB	ALL RED STREAM 2	G	0		0		No	0

Phase data 2

Phase Id	Min green Time	Min green limit	Window time	Speed measurement facilities		Assoc to ped. phases	Cond demand type	Conditioning phases
				Exist	Ped. phases			
A	7.0	7.0	-	No		No	NONE	
B	7.0	7.0	-	No		No	NONE	
C	7.0	7.0	-	No		No	NONE	
D	7.0	7.0	-	No		No	NONE	
E	7	7		No		No	None	
F	7	7		No		No	None	
DA	3.0	3.0	-	No		No	NONE	
DB	3.0	3.0	-	No		No	NONE	

Phase data 2_1

Phase Id	Maximum greens (VA)								Maximum greens (PTM)								Maximum greens (FVP)							
	Set 1	Set 2	Set 3	Set 4	Set 5	Set 6	Set 7	Set 8	Set 1	Set 2	Set 3	Set 4	Set 5	Set 6	Set 7	Set 8	Set 1	Set 2	Set 3	Set 4	Set 5	Set 6	Set 7	Set 8
A	30	20	30	20	30	30	40	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B	40	30	40	30	40	30	40	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C	20	20	20	20	30	30	40	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
D	40	30	40	30	40	30	40	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E	15	20	20	20	20	30	40	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F	45	30	45	30	40	30	40	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Phase data 2_2

Phs Id	Fixed seq.	Ped type	Demand extn.	Dithering		Pedestrian intergreen sequence times						PV info		PV associated to			PV delay	PV Window	Local override
				Quiescent	Normal	Gap	Frc	Min	Max	Clr	Xtr	UTC	Local	Phase	Str/Stg	Input			
A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Phase data 2_3

Phase compensation				
	Compensation sets			
Phase Id	Set 1	Set 2	Set 3	Set 4
A	0.0	0.0	0.0	0.0
B	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0
D	0.0	0.0	0.0	0.0
E	0	0	0	0
F	0	0	0	0
DA	0.0	0.0	0.0	0.0
DB	0.0	0.0	0.0	0.0

Phase data 2_4

Pedestrain supplementary signals									
Phase Id	Illuminate wait lamps on phase	Tactile	Confirmation input	State	Audible	Confirmation input	Active state	Drive phase	Duration
A		False	False	OC	False	False	OC	A	
B		False	False	OC	False	False	OC	B	
C		False	False	OC	False	False	OC	C	
D		False	False	OC	False	False	OC	D	
E		False	False	OC	False	False	OC	E	
F		False	False	OC	False	False	OC	F	
DA		False	False	OC	False	False	OC	DA	
DB		False	False	OC	False	False	OC	DB	

Phase data 4

Phase Id	Conflicting greens	Opposed by phase demands	Opposed by stage demands	Revertive phase demands
A	B	B,DA		A
B	A	A,DA		B
C	D	D,E,F,DB		C
D	C	C,E,F,DB		D
E	F	C,D,F,DB		E
F	E	C,D,E,DB		F
DA		A,B		
DB		C,D,E,F		

Lamp sequence data

Phs. type	Sequence description	Start-up starting			Start-up stoping			Normal starting			Normal stopping			Running		Stopped		Shutdown	
		State 1	State 2	Duration	State 1	State 2	Duration	State 1	State 2	Duration	State 1	State 2	Duration	State 1	State 2	State 1	State 2	State 1	State 2
FP	FAR/SIDE PEDESTRIAN	G	G	0	R	R	0	G	G	0	B	B	3	G	G	R	R	B	B
G	IND/FILTER	G	G	0	B	B	0	G	G	0	B	B	0	G	G	B	B	B	B
L	LRT	G	G	0	A	A	5	G	G	0	A	A	5	G	G	R	R	B	B
NP	NEAR/SIDE PEDESTRIAN	G	G	0	R	R	0	G	G	0	R	R	3	G	G	R	R	B	B
P	PEDESTRIAN	G	G	0	R	R	0	G	G	0	B	B	PBT	G	G	R	R	B	B
PP	PELICAN PEDESTRIAN	R	R	0	B	G	3	G	G	0	B	G	0.1	G	G	R	R	B	B
PT	PELICAN TRAFFIC	B	A	5	A	A	3	B	A	6	A	A	3	G	G	R	R	B	B
T	TRAFFIC	G	G	0	A	A	3	R,A	R,A	2	A	A	3	G	G	R	R	B	B
W	WIG-WAG	A	A	5	B	B	0	A	A	5	B	B	0	R	G	B	B	B	B

Stage data

Stream 1		Start-up stage no.	2
Stage	Active phases		
0	DA		
1	A		
2	B		
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

Stream 2		Start-up stage no.	2
Stage	Active phases		
0	DB		
1	C,F		
2	D,F		
3	D,E		
4	C,E		
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

Mode data

Stream 1		Starting intergreen duration	9.0
Mode	Priority no.	All red extension auto to max	
C.L.F.	6	No	
PSV emergency			
Hurry Call 1	4	No	
Hurry Call 2	5	No	
Hurry Call 3			
Hurry Call 4			
LRT			
Manual	1	No	
Manual FT	2	Yes	
MOVA			
Normal - VA	7	No	
PSV priority			
Part time			
UTC	3	No	
Phase demands to be inserteted on start-up and when leaving manual or fixed time modes			
A,B			

Stream 2		Starting intergreen duration	9.0
Mode	Priority no.	All red extension auto to max	
C.L.F.	6	No	
PSV emergency			
Hurry Call 1	4	No	
Hurry Call 2	5	No	
Hurry Call 3			
Hurry Call 4			
LRT			
Manual	1	No	
Manual FT	2	Yes	
MOVA			
Normal - VA	7	No	
PSV priority			
Part time			
UTC	3	No	
Phase demands to be inserteted on start-up and when leaving manual or fixed time modes			
C,D,E,F			

Part time and hurry call mode data

Stream 1							
Part time mode data							
Switch-off stage		Part-time hold duration	0H	Part-time prevent duration	0H	Part-time queue detector(s)	

Hurry call mode data							
Hurry call no.	Call stage	Request detector(s)	Cancel detector(s)	Output name	Delay period	Hold period	Prevent period
1	1	AINHC		N/A	0.0	10.0	0.0
2	2	BINHC		N/A	0.0	10.0	0.0
3				N/A	0.0	0.0	0.0
4				N/A	0.0	0.0	0.0

Stream 2							
Part time mode data							
Switch-off stage		Part-time hold duration	0H	Part-time prevent duration	0H	Part-time queue detector(s)	

Hurry call mode data							
Hurry call no.	Call stage	Request detector(s)	Cancel detector(s)	Output name	Delay period	Hold period	Prevent period
1	2	DINHC		N/A	0.0	10.0	0.0
2	2	FINHC		N/A	0.0	10.0	0.0
3				N/A	0.0	0.0	0.0
4				N/A	0.0	0.0	0.0

Manual mode data

Manual button no.	Stage number for each stream								Street name(s)
	1	2	3	4	5	6	7	8	
All red	0	0							ALL RED
1	2	2							GYRATORIES
2	1	2							M42 OFF / GYRATORIES
3	2	1							M42 GYRATORY / A5 EASTBOUND / GREEN LANE GYRATORY
4	2	3							M42 GYRATORY / A5 EASTBOUND / GREEN LANE
5	0	4							STREAM 1 ALL RED / A5 EASTBOUND / GREEN LANE
6	0	2							STREAM 1 ALL RED / STREAM 2 GYRATORY
7									
8									
9									
10									

Button no. for inital manual stage set	1	Streams that must be in manual mode together	

UTC general data, confirm bit data & SF/LO qualification periods

UTC General data

UTC option	1 (MCE 0105/0106)
TF Reset time	00:00:00
Use serial interface for UTC	False
UTC active state	Short circuit

Stream linking options							
1	2	3	4	5	6	7	8
U	U	U	U	U	U	U	U

Sync confirm times	
RT reply bit	3
SR reply bit	3

Time sync data	
Day type	ANY
Reference time	12:00:00
Repeat rate	24H
Window time	24H

UTC confirm data

Stream	Confirm bit(s) to be used for manual mode running on stream	Confirm bit(s) to be used for fixed time running on stream
1		
2		
3		
4		
5		
6		
7		
8		

Controller state	Confirm bit(s) to be used for controller state
Manual mode selected	
Signals off failed	
Signals off manually	
Detectors fault	
Controller fault	
Controller warning	
Manual fixed time selected	

SF/LO qualification periods

L01	10.0	L02	10.0	L03	10.0	L04	10.0	L05	10.0	L06	10.0	L07	10.0	L08	10.0
SF01	7.0	SF02	7.0	SF03	7.0	SF04	7.0	SF05	7.0	SF06	7.0	SF07	7.0	SF08	7.0
SF09	7.0	SF10	7.0	SF11	7.0	SF12	7.0	SF13	7.0	SF14	7.0	SF15	7.0	SF16	7.0

UTC force bits

Force bit	Phase demands to be considered for demand depended stages	Required phase extensions	Stage to force in each stream							
			1	2	3	4	5	6	7	8
F01			1							
F02			2							
F03			2							
F04				1						
F05				2						
F06				3						
F07				4						
F08				2						

UTC (stream/stage) confirm data

Stage no.	Stream							
	1	2	3	4	5	6	7	8
00								
01	G1	G4						
02	G2	G5						
03		G6						
04		G7						
05								
06								
07								
08								
09								
10								
11								
12								
13								
14								
15								

UTC control/reply bit - stage stream associations

Control/ reply bit	Associated bit id per stream							
	1	2	3	4	5	6	7	8
FC								
FGR								
FM								
GO								
HC								
LL								
LO								
LRTI								
LRTR								
TOR								

UTC demand bits (DX Bits)

DX Bit	Latched stage demands	Unlatched stage demands	Latched phase demands	Unlatched phase demands	Phase extension demands
DX1					
DX2					
DX3					
DX4					
DX5					
DX6					
DX7					
DX8					

UTC demand bits (D Bits)

D Bit	Latched stage demands	Unlatched stage demands	Latched phase demands	Unlatched phase demands	Phase extensiob demands
D1					
D2					
D3					
D4					
D5					
D6					
D7					
D8					
D9					
D10					
D11					
D12					
D13					
D14					
D15					
D16					
D17					
D18					
D19					
D20					
D21					
D22					
D23					
D24					
D25					
D26					
D27					
D28					
D29					
D30					
D31					
D32					

UTC demand reply bits (SD Bits)

SD Bit name	Stage demands to reply	Phase demands to reply
SD1		
SD2		
SD3		
SD4		
SD5		
SD6		
SD7		
SD8		
SD9		
SD10		
SD11		
SD12		
SD13		
SD14		
SD15		
SD16		
SD17		
SD18		
SD19		
SD20		
SD21		
SD22		
SD23		
SD24		
SD25		
SD26		
SD27		
SD28		
SD29		
SD30		
SD31		
SD32		

UTC timeout data and local link inhibit data

UTC Timeout data										
	UTC bits									
	F	D	DX	SF	FM	LO	GO	LL	LRTI	PV
Timeout duration	300	0	0	0	0	0	0	0	0	500
No timeouts allowed	False	True	True	True	True	True	True	True	True	True

UTC local link inhibit data	
LL Bits	Phases
LL01	
LL02	
LL03	
LL04	
LL05	
LL06	
LL07	
LL08	

FT and VA mode

Stream 1																
FT mode data													Normal FT or VA to max			VA
From stage	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Stage time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
To stage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Demad dependant phases during VA to max				DA												
VA mode data																
Arterial reversion to stage/phase				2	VA stage selection option required					Near						

Stream 2																
FT mode data													Normal FT or VA to max			VA
From stage	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Stage time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
To stage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Demad dependant phases during VA to max				DB												
VA mode data																
Arterial reversion to stage/phase				2	VA stage selection option required					Near						

CLF mode data

Plan 1	Delay time	0	Cycle time	90

Group no.	Stream 1			Stream 2			Stream 3			Stream 4			Stream 5			Stream 6			Stream 7			Stream 8		
	Offset time		0	Offset time		0	Offset time		0.0	Offset time		0.0	Offset time		0.0	Offset time		0.0	Offset time		0.0	Offset time		0.0
	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage
1	0	IM	1	0	PX	2	0.0			0.0			0.0			0.0			0.0			0.0		
2	20	PX	2	6	IM	2	0.0			0.0			0.0			0.0			0.0			0.0		
3	25	IM	2	22	IM	1	0.0			0.0			0.0			0.0			0.0			0.0		
4	80	PX	1	70	PX	3	0.0			0.0			0.0			0.0			0.0			0.0		
4				73	DM	3																		
0				76	HS																			
0				84	PX	2																		

Plan 2	Delay time	0	Cycle time	90

Group no.	Stream 1			Stream 2			Stream 3			Stream 4			Stream 5			Stream 6			Stream 7			Stream 8		
	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0
	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage
1	0	IM	2	0	IM	1																		
2	34	PX	1	24	PX	3																		
3	44	IM	1	28	DM	3																		
4	65	PX	2	35	PX	2																		
5	73	IM	2	55	IM	2																		
5				72	PX	1																		
0				75	IM	1																		

Plan 3	Delay time	0	Cycle time	80

Group no.	Stream 1			Stream 2			Stream 3			Stream 4			Stream 5			Stream 6			Stream 7			Stream 8		
	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0
	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage
1	0	PX	2	0	PX	1																		
2	4	IM	2	7	IM	1																		
3	45	PX	1	35	PX	3																		
4	57	DM	1	40	DM	3																		
5	68	HS		50	HS																			
6	70	PX	2	59	PX	2																		
6				63	IM	2																		

CLF mode data

Plan 4																					Delay time	0	Cycle time	60
Group no.	Stream 1			Stream 2			Stream 3			Stream 4			Stream 5			Stream 6			Stream 7			Stream 8		
	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0
	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage
1	0	PX	2	0	IM	2																		
2	4	IM	2	5	DM	1																		
3	40	PX	1	20	HS																			
4	47	DM	1	33	PX	3																		
5	50	HS		39	DM	3																		
5				40	PX	2																		
0				53	IM	2																		

Plan 5																					Delay time	0	Cycle time	80
Group no.	Stream 1			Stream 2			Stream 3			Stream 4			Stream 5			Stream 6			Stream 7			Stream 8		
	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0
	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage
1	0	IM	1	0	PX	2																		
2	18	PX	2	4	IM	2																		
3	22	IM	2	15	PX	1																		
4	75	PX	1	21	IM	1																		
4				70	DM	3																		
0				72	PX	2																		

Plan 6																					Delay time	0	Cycle time	80
Group no.	Stream 1			Stream 2			Stream 3			Stream 4			Stream 5			Stream 6			Stream 7			Stream 8		
	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0
	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage
1	0	IM	2	0	IM	1																		
2	30	PX	1	25	DM	3																		
3	37	IM	1	27	PX	2																		
4	52	PX	2	42	IM	2																		
5	63	IM	2	58	IM	1																		

Minimum intergreen durations

From phs.	To phase							
	A	B	C	D	E	F	DA	DB
A		7					3	
B	6						3	
C				7				3
D			6					3
E						7		3
F					6			3
DA	2	2						
DB			2	2	2	2		

Intergreen Minimum limit values

From phs.	To phase							
	A	B	C	D	E	F	DA	DB
A		5					3	
B	5						3	
C				5				3
D			5					3
E						5		3
F					5			3
DA	2	2						
DB			2	2	2	2		

Phase delay data

Delay No.	Losing stage	Gaining stage	Delay phase	Delay period
1	1	3	F	6

Detector data 1

Det. name	Det. type	Dummy	Vis. unit no.	Active state	Count det.	Self reset	Detector set: Gap period	Gap count	Self confirm	Latched phase demand(s)	Unlatched phase demand(s)	Green extension(s): Phase	Taper %	Varimax phases
TO1	NM	No		SC	No	No	0.5	15	No				100	
TO2	NM	No		SC	No	No	0.5	15	No				100	
AIN1	NM	No		SC	No	No	0.5	15	No				100	
AIN2	NM	No		SC	No	No	0.5	15	No				100	
AIN3	NM	No		SC	No	No	0.5	15	No				100	
AIN4	NM	No		SC	No	No	0.5	15	No				100	
AX5	NM	No		SC	No	No	0.5	15	No	A		A(4.0)	100	
AX6	NM	No		SC	No	No	0.5	15	No	A		A(4.0)	100	
AX7	NM	No		SC	No	No	0.5	15	No	A		A(4.0)	100	
AX8	NM	No		SC	No	No	0.5	15	No	A		A(4.0)	100	
ASL10A	NM	No		SC	No	No	0.5	15	No	A		A(0.6)	100	
ASL10B	NM	No		SC	No	No	0.5	15	No	A		A(0.6)	100	
ASL10C	NM	No		SC	No	No	0.5	15	No	A		A(0.6)	100	
ASL10D	NM	No		SC	No	No	0.5	15	No	A		A(0.6)	100	
BIN11	NM	No		SC	No	No	0.5	15	No				100	
BIN12	NM	No		SC	No	No	0.5	15	No				100	
BX13	NM	No		SC	No	No	0.5	15	No	B		B(3.0)	100	
BX14	NM	No		SC	No	No	0.5	15	No	B		B(3.0)	100	
CIN15	NM	No		SC	No	No	0.5	15	No				100	
CIN16	NM	No		SC	No	No	0.5	15	No				100	
CX17	NM	No		SC	No	No	0.5	15	No	C		C(4.0)	100	
CX18	NM	No		SC	No	No	0.5	15	No	C		C(4.0)	100	
CX19	NM	No		SC	No	No	0.5	15	No	C		C(4.0)	100	
CSL20	NM	No		SC	No	No	0.5	15	No	C		C(0.6)	100	
CSL21	NM	No		SC	No	No	0.5	15	No	C		C(0.6)	100	
CSL22	NM	No		SC	No	No	0.5	15	No	C		C(0.6)	100	
DIN23	NM	No		SC	No	No	0.5	15	No				100	
DIN24	NM	No		SC	No	No	0.5	15	No				100	
DX27	NM	No		SC	No	No	0.5	15	No	D		D(3.0)	100	
DX28	NM	No		SC	No	No	0.5	15	No	D		D(3.0)	100	
DX29	NM	No		SC	No	No	0.5	15	No	D		D(3.0)	100	
SISPWR	NM	No		SC	No	No	0.5	15	No				100	
SISFLT	NM	No		SC	No	No	0.5	15	No				100	
E10MIN	NM	No		SC	No	No	0.5	15	No				100	
ERST	NM	No		SC	No	No	0.5	15	No				100	
MOVEST	NM	No		SC	No	No	0.5	15	No				100	
AX9	NM	No		SC	No	No	0.5	15	No	A		A(4.0)	100	

Detector data 1

Det. name	Det. type	Dummy	Vis. unit no.	Active state	Count det.	Self reset	Detector set: Gap period	Gap count	Self confirm	Latched phase demand(s)	Unlatched phase demand(s)	Green extension(s): Phase	Taper %	Varimax phases
ASL10E	NM	No		SC	No	No	0.5	15	No	A		A(0.6)	100	
DIN25	NM	No		SC	No	No	0.5	15	No				100	
DIN26	NM	No		SC	No	No	0.5	15	No				100	
DX30	NM	No		SC	No	No	0.5	15	No	D		D(3.0)	100	
EIN31	NM	No		SC	No	No	0.5	15	No				100	
EIN32	NM	No		SC	No	No	0.5	15	No				100	
EX33	NM	No		SC	No	No	0.5	15	No	E		E(4.0)	100	
EX34	NM	No		SC	No	No	0.5	15	No	E		E(4.0)	100	
ESL35	NM	No		SC	No	No	0.5	15	No	E		E(1.0)	100	
ESL36	NM	No		SC	No	No	0.5	15	No	E		E(1.0)	100	
FIN37	NM	No		SC	No	No	0.5	15	No				100	
FIN38	NM	No		SC	No	No	0.5	15	No				100	
FIN39	NM	No		SC	No	No	0.5	15	No				100	
FX40	NM	No		SC	No	No	0.5	15	No	F		F(4.0)	100	
FX41	NM	No		SC	No	No	0.5	15	No	F		F(4.0)	100	
FX42	NM	No		SC	No	No	0.5	15	No	F		F(4.0)	100	
AINHC	NM	Yes		SC	No	No	0.5	15	No				100	
DINHC	NM	Yes		SC	No	No	0.5	15	No				100	
BINHC	NM	Yes		SC	No	No	0.5	15	No				100	
FINHC	NM	Yes		SC	No	No	0.5	15	No				100	
CINHC	NM	Yes		SC	No	No	0.5	15	No				100	
EINHC	NM	Yes		SC	No	No	0.5	15	No				100	

Detector data 2

Det. name	DFM Timings								DFM foce states		Call/cancel timings								Associated to ped.		
	DFA				DFI						DCL				DCN						
	Set 1	Set 2	Set 3	Set 4	Set 1	Set 2	Set 3	Set 4	Active	Inactive	Set 1	Set 2	Set 3	Set 4	Set 1	Set 2	Set 3	Set 4	Phase	Extn.	Push Buttons
TO1									N	N									-	-	-
TO2									N	N									-	-	-
AIN1	5M	5M	5M	5M					I	N	15.0	15.0	15.0	15.0					-	-	-
AIN2	5M	5M	5M	5M					I	N	15.0	15.0	15.0	15.0					-	-	-
AIN3	5M	5M	5M	5M					I	N	15.0	15.0	15.0	15.0					-	-	-
AIN4	5M	5M	5M	5M					I	N	15.0	15.0	15.0	15.0					-	-	-
AX5	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
AX6	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
AX7	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
AX8	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
ASL10A	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
ASL10B	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
ASL10C	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
ASL10D	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
BIN11	5M	5M	5M	5M					I	N	15.0	15.0	15.0	15.0					-	-	-
BIN12	5M	5M	5M	5M					I	N	15.0	15.0	15.0	15.0					-	-	-
BX13	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
BX14	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
CIN15	30M	30M	30M	30M	18H	18H	18H	18H	N	N	15.0	15.0	15.0	15.0					-	-	-
CIN16	30M	30M	30M	30M	18H	18H	18H	18H	N	N	15.0	15.0	15.0	15.0					-	-	-
CX17	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
CX18	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
CX19	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
CSL20	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
CSL21	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
CSL22	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
DIN23	5M	5M	5M	5M					I	N	30.0	30.0	30.0	30.0					-	-	-
DIN24	5M	5M	5M	5M					I	N	30.0	30.0	30.0	30.0					-	-	-
DX27	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
DX28	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
DX29	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
SISPWR									N	N	0	0	0	0	0	0	0	0	-	-	-
SISFLT									N	N	0	0	0	0	0	0	0	0	-	-	-
E10MIN									N	N									-	-	-
ERST									N	N									-	-	-
MOVEST									N	N									-	-	-
AX9	30M	30M	30M	30M	18H	18H	18H	18H	A	A	0	0	0	0	0	0	0	0	-	-	-

Detector data 2

Det. name	DFM Timings								DFM foce states		Call/cancel timings								Associated to ped.		
	DFA				DFI						DCL				DCN						
	Set 1	Set 2	Set 3	Set 4	Set 1	Set 2	Set 3	Set 4	Active	Inactive	Set 1	Set 2	Set 3	Set 4	Set 1	Set 2	Set 3	Set 4	Phase	Extn.	Push Buttons
ASL10E	30M	30M	30M	30M	18H	18H	18H	18H	A	A	0	0	0	0	0	0	0	0	-	-	-
DIN25	5M	5M	5M	5M					I	I	15	15	15	15	0	0	0	0	-	-	-
DIN26	5M	5M	5M	5M					I	I	15	15	15	15	0	0	0	0	-	-	-
DX30	30M	30M	30M	30M	18H	18H	18H	18H	A	A	0	0	0	0	0	0	0	0	-	-	-
EIN31	30M	30M	30M	30M	18H	18H	18H	18H	A	A	15	15	15	15	0	0	0	0	-	-	-
EIN32	30M	30M	30M	30M	18H	18H	18H	18H	A	A	15	15	15	15	0	0	0	0	-	-	-
EX33	30M	30M	30M	30M	18H	18H	18H	18H	A	A	0	0	0	0	0	0	0	0	-	-	-
EX34	30M	30M	30M	30M	18H	18H	18H	18H	A	A	0	0	0	0	0	0	0	0	-	-	-
ESL35	30M	30M	30M	30M	18H	18H	18H	18H	A	A	0	0	0	0	0	0	0	0	-	-	-
ESL36	30M	30M	30M	30M	18H	18H	18H	18H	A	A	0	0	0	0	0	0	0	0	-	-	-
FIN37	5M	5M	5M	5M					I	I	15	15	15	15	0	0	0	0	-	-	-
FIN38	5M	5M	5M	5M					I	I	15	15	15	15	0	0	0	0	-	-	-
FIN39	5M	5M	5M	5M					I	I	15	15	15	15	0	0	0	0	-	-	-
FX40	30M	30M	30M	30M	18H	18H	18H	18H	A	A	0	0	0	0	0	0	0	0	-	-	-
FX41	30M	30M	30M	30M	18H	18H	18H	18H	A	A	0	0	0	0	0	0	0	0	-	-	-
FX42	30M	30M	30M	30M	18H	18H	18H	18H	A	A	0	0	0	0	0	0	0	0	-	-	-
AINHC									N	N									-	-	-
DINHC									N	N									-	-	-
BINHC									N	N									-	-	-
FINHC									N	N	0	0	0	0	0	0	0	0	-	-	-
CINHC									N	N	0	0	0	0	0	0	0	0	-	-	-
EINHC									N	N	0	0	0	0	0	0	0	0	-	-	-

Timetable entry data

No.	Day type	Time	Event list	Priorities
1	WKD	07:00:00	11	1
2	WKD	09:30:00	12	1
3	WKD	16:00:00	13	1
4	WKD	18:30:00	14	1
5	SAT	09:00:00	12	1
6	SAT	17:00:00	14	1
7	SUN	10:00:00	12	1
8	SUN	19:00:00	14	1
9	XSU	07:00:00	1	1
10	XSU	09:30:00	3	1
11	XSU	15:30:00	2	1
12	XSU	18:30:00	3	1

Timetable event list data

List no.	Event Action 1		Event Action 2		Event Action 3		Event Action 4		Event Action 5		Event Action 6		Event Action 7		Event Action 8	
	Type	Params	Type	Params	Type	Params	Type	Params	Type	Params	Type	Params	Type	Params	Type	Params
1	TCF	1														
2	TCF	2														
3	TCF	3														
4	TCF	4														
5	TCF	5														
6	TCF	6														
7	TCF	7														
8	TCF	8														
9	TCF	9														
10	TCF	OFF														
11	TTS	1														
12	TTS	2														
13	TTS	3														
14	TTS	4														
15	TTS	5														
16	TTS	6														
17	TTS	7														
18	TTS	8														

Timetable priorities data

Priority level 1. All year round					
Start			End		
Month	Day	Hour	Month	Day	Hour
Jan	1	0	Dec	31	24

Special conditioning timer data

Timer no.	Timer name	Duration	Fixed	Comment
1	CR1TOG	2.0	No	CRB1 TOGGLE TIME
2	CR1DLY	180.0	No	CRB1 TOGGLE DELAY TIME
3	CR1DUR	600.0	No	CRB1 TOGGLE DURATION TIME
4	CR2TOG	2.0	No	CRB2 TOGGLE TIME
5	CR2DLY	180.0	No	CRB2 TOGGLE DELAY TIME
6	CR2DUR	600.0	No	CRB2 TOGGLE DURATION TIME
7	WRST	2.0	No	WEST SIDE RESET PULSE
8	ADLYC	5.0	No	DELAY AFTER PHASE A HAS ROW BEFORE CALL PULSE TO STREAM 2
9	APULC	2.0	No	PULSE TIMER FOLLWOING ADLYC TIMER
10	ADLYH	7.0	No	DELAY AFTER PHASE A HAS ROW BEFORE HOLD TO STREAM 2
11	AHLDH	5.0	No	MINIMUM HOLD TIMER FOLLOWING ADLYH TIMER
12	ATRMH	8.0	No	DELAY FOLLOWING TERMINATION OF HOLD
13	AOVRH	60.0	No	HOLD OUTPUT OVERIDE
14	BDLYC	5.0	No	DELAY AFTER PHASE B HAS ROW BEFORE CALL PULSE TO STREAM 2
15	BPULC	2.0	No	PULSE TIMER FOLLOWING BDLYC TIMER
16	BDLYH	7.0	No	DELAY AFTER PHASE B HAS ROW BEFORE HOLD TO STREAM 2
17	BHLDH	5.0	No	MINIMUM HOLD TIMER FOLLOWING BDLYH TIMER
18	BTRMH	8.0	No	DELAY FOLLOWING TERMINATION OF HOLD
19	BOVRH	60.0	No	HOLD OUTPUT OVERIDE
20	CDLYC	5.0	No	DELAY AFTER PHASE C HAS ROW BEFORE CALL PULSE TO STREAM 1
21	CPULC	2.0	No	PULSE TIMER FOLLOWING CDLYC TIMER
22	CDLYH	7.0	No	DELAY AFTER PHASE C HAS ROW BEFORE HOLD TO STREAM 1
23	CHLDH	5.0	No	MINIMUM HOLD TIMER FOLLOWING CDLYH TIMER
24	CTRMH	8.0	No	DELAY FOLLOWING TERMINATION OF HOLD
25	COVRH	60.0	No	HOLD OUTPUT OVERIDE
26	DDLYC	5.0	No	DELAY AFTER PHASE D HAS ROW BEFORE CALL PULSE TO STREAM 1
27	DPULC	2.0	No	PULSE TIMER FOLLOWING DDLYC TIMER
28	DDLYH	7.0	No	DELAY AFTER PHASE D HAS ROW BEFORE HOLD TO STREAM 1
29	DHLDH	5.0	No	MINIMUM HOLD TIMER FOLLOWING DDLYH TIMER
30	DTRMH	8.0	No	DELAY FOLLOWING TERMINATION OF HOLD
31	DOVRH	60.0	No	HOLD OUTPUT OVERIDE
32	WFDLYC	5.0	No	DELAY AFTER PHASE F HAS ROW BEFORE CALL PULSE TO EAST CONTR.
33	WFPULC	2.0	No	PULSE TIMER FOLLOWING WCDLYC TIMER
34	WFDLYH	7.0	No	DELAY AFTER PHASE F HAS ROW BEFORE HOLD TO EAST CONTR.
35	WFHLDH	5.0	No	MINIMUM HOLD TIMER FOLLOWING WCDLYH TIMER
36	WFTRMH	12.0	No	DELAY FOLLOWING TERMINATION OF HOLD
37	WFOVRH	60.0	No	HOLD OUTPUT OVERIDE
38	WEDLYC	5.0	No	DELAY AFTER PHASE E HAS ROW BEFORE CALL PULSE TO EAST CONTR.
39	WEPULC	2.0	No	PULSE TIMER FOLLOWING WEDLYC TIMER

Special conditioning timer data

Timer no.	Timer name	Duration	Fixed	Comment
40	WEDLYH	7.0	No	DELAY AFTER PHASE E HAS ROW BEFORE HOLD TO EAST CONTR.
41	WEHLDH	5.0	No	MINIMUM HOLD TIMER FOLLOWING WDDLYH TIMER
42	WETRMH	8.0	No	DELAY FOLLOWING TERMINATION OF HOLD
43	WEOVRH	60.0	No	HOLD OUTPUT OVERIDE
44	SPARE	0.0	No	SPARE
45	WSTSHT	15.0	No	QIN HURRYCALL SHORT
46	WSTLNG	20.0	No	QIN HURRYCALL LONG
47	SW3PUL	1.0	No	AUX SWITCH 3 PULSE TIMER - USED BY CONDITIONING
48	F2OVR	180.0	No	UTC F2 OVERIDE TIMER
49	F5OVR	180.0	No	UTC F5 OVERIDE TIMER
50	F2PUL	0.5	No	UTC F2 INHIBIT PULSE TIMER
51	F5PUL	0.5	No	UTC F5 INHIBIT PULSE TIMER
52	AHCPUL	2.0	No	AIN MOVA HURRY CALL PULSE TIMER
53	BHCPUL	2.0	No	BIN MOVA HURRY CALL PULSE TIMER
54	CHCPUL	2.0	No	CIN MOVA HURRY CALL PULSE TIMER
55	DHCPUL	2.0	No	DIN MOVA HURRY CALL PULSE TIMER
56	EHCPUL	2.0	No	EIN MOVA HURRY CALL PULSE TIMER
57	FHCPUL	2.0	No	FIN MOVA HURRY CALL PULSE TIMER
58	AHCINHB	180.0	No	AIN HURRYCALL INHIBIT
59	BHCINHB	180.0	No	BIN HURRYCALL INHIBIT
60	CHCINHB	180.0	No	CIN HURRYCALL INHIBIT
61	DHCINHB	180.0	No	DIN HURRYCALL INHIBIT
62	EHCINHB	180.0	No	EIN HURRYCALL INHIBIT
63	FHCINHB	180.0	No	FIN HURRYCALL INHIBIT

Special conditioning statements

Statement 1	
Comments	MOVA PHASE CONFIRM C: PHASE C GREEN SETS OUTPUT GC

If PHASE-C
Then OUTPUTA-GC
Else OUTPUTN-GC

Statement 2	
Comments	MOVA PHASE CONFIRM D: PHASE D GREEN SETS OUTPUT GD

If PHASE-D
Then OUTPUTA-GD
Else OUTPUTN-GD

Statement 3	
Comments	MOVA PHASE CONFIRM E: PHASE E GREEN SETS OUTPUT GE

If PHASE-E
Then OUTPUTA-GE
Else OUTPUTN-GE

Statement 4	
Comments	MOVA PHASE CONFIRM F: PHASE F GREEN SETS OUTPUT GF

If PHASE-F
Then OUTPUTA-GF
Else OUTPUTN-GF

Statement 5	
Comments	UTC mode inactive starts CR1TOG and CR1DLY timers, else stops CRB1DLY timer.

If UTCMODE-1 **Not**
Then SCTSTART-CR1TOG SCTSTART-CR1DLY
Else SCTSTOP-CR1DLY

Statement 6	
Comments	STATEMENT 5 TRUE AND NOT IN FT, MANUAL MODES, CLF (SW5), VA(SW4) OR SW3PUL TIMER ACTIVE OR DET ERST ACTIVE START CR1DUR TIMER

If MFTMODE-1 **Or** MANMODE-1 **Or** MANIP-SW4 **Or** MANIP-SW5 **Not and** STMNT-5
And not SCTRUNNG-SW3PUL **And not** FDET-ERST
Then SCTSTART-CR1DUR
Else SCTSTOP-CR1DUR

Special conditioning statements

Statement 7	
Comments	CR1DLY timer expired and UTC mode still inactive starts CR1TOG and CR1DLY timers.

If	SCTEXPRD-CR1DLY	**And not**	UTCMODE-1
Then	SCTSTART-CR1TOG	SCTSTART-CR1DLY	

Statement 8	
Comments	MOVA INHIBIT/CLF INHIBIT SWITCH: VA BUTTON (SW4) SEE LATER STATEMENT FOR MOVA INHIBIT

If	MANIP-SW4	
Then	CLFINHIB-1	CLFINHIB-2
Else	CLFALLOW-1	CLFALLOW-2

Statement 9	
Comments	CRB1 OUTPUT

If	MSDMODE-1	**Or**	SHDMODE-1	**Or**	MFTMODE-1	**Or**	MANMODE-1	**Or**	STUMODE-1
Or	SCTRUNNG-CR1TOG	**Or**	MANIP-SW4	**Or**	MANIP-SW5	**Or**	SCFLAG-10	**Or**	FDET-E10MIN
Then	OUTPUTA-CRB1								
Else	OUTPUTN-CRB1								

Statement 10	
Comments	TIMER CR1DUR OR CR2DUR EXPIRED SETS FLAG 10 ACTIVE

If	SCTEXPRD-CR1DUR	**Or**	SCTEXPRD-CR2DUR
Then	SCFLGON-10		

Statement 11	
Comments	MANUAL PANEL PB7 ACTIVE OR DET ERST ACTIVE CLEARS FLAG

If	MANIP-SW3	**Or**	FDET-ERST
Then	SCFLGOFF-10		

Statement 12	
Comments	UTC ACTIVE STREAM 2 STARTS CR2TOG AND CR2DLY TIMERS

If	UTCMODE-2	**Not**
Then	SCTSTART-CR2TOG	SCTSTART-CR2DLY
Else	SCTSTOP-CR2DLY	

Special conditioning statements

Statement 13	
Comments	STATEMENT 5 TRUE AND NOT IN FT OR MANUAL MODES OR SW3PUL TIMER ACTIVE OR DET ERST ACTIVE START CR2DUR TIMER

If	MANMODE-2	**Or**	MFTMODE-2	**Or**	MANIP-SW4	**Or**	MANIP-SW5	**Not and**	STMNT-12
And not	SCTRUNNG-SW3PUL	**And not**	FDET-ERST						

Then SCTSTART-CR2DUR
Else SCTSTOP-CR2DUR

Statement 14	
Comments	CR2DLY TIMER EXPIRED AND NOT IN UTCMODE STREAM 2 STARTS CR2TOG AND CR2DLY TIMERS

If	SCTEXPRD-CR2DLY	**And not**	UTCMODE-2

Then SCTSTART-CR2TOG SCTSTART-CR2DLY

Statement 15	
Comments	CRB2 OUTPUT

If	MANMODE-2	**Or**	MFTMODE-2	**Or**	SHDMODE-2	**Or**	MSDMODE-2	**Or**	STUMODE-2
Or	SCTRUNNG-CR2TOG	**Or**	MANIP-SW4	**Or**	SCFLAG-10	**Or**	FDET-E10MIN	**Or**	MANIP-SW5

Then OUTPUTA-CRB2
Else OUTPUTN-CRB2

Statement 16	
Comments	FLAG 10 ACTIVE LIGHTS AUX 3 LED AND SETS W10MIN OUTPUT

If SCFLAG-10
Then MPLEDON-AUX3 OUTPUTA-W10MIN

Statement 17	
Comments	DET E10MIN ACTIVE AND NOT FLAG 10 SET FLASES AUX3 LED.

If	FDET-E10MIN	**And not**	SCFLAG-10

Then MPLEDFLS-AUX3

Statement 18	
Comments	STATEMENT 16 OR 17 NOT TRUE CLEARS AUX3 LED AND CLEARS W10MIN OUTPUT

If	STMNT-16	**Or**	STMNT-17	**Not**

Then MPLEDOFF-AUX3 OUTPUTN-W10MIN

Statement 19	
Comments	UTC STREAM 1 AND DET MOVEST NOT ACTIVE FLASHES AUX 1 LED

If	UTCMODE-1	**And not**	FDET-MOVEST

Then MPLEDFLS-AUX1

Special conditioning statements

Statement 20	
Comments	UTC STREAM 1 AND DET MOVEST ACTIVE LIGHTS AUX 1 LED

If UTCMODE-1 **And** FDET-MOVEST
Then MPLEDON-AUX1

Statement 21	
Comments	STATEMENT 19 OR 20 NOT TRUE CLEARS AUX 1 LED

If STMNT-19 **Or** STMNT-20 **Not**
Then MPLEDOFF-AUX1

Statement 22	
Comments	UTC MODE STREAMS 1 AND 2 SETS MOVWST OUTPUT ACTIVE

If UTCMODE-1 **And** UTCMODE-2
Then OUTPUTA-MOVWST
Else OUTPUTN-MOVWST

Statement 23	
Comments	PB7 ACTIVE STARTS WRST TIMER

If SCTRUNNG-SW3PUL
Then SCTSTART-WRST

Statement 24	
Comments	WRST TIMER ACTIVE SETS WRST OUTPUT ACTIVE

If SCTRUNNG-WRST
Then OUTPUTA-WRST
Else OUTPUTN-WRST

Statement 25	
Comments	TOD 11:59:58 SETS OUTPUT TSYNC

If CURTOD-11:59:58 **Or** SCBITS-254
Then OUTPUTA-TSYNC
Else OUTPUTN-TSYNC

Statement 26	
Comments	UTC MODE STREAM 1 SETS MOVA1 OUTPUT

If UTCMODE-1
Then OUTPUTA-MOVA1
Else OUTPUTN-MOVA1

Special conditioning statements

Statement 27	
Comments	UTC MODE STREAM 2 SETS MOVA2 OUTPUT

If UTCMODE-2
Then OUTPUTA-MOVA2
Else OUTPUTN-MOVA2

Statement 28	
Comments	TOD=12:00:00 SETS TSYNC OUTPUT

If CURTOD-12:00:00
Then OUTPUTA-TSYNC
Else OUTPUTN-TSYNC

Statement 29	
Comments	MOVA STREAM 1 TO BIT

If MANIP-SW4 **Or** MANIP-SW5 **Not and** FDET-TO1
Then UTCN-1
Else UTCI-1

Statement 30	
Comments	MOVA STREAM 2 TO BIT

If MANIP-SW4 **Or** MANIP-SW5 **Not and** FDET-TO2
Then UTCN-2
Else UTCI-2

Statement 31	
Comments	PHASE A ACTIVE STARTS TIMERS ADLYC AND ADLYH

If PHASE-A
Then SCTSTART-ADLYC SCTSTART-ADLYH

Statement 32	
Comments	TIMER ADLYC EXPIRED STARTS APULC TIMER

If SCTEXPRD-ADLYC
Then SCTSTART-APULC

Special conditioning statements

Statement 33	
Comments	APULC TIMER ACTIVE SETS OUTPUT ST2D43C

If SCTRUNNG-APULC
Then OUTPUTA-ST2D43C
Else OUTPUTN-ST2D43C

Statement 34	
Comments	TIMER ADLYH EXPIRED AND PHASE A ACTIVE SETS OUTPUT AND STARTS TIMERS AHLDH AND AOVRH

If SCTEXPRD-ADLYH **And** PHASE-A
Then OUTPUTA-ST2D44H SCTSTART-AHLDH SCTSTART-AOVRH

Statement 35	
Comments	AHLDH TIMER EXPIRED SETS FLAG 1

If SCTEXPRD-AHLDH
Then SCFLGON-1

Statement 36	
Comments	FLAG 1 SET AND NO EXTENSIONS ON PHASE A OR SCBIT 1 SET STARTS ATRMH TIMER

If SCFLAG-1 **And not** PHSEXT-A **And not** SCBITS-1
Then SCTSTART-ATRMH

Statement 37	
Comments	ATRMH TIMER NOT ACTIVE AND NOT PHASE A AND FLAG 1 ACTIVE STARTS ATRMH TIMER

If Not SCTRUNNG-ATRMH **And not** PHASE-A **And** SCFLAG-1
Then SCTSTART-ATRMH

Statement 38	
Comments	ATRMH TIMER ACTIVE OR AOVRH TIMER ACTIVE CLEARS OUTPUT AND CLEARS FLAG 1

If SCTEXPRD-ATRMH **Or** SCTEXPRD-AOVRH
Then OUTPUTN-ST2D44H SCFLGOFF-1

Statement 39	
Comments	PHASE A ACTIVE STARTS TIMERS BDLYC AND BDLYH

If PHASE-B
Then SCTSTART-BDLYC SCTSTART-BDLYH

Special conditioning statements

Statement 40	
Comments	TIMER BDLYC EXPIRED STARTS BPULC TIMER

If	SCTEXPRD-BDLYC				
Then	SCTSTART-BPULC				

Statement 41	
Comments	BPULC TIMER ACTIVE SETS OUTPUT

If	SCTRUNNG-BPULC				
Then	OUTPUTA-ST2D45C				
Else	OUTPUTN-ST2D45C				

Statement 42	
Comments	TIMER BDLYH EXPIRED AND PHASE B ACTIVE SETS OUTPUT AND STARTS TIMERS BHLDH AND BOVRH

If	SCTEXPRD-BDLYH	**And**	PHASE-B		
Then	OUTPUTA-ST2D46H	SCTSTART-BHLDH	SCTSTART-BOVRH		

Statement 43	
Comments	BHLDH TIMER EXPIRED SETS FLAG 1

If	SCTEXPRD-BHLDH				
Then	SCFLGON-2				

Statement 44	
Comments	FLAG 2 SET AND NO EXTENSIONS ON PHASE B OR SCBIT 1 SET STARTS BTRMH TIMER

If	SCFLAG-2	**And not**	PHSEXT-B	**And not**	SCBITS-2
Then	SCTSTART-BTRMH				

Statement 45	
Comments	BTRMH TIMER NOT ACTIVE AND NOT PHASE B AND FLAG 2 ACTIVE STARTS BTRMH TIMER

If Not	SCTRUNNG-BTRMH	**And not**	PHASE-B	**And**	SCFLAG-2
Then	SCTSTART-BTRMH				

Statement 46	
Comments	BTRMH TIMER ACTIVE OR BOVRH TIMER ACTIVE CLEARS OUTPUT AND CLEARS FLAG 2

If	SCTEXPRD-BTRMH	**Or**	SCTEXPRD-BOVRH		
Then	OUTPUTN-ST2D46H	SCFLGOFF-2			

Special conditioning statements

Statement 47	
Comments	PHASE C ACTIVE STARTS TIMERS CDLYC AND CDLYH

If PHASE-C
Then SCTSTART-CDLYC SCTSTART-CDLYH

Statement 48	
Comments	TIMER CDLYC EXPIRED STARTS CPULC TIMER

If SCTEXPRD-CDLYC
Then SCTSTART-CPULC

Statement 49	
Comments	CPULC TIMER ACTIVE SETS OUTPUT

If SCTRUNNG-CPULC
Then OUTPUTA-ST1A47C
Else OUTPUTN-ST1A47C

Statement 50	
Comments	TIMER CDLYH EXPIRED AND PHASE C ACTIVE SETS OUTPUT AND STARTS TIMERS CHLDH AND COVRH

If SCTEXPRD-CDLYH **And** PHASE-C
Then OUTPUTA-ST1A48H SCTSTART-CHLDH SCTSTART-COVRH

Statement 51	
Comments	CHLDH TIMER EXPIRED SETS FLAG 1

If SCTEXPRD-CHLDH
Then SCFLGON-3

Statement 52	
Comments	FLAG 3 SET AND NO EXTENSIONS ON PHASE C OR SCBIT 3 SET STARTS CTRMH TIMER

If SCFLAG-3 **And not** PHSEXT-C **And not** SCBITS-3
Then SCTSTART-CTRMH

Statement 53	
Comments	CTRMH TIMER NOT ACTIVE AND NOT PHASE C AND FLAG 3 ACTIVE STARTS CTRMH TIMER

If Not SCTRUNNG-CTRMH **And not** PHASE-C **And** SCFLAG-3
Then SCTSTART-CTRMH

Special conditioning statements

Statement 54	
Comments	CTRMH TIMER ACTIVE OR COVRH TIMER ACTIVE CLEARS OUTPUT AND CLEARS FLAG 3

If	SCTEXPRD-CTRMH	**Or**	SCTEXPRD-COVRH		
Then	OUTPUTN-ST1A48H	SCFLGOFF-3			

Statement 55	
Comments	PHASE D ACTIVE STARTS TIMERS DDLYC AND DDLYH

If	PHASE-D	
Then	SCTSTART-DDLYC	SCTSTART-DDLYH

Statement 56	
Comments	TIMER DDLYC EXPIRED STARTS DPULC TIMER

If	SCTEXPRD-DDLYC
Then	SCTSTART-DPULC

Statement 57	
Comments	DPULC TIMER ACTIVE SETS OUTPUT

If	SCTRUNNG-DPULC
Then	OUTPUTA-ST1B49C
Else	OUTPUTN-ST1B49C

Statement 58	
Comments	TIMER DDLYH EXPIRED AND PHASE D ACTIVE SETS OUTPUT AND STARTS TIMERS DHLDH AND DOVRH

If	SCTEXPRD-DDLYH	**And**	PHASE-D
Then	OUTPUTA-ST1B50H	SCTSTART-DHLDH	SCTSTART-DOVRH

Statement 59	
Comments	DHLDH TIMER EXPIRED SETS FLAG 1

If	SCTEXPRD-DHLDH
Then	SCFLGON-4

Statement 60	
Comments	FLAG 4 SET AND NO EXTENSIONS ON PHASE D OR SCBIT D SET STARTS DTRMH TIMER

If	SCFLAG-4	**And not**	PHSEXT-D	**And not**	SCBITS-4
Then	SCTSTART-DTRMH				

Special conditioning statements

Statement 61	
Comments	DTRMH TIMER NOT ACTIVE AND NOT PHASE D AND FLAG 4 ACTIVE STARTS DTRMH TIMER

If Not SCTRUNNG-DTRMH **And not** PHASE-D **And** SCFLAG-4
Then SCTSTART-DTRMH

Statement 62	
Comments	DTRMH TIMER ACTIVE OR DOVRH TIMER ACTIVE CLEARS OUTPUT AND CLEARS FLAG 4

If SCTEXPRD-DTRMH **Or** SCTEXPRD-DOVRH
Then OUTPUTN-ST1B50H SCFLGOFF-4

Statement 63	
Comments	PHASE F GREEN STARTS TIMERS WFDLYC AND WFDDLYH

If PHASE-F
Then SCTSTART-WFDLYC SCTSTART-WFDLYH

Statement 64	
Comments	TIMER WCDLYC EXPIRED STARTS WFPULC TIMER

If SCTEXPRD-WFDLYC
Then SCTSTART-WFPULC

Statement 65	
Comments	TIMER WFPULC RUNNING SETS OUTPUT WSBCALF

If SCTRUNNG-WFPULC
Then OUTPUTA-WSBCALF
Else OUTPUTN-WSBCALF

Statement 66	
Comments	TIMER WFDLYH EXPIRED AND PHASE F GREEN SETS OUTPUT WSBHLDF

If SCTEXPRD-WFDLYH **And** PHASE-F
Then OUTPUTA-WSBHLDF SCTSTART-WFHLDH SCTSTART-WFOVRH

Statement 67	
Comments	WFHLDH TIMER EXPIRED SETS FLAG 5

If SCTEXPRD-WFHLDH
Then SCFLGON-5

Special conditioning statements

Statement 68					
Comments	FLAG 5 SET, NO EXTENSIONS PHASE F AND SCBITS-5 NOT SET				
If	SCFLAG-5	**And not**	PHSEXT-F	**And not**	SCBITS-5
Then	SCTSTART-WFTRMH				

Statement 69					
Comments	WFTRMH TIMER RUNNING AND NOT PHASE F GREEN AND FLAG 5 SET				
If Not	SCTRUNNG-WFTRMH	**And not**	PHASE-F	**And**	SCFLAG-5
Then	SCTSTART-WFTRMH				

Statement 70			
Comments	TIMER WFTRMH OR WFOVRH EXPIRED CLEAR WSBHLDF OUTPUT AND FLAG		
If	SCTEXPRD-WFTRMH	**Or**	SCTEXPRD-WFOVRH
Then	OUTPUTN-WSBHLDF	SCFLGOFF-5	

Statement 71		
Comments	PHASE E GREEN STARTS WEDLYC TIMER AND WEDLYH TIMER	
If	PHASE-E	
Then	SCTSTART-WEDLYC	SCTSTART-WEDLYH

Statement 72	
Comments	WEDLYC TIMER EXPIRED STARTS WEPULC TIMER
If	SCTEXPRD-WEDLYC
Then	SCTSTART-WEPULC

Statement 73	
Comments	WEPULC TIMER RUNNING SETS WSBCAEL OUTPUT
If	SCTRUNNG-WEPULC
Then	OUTPUTA-WSBCALE
Else	OUTPUTN-WSBCALE

Statement 74			
Comments	WEDLYH TIMER EXPIRED AND PHASE E ACTIVE SETS WSEHLD OUTPUT, STARTS TIMER WEHLDH AND TIMER WEOVRH		
If	SCTEXPRD-WEDLYH	**And**	PHASE-E
Then	OUTPUTA-WSBHLDE	SCTSTART-WEHLDH	SCTSTART-WEOVRH

Special conditioning statements

Statement 75	
Comments	WEHLDH TIMER EXPIRED SETS FLAG 6

If SCTEXPRD-WEHLDH
Then SCFLGON-6

Statement 76	
Comments	FLAG 6 SET NO PHASE EXTENSIONS PHASE E AND SCBIT NOT SET STARTS WETRMH TIMER

If SCFLAG-6 **And not** PHSEXT-E **And not** SCBITS-6
Then SCTSTART-WETRMH

Statement 77	
Comments	WETRMH TIMER NOT RUNNING AND NOT PHASE E GREEN AND FLAG 6 ACTIVE STARTS TIMER WETRMH

If Not SCTRUNNG-WETRMH **And not** PHASE-E **And** SCFLAG-6
Then SCTSTART-WETRMH

Statement 78	
Comments	WETRMH TIMER EXPIRED OR WEOVRH TIMER EXPIRED CLEARS WSBHLDE OUTPUT AND CLEARS FLAG 6

If SCTEXPRD-WETRMH **Or** SCTEXPRD-WEOVRH
Then OUTPUTN-WSBHLDE SCFLGOFF-6

Statement 79	
Comments	DETS BIN11 OR BIN12 ACTIVE, TIMER HCINHB NOT RUNNING AND SCBIT 7 NOT SET STARTS BHCPUL TIMER

If FDET-BIN11 **Or** FDET-BIN12 **And not** SCTRUNNG-BHCINHB **And not** SCBITS-7
Then SCTSTART-BHCPUL

Statement 80	
Comments	DETS DIN23, DIN24, DIN25 OR DIN26 ACTIVE, TIMER HCINHB NOT RUNNING AND SCBIT 9 NOT SET STARTS DHCPUL TIMER

If FDET-DIN23 **Or** FDET-DIN24 **Or** FDET-DIN25 **Or** FDET-DIN26 **And not** SCTRUNNG-DHCINHB
And not SCBITS-9
Then SCTSTART-DHCPUL

Statement 81	
Comments	DETS AIN1, AIN2, AIN3 OR AIN4 ACTIVE, TIMER HCINHB NOT RUNNING AND SCBIT 6 NOT SET STARTS AHCPUL TIMER

If FDET-AIN1 **Or** FDET-AIN2 **Or** FDET-AIN3 **Or** FDET-AIN4 **And not** SCTRUNNG-AHCINHB
And not SCBITS-6
Then SCTSTART-AHCPUL

Special conditioning statements

Statement 82	
Comments	NOT USED

If

Statement 83	
Comments	TIMER BHCPUL RUNNING SETS OUTPUT BHCAL56 AND DETECTOR BINHC ACTIVE

If	SCTRUNNG-BHCPUL		
Then	OUTPUTA-BHCAL56	DETA-BINHC	SCTSTART-BHCINHB
Else	OUTPUTN-BHCAL56	DETN-BINHC	

Statement 84	
Comments	TIMER DHCPUL RUNNING SETS OUTPUT DHCAL57 AND DETECTOR DINHC ACTIVE

If	SCTRUNNG-DHCPUL		
Then	OUTPUTA-DHCAL57	DETA-DINHC	SCTSTART-DHCINHB
Else	OUTPUTN-DHCAL57	DETN-DINHC	

Statement 85	
Comments	TIMER AHCPUL RUNNING SETS OUTPUT AHCAL55 AND DETECTOR AINHC ACTIVE

If	SCTRUNNG-AHCPUL		
Then	OUTPUTA-AHCAL55	DETA-AINHC	SCTSTART-AHCINHB
Else	OUTPUTN-AHCAL55	DETN-AINHC	

Statement 86	
Comments	NOT USED

If

Statement 87	
Comments	DETS CIN15 OR CIN16, TIMER HCINHB NOT RUNNING AND SCBIT 8 NOT SET STARTS CHCPUL TIMER

If	FDET-CIN15	**Or**	FDET-CIN16	**And not**	SCTRUNNG-CHCINHB	**And not**	SCBITS-8
Then	SCTSTART-CHCPUL						

Statement 88	
Comments	DETS EIN31 OR EIN32, TIMER HCINHB NOT RUNNING AND SCBIT 10 NOT SET STARTS EHCPUL TIMER

If	FDET-EIN31	**Or**	FDET-EIN32	**And not**	SCTRUNNG-EHCINHB	**And not**	SCBITS-10
Then	SCTSTART-EHCPUL						

Special conditioning statements

Statement 89									
Comments	DETS FIN37, FIN38 OR FIN39, TIMER HCINHB NOT RUNNING AND SCBIT 11 NOT SET STARTS FHCPUL TIMER								
If	FDET-FIN37	**Or**	FDET-FIN38	**Or**	FDET-FIN39	**And not**	SCTRUNNG-FHCINHB	**And not**	SCBITS-11
Then	SCTSTART-FHCPUL								

Statement 90			
Comments	TIMER CHCPUL RUNNING SETS OUTPUT CHCAL59 AND DETECTOR CINHC ACTIVE		
If	SCTRUNNG-CHCPUL		
Then	OUTPUTA-CHCAL59	DETA-CINHC	SCTSTART-CHCINHB
Else	OUTPUTN-CHCAL59	DETN-CINHC	

Statement 91			
Comments	TIMER EHCPUL RUNNING SETS OUTPUT EHCAL60 AND DETECTOR EINHC ACTIVE		
If	SCTRUNNG-EHCPUL		
Then	OUTPUTA-EHCAL60	DETA-EINHC	SCTSTART-EHCINHB
Else	OUTPUTN-EHCAL60	DETN-EINHC	

Statement 92			
Comments	TIMER FHCPUL RUNNING SETS OUTPUT FHCAL58 AND DETECTOR FINHC ACTIVE		
If	SCTRUNNG-FHCPUL		
Then	OUTPUTA-FHCAL58	DETA-FINHC	SCTSTART-FHCINHB
Else	OUTPUTN-FHCAL58	DETN-FINHC	

Statement 93	
Comments	NOT USED
If	

Statement 94	
Comments	NOT USED
If	

Statement 95							
Comments	SHUTDOWN MODE SETS LE OUTPUT ACTIVE						
If	SHDMODE-1	**Or**	SHDMODE-2	**Or**	MSDMODE-1	**Or**	MSDMODE-2
Then	OUTPUTA-LE						
Else	OUTPUTN-LE						

Special conditioning statements

Statement 96	
Comments	AUX 3 SWITCH PULSE CONDITIONING: IF SW3 ACTIVE START TIMER SW3PUL

If MANIP-SW3
Then SCTSTART-SW3PUL

Statement 97	
Comments	AUX 3 SWITCH PULSE CONDITIONING: IF SW3 NOT ACTIVE START TIMER SW3PUL

If MANIP-SW3 **Not**
Then SCTSTART-SW3PUL

Statement 98	
Comments	PREVENT FORCE BITS OVERIDES: UTC-F2 ACTIVE START TIMER F2OVR.

If UTCBIT-F2
Then SCTSTART-F2OVR
Else SCTSTOP-F2OVR

Statement 99	
Comments	PREVENT FORCE BITS OVERIDES: UTC-F4 ACTIVE START TIMER F4OVR.

If UTCBIT-F5
Then SCTSTART-F5OVR
Else SCTSTOP-F5OVR

Statement 100	
Comments	PREVENT FORCE BITS OVERIDES: F2OVR TIMER EXPIRED START F2PUL

If SCTEXPRD-F2OVR **And** UTCBIT-F2
Then SCTSTART-F2PUL

Statement 101	
Comments	PREVENT FORCE BITS OVERIDES: F5OVR TIMER EXPIRED START F5PUL

If SCTEXPRD-F5OVR **And** UTCBIT-F5
Then SCTSTART-F5PUL

Statement 102	
Comments	PREVENT FORCE BITS OVERIDES:F2PUL TIMER ACTIVE SET UTC-F2 INACTIVE AND UTC-F3 ACTIVE

If SCTRUNNG-F2PUL
Then UTCBITA-F3 UTCBITI-F2
Else UTCBITN-F3 UTCBITN-F2

Special conditioning statements

Statement 103	
Comments	PREVENT FORCE BITS OVERIDES:F2PUL TIMER ACTIVE SET UTC-F5 INACTIVE AND UTC-F6 ACTIVE

If	SCTRUNNG-F5PUL	
Then	UTCBITA-F8	UTCBITI-F5
Else	UTCBITN-F8	UTCBITN-F5

Statement 104	
Comments	DETECTOR ASL10 A,B,C,D OR E ACTIVE SETS ASL10 OUTPUT

If	RDET-ASL10A	**Or**	RDET-ASL10B	**Or**	RDET-ASL10C	**Or**	RDET-ASL10D	**Or**	RDET-ASL10E
Then	OUTPUTA-ASL10								
Else	OUTPUTN-ASL10								

Statement 105	
Comments	SIS POWER

If	FDET-SISPWR
Then	OUTPUTA-SISPWR
Else	OUTPUTN-SISPWR

Statement 106	
Comments	SIS FAULT

If	FDET-SISFLT
Then	OUTPUTA-SISFLT
Else	OUTPUTN-SISFLT

Statement 107	
Comments	UTCMODE STREAM 2 AND NOT MOVEST ACTIVE FLASHES AUX2

If	UTCMODE-2	**And not**	FDET-MOVEST
Then	MPLEDFLS-AUX2		

Statement 108	
Comments	UTCMODE STREAM 2 AND MOVEST ACTIVE FLASHES AUX2

If	UTCMODE-2	**And**	FDET-MOVEST
Then	MPLEDON-AUX2		

Statement 109	
Comments	NOT STATEMENT 107 OR 108 SETS MANUAL PANEL AUX2 OFF

If	STMNT-107	**Or**	STMNT-108	**Not**
Then	MPLEDOFF-AUX2			

Red lamp monitoring data 1

Auto clear red lamp warnings	Yes		Red lamp monitor type	Other

Red lamp monitoring data 2

Stream based data					
Stream no.	Shutdown required	Red flt. extension	Single red lamp fault input name	Multiple red lamp fault input name	Inhibit stages
1	Yes	2.0			
2	Yes	2.0			

Red lamp monitoring data 3

Second red failure phase data	
Phase Id	Inhibited phases
A	
B	
C	
D	
E	
F	
DA	
DB	

ILM data

Fault indications		Mains unstable indications output(s)	
Auto clear red lamp warnings	Yes		
Flash DFM for lamp conflict	No		
Flash DFM for lamp failure	No		
Unstable toroid indication (as lamp failure)	No		

Phase	Lamp Types			Single fault	Multi faults	Failure indication output	Conflict indication output(s)
	Green	Amber	Red				
A	ELV LED (3R)	ELV LED (3R)	ELV LED (3R)	1	3	LF	
B	ELV LED (3R)	ELV LED (3R)	ELV LED (3R)	1	3	LF	
C	ELV LED (3R)	ELV LED (3R)	ELV LED (3R)	1	3	LF	
D	ELV LED (3R)	ELV LED (3R)	ELV LED (3R)	1	3	LF	
E	ELV LED (3R)	ELV LED (3R)	ELV LED (3R)	1	3	LF	
F	ELV LED (3R)	ELV LED (3R)	ELV LED (3R)	1	3	LF	

Input data

Input No.	Input name	Source	Comment
0	F03	Virtual	NOT USED
1	F08	Virtual	NOT USED
0	F01	Parallel	MOVA STREAM 1 STAGE 1 FORCE
1	F02	Parallel	MOVA STREAM 1 STAGE 2 FORCE
2	F04	Parallel	MOVA STREAM 2 STAGE 1 FORCE
3	F05	Parallel	MOVA STREAM 2 STAGE 2 FORCE
4	F06	Parallel	MOVA STREAM 2 STAGE 3 FORCE
5	F07	Parallel	MOVA STREAM 2 STAGE 4 FORCE
6	*TO1	Parallel	MOVA TO BIT STREAM 1
7	*TO2	Parallel	MOVA TO BIT STREAM 2
8	*AIN1	Parallel	
9	*AIN2	Parallel	
10	*AIN3	Parallel	
11	*AIN4	Parallel	
12	*AX5	Parallel	
13	*AX6	Parallel	
14	*AX7	Parallel	
15	*AX8	Parallel	
16	*ASL10A	Parallel	
17	*ASL10B	Parallel	
18	*ASL10C	Parallel	
19	*ASL10D	Parallel	
20	*BIN11	Parallel	
21	*BIN12	Parallel	
22	*BX13	Parallel	
23	*BX14	Parallel	
24	*CIN15	Parallel	
25	*CIN16	Parallel	
26	*CX17	Parallel	
27	*CX18	Parallel	
28	*CX19	Parallel	
29	*CSL20	Parallel	
30	*CSL21	Parallel	
31	*CSL22	Parallel	
32	*DIN23	Parallel	
33	*DIN24	Parallel	
34	*DX27	Parallel	
35	*DX28	Parallel	
36	*DX29	Parallel	

Input data

Input No.	Input name	Source	Comment
37	*SISPWR	Parallel	SIS POWER
38	*SISFLT	Parallel	SIS FAULT
39	*E10MIN	Parallel	LINKING FROM EAST CONTROLLER CRB TIMER EXPIRED
40	*ERST	Parallel	LINKING FROM EAST CONTROLLER CRB TIMER RESET
41	*MOVEST	Parallel	LINKKING FROM EAST CONTROLLER MOVA RUNNING
42	*AX9	Parallel	
43	*ASL10E	Parallel	NEW
44	*DIN25	Parallel	NEW
45	*DIN26	Parallel	NEW
46	*DX30	Parallel	NEW
47	IP47	Parallel	
48	*EIN31	Parallel	NEW
49	*EIN32	Parallel	NEW
50	*EX33	Parallel	NEW
51	*EX34	Parallel	NEW
52	*ESL35	Parallel	NEW
53	*ESL36	Parallel	NEW
54	*FIN37	Parallel	NEW
55	*FIN38	Parallel	NEW
56	*FIN39	Parallel	NEW
57	*FX40	Parallel	NEW
58	*FX41	Parallel	NEW
59	*FX42	Parallel	NEW

Output data

Output Number	Destination	Output name	Invert state	Comment
0	Parallel	G1	Yes	MOVA STREAM 1 STAGE 1 CONFIRM
1	Parallel	G2	Yes	MOVA STREAM 1 STAGE 2 CONFIRM
2	Parallel	G4	Yes	MOVA STREAM 2 STAGE 1 CONFIRM
3	Parallel	G5	Yes	MOVA STREAM 2 STAGE 2 CONFIRM
4	Parallel	G6	Yes	MOVA STREAM 2 STAGE 3 CONFIRM
5	Parallel	G7	Yes	MOVA STREAM 2 STAGE 4 CONFIRM
6	Parallel	GC	Yes	MOVA PHASE C CONFIRM
7	Parallel	GD	Yes	MOVA PHASE D CONFIRM
8	Parallel	GE	Yes	MOVA PHASE E CONFIRM
9	Parallel	GF	Yes	MOVA PHASE F CONFIRM
10	Parallel	CRB1	Yes	MOVA CRB BIT STREAM 1
11	Parallel	CRB2	Yes	MOVA CRB BIT STREAM 2
12	Parallel	MOVA1	No	MOVA MODE ACTIVE STREAM 1
13	Parallel	MOVA2	No	MOVA MODE ACTIVE STREAM 2
14	Parallel	OP14	No	
15	Parallel	OP15	No	
16	Parallel	ASL10	No	BUFFERED COMBINED ASL10 LOOPS - MOVA DET 10
17	Parallel	OP17	No	
18	Parallel	ST2D43C	No	STREAM 1 TO 2 LINKING - MOVA DET 43
19	Parallel	ST2D44H	No	STREAM 1 TO 2 LINKING - MOVA DET 44
20	Parallel	ST2D45C	No	STREAM 1 TO 2 LINKING - MOVA DET 45
21	Parallel	ST2D46H	No	STREAM 1 TO 2 LINKING - MOVA DET 46
22	Parallel	ST1A47C	No	STREAM 2 TO 1 LINKING - MOVA DET 47
23	Parallel	ST1A48H	No	STREAM 2 TO 1 LINKING - MOVA DET 48
24	Parallel	ST1B49C	No	STREAM 2 TO 1 LINKING - MOVA DET 49
25	Parallel	ST1B50H	No	STREAM 2 TO 1 LINKING - MOVA DET 50
26	Parallel	WSBHLDF	No	LINKING TO EAST CONTROLLER
27	Parallel	WSBCALF	No	LINKING TO EAST CONTROLLER
28	Parallel	WSBHLDE	No	LINKING TO EAST CONTROLLER
29	Parallel	WSBCALE	No	LINKING TO EAST CONTROLLER
30	Parallel	TSYNC	No	LINKING TO EAST CONTROLLER - TIME SYNC FOR EAST CONTROLLER
31	Parallel	W10MIN	No	LINKING TO EAST CONTROLLER - WEST CONTROLLER CRB TIMER EXPIRED
32	Parallel	WRST	No	LINKING TO EAST CONTROLLER - WEST CONTROLLER CRB RESET
33	Parallel	MOVWST	No	LINKING TO EAST CONTROLLER - MOVA CONTROL ACTIVE BOTH STREAMS WEST
34	Parallel	LE	Yes	LAMPS EXTINGUISHED TO OMU
35	Parallel	LF	Yes	LAMP FAULT TO OMU
36	Parallel	SISPWR	No	SIS POWER TO OMU
37	Parallel	SISFLT	No	SIS FAULT TO OMU
38	Parallel	AHCAL55	No	AIN MOVA HURRY CALL - MOVA DET 55

Output data

Output Number	Destination	Output name	Invert state	Comment
39	Parallel	BHCAL56	No	BIN MOVA HURRY CALL - MOVA DET 56
40	Parallel	DHCAL57	No	DIN MOVA HURRY CALL - MOVA DET 57
41	Parallel	FHCAL58	No	FIN MOVA HURRY CALL - MOVA DET 58
42	Parallel	CHCAL59	No	CIN MOVA HURRY CALL - MOVA DET 59
43	Parallel	EHCAL60	No	EIN MOVA HURRY CALL - MOVA DET 60

Hardware data

Safety cards	
Number	Fitted
1	Yes
2	No

Loop Detector Cards		
Number	Fitted	Detectors
2	Yes	16
3	No	-
4	No	-

Safety card 1	
Phase Drive cards	
Number	Fitted
1	Yes
2	Yes
3	Yes
4	No
5	No
6	No
7	No
8	No
9	No
10	No
11	No
12	No
13	No
14	No
15	No
16	No

IO Cards	
Number	Card Type
1	Handset
2	IO 16/16
3	IO 16/16
4	IO 16/16
5	IO 16/16
6	Not Fitted
7	Not Fitted
8	Not Fitted

Loop Detector Cards		
Number	Fitted	Detectors
1	Yes	16

Virtual IO data

Bit No.	Bit name	Invert	Active	Comment
0	F03	False	False	
1	F08	False	False	

Telent traffic controller configuration forms

Customer: AMEY AREA9 MAC

Intersection description: M42 JUNCTION 10 A5 DORDON ISLAND TAMWORTH EAST SIDE - SCN 211

Telent tender no.: **Telent works order no.:**

Customers order no.: **Dated:**

Customers engineer: JULIAN SMITH / PAOLO MALARA / ROGER HACKER

Customers telephone no.: 01905 750255 **Ext:**

Equipment installation by: TELENT

Slot cutting by:

Civil works by:

Configuration no.: CFGM0188 **Issue:** **Configuration engineer:** SIMON WINTER

General Data

Power supply data	
Mains voltage	48 Volts
Mains frequency	50 Hz
Peak current	0.0 Amps
Dimming voltage	160

Solar switch data				
Detector timing set data	Set 1	Set 2	Set 3	Set 4
Call delay period (Seconds)	10.0	10.0	10.0	10.0
Cancel delay period (Seconds)	10.0	10.0	10.0	10.0
DFM active times (Hours or minutes)	24H	24H	24H	24H
DFM inactive times (Hours or minutes)	24H	24H	24H	24H

British summertime change data			
BST start week	13	BST end week	43

Options	
Is manual disable via handset option required?	No
Inhibit pedestrian demand delay in FVP mode?	No
Inhibit pedestrian demand delay in PTM mode?	No
Limit handset warnings to UTC enabled warnings?	No

Configuration notes

ELV OPTIMA

SEE CONFIGURATION NOTES

Configuration history

Issue	Date	Description
1.00	23/10/12	INITIAL CONFIGURATION
1.01	23/10/12	INTERMEDIATE EDIT
1.02	23/10/2012	Intermediate edit
1.03	23/10/2012	Intermediate edit
1.04	23/10/2012	Intermediate edit
1.05	10/11/2012	Intermediate edit
1.06	21/11/2012	Intermediate edit
1.07	04/12/2012	Intermediate edit
1.08	04/12/2012	Intermediate edit
2.00	11/09/2014	PHASES ADDED AND MOVA AMMENDED
2.01	19/09/2014	Intermediate edit
2.02	30/09/2014	Intermediate edit
2.03	07/02/2015	Intermediate edit
2.04	09/02/2015	Intermediate edit

Phase data 1

Phase Id	Road Name(s)	Phs. type	Appearance assoc'ted		Termination assoc'ted		Restart allowed	App. in man
			type	phase(s)	type	phase(s)		
A	M42 SOUTHBOUND OFF SLIP	T	0		0		No	0
B	NORTH BRIDGE EASTBOUND GYRATORY	T	0		0		No	0
C	A5 WESTBOUND	T	0		0		No	0
D	EASTSIDE A5 GYRATORY	T	0		0		No	0
E	TRINITY ROAD	T	0		0		No	0
F	EAST SIDE TRINITY GYRATORY	T	0		0		No	0
DA	ALL RED STREAM 1	G	0		0		No	0
DB	ALL RED STREAM 2	G	0		0		No	0

Phase data 2

Phase Id	Min green Time	Min green limit	Window time	Speed measurement facilities: Exist	Speed measurement facilities: Ped. phases	Assoc to ped. phases	Cond demand type	Conditioning phases
A	7.0	7.0	-	No		No	NONE	
B	7.0	7.0	-	No		No	NONE	
C	7.0	7.0	-	No		No	NONE	
D	7.0	7.0	-	No		No	NONE	
E	7	7		No		No	None	
F	7	7		No		No	None	
DA	3.0	3.0	-	No		No	NONE	
DB	3.0	3.0	-	No		No	NONE	

Phase data 2_1

Phase Id	Maximum greens (VA)								Maximum greens (PTM)								Maximum greens (FVP)							
	Set 1	Set 2	Set 3	Set 4	Set 5	Set 6	Set 7	Set 8	Set 1	Set 2	Set 3	Set 4	Set 5	Set 6	Set 7	Set 8	Set 1	Set 2	Set 3	Set 4	Set 5	Set 6	Set 7	Set 8
A	30.0	20.0	30.0	20.0	30.0	30.0	40.0	60.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B	40.0	30.0	40.0	30.0	40.0	30.0	40.0	60.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C	20.0	20.0	20.0	20.0	30.0	30.0	40.0	60.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
D	40.0	30.0	40.0	30.0	40.0	30.0	40.0	60.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E	20	20	20	20	30	30	40	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F	40	30	40	30	40	30	40	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Phase data 2_2

Phs Id	Fixed seq.	Ped type	Demand extn.	Dithering		Pedestrian intergreen sequence times						PV info		PV associated to			PV delay	PV Window	Local override
				Quiescent	Normal	Gap	Frc	Min	Max	Clr	Xtr	UTC	Local	Phase	Str/Stg	Input			
A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Phase data 2_3

Phase compensation				
	Compensation sets			
Phase Id	Set 1	Set 2	Set 3	Set 4
A	0.0	0.0	0.0	0.0
B	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0
D	0.0	0.0	0.0	0.0
E	0	0	0	0
F	0	0	0	0
DA	0.0	0.0	0.0	0.0
DB	0.0	0.0	0.0	0.0

Phase data 2_4

Pedestrain supplementary signals									
Phase Id	Illuminate wait lamps on phase	Tactile	Confirmation input	State	Audible	Confirmation input	Active state	Drive phase	Duration
A		False	False	OC	False	False	OC	A	
B		False	False	OC	False	False	OC	B	
C		False	False	OC	False	False	OC	C	
D		False	False	OC	False	False	OC	D	
E		False	False	OC	False	False	OC	E	
F		False	False	OC	False	False	OC	F	
DA		False	False	OC	False	False	OC	DA	
DB		False	False	OC	False	False	OC	DB	

Phase data 4

Phase Id	Conflicting greens	Opposed by phase demands	Opposed by stage demands	Revertive phase demands
A	B	B,DA		A
B	A	A,DA		B
C	D	D,DB		C
D	C	C,DB		D
E	F	C,D,F		E
F	E	C,D,E		F
DA		A,B		
DB		C,D		

Lamp sequence data

Phs. type	Sequence description	Start-up starting			Start-up stoping			Normal starting			Normal stopping			Running		Stopped		Shutdown	
		State 1	State 2	Duration	State 1	State 2	Duration	State 1	State 2	Duration	State 1	State 2	Duration	State 1	State 2	State 1	State 2	State 1	State 2
FP	FAR/SIDE PEDESTRIAN	G	G	0	R	R	0	G	G	0	B	B	3	G	G	R	R	B	B
G	IND/FILTER	G	G	0	B	B	0	G	G	0	B	B	0	G	G	B	B	B	B
L	LRT	G	G	0	A	A	5	G	G	0	A	A	5	G	G	R	R	B	B
NP	NEAR/SIDE PEDESTRIAN	G	G	0	R	R	0	G	G	0	R	R	3	G	G	R	R	B	B
P	PEDESTRIAN	G	G	0	R	R	0	G	G	0	B	B	PBT	G	G	R	R	B	B
PP	PELICAN PEDESTRIAN	R	R	0	B	G	3	G	G	0	B	G	0.1	G	G	R	R	B	B
PT	PELICAN TRAFFIC	B	A	5	A	A	3	B	A	6	A	A	3	G	G	R	R	B	B
T	TRAFFIC	G	G	0	A	A	3	R,A	R,A	2	A	A	3	G	G	R	R	B	B
W	WIG-WAG	A	A	5	B	B	0	A	A	5	B	B	0	R	G	B	B	B	B

Stage data

Stream 1		Start-up stage no.	2
Stage	Active phases		
0	DA		
1	A		
2	B		
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

Stream 2		Start-up stage no.	2
Stage	Active phases		
0	DB		
1	D,E		
2	D,F		
3	C,F		
4	C,E		
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

Mode data

Stream 1		Starting intergreen duration	9.0
Mode	Priority no.	All red extension auto to max	
C.L.F.	6	No	
PSV emergency			
Hurry Call 1	4	No	
Hurry Call 2	5	No	
Hurry Call 3			
Hurry Call 4			
LRT			
Manual	1	No	
Manual FT	2	Yes	
MOVA			
Normal - VA	7	No	
PSV priority			
Part time			
UTC	3	No	
Phase demands to be inserteted on start-up and when leaving manual or fixed time modes			
A,B			

Stream 2		Starting intergreen duration	9.0
Mode	Priority no.	All red extension auto to max	
C.L.F.	6	No	
PSV emergency			
Hurry Call 1	4	No	
Hurry Call 2	5	No	
Hurry Call 3			
Hurry Call 4			
LRT			
Manual	1	No	
Manual FT	2	Yes	
MOVA			
Normal - VA	7	No	
PSV priority			
Part time			
UTC	3	No	
Phase demands to be inserteted on start-up and when leaving manual or fixed time modes			
C,D,E,F			

Part time and hurry call mode data

Stream 1							
Part time mode data							
Switch-off stage		Part-time hold duration	0H	Part-time prevent duration	0H	Part-time queue detector(s)	

Hurry call mode data							
Hurry call no.	Call stage	Request detector(s)	Cancel detector(s)	Output name	Delay period	Hold period	Prevent period
1	1	AQHC		N/A	0.0	10.0	0.0
2	2	BINHC		N/A	0.0	10.0	0.0
3				N/A	0.0	0.0	0.0
4				N/A	0.0	0.0	0.0

Stream 2							
Part time mode data							
Switch-off stage		Part-time hold duration	0H	Part-time prevent duration	0H	Part-time queue detector(s)	

Hurry call mode data							
Hurry call no.	Call stage	Request detector(s)	Cancel detector(s)	Output name	Delay period	Hold period	Prevent period
1	2	DINHC		N/A	0.0	10.0	0.0
2	2	FINHC		N/A	0.0	10.0	0.0
3				N/A	0.0	0.0	0.0
4				N/A	0.0	0.0	0.0

Manual mode data

Manual button no.	Stage number for each stream								Street name(s)
	1	2	3	4	5	6	7	8	
All red	0	0							ALL RED
1	2	2							GYRATORIES
2	1	2							M42 OFF / GYRATORY
3	2	3							M42 OFF GYRATORY / A5 WB / TRINITY RD GYRATORY
4	1	1							M42 OFF / A5 GYRATORY / TRINITY ROAD
5	0	4							STREAM 1 ALL RED / A5 WB / TRINITY ROAD
6	0	2							STREAM 1 ALL RED / STREAM 2 GYRATORIES
7									
8									
9									
10									

Button no. for inital manual stage set	1	Streams that must be in manual mode together	

UTC general data, confirm bit data & SF/LO qualification periods

UTC General data

UTC option	1 (MCE 0105/0106)
TF Reset time	00:00:00
Use serial interface for UTC	False
UTC active state	Short circuit

Stream linking options							
1	2	3	4	5	6	7	8
U	U	U	U	U	U	U	U

Sync confirm times	
RT reply bit	3
SR reply bit	3

Time sync data	
Day type	ANY
Reference time	12:00:00
Repeat rate	24H
Window time	24H

UTC confirm data

Stream	Confirm bit(s) to be used for manual mode running on stream	Confirm bit(s) to be used for fixed time running on stream
1		
2		
3		
4		
5		
6		
7		
8		

Controller state	Confirm bit(s) to be used for controller state
Manual mode selected	
Signals off failed	
Signals off manually	
Detectors fault	
Controller fault	
Controller warning	
Manual fixed time selected	

SF/LO qualification periods

L01	10.0	L02	10.0	L03	10.0	L04	10.0	L05	10.0	L06	10.0	L07	10.0	L08	10.0
SF01	7.0	SF02	7.0	SF03	7.0	SF04	7.0	SF05	7.0	SF06	7.0	SF07	7.0	SF08	7.0
SF09	7.0	SF10	7.0	SF11	7.0	SF12	7.0	SF13	7.0	SF14	7.0	SF15	7.0	SF16	7.0

UTC force bits

Force bit	Phase demands to be considered for demand depended stages	Required phase extensions	Stage to force in each stream							
			1	2	3	4	5	6	7	8
F01			1							
F02			2							
F03			2							
F04				1						
F05				2						
F06				3						
F07				4						
F08				2						

UTC (stream/stage) confirm data

Stage no.	Stream 1	2	3	4	5	6	7	8
00								
01	G1	G4						
02	G2	G5						
03		G6						
04		G7						
05								
06								
07								
08								
09								
10								
11								
12								
13								
14								
15								

UTC control/reply bit - stage stream associations

Control/ reply bit	Associated bit id per stream							
	1	2	3	4	5	6	7	8
FC								
FGR								
FM								
GO								
HC								
LL								
LO								
LRTI								
LRTR								
TOR								

UTC demand bits (DX Bits)

DX Bit	Latched stage demands	Unlatched stage demands	Latched phase demands	Unlatched phase demands	Phase extension demands
DX1					
DX2					
DX3					
DX4					
DX5					
DX6					
DX7					
DX8					

UTC demand bits (D Bits)

D Bit	Latched stage demands	Unlatched stage demands	Latched phase demands	Unlatched phase demands	Phase extensiob demands
D1					
D2					
D3					
D4					
D5					
D6					
D7					
D8					
D9					
D10					
D11					
D12					
D13					
D14					
D15					
D16					
D17					
D18					
D19					
D20					
D21					
D22					
D23					
D24					
D25					
D26					
D27					
D28					
D29					
D30					
D31					
D32					

UTC demand reply bits (SD Bits)

SD Bit name	Stage demands to reply	Phase demands to reply
SD1		
SD2		
SD3		
SD4		
SD5		
SD6		
SD7		
SD8		
SD9		
SD10		
SD11		
SD12		
SD13		
SD14		
SD15		
SD16		
SD17		
SD18		
SD19		
SD20		
SD21		
SD22		
SD23		
SD24		
SD25		
SD26		
SD27		
SD28		
SD29		
SD30		
SD31		
SD32		

UTC timeout data and local link inhibit data

UTC Timeout data										
	UTC bits									
	F	D	DX	SF	FM	LO	GO	LL	LRTI	PV
Timeout duration	300	0	0	0	0	0	0	0	0	500
No timeouts allowed	False	True	True	True	True	True	True	True	True	True

UTC local link inhibit data	
LL Bits	Phases
LL01	
LL02	
LL03	
LL04	
LL05	
LL06	
LL07	
LL08	

FT and VA mode

Stream 1																
FT mode data													Normal FT or VA to max			VA
From stage	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Stage time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
To stage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Demad dependant phases during VA to max				DA												
VA mode data																
Arterial reversion to stage/phase				2	VA stage selection option required					Near						

Stream 2																
FT mode data													Normal FT or VA to max			VA
From stage	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Stage time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
To stage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Demad dependant phases during VA to max				DB												
VA mode data																
Arterial reversion to stage/phase				2	VA stage selection option required					Near						

CLF mode data

Plan 1																					Delay time	0	Cycle time	90
Group no.	Stream 1			Stream 2			Stream 3			Stream 4			Stream 5			Stream 6			Stream 7			Stream 8		
	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0
	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage
1	0	IM	2	0	IM	3																		
2	6	PX	1	4	PX	2																		
3	12	IM	1	15	IM	2																		
4	30	PX	2	48	PX	1																		
5	35	IM	2	57	DM	1																		
5				58	HS																			
0				71	PX	3																		
0				76	IM	3																		

Plan 2																					Delay time	0	Cycle time	90
Group no.	Stream 1			Stream 2			Stream 3			Stream 4			Stream 5			Stream 6			Stream 7			Stream 8		
	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0
	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage
1	0	IM	2	0	IM	3																		
2	10	PX	1	26	PX	2																		
3	19	IM	1	36	IM	2																		
4	38	PX	2	63	PX	1																		
5	42	IM	2	67	DM	1																		
5				73	HS																			
0				77	PX	3																		
0				86	IM	3																		

Plan 3																					Delay time	0	Cycle time	80
Group no.	Stream 1			Stream 2			Stream 3			Stream 4			Stream 5			Stream 6			Stream 7			Stream 8		
	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0
	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage
1	0	PX	2	0	PX	3																		
2	2	IM	2	1	IM	3																		
3	45	PX	1	25	PX	2																		
4	49	IM	1	30	IM	2																		
5	70	PX	2	52	PX	1																		
5				66	DM	1																		
0				68	HS																			
0				72	PX	3																		

CLF mode data

Plan 4																					Delay time	0	Cycle time	60
Group no.	Stream 1			Stream 2			Stream 3			Stream 4			Stream 5			Stream 6			Stream 7			Stream 8		
	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0
	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage
1	0	IM	1	0	IM	3																		
2	2	PX	2	10	PX	2																		
3	6	IM	2	15	IM	2																		
4	45	PX	1	35	PX	1																		
5	50	IM	1	38	DM	1																		
5				39	HS																			
0				48	PX	3																		
0				52	IM	3																		

Plan 5																					Delay time	0	Cycle time	80
Group no.	Stream 1			Stream 2			Stream 3			Stream 4			Stream 5			Stream 6			Stream 7			Stream 8		
	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0
	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage
1	0	IM	1	0	IM	3																		
2	4	PX	2	20	PX	2																		
3	8	IM	2	29	IM	2																		
4	60	PX	1	52	PX	1																		
5	67	IM	1	56	DM	1																		
5				60	HS																			
0				65	PX	3																		
0				74	IM	3																		

Plan 6																					Delay time	0	Cycle time	80
Group no.	Stream 1			Stream 2			Stream 3			Stream 4			Stream 5			Stream 6			Stream 7			Stream 8		
	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0	Offset time		0
	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage	Start time	Inf	Stage
1	0	IM	2	0	IM	3																		
2	8	PX	1	18	PX	2																		
3	15	IM	1	27	IM	2																		
4	32	PX	2	50	PX	1																		
5	36	IM	2	54	DM	1																		
5				58	HS																			
0				63	PX	3																		
0				71	IM	3																		

Minimum intergreen durations

From phs.	To phase							
	A	B	C	D	E	F	DA	DB
A		7					3	
B	6						3	
C				7				3
D			6					3
E						7		3
F					6			3
DA	2	2						
DB			2	2	2	2		

Intergreen Minimum limit values

From phs.	To phase							
	A	B	C	D	E	F	DA	DB
A		5					3	
B	5						3	
C				5				3
D			5					3
E						5		3
F					5			3
DA	2	2						
DB			2	2	2	2		

Phase delay data

Delay No.	Losing stage	Gaining stage	Delay phase	Delay period
1	3	1	F	5

Detector data 1

Det. name	Det. type	Dummy	Vis. unit no.	Active state	Count det.	Self reset	Detector set: Gap period	Gap count	Self confirm	Latched phase demand(s)	Unlatched phase demand(s)	Green extension(s): Phase	Taper %	Varimax phases
TO1	NM	No		SC	No	No	0.5	15	No				100	
TO2	NM	No		SC	No	No	0.5	15	No				100	
LSL1	NM	No		SC	No	No	0.5	15	No	DB		DB(1.6)	100	
AQ2	NM	No		SC	No	No	0.5	15	No				100	
AIN3	NM	No		SC	No	No	0.5	15	No				100	
AIN4	NM	No		SC	No	No	0.5	15	No				100	
AX5	NM	No		SC	No	No	0.5	15	No	A		A(4.0)	100	
AX6	NM	No		SC	No	No	0.5	15	No	A		A(4.0)	100	
AX7	NM	No		SC	No	No	0.5	15	No	A		A(4.0)	100	
ASL8A	NM	No		SC	No	No	0.5	15	No	A		A(0.6)	100	
ASL8B	NM	No		SC	No	No	0.5	15	No	A		A(0.6)	100	
ASL8C	NM	No		SC	No	No	0.5	15	No	A		A(0.6)	100	
BIN10	NM	No		SC	No	No	0.5	15	No				100	
BIN11	NM	No		SC	No	No	0.5	15	No				100	
BIN12	NM	No		SC	No	No	0.5	15	No				100	
BX13	NM	No		SC	No	No	0.5	15	No	B		B(4.0)	100	
BX14	NM	No		SC	No	No	0.5	15	No	B		B(4.0)	100	
BX15	NM	No		SC	No	No	0.5	15	No	B		B(4.0)	100	
BX16	NM	No		SC	No	No	0.5	15	No	B		B(4.0)	100	
CIN17	NM	No		SC	No	No	0.5	15	No				100	
CIN18	NM	No		SC	No	No	0.5	15	No				100	
CIN19	NM	No		SC	No	No	0.5	15	No				100	
CX20	NM	No		SC	No	No	0.5	15	No	C		C(3.5)	100	
CX21	NM	No		SC	No	No	0.5	15	No	C		C(3.5)	100	
CX22	NM	No		SC	No	No	0.5	15	No	C		C(3.5)	100	
CX23	NM	No		SC	No	No	0.5	15	No	C		C(3.5)	100	
CSL24A	NM	No		SC	No	No	0.5	15	No	C		C(0.6)	100	
CSL24B	NM	No		SC	No	No	0.5	15	No	C		C(0.6)	100	
CSL24C	NM	No		SC	No	No	0.5	15	No	C		C(0.6)	100	
CSL24D	NM	No		SC	No	No	0.5	15	No	C		C(0.6)	100	
DIN26	NM	No		SC	No	No	0.5	15	No				100	
DIN27	NM	No		SC	No	No	0.5	15	No				100	
DX28	NM	No		SC	No	No	0.5	15	No	D		D(3.5)	100	
DX29	NM	No		SC	No	No	0.5	15	No	D		D(3.5)	100	
DX30	NM	No		SC	No	No	0.5	15	No	D		D(3.5)	100	
DX31	NM	No		SC	No	No	0.5	15	No	D		D(3.5)	100	
SISPWR	NM	No		SC	No	No	0.5	15	No				100	

Detector data 1

Det. name	Det. type	Dummy	Vis. unit no.	Active state	Count det.	Self reset	Detector set: Gap period	Detector set: Gap count	Detector set: Self confirm	Latched phase demand(s)	Unlatched phase demand(s)	Green extension(s): Phase	Green extension(s): Taper %	Varimax phases
SISFLT	NM	No		SC	No	No	0.5	15	No				100	
W10MIN	NM	No		SC	No	No	0.5	15	No				100	
WRST	NM	No		SC	No	No	0.5	15	No				100	
MOVWST	NM	No		SC	No	No	0.5	15	No				100	
EIN32	NM	No		SC	No	No	0.5	15	No				100	
EX33	NM	No		SC	No	No	0.5	15	No	E		E(4.0)	100	
EX34	NM	No		SC	No	No	0.5	15	No	E		E(4.0)	100	
ESL35	NM	No		SC	No	No	0.5	15	No	E		E(0.6)	100	
ESL36	NM	No		SC	No	No	0.5	15	No	E		E(0.6)	100	
FIN37	NM	No		SC	No	No	0.5	15	No				100	
FIN38	NM	No		SC	No	No	0.5	15	No				100	
FIN39	NM	No		SC	No	No	0.5	15	No				100	
FX40	NM	No		SC	No	No	0.5	15	No	F		F(3.5)	100	
FX41	NM	No		SC	No	No	0.5	15	No	F		F(3.5)	100	
FX42	NM	No		SC	No	No	0.5	15	No	F		F(3.5)	100	
FX43	NM	No		SC	No	No	0.5	15	No	F		F(3.5)	100	
CINHC	NM	Yes		SC	No	No	0.5	15	No				100	
AQHC	NM	Yes		SC	No	No	0.5	15	No				100	
DINHC	NM	Yes		SC	No	No	0.5	15	No				100	
BINHC	NM	Yes		SC	No	No	0.5	15	No				100	
FINHC	NM	Yes		SC	No	No	0.5	15	No				100	

Detector data 2

	DFM Timings								DFM foce states		Call/cancel timings								Associated to ped.		
	DFA				DFI						DCL				DCN						Push
Det. name	Set 1	Set 2	Set 3	Set 4	Set 1	Set 2	Set 3	Set 4	Active	Inactive	Set 1	Set 2	Set 3	Set 4	Set 1	Set 2	Set 3	Set 4	Phase	Extn.	Buttons
TO1									N	N									-	-	-
TO2	5M	5M	5M	5M					N	N									-	-	-
LSL1	5M	5M	5M	5M					I	N									-	-	-
AQ2	5M	5M	5M	5M					I	N	15.0	15.0	15.0	15.0					-	-	-
AIN3	30M	30M	30M	30M	18H	18H	18H	18H	N	N									-	-	-
AIN4	30M	30M	30M	30M	18H	18H	18H	18H	N	N									-	-	-
AX5	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
AX6	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
AX7	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
ASL8A	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
ASL8B	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
ASL8C	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
BIN10	5M	5M	5M	5M					I	N	15.0	15.0	15.0	15.0					-	-	-
BIN11	5M	5M	5M	5M					I	N	15.0	15.0	15.0	15.0					-	-	-
BIN12	5M	5M	5M	5M					I	N	15.0	15.0	15.0	15.0					-	-	-
BX13	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
BX14	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
BX15	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
BX16	30M	30M	30M	30M	18H	18H	18H	18H	A	A	0	0	0	0	0	0	0	0	-	-	-
CIN17	30M	30M	30M	30M	18H	18H	18H	18H	N	N	15.0	15.0	15.0	15.0					-	-	-
CIN18	30M	30M	30M	30M	18H	18H	18H	18H	N	N	15.0	15.0	15.0	15.0					-	-	-
CIN19	30M	30M	30M	30M	18H	18H	18H	18H	N	N	15.0	15.0	15.0	15.0					-	-	-
CX20	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
CX21	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
CX22	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
CX23	30M	30M	30M	30M	18H	18H	18H	18H	N	N									-	-	-
CSL24A	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
CSL24B	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
CSL24C	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
CSL24D	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
DIN26	5M	5M	5M	5M					I	N	15.0	15.0	15.0	15.0					-	-	-
DIN27	5M	5M	5M	5M					I	N	15.0	15.0	15.0	15.0					-	-	-
DX28	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
DX29	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
DX30	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
DX31	30M	30M	30M	30M	18H	18H	18H	18H	A	A									-	-	-
SISPWR									N	N	0	0	0	0	0	0	0	0	-	-	-

Detector data 2

	DFM Timings								DFM foce states		Call/cancel timings								Associated to ped.		
	DFA				DFI						DCL				DCN						Push
Det. name	Set 1	Set 2	Set 3	Set 4	Set 1	Set 2	Set 3	Set 4	Active	Inactive	Set 1	Set 2	Set 3	Set 4	Set 1	Set 2	Set 3	Set 4	Phase	Extn.	Buttons
SISFLT									N	N	0	0	0	0	0	0	0	0	-	-	-
W10MIN									N	N									-	-	-
WRST									N	N									-	-	-
MOVWST									A	A									-	-	-
EIN32	30M	30M	30M	30M	18H	18H	18H	18H	A	A	0	0	0	0	0	0	0	0	-	-	-
EX33	30M	30M	30M	30M	18H	18H	18H	18H	A	A	0	0	0	0	0	0	0	0	-	-	-
EX34	30M	30M	30M	30M	18H	18H	18H	18H	A	A	0	0	0	0	0	0	0	0	-	-	-
ESL35	30M	30M	30M	30M	18H	18H	18H	18H	A	A	0	0	0	0	0	0	0	0	-	-	-
ESL36	30M	30M	30M	30M	18H	18H	18H	18H	A	A	0	0	0	0	0	0	0	0	-	-	-
FIN37	5M	5M	5M	5M					I	N	15	15	15	15	0	0	0	0	-	-	-
FIN38	5M	5M	5M	5M					I	N	15	15	15	15	0	0	0	0	-	-	-
FIN39	5M	5M	5M	5M					I	N	15	15	15	15	0	0	0	0	-	-	-
FX40	30M	30M	30M	30M	18H	18H	18H	18H	A	A	0	0	0	0	0	0	0	0	-	-	-
FX41	30M	30M	30M	30M	18H	18H	18H	18H	A	A	0	0	0	0	0	0	0	0	-	-	-
FX42	30M	30M	30M	30M	18H	18H	18H	18H	A	A	0	0	0	0	0	0	0	0	-	-	-
FX43	30M	30M	30M	30M	18H	18H	18H	18H	A	A	0	0	0	0	0	0	0	0	-	-	-
CINHC									N	N	0	0	0	0	0	0	0	0	-	-	-
AQHC									N	N									-	-	-
DINHC									N	N									-	-	-
BINHC									N	N									-	-	-
FINHC									N	N	0	0	0	0	0	0	0	0	-	-	-

Timetable entry data

No.	Day type	Time	Event list	Priorities
1	WKD	07:00:00	11	1
2	WKD	09:30:00	12	1
3	WKD	16:00:00	13	1
4	WKD	18:30:00	14	1
5	SAT	09:00:00	12	1
6	SAT	17:00:00	14	1
7	SUN	10:00:00	12	1
8	SUN	19:00:00	14	1
9	XSU	07:00:00	1	1
10	XSU	09:30:00	3	1
11	XSU	15:30:00	2	1
12	XSU	18:30:00	3	1

Timetable event list data

List no.	Event Action 1		Event Action 2		Event Action 3		Event Action 4		Event Action 5		Event Action 6		Event Action 7		Event Action 8	
	Type	Params	Type	Params	Type	Params	Type	Params	Type	Params	Type	Params	Type	Params	Type	Params
1	TCF	1														
2	TCF	2														
3	TCF	3														
4	TCF	4														
5	TCF	5														
6	TCF	6														
7	TCF	7														
8	TCF	8														
9	TCF	9														
10	TCF	OFF														
11	TTS	1														
12	TTS	2														
13	TTS	3														
14	TTS	4														
15	TTS	5														
16	TTS	6														
17	TTS	7														
18	TTS	8														

Timetable priorities data

Priority level 1. All year round					
Start			End		
Month	Day	Hour	Month	Day	Hour
Jan	1	0	Dec	31	24

Special conditioning timer data

Timer no.	Timer name	Duration	Fixed	Comment
1	CR1TOG	2.0	No	CRB1 TOGGLE TIME
2	CR1DLY	180.0	No	CRB1 TOGGLE DELAY TIME
3	CR1DUR	600.0	No	CRB1 TOGGLE DURATION TIME
4	CR2TOG	2.0	No	CRB2 TOGGLE TIME
5	CR2DLY	180.0	No	CRB2 TOGGLE DELAY TIME
6	CR2DUR	600.0	No	CRB2 TOGGLE DURATION TIME
7	ERST	2.0	No	EAST SIDE RESET PULSE
8	ADLYC	5.0	No	DELAY AFTER PHASE A HAS ROW BEFORE CALL PULSE TO STREAM 2
9	APULC	2.0	No	PULSE TIMER FOLLWOING ADLYC TIMER
10	ADLYH	7.0	No	DELAY AFTER PHASE A HAS ROW BEFORE HOLD TO STREAM 2
11	AHLDH	5.0	No	MINIMUM HOLD TIMER FOLLOWING ADLYH TIMER
12	ATRMH	8.0	No	DELAY FOLLOWING TERMINATION OF HOLD
13	AOVRH	60.0	No	HOLD OUTPUT OVERIDE
14	BDLYC	5.0	No	DELAY AFTER PHASE B HAS ROW BEFORE CALL PULSE TO STREAM 2
15	BPULC	2.0	No	PULSE TIMER FOLLOWING BDLYC TIMER
16	BDLYH	7.0	No	DELAY AFTER PHASE B HAS ROW BEFORE HOLD TO STREAM 2
17	BHLDH	5.0	No	MINIMUM HOLD TIMER FOLLOWING BDLYH TIMER
18	BTRMH	8.0	No	DELAY FOLLOWING TERMINATION OF HOLD
19	BOVRH	60.0	No	HOLD OUTPUT OVERIDE
20	CDLYC	5.0	No	DELAY AFTER PHASE C HAS ROW BEFORE CALL PULSE TO STREAM 1
21	CPULC	2.0	No	PULSE TIMER FOLLOWING CDLYC TIMER
22	CDLYH	7.0	No	DELAY AFTER PHASE C HAS ROW BEFORE HOLD TO STREAM 1
23	CHLDH	5.0	No	MINIMUM HOLD TIMER FOLLOWING CDLYH TIMER
24	CTRMH	8.0	No	DELAY FOLLOWING TERMINATION OF HOLD
25	COVRH	60.0	No	HOLD OUTPUT OVERIDE
26	DDLYC	5.0	No	DELAY AFTER PHASE D HAS ROW BEFORE CALL PULSE TO STREAM 1
27	DPULC	2.0	No	PULSE TIMER FOLLOWING DDLYC TIMER
28	DDLYH	7.0	No	DELAY AFTER PHASE D HAS ROW BEFORE HOLD TO STREAM 1
29	DHLDH	5.0	No	MINIMUM HOLD TIMER FOLLOWING DDLYH TIMER
30	DTRMH	8.0	No	DELAY FOLLOWING TERMINATION OF HOLD
31	DOVRH	60.0	No	HOLD OUTPUT OVERIDE
32	EFDLYC	5.0	No	DELAY AFTER PHASE F HAS ROW BEFORE CALL PULSE TO EAST CONTR.
33	EFPULC	2.0	No	PULSE TIMER FOLLOWING EFDLYC TIMER
34	EFDLYH	7.0	No	DELAY AFTER PHASE F HAS ROW BEFORE HOLD TO EAST CONTR.
35	EFHLDH	5.0	No	MINIMUM HOLD TIMER FOLLOWING EFDLYH TIMER
36	EFTRMH	12.0	No	DELAY FOLLOWING TERMINATION OF HOLD
37	EFOVRH	60.0	No	HOLD OUTPUT OVERIDE
38	EEDLYC	5.0	No	DELAY AFTER PHASE E HAS ROW BEFORE CALL PULSE TOWEST CONTR.
39	EEPULC	2.0	No	PULSE TIMER FOLLOWING EEDLYC TIMER

Special conditioning timer data

Timer no.	Timer name	Duration	Fixed	Comment
40	EEDLYH	7.0	No	DELAY AFTER PHASE E HAS ROW BEFORE HOLD TO WEST CONTR.
41	EEHLDH	5.0	No	MINIMUM HOLD TIMER FOLLOWING EDDLYH TIMER
42	EETRMH	8.0	No	DELAY FOLLOWING TERMINATION OF HOLD
43	EEOVRH	60.0	No	HOLD OUTPUT OVERIDE
44	SPARE	0.0	No	NOT USED
45	SW3PUL	1.0	No	AUX 3 SWITCH PULSE TIMER - USED BY CONDITIONING
46	F2OVR	280.0	No	UTC F2 OVERIDE TIMER
47	F5OVR	280.0	No	UTC F5 OVERIDE TIMER
48	F2PUL	0.5	No	UTC F2 INHIBIT PULSE TIMER
49	F5PUL	0.5	No	UTC F2 INHIBIT PULSE TIMER
50	AHCPUL	2.0	No	AIN MOVA HURRY CALL PULSE TIMER
51	BHCPUL	2.0	No	BIN MOVA HURRY CALL PULSE TIMER
52	CHCPUL	2.0	No	CIN MOVA HURRY CALL PULSE TIMER
53	DHCPUL	2.0	No	DIN MOVA HURRY CALL PULSE TIMER
54	FHCPUL	2.0	No	FIN MOVA HURRY CALL PULSE TIMER
55	AHCINHB	180	No	AIN HURRYCALL INHIBIT TIMER
56	BHCINHB	180	No	BIN HURRYCALL INHIBIT TIMER
57	CHCINHB	180	No	CIN HURRYCALL INHIBIT TIMER
58	DHCINHB	180	No	DIN HURRYCALL INHIBIT TIMER
59	FHCINHB	180	No	FIN HURRYCALL INHIBIT TIMER

Special conditioning statements

Statement 1	
Comments	PHASE C ACTIVE SETS OUTPUT GC

If PHASE-C
Then OUTPUTA-GC
Else OUTPUTN-GC

Statement 2	
Comments	PHASE D ACTIVE SETS OUTPUT GD

If PHASE-D
Then OUTPUTA-GD
Else OUTPUTN-GD

Statement 3	
Comments	PHASE E ACTIVE SETS OUTPUT GE

If PHASE-E
Then OUTPUTA-GE
Else OUTPUTN-GE

Statement 4	
Comments	PHASE F ACTIVE SETS OUTPUT GF

If PHASE-F
Then OUTPUTA-GF
Else OUTPUTN-GF

Statement 5	
Comments	UTC mode inactive starts CR1TOG and CR1DLY timers, else stops CRB1DLY timer.

If UTCMODE-1 **Not**
Then SCTSTART-CR1TOG SCTSTART-CR1DLY
Else SCTSTOP-CR1DLY

Statement 6	
Comments	STATEMENT 5 TRUE AND NOT IN FT, MANUAL MODES, CLF (SW5), VA(SW4) OR SW3PUL TIMER ACTIVE OR DET ERST ACTIVE START CR1DUR TIMER

If MFTMODE-1 **Or** MANMODE-1 **Or** MANIP-SW4 **Or** MANIP-SW5 **Not and** STMNT-5
And not SCTRUNNG-SW3PUL **And not** FDET-WRST
Then SCTSTART-CR1DUR
Else SCTSTOP-CR1DUR

Special conditioning statements

Statement 7	
Comments	CR1DLY timer expired and UTC mode still inactive starts CR1TOG and CR1DLY timers.

If	SCTEXPRD-CR1DLY	**And not**	UTCMODE-1
Then	SCTSTART-CR1TOG	SCTSTART-CR1DLY	

Statement 8	
Comments	MOVA INHIBIT/CLF INHIBIT SWITCH: VA BUTTON (SW4) SEE LATER STATEMENT FOR MOVA INHIBIT

If	MANIP-SW4	
Then	CLFINHIB-1	CLFINHIB-2
Else	CLFALLOW-1	CLFALLOW-2

Statement 9	
Comments	CRB1 OUTPUT

If	MSDMODE-1	**Or**	SHDMODE-1	**Or**	MFTMODE-1	**Or**	MANMODE-1	**Or**	STUMODE-1
Or	SCTRUNNG-CR1TOG	**Or**	MANIP-SW4	**Or**	SCFLAG-10	**Or**	FDET-W10MIN	**Or**	MANIP-SW5
Then	OUTPUTA-CRB1								
Else	OUTPUTN-CRB1								

Statement 10	
Comments	TIMER CR1DUR OR CR2DUR EXPIRED SETS FLAG 10 ACTIVE

If	SCTEXPRD-CR1DUR	**Or**	SCTEXPRD-CR2DUR
Then	SCFLGON-10		

Statement 11	
Comments	MANUAL PANEL SW3 ACTIVE OR DET WRST ACTIVE CLEARS FLAG

If	MANIP-SW3	**Or**	FDET-WRST
Then	SCFLGOFF-10		

Statement 12	
Comments	UTC ACTIVE STREAM 2 STARTS CR2TOG AND CR2DLY TIMERS

If	UTCMODE-2	**Not**
Then	SCTSTART-CR2TOG	SCTSTART-CR2DLY
Else	SCTSTOP-CR2DLY	

Special conditioning statements

Statement 13										
Comments	STATEMENT 5 TRUE AND NOT IN FT OR MANUAL MODES OR SW3PUL TIMER ACTIVE OR DET ERST ACTIVE START CR2DUR TIMER									
If	MANMODE-2	**Or**	MFTMODE-2	**Or**	MANIP-SW4	**Or**	MANIP-SW5	**Not and**	STMNT-12	
And not	SCTRUNNG-SW3PUL	**And not**	FDET-WRST							
Then	SCTSTART-CR2DUR									
Else	SCTSTOP-CR2DUR									

Statement 14				
Comments	CR2DLY TIMER EXPIRED AND NOT IN UTCMODE STREAM 2 STARTS CR2TOG AND CR2DLY TIMERS			
If	SCTEXPRD-CR2DLY	**And not**	UTCMODE-2	
Then	SCTSTART-CR2TOG	SCTSTART-CR2DLY		

Statement 15									
Comments	CRB2 OUTPUT								
If	MANMODE-2	**Or**	MFTMODE-2	**Or**	SHDMODE-2	**Or**	MSDMODE-2	**Or**	STUMODE-2
Or	SCTRUNNG-CR2TOG	**Or**	MANIP-SW4	**Or**	SCFLAG-10	**Or**	FDET-W10MIN	**Or**	MANIP-SW5
Then	OUTPUTA-CRB2								
Else	OUTPUTN-CRB2								

Statement 16		
Comments	FLAG 10 ACTIVE LIGHTS AUX3 LED	
If	SCFLAG-10	
Then	MPLEDON-AUX3	OUTPUTA-E10MIN

Statement 17			
Comments	DET W10MIN ACTIVE AND NOT FLAG 10 SET FLASES AUX3 LED.		
If	FDET-W10MIN	**And not**	SCFLAG-10
Then	MPLEDFLS-AUX3		

Statement 18				
Comments	STATEMENT 16 OR 17 NOT TRUE CLEARS AUX3 LED			
If	STMNT-16	**Or**	STMNT-17	**Not**
Then	MPLEDOFF-AUX3	OUTPUTN-E10MIN		

Statement 19			
Comments	UTC STREAM 1 AND DET MOVEST NOT ACTIVE FLASHES AUX 1 LED		
If	UTCMODE-1	**And not**	FDET-MOVWST
Then	MPLEDFLS-AUX1		

Special conditioning statements

Statement 20				
Comments	UTC STREAM 1 AND DET MOVEST ACTIVE LIGHTS AUX 1 LED			
If	UTCMODE-1	**And**	FDET-MOVWST	
Then	MPLEDON-AUX1			

Statement 21				
Comments	STATEMENT 19 OR 20 NOT TRUE CLEARS AUX 1 LED			
If	STMNT-19	**Or**	STMNT-20	**Not**
Then	MPLEDOFF-AUX1			

Statement 22			
Comments	UTC MODE STREAMS 1 AND 2 SETS MOVEST OUTPUT ACTIVE		
If	UTCMODE-1	**And**	UTCMODE-2
Then	OUTPUTA-MOVEST		
Else	OUTPUTN-MOVEST		

Statement 23	
Comments	SW3PUL ACTIVE STARTS ERST TIMER
If	SCTRUNNG-SW3PUL
Then	SCTSTART-ERST

Statement 24	
Comments	ERST TIMER ACTIVE SETS WRST OUTPUT ACTIVE
If	SCTRUNNG-ERST
Then	OUTPUTA-ERST
Else	OUTPUTN-ERST

Statement 25	
Comments	NOT USED
If	

Statement 26	
Comments	UTC MODE STREAM 1 SETS MOVA1 OUTPUT
If	UTCMODE-1
Then	OUTPUTA-MOVA1
Else	OUTPUTN-MOVA1

Special conditioning statements

Statement 27	
Comments	UTC MODE STREAM 2 SETS MOVA2 OUTPUT

If UTCMODE-2
Then OUTPUTA-MOVA2
Else OUTPUTN-MOVA2

Statement 28	
Comments	NOT USED

If

Statement 29	
Comments	MOVA STREAM 1 TO BIT

If MANIP-SW4 **Or** MANIP-SW5 **Not and** FDET-TO1
Then UTCN-1
Else UTCI-1

Statement 30	
Comments	MOVA STREAM 2 TO BIT

If MANIP-SW4 **Or** MANIP-SW5 **Not and** FDET-TO2
Then UTCN-2
Else UTCI-2

Statement 31	
Comments	PHASE A ACTIVE STARTS TIMERS ADLYC AND ADLYH

If PHASE-A
Then SCTSTART-ADLYC SCTSTART-ADLYH

Statement 32	
Comments	TIMER ADLYC EXPIRED STARTS APULC TIMER

If SCTEXPRD-ADLYC
Then SCTSTART-APULC

Statement 33	
Comments	APULC TIMER ACTIVE SETS OUTPUT

If SCTRUNNG-APULC
Then OUTPUTA-ST2D44C
Else OUTPUTN-ST2D44C

Special conditioning statements

Statement 34					
Comments	TIMER ADLYH EXPIRED AND PHASE A ACTIVE SETS OUTPUT AND STARTS TIMERS AHLDH AND AOVRH				
If	SCTEXPRD-ADLYH	**And**	PHASE-A		
Then	OUTPUTA-ST2D45H	SCTSTART-AHLDH	SCTSTART-AOVRH		

Statement 35					
Comments	AHLDH TIMER EXPIRED SETS FLAG 1				
If	SCTEXPRD-AHLDH				
Then	SCFLGON-1				

Statement 36					
Comments	FLAG 1 SET AND NO EXTENSIONS ON PHASE A OR SCBIT 1 SET STARTS ATRMH TIMER				
If	SCFLAG-1	**And not**	PHSEXT-A	**And not**	SCBITS-1
Then	SCTSTART-ATRMH				

Statement 37					
Comments	ATRMH TIMER NOT ACTIVE AND NOT PHASE A AND FLAG 1 ACTIVE STARTS ATRMH TIMER				
If Not	SCTRUNNG-ATRMH	**And not**	PHASE-A	**And**	SCFLAG-1
Then	SCTSTART-ATRMH				

Statement 38					
Comments	ATRMH TIMER ACTIVE OR AOVRH TIMER ACTIVE CLEARS OUTPUT AND CLEARS FLAG 1				
If	SCTEXPRD-ATRMH	**Or**	SCTEXPRD-AOVRH		
Then	OUTPUTN-ST2D45H	SCFLGOFF-1			

Statement 39					
Comments	PHASE B ACTIVE STARTS TIMERS BDLYC AND BDLYH				
If	PHASE-B				
Then	SCTSTART-BDLYC	SCTSTART-BDLYH			

Statement 40					
Comments	TIMER BDLYC EXPIRED STARTS BPULC TIMER				
If	SCTEXPRD-BDLYC				
Then	SCTSTART-BPULC				

Special conditioning statements

Statement 41	
Comments	BPULC TIMER ACTIVE SETS OUTPUT

If SCTRUNNG-BPULC
Then OUTPUTA-ST2D46C
Else OUTPUTN-ST2D46C

Statement 42	
Comments	TIMER BDLYH EXPIRED AND PHASE B ACTIVE SETS OUTPUT AND STARTS TIMERS BHLDH AND BOVRH

If SCTEXPRD-BDLYH **And** PHASE-B
Then OUTPUTA-ST2D47H SCTSTART-BHLDH SCTSTART-BOVRH

Statement 43	
Comments	BHLDH TIMER EXPIRED SETS FLAG 1

If SCTEXPRD-BHLDH
Then SCFLGON-2

Statement 44	
Comments	FLAG 2 SET AND NO EXTENSIONS ON PHASE B OR SCBIT 1 SET STARTS BTRMH TIMER

If SCFLAG-2 **And not** PHSEXT-B **And not** SCBITS-2
Then SCTSTART-BTRMH

Statement 45	
Comments	BTRMH TIMER NOT ACTIVE AND NOT PHASE B AND FLAG 2 ACTIVE STARTS BTRMH TIMER

If Not SCTRUNNG-BTRMH **And not** PHASE-B **And** SCFLAG-2
Then SCTSTART-BTRMH

Statement 46	
Comments	BTRMH TIMER ACTIVE OR BOVRH TIMER ACTIVE CLEARS OUTPUT AND CLEARS FLAG 2

If SCTEXPRD-BTRMH **Or** SCTEXPRD-BOVRH
Then OUTPUTN-ST2D47H SCFLGOFF-2

Statement 47	
Comments	PHASE C ACTIVE STARTS TIMERS CDLYC AND CDLYH

If PHASE-C
Then SCTSTART-CDLYC SCTSTART-CDLYH

Special conditioning statements

Statement 48	
Comments	TIMER CDLYC EXPIRED STARTS CPULC TIMER

If SCTEXPRD-CDLYC
Then SCTSTART-CPULC

Statement 49	
Comments	CPULC TIMER ACTIVE SETS OUTPUT

If SCTRUNNG-CPULC
Then OUTPUTA-ST1A48C
Else OUTPUTN-ST1A48C

Statement 50	
Comments	TIMER CDLYH EXPIRED AND PHASE C ACTIVE SETS OUTPUT AND STARTS TIMERS CHLDH AND COVRH

If SCTEXPRD-CDLYH **And** PHASE-C
Then OUTPUTA-ST1A49H SCTSTART-CHLDH SCTSTART-COVRH

Statement 51	
Comments	CHLDH TIMER EXPIRED SETS FLAG 1

If SCTEXPRD-CHLDH
Then SCFLGON-3

Statement 52	
Comments	FLAG 3 SET AND NO EXTENSIONS ON PHASE C OR SCBIT 3 SET STARTS CTRMH TIMER

If SCFLAG-3 **And not** PHSEXT-C **And not** SCBITS-3
Then SCTSTART-CTRMH

Statement 53	
Comments	CTRMH TIMER NOT ACTIVE AND NOT PHASE C AND FLAG 3 ACTIVE STARTS CTRMH TIMER

If Not SCTRUNNG-CTRMH **And not** PHASE-C **And** SCFLAG-3
Then SCTSTART-CTRMH

Statement 54	
Comments	CTRMH TIMER ACTIVE OR COVRH TIMER ACTIVE CLEARS OUTPUT AND CLEARS FLAG 3

If SCTEXPRD-CTRMH **Or** SCTEXPRD-COVRH
Then OUTPUTN-ST1A49H SCFLGOFF-3

Special conditioning statements

Statement 55	
Comments	PHASE D ACTIVE STARTS TIMERS DDLYC AND DDLYH

If	PHASE-D				
Then	SCTSTART-DDLYC	SCTSTART-DDLYH			

Statement 56	
Comments	TIMER DDLYC EXPIRED STARTS DPULC TIMER

If	SCTEXPRD-DDLYC				
Then	SCTSTART-DPULC				

Statement 57	
Comments	DPULC TIMER ACTIVE SETS OUTPUT

If	SCTRUNNG-DPULC				
Then	OUTPUTA-ST1B50C				
Else	OUTPUTN-ST1B50C				

Statement 58	
Comments	TIMER DDLYH EXPIRED AND PHASE D ACTIVE SETS OUTPUT AND STARTS TIMERS DHLDH AND DOVRH

If	SCTEXPRD-DDLYH	**And**	PHASE-D		
Then	OUTPUTA-ST1B51H	SCTSTART-DHLDH	SCTSTART-DOVRH		

Statement 59	
Comments	DHLDH TIMER EXPIRED SETS FLAG 1

If	SCTEXPRD-DHLDH				
Then	SCFLGON-4				

Statement 60	
Comments	FLAG 4 SET AND NO EXTENSIONS ON PHASE D OR SCBIT D SET STARTS DTRMH TIMER

If	SCFLAG-4	**And not**	PHSEXT-D	**And not**	SCBITS-4
Then	SCTSTART-DTRMH				

Statement 61	
Comments	DTRMH TIMER NOT ACTIVE AND NOT PHASE D AND FLAG 4 ACTIVE STARTS DTRMH TIMER

If Not	SCTRUNNG-DTRMH	**And not**	PHASE-D	**And**	SCFLAG-4
Then	SCTSTART-DTRMH				

Special conditioning statements

Statement 62	
Comments	DTRMH TIMER ACTIVE OR DOVRH TIMER ACTIVE CLEARS OUTPUT AND CLEARS FLAG 4

If SCTEXPRD-DTRMH **Or** SCTEXPRD-DOVRH
Then OUTPUTN-ST1B51H SCFLGOFF-4

Statement 63	
Comments	PHASE F GREEN STARTS TIMERS EFDLYC AND EFDLYH

If PHASE-F
Then SCTSTART-EFDLYC SCTSTART-EFDLYH

Statement 64	
Comments	TIMER EFDLYC EXPIRED STARTS EFPULC TIMER

If SCTEXPRD-EFDLYC
Then SCTSTART-EFPULC

Statement 65	
Comments	TIMER EFPULC RUNNING SETS OUTPUT ESBCALF

If SCTRUNNG-EFPULC
Then OUTPUTA-ESBCALF
Else OUTPUTN-ESBCALF

Statement 66	
Comments	TIMER EFDLYH EXPIRED AND PHASE C GREEN SETS OUTPUT ESCHLD

If SCTEXPRD-EFDLYH **And** PHASE-F
Then OUTPUTA-ESBHLDF SCTSTART-EFHLDH SCTSTART-EFOVRH

Statement 67	
Comments	EFHLDH TIMER EXPIRED SETS FLAG 5

If SCTEXPRD-EFHLDH
Then SCFLGON-5

Statement 68	
Comments	FLAG 5 SET, NO EXTENSIONS PHASE F AND SCBITS-5 NOT SET

If SCFLAG-5 **And not** PHSEXT-F **And not** SCBITS-5
Then SCTSTART-EFTRMH

Special conditioning statements

Statement 69	
Comments	EFTRMH TIMER RUNNING AND NOT PHASE F GREEN AND FLAG 5 SET

If Not SCTRUNNG-EFTRMH **And not** PHASE-F **And** SCFLAG-5
Then SCTSTART-EFTRMH

Statement 70	
Comments	TIMER EFTRMH OR EFOVRH EXPIRED CLEAR ESBHLDF OUTPUT AND FLAG 5

If SCTEXPRD-EFTRMH **Or** SCTEXPRD-EFOVRH
Then OUTPUTN-ESBHLDF SCFLGOFF-5

Statement 71	
Comments	PHASE E GREEN STARTS EEDLYC TIMER AND EEDLYH TIMER

If PHASE-E
Then SCTSTART-EEDLYC SCTSTART-EEDLYH

Statement 72	
Comments	EEDLYC TIMER EXPIRED STARTS EEPULC TIMER

If SCTEXPRD-EEDLYC
Then SCTSTART-EEPULC

Statement 73	
Comments	EEPULC TIMER RUNNING SETS ESBCALE OUTPUT

If SCTRUNNG-EEPULC
Then OUTPUTA-ESBCALE
Else OUTPUTN-ESBCALE

Statement 74	
Comments	EEDLYH TIMER EXPIRED AND PHASE E ACTIVE SETS ESDHLD OUTPUT, STARTS TIMER EEHLDH AND TIMER EEOVRH

If SCTEXPRD-EEDLYH **And** PHASE-E
Then OUTPUTA-ESBHLDE SCTSTART-EEHLDH SCTSTART-EEOVRH

Statement 75	
Comments	EEHLDH TIMER EXPIRED SETS FLAG 6

If SCTEXPRD-EEHLDH
Then SCFLGON-6

Special conditioning statements

Statement 76	
Comments	FLAG 6 SET NO PHASE EXTENSIONS PHASE E AND SCBIT 6 NOT SET STARTS EETRMH TIMER

If SCFLAG-6 **And not** PHSEXT-E **And not** SCBITS-6
Then SCTSTART-EETRMH

Statement 77	
Comments	EETRMH TIMER NOT RUNNING AND NOT PHASE E GREEN AND FLAG 6 ACTIVE STARTS TIMER EETRMH

If Not SCTRUNNG-EETRMH **And not** PHASE-E **And** SCFLAG-6
Then SCTSTART-EETRMH

Statement 78	
Comments	EDTRMH TIMER EXPIRED OR EDOVRH TIMER EXPIRED CLEARS ESDHLD OUTPUT AND CLEARS FLAG 6

If SCTEXPRD-EETRMH **Or** SCTEXPRD-EEOVRH
Then OUTPUTN-ESBHLDE SCFLGOFF-6

Statement 79	
Comments	DETS BIN10, BIN11 OR BIN12 ACTIVE, TIMER HCINHB NOT RUNNING AND SCBIT 8 NOT SET STARTS BHCPUL TIMER

If FDET-BIN10 **Or** FDET-BIN11 **Or** FDET-BIN12 **And not** SCTRUNNG-BHCINHB **And not** SCBITS-8
Then SCTSTART-BHCPUL

Statement 80	
Comments	DETS DIN23 OR DIN24 ACTIVE, TIMER HCINHB NOT RUNNING AND SCBITS-10 NOT SET STARTS DHCPUL TIMER

If FDET-DIN26 **Or** FDET-DIN27 **And not** SCTRUNNG-DHCINHB **And not** SCBITS-10
Then SCTSTART-DHCPUL

Statement 81	
Comments	DETS AQ2, TIMER HCINHB NOT RUNNING AND SCBIT 7 NOT SET STARTS AHCPUL TIMER

If FDET-AQ2 **And not** SCTRUNNG-AHCINHB **And not** SCBITS-7
Then SCTSTART-AHCPUL

Statement 82	
Comments	NOT USED

If

Special conditioning statements

Statement 83	
Comments	TIMER BHCPUL RUNNING SETS OUTPUT BHCAL AND DETECTOR BINHC ACTIVE

If	SCTRUNNG-BHCPUL		
Then	OUTPUTA-BHCAL57	DETA-BINHC	SCTSTART-BHCINHB
Else	OUTPUTN-BHCAL57	DETN-BINHC	

Statement 84	
Comments	TIMER DHCPUL RUNNING SETS OUTPUT DHCAL AND SETS DETECTOR DINHC ACTIVE

If	SCTRUNNG-DHCPUL		
Then	OUTPUTA-DHCAL59	DETA-DINHC	SCTSTART-DHCINHB
Else	OUTPUTN-DHCAL59	DETN-DINHC	

Statement 85	
Comments	TIMER AHCPUL RUNNING SETS OUTPUT AHCAL AND DETECTOR AQHC ACTIVE

If	SCTRUNNG-AHCPUL		
Then	OUTPUTA-AHCAL56	DETA-AQHC	SCTSTART-AHCINHB
Else	OUTPUTN-AHCAL56	DETN-AQHC	

Statement 86	
Comments	NOT USED

If

Statement 87	
Comments	DETS CIN17, CIN18 OR BIN19 ACTIVE, TIMER HCINHB NOT RUNNING AND SCBIT 9 NOT SET STARTS CHCPUL TIMER

If	FDET-CIN17	**Or**	FDET-CIN18	**Or**	FDET-CIN19	**And not**	SCTRUNNG-CHCINHB	**And not**	SCBITS-9
Then	SCTSTART-CHCPUL								

Statement 88	
Comments	DETS FIN37, BIN38 OR BIN39 ACTIVE, TIMER HCINHB NOT RUNNING AND SCBIT 11 NOT SET STARTS FHCPUL TIMER

If	FDET-FIN37	**Or**	FDET-FIN38	**Or**	FDET-FIN39	**And not**	SCTRUNNG-FHCINHB	**And not**	SCBITS-11
Then	SCTSTART-FHCPUL								

Statement 89	
Comments	TIMER CHCPUL RUNNING SETS OUTPUT CHCAL AND DETECTOR CINHC ACTIVE

If	SCTRUNNG-CHCPUL		
Then	OUTPUTA-CHCAL58	DETA-CINHC	SCTSTART-CHCINHB
Else	OUTPUTN-CHCAL58	DETN-CINHC	

Special conditioning statements

Statement 90	
Comments	TIMER FHCPUL RUNNING SETS OUTPUT FHCAL AND DETECTOR FINHC ACTIVE

If	SCTRUNNG-FHCPUL		
Then	OUTPUTA-FHCAL60	DETA-FINHC	SCTSTART-FHCINHB
Else	OUTPUTN-FHCAL60	DETN-FINHC	

Statement 91	
Comments	NOT USED

If

Statement 92	
Comments	NOT USED

If

Statement 93	
Comments	NOT USED

If

Statement 94	
Comments	NOT USED

If

Statement 95	
Comments	SHUTDOWN MODE SETS LE OUTPUT

If	SHDMODE-1	**Or**	SHDMODE-2	**Or**	MSDMODE-1	**Or**	MSDMODE-2
Then	OUTPUTA-LE						
Else	OUTPUTN-LE						

Statement 96	
Comments	AUX 3 SWITCH PULSE CONDITIONING: IF SW3 ACTIVE START TIMER SW3PUL

If	MANIP-SW3
Then	SCTSTART-SW3PUL

Statement 97	
Comments	AUX 3 SWITCH PULSE CONDITIONING: IF SW3 NOT ACTIVE START TIMER SW3PUL

If	MANIP-SW3	**Not**
Then	SCTSTART-SW3PUL	

Special conditioning statements

Statement 98	
Comments	PREVENT FORCE BITS OVERIDES: UTC-F2 ACTIVE START TIMER F2OVR.

If UTCBIT-F2
Then SCTSTART-F2OVR
Else SCTSTOP-F2OVR

Statement 99	
Comments	PREVENT FORCE BITS OVERIDES: UTC-F5 ACTIVE START TIMER F5OVR.

If UTCBIT-F5
Then SCTSTART-F5OVR
Else SCTSTOP-F5OVR

Statement 100	
Comments	PREVENT FORCE BITS OVERIDES: F2OVR TIMER EXPIRED START F2PUL

If SCTEXPRD-F2OVR **And** UTCBIT-F2
Then SCTSTART-F2PUL

Statement 101	
Comments	PREVENT FORCE BITS OVERIDES: F5OVR TIMER EXPIRED START F5PUL

If SCTEXPRD-F5OVR **And** UTCBIT-F5
Then SCTSTART-F5PUL

Statement 102	
Comments	PREVENT FORCE BITS OVERIDES:F2PUL TIMER ACTIVE SET UTC-F2 INACTIVE AND UTC-F3 ACTIVE

If SCTRUNNG-F2PUL
Then UTCBITA-F3 UTCBITI-F2
Else UTCBITN-F3 UTCBITN-F2

Statement 103	
Comments	PREVENT FORCE BITS OVERIDES:F2PUL TIMER ACTIVE SET UTC-F5 INACTIVE AND UTC-F8 ACTIVE

If SCTRUNNG-F5PUL
Then UTCBITA-F8 UTCBITI-F5
Else UTCBITN-F8 UTCBITN-F5

Special conditioning statements

Statement 104							
Comments	DETECTOR ASL8 A,B OR C ACTIVE SETS ASL8 OUTPUT						
If	RDET-ASL8A	**Or**	RDET-ASL8B	**Or**	RDET-ASL8C		
Then	OUTPUTA-ASL8						
Else	OUTPUTN-ASL8						

Statement 105							
Comments	DETECTOR CSL24 A,B,C OR D ACTIVE SETS CSL24 OUTPUT						
If	RDET-CSL24A	**Or**	RDET-CSL24B	**Or**	RDET-CSL24C	**Or**	RDET-CSL24D
Then	OUTPUTA-CSL24						
Else	OUTPUTN-CSL24						

Statement 106	
Comments	SIS POWER
If	FDET-SISPWR
Then	OUTPUTA-SISPWR
Else	OUTPUTN-SISPWR

Statement 107	
Comments	SIS FAULT
If	FDET-SISFLT
Then	OUTPUTA-SISFLT
Else	OUTPUTN-SISFLT

Statement 108			
Comments	UTC STREAM 2 AND DET MOVEST NOT ACTIVE FLASHES AUX 2 LED		
If	UTCMODE-2	**And not**	FDET-MOVWST
Then	MPLEDFLS-AUX2		

Statement 109			
Comments	UTC STREAM 2 AND DET MOVEST ACTIVE FLASHES AUX 2 LED		
If	UTCMODE-2	**And**	FDET-MOVWST
Then	MPLEDON-AUX2		

Statement 110				
Comments	STATEMENT 108 OR 109 NOT TRUE CLEARS AUX 2 LED			
If	STMNT-108	**Or**	STMNT-109	**Not**
Then	MPLEDOFF-AUX2			

Red lamp monitoring data 1

Auto clear red lamp warnings	Yes		Red lamp monitor type	Other

Red lamp monitoring data 2

Stream based data					
Stream no.	Shutdown required	Red flt. extension	Single red lamp fault input name	Multiple red lamp fault input name	Inhibit stages
1	Yes	0			
2	Yes	0			

Red lamp monitoring data 3

Second red failure phase data	
Phase Id	Inhibited phases
A	
B	
C	
D	
E	
F	
DA	
DB	

ILM data

Fault indications		Mains unstable indications output(s)	
Auto clear red lamp warnings	Yes		
Flash DFM for lamp conflict	No		
Flash DFM for lamp failure	No		
Unstable toroid indication (as lamp failure)	No		

Phase	Lamp Types			Single fault	Multi faults	Failure indication output	Conflict indication output(s)
	Green	Amber	Red				
A	ELV LED (3R)	ELV LED (3R)	ELV LED (3R)	1	3	LF	
B	ELV LED (3R)	ELV LED (3R)	ELV LED (3R)	1	3	LF	
C	ELV LED (3R)	ELV LED (3R)	ELV LED (3R)	1	3	LF	
D	ELV LED (3R)	ELV LED (3R)	ELV LED (3R)	1	3	LF	
E	ELV LED (3R)	ELV LED (3R)	ELV LED (3R)	1	3	LF	
F	ELV LED (3R)	ELV LED (3R)	ELV LED (3R)	1	3	LF	

Input data

Input No.	Input name	Source	Comment
0	F03	Virtual	NOT USED
1	F08	Virtual	NOT USED
0	F01	Parallel	MOVA STREAM 1 STAGE 1 FORCE
1	F02	Parallel	MOVA STREAM 1 STAGE 2 FORCE
2	F04	Parallel	MOVA STREAM 2 STAGE 1 FORCE
3	F05	Parallel	MOVA STREAM 2 STAGE 2 FORCE
4	F06	Parallel	MOVA STREAM 2 STAGE 3 FORCE
5	F07	Parallel	MOVA STREAM 2 STAGE 4 FORCE
6	*TO1	Parallel	MOVA TO BIT STREAM 1
7	*TO2	Parallel	MOVA TO BIT STREAM 2
8	*LSL1	Parallel	
9	*AQ2	Parallel	
10	*AIN3	Parallel	
11	*AIN4	Parallel	
12	*AX5	Parallel	
13	*AX6	Parallel	
14	*AX7	Parallel	
15	*ASL8A	Parallel	
16	*ASL8B	Parallel	
17	*ASL8C	Parallel	
18	*BIN10	Parallel	
19	*BIN11	Parallel	
20	*BIN12	Parallel	
21	*BX13	Parallel	
22	*BX14	Parallel	
23	*BX15	Parallel	
24	*BX16	Parallel	
25	*CIN17	Parallel	
26	*CIN18	Parallel	
27	*CIN19	Parallel	
28	*CX20	Parallel	
29	*CX21	Parallel	
30	*CX22	Parallel	
31	*CX23	Parallel	
32	*CSL24A	Parallel	
33	*CSL24B	Parallel	
34	*CSL24C	Parallel	
35	*CSL24D	Parallel	
36	*DIN26	Parallel	

Input data

Input No.	Input name	Source	Comment
37	*DIN27	Parallel	
38	*DX28	Parallel	
39	*DX29	Parallel	
40	*DX30	Parallel	
41	*DX31	Parallel	
42	*SISPWR	Parallel	SIS POWER INPUT
43	*SISFLT	Parallel	SIS FAULT INPUT
44	*W10MIN	Parallel	LINKING FROM WEST CONTROLLER - WEST CONTROLLER CRB TIMED OUT
45	*WRST	Parallel	LINKING FROM WEST CONTROLLER - CRB RESET OPERATED AT WEST CONTROLLER
46	*MOVWST	Parallel	LINKING FROM WEST CONTROLLER - MOVA OPERATING ON BOTH STREAMS AT WEST CONTROLLER
47	TS	Parallel	TIME SYNCH INPUT FROM WEST SIDE CONTROLLER
48	*EIN32	Parallel	NEW
49	*EX33	Parallel	NEW
50	*EX34	Parallel	NEW
51	*ESL35	Parallel	NEW
52	*ESL36	Parallel	NEW
53	*FIN37	Parallel	NEW
54	*FIN38	Parallel	NEW
55	*FIN39	Parallel	NEW
56	*FX40	Parallel	NEW
57	*FX41	Parallel	NEW
58	*FX42	Parallel	NEW
59	*FX43	Parallel	NEW

Output data

Output Number	Destination	Output name	Invert state	Comment
0	Parallel	G1	Yes	MOVA STREAM 1 STAGE 1 CONFIRM
1	Parallel	G2	Yes	MOVA STREAM 1 STAGE 2 CONFIRM
2	Parallel	G4	Yes	MOVA STREAM 2 STAGE 1 CONFIRM
3	Parallel	G5	Yes	MOVA STREAM 2 STAGE 2 CONFIRM
4	Parallel	G6	Yes	MOVA STREAM 2 STAGE 3 CONFIRM
5	Parallel	G7	Yes	MOVA STREAM 2 STAGE 4 CONFIRM
6	Parallel	GC	Yes	
7	Parallel	GD	Yes	
8	Parallel	GE	Yes	
9	Parallel	GF	Yes	
10	Parallel	CRB1	Yes	MOVA CRB BIT STREAM 1
11	Parallel	CRB2	Yes	MOVA CRB BIT STREAM 2
12	Parallel	MOVA1	No	MOVA MODE ACTIVE STREAM 1
13	Parallel	MOVA2	No	MOVA MODE ACTIVE STREAM 2
16	Parallel	ASL8	No	BUFFERED COMBINED ASL8 LOOPS OUTPUT- CONNECT TO STREAM 1 MOVA DET 8
17	Parallel	CSL24	No	BUFFERED COMBINED CSL24 LOOPS OUTPUT - CONNECT TO STREAM 2 MOVA DET 24
18	Parallel	ST2D44C	No	STREAM 1 TO 2 LINKING
19	Parallel	ST2D45H	No	STREAM 1 TO 2 LINKING
20	Parallel	ST2D46C	No	STREAM 1 TO 2 LINKING
21	Parallel	ST2D47H	No	STREAM 1 TO 2 LINKING
22	Parallel	ST1A48C	No	STREAM 2 TO 1 LINKING
23	Parallel	ST1A49H	No	STREAM 2 TO 1 LINKING
24	Parallel	ST1B50C	No	STREAM 2 TO 1 LINKING
25	Parallel	ST1B51H	No	STREAM 2 TO 1 LINKING
26	Parallel	OP26	No	
27	Parallel	ESBHLDF	No	LINKING - TO WEST CONTROLLER
28	Parallel	ESBCALF	No	LINKING - TO WEST CONTROLLER
29	Parallel	ESBHLDE	No	LINKING - TO WEST CONTROLLER
30	Parallel	ESBCALE	No	LINKING - TO WEST CONTROLLER
31	Parallel	E10MIN	No	LINKING - TO WEST CONTROLLER CRB TIMER EXPIRED
32	Parallel	ERST	No	LINKING - TO WEST CONTROLLER CRB RESET
33	Parallel	MOVEST	No	LINKING - TO WEST CONTROLLER MOVA CONTROL ACTIVE BOTH STREAMS EAST
34	Parallel	LE	Yes	LAMPS EXTINGUISHED TO OMU
35	Parallel	LF	Yes	LAMP FAULT TO OMU
36	Parallel	SISPWR	No	SIS POWER TO OMU
37	Parallel	SISFLT	No	SIS FAULT TO OMU
38	Parallel	AHCAL56	No	AIN MOVA HURRYCALL MOVA DET 56
39	Parallel	BHCAL57	No	BIN MOVA HURRYCALL MOVA DET 57
40	Parallel	CHCAL58	No	CIN MOVA HURRYCALL MOVA DET 58

Output data

Output Number	Destination	Output name	Invert state	Comment
41	Parallel	DHCAL59	No	DIN MOVA HURRYCALL MOVA DET 59
42	Parallel	FHCAL60	No	FIN MOVA HURRYCALL MOVA DET 60

Hardware data

Safety cards	
Number	Fitted
1	Yes
2	No

Loop Detector Cards		
Number	Fitted	Detectors
2	No	-
3	No	-
4	No	-

Safety card 1	
Phase Drive cards	
Number	Fitted
1	Yes
2	Yes
3	Yes
4	No
5	No
6	No
7	No
8	No
9	No
10	No
11	No
12	No
13	No
14	No
15	No
16	No

IO Cards	
Number	Card Type
1	Handset
2	IO 16/16
3	IO 16/16
4	IO 16/16
5	IO 16/16
6	Not Fitted
7	Not Fitted
8	Not Fitted

Loop Detector Cards		
Number	Fitted	Detectors
1	No	-

Virtual IO data

Bit No.	Bit name	Invert	Active	Comment
0	F03	False	False	
1	F08	False	False	

Administration

General Specifications

Customer Name	URS CORPORATION (IM PROP)	Customer Order No.	
Intersection/ General Description	A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH	Controller/ Serial Number	
		S.T.S. /EM Number	E63476 Issue 6
Controller	(●) New ( ) Modification	Equipment Installation by	SIEMENS TRAFFIC CONTROLS
Area Specifications/ Customer Drawings	47439-003/5002/T/RO/0109	Slot Cutting by	
Specification Section		Civil Works by	
Contract/Tender Ref:		Customer's Engineer	Mark Stapley
Quotation No.		Telephone Number	01234 373641
Works Order No.	199069		

Signal Company Use Only

Signal Engineer: E DUFFY / S DEAKIN

(IF Prom Label as >) Prom Number: 16260 Prom Variant: 476

Configuration Check Value: 16 F3 A0 34

Controller Options

Hardware	Firmware Type and Issue	Other Options
T800	PB800 ISS 19	KTD LO

ST900/ST750 Series Cabinet Options

Cabinet/Rack

Kit Type Options ○ ○ ○ ○

Cabinet/Rack Variant

Cuckoo Options ☐

Mains Supply	240 Volts	50 Hz			
Peak Lamp Current	11 Amps	Dimming Voltage	160	Answer Issue	1
Average Lamp Power	2048 Watts			Date Created	25/09/02
Total Average Power	2124 Watts	Low Inrush Tra	☐	Edit Issue	12

Power feed fuse rating: requires 30 Amp minimum for controller, 15 Amp minimum for pelican/lightly loaded controller

Streams, Stages, Phases Control

Select Object to Add/Delete/Insert

Streams

Current Number of Streams: 1

Phases

Current Total Number of Phases: 11

- (selected) Number of Real Phases: 10
- Number of Dummy Phases: 1

Stages

Current Number of stages (inc. ALL-RED stages): 8

Switched Signs

Number of Switched Signs: 0

Action

Add At | Delete At

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Facilities/Modes Enabled and Mode Priority Levels

Facilities

- [x] Manual Control
- [ ] Manual Step On Mode
- [x] CLF (Base Time)
- [ ] CLF (non-Base Time)
- [x] UTC Facility
- [x] Hurry Call Mode
- [ ] Priority
- [ ] Emergency Vehicles
- [ ] Part Time
- [x] Master Time Clock
- [x] RED Lamp Monitoring
- [x] Lamp Monitoring
- [ ] Linked Fixed Time
- [x] FT To Current MAX
- [ ] Speed Measurement
- [ ] Download To Level 3
- [ ] London IMU
- [ ] Extend All Red
- [ ] Fail To Hardware Flashing
- [ ] Ripple Change
- [ ] Non-UK
- [x] Pelican/Puffin/Toucan Facilities
- [ ] Standalone Manual
- [ ] Holiday Clock
- [ ] Fail to Part Time
- [x] Serial MOVA
- [x]
- [ ] Free-Standing OTU
- [ ] Integral OTU

15 Starting Intergreen

Mode Priority

PRIORITY	1	2	3	4	5	6	7	8	9	10	11
Part Time	○	○	○	○	○	○	○	○	○	○	○
Emergency Vehicle	○	○	○	○	○	○	○	○	○	○	○
Hurry Call	○	○	○	⦿	○	○	○	○	○	○	○
Selected Man Cntrl	⦿	○	○	○	○	○	○	○	○	○	○
UTC	○	○	⦿	○	○	○	○	○	○	○	○
Manual Step On	○	○	○	○	○	○	○	○	○	○	○
Selected FT or VA or CLF	○	⦿	○	○	○	○	○	○	○	○	○
Cableless Link (CLF)	○	○	○	○	⦿	○	○	○	○	○	○
Priority Vehicle	○	○	○	○	○	○	○	○	○	○	○
Vehicle Actuated	○	○	○	○	○	⦿	○	○	○	○	○
Fixed Time	○	○	○	○	○	○	⦿	○	○	○	○

Configuration Complexity

○ Low ○ Medium ○ High ⦿ Maximum

standard.8DF
Default PROM data file

Correspondence Monitoring to inc.

- [ ] Reds
- [ ] Ambers
- [ ] Switched Signs
- [ ] Ignore Reds and Ambers during Fail to Part Time

Flash Rate (ms)

400 Off 400 On

Phases in Stages

Phases

In Stages

	A	B	C	D	E	F	G	H	I	J	K
0											■
1	■	■							■		
2	■		■				■		■		
3	■			■			■		■		
4				■	■		■		■		
5							■	■	■		
6							■		■	■	
7		■				■					

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Stages in Streams

Stream Data

	0	1	2	3	4	5	6	7
Phase or Stage to revert to in absence of demands/extensions	1							
Startup Stage	1							
Part-Time switch off stage								
Standalone Pedestrian	☐	☐	☐	☐	☐	☐	☐	☐

NB : For a Stand-Alone Stream, the reversion must be to All Red stage or Traffic stage/phase to meet the relevant standard or specification.

Stages

In Stream	0	1	2	3	4	5	6	7
0	■	■	■	■	■	■	■	■

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Phase Type and Conditions

Phase Type and Conditions

Phases A to P

Phase	Title	Type	App. Type	Term. Type	Assoc. Phase
A	A5 NORTHWEST	0 - UK Traffic	0	0 - I	
B	A5 SOUTHEAST	0 - UK Traffic	0	0 - I	
C	A5 RIGHT TURN	0 - UK Traffic	0	0 - I	
D	BIRCH COPPICE LEFT TURN	0 - UK Traffic	0	0 - I	
E	BIRCH COPPICE RIGHTURN	0 - UK Traffic	0	0 - I	
F	TOUCAN CROSSING SOUTHEAST BOUND	3 - UK Near Side Pedestrian	0	0 - I	
G	TOUCAN CROSSING NORTHWEST BOUND	3 - UK Near Side Pedestrian	0	0 - I	
H	FARMERS ACCESS	0 - UK Traffic	0	0 - I	
I	A5 SOUTHEAST TOUCAN APPROACH	0 - UK Traffic	0	0 - I	
J	DEPOT ACCESS	0 - UK Traffic	0	0 - I	
K	DUMMY ALL RED	2 - UK GreenArrow	0	0 - I	

1) App Types: 0 = Always Appears, 1 = Appears if dem'd prior to interstage, 2 = If dem'd, 3 = If dem'd before end of window time
2) Term Types: 0 = Term's at end of stage, 1 = Term's when Assoc phase gains R.O.W, 2 = Term's when Assoc phase loses R.O.W.
3) The H/W Fail Flash fields are for information only on all but ST900ELV Controllers. For other controllers, physical switches or links (etc.) select which aspects flash and these need to be set up manually.

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Opposing and Conflicting Phases

Select Stream(s) To Configure

○ All ○ 0 ○ ○ ○ ○ ○ ○ ○

Initialise

To Phase

From Phase

	A	B	C	D	E	F	G	H	I	J	K
A		o	o	o	Co	o	o	Co	o	Co	o
B	o		Co	Co	Co	o	Co	Co	o	Co	o
C	o	Co		o	Co	o	o	Co	o	Co	o
D	o	Co	o		o	o	o	Co	o	Co	o
E	Co	Co	Co	o		o	o	Co	o	Co	o
F	o	o	o	o	o		o	o	Co	o	o
G	o	Co	o	o	o	o		o	o	o	o
H	Co	Co	Co	Co	Co	o	o		o	Co	o
I	o	o	o	o	o	Co	o	o		o	o
J	Co	Co	Co	Co	Co	o	o	Co	o		o
K	o	o	o	o	o	o	o	o	o	o	

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Phase Minimums, Maximums, Extensions, Ped. Leaving periods

Phase Minimums, Maximums, Extensions, Ped. Leaving periods

(•) Phases A to P ( )

Phase	Min Green	Min Ped Clr	Extensions	Maximums A	B	C	D	E	F	G	H	Pre-timed
A	7	0	4.6	40	30	30	30	40	30	40	60	☐
B	7	0	4.6	40	30	30	30	40	30	40	60	☐
C	7	0	4.6	20	20	15	10	20	20	30	40	☐
D	7	0	4.6	30	25	30	20	30	30	35	50	☐
E	7	0	4.6	20	20	25	30	20	25	30	45	☐
F	6	3	0.0	0	0	0	0	0	0	0	0	☐
G	6	3	0.0	0	0	0	0	0	0	0	0	☐
H	7	0	0.0	7	7	7	7	7	7	7	7	☐
I	7	0	0.0	30	20	20	20	30	30	40	60	☐
J	7	0	0.0	7	7	7	7	7	7	7	7	☐
K	3	0	0.0	0	0	0	0	0	0	0	0	☐
												☐
												☐
												☐
												☐
												☐

NB: For Standalone Streams see Help for use of Max. Sets.

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Phase Intergreen Times

Select Stream(s) To Configure

○ All ○ 0 ○ ○ ○ ○ ○ ○ ○

NB: On a Stand Alone Pelican/Toucan/Puffin Stream the Intergreens between Pedestrian and Traffic Phases are controlled
by the timings (PBT, PIT, CMX, CDY, CRD and PAR), therefore 0 should be entered for the appropriate intergreen times in grid below

To Phase

From Phase	A	B	C	D	E	F	G	H	I	J	K
A					7			7		8	3
B			7	11	9		7	13		11	3
C		8			7			7		7	3
D		6						8		6	3
E	6	6	6					6		6	3
F									0		3
G		0									3
H	7	5	6	5	7					9	3
I						5					3
J	5	5	6	5	5			7			3
K	2	2	2	2	2	2	2	2	2	2	

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Handset Intergreen Limits

HIGH 17

Copy Intergreen Values

To Phase

From Phase

	A	B	C	D	E	F	G	H	I	J	K
A					5			5		5	3
B			5	7	5		5	7		7	3
C		5			5			5		5	3
D		5						5		5	3
E	5	5	5					5		5	3
F											3
G											3
H	5	5	5	5	5					7	3
I						5					3
J	5	5	5	5	5			5			3
K	2	2	2	2	2	2	2	2	2	2	

Phase Timing Handset Ranges

Phase Timing Handset Ranges

Initialise Min Green Limits

Phase	Min. Green Min.	Min. Green Max.	Phase	Min. Green Min.	Min. Green Max.
A	7	255	Q		
B	7	255	R		
C	7	255	S		
D	7	255	T		
E	7	255	U		
F	4	255	V		
G	4	255	W		
H	7	255	X		
I	7	255	Y		
J	7	255	Z		
K	0	255	A2		
L			B2		
M			C2		
N			D2		
O			E2		
P			F2		

	Min.	Max.
Max. Green	0	255
Vehicle Extension	0.0	10.0
Phase Delay	0	30
Starting I/G	8	20
Min Ped Clr (PBT)	3	3
Traffic Phase Leaving	3.0	3.0
Traffic Phase Red/Amber	2	2

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Phase - VA Demand and Extend Definitions

VA Demand and Extend Definitions

Phases A to P

Demands

For Unlatched demands preceed the name with a #.
Conditioning MUST be used to specify unlatched demands.

Phase				
A	AX2	AX4		
B	BX6	BX8	BX9	
C	CX11	CSL12	CX13	CSL14
D	DX16	DX18	DSL19	
E	EX20	ESL21		
F	PBUF			
G	PBUG			
H	HSL24			
I				
J	JSL25			
K				

Extensions

Phase				
A	AX2	AX4		
B	BX6	BX8	BX9	
C	CX11	CX13		
D	DX16	DX18		
E	EX20			
F				
G				
H				
I				
J				
K				

Phase Internal/Revertive Demands

Phase Internal/Revertive Demands

Start-up Vehicle Responsive Demands

A ☑ B ☑ C ☑ D ☑ E ☑ F ☐ G ☐ H ☑ I ☐ J ☑ K ☐ ☐ ☐ ☐ ☐ ☐
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Demands Inserted When Leaving Manual and Fixed Time Modes

A ☑ B ☑ C ☑ D ☑ E ☑ F ☐ G ☐ H ☑ I ☐ J ☑ K ☐ ☐ ☐ ☐ ☐ ☐
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Unlatched Demands that Start Max Timers

A ☑ B ☑ C ☑ D ☑ E ☑ F ☑ G ☑ H ☑ I ☑ J ☑ K ☑ ☐ ☐ ☐ ☐ ☐
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Revertive Phase Demands

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
A	B	C	D	E											

Q	R	S	T	U	V	W	X	Y	Z	A2	B2	C2	D2	E2	F2

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Phase - OnCrossing and Kerbside Detector Definitions

On Crossing and Kerbside Input Definitions

(•) Phases A to P ( )

Phase	On Crossing				Kerbside			
A								
B								
C								
D								
E								
F	ONC3F	ONC16F						
G	ONC6G	ONC7G						
H								
I								
J								
K								

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Stream - Pelican/Puffin/Toucan Times

Stream - Pelican/Puffin/Toucan Times

Pedestrian Enable VA Mode (PEV)

Streams							
0	1	2	3	4	5	6	7

Pedestrian All Red Times (Vehicle to Pedestrian)

Streams	0	1	2	3	4	5	6	7
(PARn 0) VA Gap Change								
(PAR n 1) VA Max Change								
(PAR n 2) FVP Change								
(PAR n 3) UTC Change								
(PAR n 4) Local Link Change								

Pelican Intergreen times

(PIT n 0) Veh Red/Ped Flash Green	
(PIT n 1) Veh Flash Amber/Ped Flash Green	
(PIT n 2) Veh Flash Amber/Ped red	
(PIT n 3) Veh Flash Amber/Ped Red Quiescent	

Handset Range Limits

	Min	Max
Pedestrian All Red Times	0	0
(PIT n 0)	0	0
(PIT n 1)	0	0
(PIT n 2)	0	0
(PIT n 3)	0	0

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Phase - Pelican Puffin and Toucan Times

Phase - Pelican Puffin and Toucan Times

Phases A to P

Phase	PDD Ped Dem Del	PDX Demand Holc	CMX Ped Clearance Maximum	CDY 0 Clearance Delay Gap Chng	CDY 1 Clearance Delay Max Chng	CRD Clearance Minimum Red
A	0	0.0	0	0	0	0
B	0	0.0	0	0	0	0
C	0	0.0	0	0	0	0
D	0	0.0	0	0	0	0
E	0	0.0	0	0	0	0
F	1	0.0	16	3	3	0
G	1	0.0	20	3	3	0
H	0	0.0	0	0	0	0
I	0	0.0	0	0	0	0
J	0	0.0	0	0	0	0
K	0	0.0	0	0	0	0

Handset Range Limits

	MIN	MAX
Pedestrian Demand delay PDD	0	3
Pedestrian Demand Hold PDX	0.0	5.0
Pedestrian Clearance CMX	0	24
Pedestrian Clearance Delays CDY 0 and CDY1	0	5
Pedestrian Clearance Delay (Red) CRD	0	8

IO and Link - Pelican/Puffin/Toucan Times

I/O and Link - Pelican/Puffin/Toucan Times

Streams	0	1	2	3	4	5	6	7
Computer Control								
PV								
Window Time UIE								
Local Link								
PV1								
Link Delay Time LKD								
Link Window Time LKW								
Link Override Time LKO								

Kerbside Mat Test Output

Stage Internal Demands / Ped. Window Times

Stage Internal Demands / Ped. Window Times

Start-up Vehicle Responsive Demands

0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Demands Inserted When Leaving Manual and Fixed Time Modes

0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Unlatched Demands that Start Maximum Timers

0 ☑ 1 ☑ 2 ☑ 3 ☑ 4 ☑ 5 ☑ 6 ☑ 7 ☑ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Window Times

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0	0	0	0	0	0	0								

16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

Phase delays

Phase delays

(•) Phase Delays 0-29 ( ) Phase Delays 30-59 ( ) Phase Delays 60-89 ( ) Phase Delays 90-119

No.	Delay Phase	On Change from Stage	To Stage	By (X) Seconds	No.	Delay Phase	On Change from Stage	To Stage	By (X) Seconds
0	I	1	7	6	15				0
1				0	16				0
2				0	17				0
3				0	18				0
4				0	19				0
5				0	20				0
6				0	21				0
7				0	22				0
8				0	23				0
9				0	24				0
10				0	25				0
11				0	26				0
12				0	27				0
13				0	28				0
14				0	29				0

Fixed Time

Fixed Time

Stage Moves & Times (Not Fixed Time to Current Max)

Current Stage	0	1	2	3	4	5	6	7
Next Stage								
Time								

Current Stage	8	9	10	11	12	13	14	15
Next Stage								
Time								

Current Stage	16	17	18	19	20	21	22	23
Next Stage								
Time								

Current Stage	24	25	26	27	28	29	30	31
Next Stage								
Time								

Phases Demanded and Extended under Fixed Time to Current Max.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Demand	☑	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Extend	☑	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

	Q	R	S	T	U	V	W	X	Y	Z	A2	B2	C2	D2	E2	F2
Demand	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Extend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

CLF - Base Time

CLF - Base Time

Controller Base Date: XX/XX/XX

Controller Base Time: 02:00:00

Plan Offset

	Minutes	Seconds		Minutes	Seconds
Plan 0	0	0	Plan 8	0	0
Plan 1	0	0	Plan 9	0	0
Plan 2	0	0	Plan 10	0	0
Plan 3	0	0	Plan 11	0	0
Plan 4	0	0	Plan 12	0	0
Plan 5	0	0	Plan 13	0	0
Plan 6	0	0	Plan 14	0	0
Plan 7	0	0	Plan 15	0	0

Handset Range Limits

	Minutes	Seconds
Min	0	0
Max	255	59

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

CLF - Demand Dependent Moves

Clear Grid Data

Notes:
If no data is entered for a stage then a demand for any phases in that stage will be considered.
The data specified on this screen will also change the screen
CLF - Demands to Consider with Demand Dependent Stage Moves.

Phases

Stages	A	B	C	D	E	F	G	H	I	J	K
0											
1	■	■									
2			■				■				
3				■							
4					■						
5								■			
6										■	
7						■					

UTC General Data

UTC General Data

Type of UTC

- (●) 106
- ( ) 316

Integral OTU Address

2	Number of Control Words
2	Number of Reply Words

- [ ] Controller to respond to TC bit.
- [ ] Introduction of UTC to be disabled by Priority Mode

[ ] Non UTC RTC synchronisation input name

RTC Synchronisation Times

Clock Synchronise Time (UTC TS input)

Day	Time
Time Only	12:00:00

Clock Confirm Time (UTC RT output)

Day	Time
Saturday	00:00:00

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

UTC Control and Reply Data Format

UTC Control and Reply Data Format

Control Words

	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7	Bit 8
Word 1	F1	F2	F3	F4	F5	F6	F7	F8
Word 2								
Word 3								
Word 4								

Reply Words

	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7	Bit 8
Word 1	G1	G2	G3	G4	G5	G6	G7	G8
Word 2	PA	PB	PD					
Word 3								
Word 4								
Word 5								
Word 6								
Word 7								
Word 8								
Word 9								
Word 10								
Word 11								
Word 12								
Word 13								
Word 14								

UTC Stage and Modes Data Definitions

UTC Stage and Modes Data Definitions

Stage	Force Bit	Green Confirm Bit	Demand Confirm Bit	Stage	Force Bit	Green Confirm Bit	Demand Confirm Bit
0	F8	G8		16			
1	F1	G1		17			
2	F2	G2		18			
3	F3	G3		19			
4	F4	G4		20			
5	F5	G5		21			
6	F6	G6		22			
7	F7	G7		23			
8				24			
9				25			
10				26			
11				27			
12				28			
13				29			
14				30			
15				31			

Mode Data Definitions

Manual Mode Operative:
☐ G1/G2 ☐ RR ☐

Manual Mode Selected:
☐ G1/G2 ☐ RR ☐

No Lamp Power, or Lamps Off due to RLM (
☐ G1/G2 ☐ ☐

Detector Fault:
☐ ☐ ☐ DF

Normal NOT selected on the Manual Panel:
☐ G1/G2 ☐ RR ☐

RR Button Selected:
☐ G1/G2 ☐ RR ☐

If UTC Reply Confirms are required for a Controller Fault (CF) OR for separate MC and RR replies, Conditioning must be used.

UTC Demand Dependent Forces

Clear Grid Data

Notes:
If no data is entered for a stage then a demand for any phases in that stage will be considered.
The data specified on this screen will also change the screen
CLF - Demands to Consider with Demand Dependent Stage Moves.

Phases

Stages	A	B	C	D	E	F	G	H	I	J	K
0											
1	■	■									
2			■				■				
3				■							
4					■						
5								■			
6										■	
7						■					

Works Order : 199069
EM Number : E63476
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Serial MOVA

Serial MOVA

1	AIN1	2	AX2	3	AIN3	4	AX4	5	BIN5	6	BX6	7	BIN7	8	BX8
9	BX9	10	CIN10	11	CX11	12	CSL12	13	CX13	14	CSL14	15	DIN15	16	DX16
17	DIN17	18	DX18	19	DSL19	20	EX20	21	ESL21	22		23		24	HSL24
25	JSL25	26		27		28		29		30		31		32	AMB32
33		34		35		36		37		38		39		40	
41		42		43		44		45		46		47		48	
49		50		51		52		53		54		55		56	
57		58		59		60		61		62		63		64	

Note - only 32 detectors available on MOVA 4.0

MTC - Time Switch Parameters

MTC - Time Switch Parameters

	Type	Event
0	Alternate Max	MAXSETB
1	Alternate Max	MAXSETC
2	Alternate Max	MAXSETD
3	Alternate Max	MAXSETE
4	Alternate Max	MAXSETF
5	Alternate Max	MAXSETG
6	Alternate Max	MAXSETH
7	Alternate DFM	ALTDFMB
8	Alternate DFM	ALTDFMC
9	Alternate DFM	ALTDFMD
10	No Action	
11	No Action	
12	No Action	
13	No Action	
14	No Action	
15	No Action	

	Type	Event
16	No Action	
17	No Action	
18	No Action	
19	No Action	
20	No Action	
21	No Action	
22	No Action	
23	No Action	
24	No Action	
25	No Action	
26	No Action	
27	No Action	
28	No Action	
29	No Action	
30	No Action	
31	No Action	

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

MTC - Time Switch Parameters Array

Parameters

Events	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
MAXSETB		■																														
MAXSETC			■																													
MAXSETD				■																												
MAXSETE					■																											
MAXSETF						■																										
MAXSETG							■																									
MAXSETH								■																								
ALTDFMB																																
ALTDFMC																																
ALTDFMD																																
UnUsed																																
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Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Master Time Clock - Day Type

Master Time Clock - Day Type

No.	Mon	Tue	Wed	Thu	Fri	Sat	Sun
0	☐	☐	☐	☐	☐	☑	☐
1	☐	☐	☐	☐	☐	☐	☑
2	☑	☐	☐	☐	☐	☐	☐
3	☐	☑	☐	☐	☐	☐	☐
4	☐	☐	☑	☐	☐	☐	☐
5	☐	☐	☐	☑	☐	☐	☐
6	☐	☐	☐	☐	☑	☐	☐
7	☑	☑	☑	☑	☑	☑	☑
8	☑	☑	☑	☑	☑	☑	☐
9	☑	☑	☑	☑	☑	☐	☐
10	☐	☐	☐	☐	☐	☑	☑
11	☐	☐	☐	☐	☐	☐	☐
12	☐	☐	☐	☐	☐	☐	☐
13	☐	☐	☐	☐	☐	☐	☐
14	☐	☐	☐	☐	☐	☐	☐
15	☐	☐	☐	☐	☐	☐	☐

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Master Time Clock - Time Table

Master Time Clock - Time Table

View Time Table settings

(●) 0-15 ( ) 16-31 ( ) 32-47 ( ) 48-63

Number	Day Type	Time	Introduce Function Required	Function Number	Plan/ Parameter
0	9	07:00:00	INTRODUCE MAX SET A	2	0
1	9	09:30:00	INTRODUCE MAX SET B	2	1
2	9	12:00:00	INTRODUCE MAX SET C	2	2
3	9	14:00:00	INTRODUCE MAX SET D	2	3
4	9	16:00:00	INTRODUCE MAX SET E	2	4
5	9	19:00:00	INTRODUCE MAX SET F	2	5
6	1	10:00:00	INTRODUCE MAX SET G	2	6
7	1	18:00:00	INTRODUCE MAX SET H	2	7
8	0			0	0
9	0			0	0
10	0			0	0
11	0			0	0
12	0			0	0
13	0			0	0
14	0			0	0
15	0			0	0

Function Numbers:

0 = Isolate From CLF

1 = Introduce a CLF Plan

2 = Introduce a Parameter
(Combination of event switches

3 = Selects an Individual
event switch to be set

4 = Selects an Individual
event switch to be
cleared.

LMU - General

LMU - General

Lamp Monitoring - LMU Voltage

- (●) 200-240
- ( )
- ( ) 50-0-50, 100-120
- ( ) 230 CLS

Red Lamp Monitoring

Max Red Bulb Wattage: 50

First Red Lamp Fault Speed

- [ ] RLF2 Cancels RLM additional Intergreens
- [ ] RLF2 Only Cleared by RFL = 1
- [ ] RLF1 Only Cleared by RFL = 1

RLM Additional Intergreen Handset Limits

Minimum	Maximum
0	10

Streams with Phase BlackOut on RLF2

[ ] 0 [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

LMU - Sensors

LMU - Sensors

On-Board Sensors

Sensor\ Phase	Sensor Type	Bulb Watts	NLM CLS
1 \ A	As Seq.	40	☐
2 \ B	As Seq.	40	☐
3 \ C	As Seq.	40	☐
4 \ D	As Seq.	40	☐
5 \ E	As Seq.	40	☐
6 \ F	None	40	☐
7 \ G	None	40	☐
8 \ H	As Seq.	40	☐
9 \ I	As Seq.	40	☐
10 \ J	As Seq.	40	☐
11 \ K	As Seq.	40	☐
12 \ L	As Seq.	40	☐
13 \ M	As Seq.	40	☐
14 \ N	As Seq.	40	☐
15 \ O	As Seq.	40	☐
16 \ P	As Seq.	40	☐

On-Board Sensors

Sensor\ Phase	Sensor Type	Bulb Watts	NLM CLS
17 \ Q			☐
18 \ R			☐
19 \ S			☐
20 \ T			☐
21 \ U			☐
22 \ V			☐
23 \ W			☐
24 \ X			☐
25 \ Y			☐
26 \ Z			☐
27 \ A2			☐
28 \ B2			☐
29 \ C2			☐
30 \ D2			☐
31 \ E2			☐
32 \ F2			☐

External Sensors

Sensor\ Pin	Drive	Sensor Type	Bulb Watts
33 \ b14		Reg. Sign	7
34 \ z16		Reg. Sign	7
35 \ z14		Reg. Sign	7
36 \ z12		Reg. Sign	7
37 \ b14		Reg. Sign	7
38 \ z16		Reg. Sign	7
39 \ z14		Reg. Sign	7
40 \ z12		Reg. Sign	7
41 \ b14			
42 \ z16			
43 \ z14			
44 \ z12			
45 \ b14			
46 \ z16			
47 \ z14			
48 \ z12			

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

RLM Additional Intergreens

Phases Delayed

Phases with RLF1

	A	B	C	D	E	F	G	H	I	J	K
A											
B							2				
C											
D											
E											
F											
G											
H											
I						2					
J											
K											

Works Order : 199069
EM Number : E63476
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Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

RLM Phase Inhibits

Phases Inhibited/Blacked-out

Phases with RLF2	A	B	C	D	E	F	G	H	I	J	K
A											
B							■				
C											
D											
E											
F											
G											
H											
I						■					
J											
K											

Hurry Call

Hurry Call

Hurry Call	Stage Called	Call Input Name	Cancel Input Name	Confirm Output Name	Delay Time	Hold Time	Prevent Time
0	1	*SCRT1			6	30	120
1					0	0	0
2					0	0	0
3					0	0	0
4					0	0	0
5					0	0	0
6					0	0	0
7					0	0	0

Hurry Call Limit Values

	Min.	Max.
Call Delay	0	255
Call Hold	0	255
Call Prevent	0	255

Manual Panel

Manual Panel

Stage Buttons and LEDs

Button No.	Title	Called Stage for Stream 0	1	2	3	4	5	6	7
0	ALL RED	0							
1	A5 MAIN ROAD	1							
2	A5 NORTHWEST _RIGHT TURN	2							
3	BIRCH COPPICE LEFT TURN	3							
4	BIRCH COPPICE LEFT TURN _RIGHT TURN	4							
5	FARMERS ACCESS	5							
6	DEPOT ACCESS	6							
7	PEDESTRIAN PHASE F	7							

General LEDs

	AUX 1	AUX 2	AUX 3	AUX 4 (Hurry Call)	AUX 5 (Higher Priority)
Conditioned	☑	☐	☐	☑	☑

Manual Mode Enable

- (●) Always
- ( ) When Handset Plugged in (Note 1)
- ( ) When 'MND' Command Entered

Note 1:
For this to operate Special Conditioning is required.

General Buttons

	None	SW1	SW2	SW3
Momentary		☑	☐	☐
Dim Override	(●)	( )	( )	( )
RR	(●)	( )	( )	( )

Manual Signals On

- ( ) Immediate Signals On
- (●) As Start-Up

Mode Select Switches Disabled

☐ VA ☐ Fixed Time ☐ CLF

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Special Conditioning

```
; MANUAL PANEL
;==============
;
(MODE0 EQL<6>)=MIL17            ; WHEN MOVA IS ACTIVE LIGHT HIGHER PRIORITY LED.
(MODE0 EQL<5>)=MIL07            ; HURRY CALL ACTIVE LIGHT HURRY CALL LED.
AMB32+MAUXSW1=MIL22             ; ILLUMINATE AUX 1 WHEN AMBULANCE P/B IS ACTIVE.
MAUXSW1=+MOVADET32             ; SET MOVA DET 32 WHEN AUX SWITCH 1 IS PRESSED.

;
;
; MOVA
;======
;
NOT(PHASEA)=PA                                   ; PHASE A ACTIVE REPLY PA
NOT(PHASEB)=PB                                   ; PHASE B ACTIVE REPLY PB
NOT(PHASED)=PD                                   ; PHASE D ACTIVE REPLY PD
PRSLMPAF=+MOVADET22                              ; WAIT LAMP CONFIRMS FOR PHASE F
PRSLMPAG=+MOVADET23                              ; WAIT LAMP CONFIRMS FOR PHASE G
;
; VA HURRY CALL
;===============
;
(MODE0 EQL<2>).(AMB32+MAUXSW1)=SCRT1             ; DEMAND HURRY CALL ONLY IN VA FROM P/B OR MANUAL PANNEL
;
;
; MOVA CRB
;==========
;
IFT NOT(MODE0 EQL<6>).NOT(CNDTMA0).SSNRM THN             ; NOT IN MOVA MODE AND IN NORMAL RUN TIMER
    RUN<0>
END
IFT CNDTER0+((PRVMOD0 EQL<6>).NOT(MODE0 EQL<6>)) THN    ; START TIMER WHEN MOVA DROPS OFF OR TIMER TERMINATES
    LOD<10> 1SCRTCH0
    TRUE=2SCRT1
END                                                      ; START A 2 SEC INTERNAL TIMER FOR CRB TOGGLE
NOT(1SCRTST0 EQL<0>)=.2SCRT1                             ; RESET SCRT BIT WHEN COUNT REACHES ZERO
IFT (1SCRTST0 GRT<0>) THN                                ; DECREMENT COUNT EVERY 200MS UNTIL ZERO
    DEC 1SCRTCH0
END
SSNRM.(NOT(2SCRT1)+(MODE0 EQL<6>))=MOVACRB               ; WHEN TIMER TERMINATES TOGGLE CRB
;
;
;
; VA STAGE MOVEMENTS
;====================
;
(MODE0 EQL<2>).NOT(LCPHD+UCPHD+LCST3+UCST3)=PRVST3
(MODE0 EQL<2>).NOT(LCPHE+UCPHE+LCST4+UCST4)=PRVST4
(MODE0 EQL<2>).NOT(LCPHH+UCPHH+LCST5+UCST5)=PRVST5
(MODE0 EQL<2>).NOT(LCPHJ+UCPHJ+LCST6+UCST6)=PRVST6
(MODE0 EQL<2>).NOT(LCPHF+UCPHF+PEDBUTF+LCST7+UCST7)=PRVST7
```

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Special Conditioning Timers

Special Conditioning Timers

Timers

(•) 0-31 ( ) 32-63 ( ) 64-95

No	Value	Min	Max	200ms	Description	No	Value	Min	Max	200ms	Description
0	120	0	255	☐	CRB TOGGLE	16		0	255	☐	
1		0	255	☐		17		0	255	☐	
2		0	255	☐		18		0	255	☐	
3		0	255	☐		19		0	255	☐	
4		0	255	☐		20		0	255	☐	
5		0	255	☐		21		0	255	☐	
6		0	255	☐		22		0	255	☐	
7		0	255	☐		23		0	255	☐	
8		0	255	☐		24		0	255	☐	
9		0	255	☐		25		0	255	☐	
10		0	255	☐		26		0	255	☐	
11		0	255	☐		27		0	255	☐	
12		0	255	☐		28		0	255	☐	
13		0	255	☐		29		0	255	☐	
14		0	255	☐		30		0	255	☐	
15		0	255	☐		31		0	255	☐	

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Special Instructions

E63476

Board	Position	Skt	Port	Type I or O	Line	Cable	Block
CPU	A	X3I	0	I	00 - 07	101	1TBG
CPU	A	X3I	1	I	08 - 15		1TBH
CPU	A	X3O	11	O	88 - 91	105	1TBX
IO1	B	B	2	I	16 - 23	103	1TBJ
IO1	B	E	4	O	32 - 39		1TBK
IO1	B	C	3	I	24 - 31	103	1TBL
IO1	B	D	5	O	40 - 47		1TBM
IO2	C	B	6	I	48 - 55	103	1TBN
IO2	C	E	8	O	64 - 71		1TBP
IO2	C	C	7	I	56 - 63	103	1TBR
IO2	C	D	9	O	72 - 79		1TBS

The socket X3 on the CPU pcb is the double stacked one
X3I = Inner (nearest the board)
X3O = Outer

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Special Instructions

ST800 CONTROLLER ITEMS LIST SHEET 1 (*I*L*)

ITEM	DRAWING NUMBER	DESCRIPTION	QTY	TOT	REMARKS
1					
2	667/1/27000/001	Cabinet 8 Phase wired 16 Phase	1		
3	667/1/27000/002	Cabinet 24 Phase wired 32 Phase			
4	667/1/27001/001	Rack 8 Phase wired 16 Phase			
5	667/1/27001/002	Rack 24 Phase wired 32 Phase			
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24	667/1/27002/000	Lamp Switch Kit 8 Phase	1		
25	667/1/27003/000	I/O Kit	2		
26	667/1/27005/000	SDE Facility Kit			
27	667/1/27004/000	Integral OTU Kit			
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39	667/1/16260/476	Configuration Eprom (Issue 6. 0)	1		
40					

Note 1:
Please refer to special instruction pages for additional information on items marked with an '*'.

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Special Instructions

ST800 CONTROLLER ITEMS LIST SHEET 2 (*I*L*)

ITEM	DRAWING NUMBER	DESCRIPTION	QTY	TOT	REMARKS
41					
42	667/1/27056/001	Manual Panel Assy (Intersection Cont)			
43	667/1/27056/010	Manual Panel Assy (Sigs on/off)			
44	667/1/27056/000	Manual Panel Blanking Kit			
45					
46					Note 2:
47					Ancillary Processor PLD
48					Variants
49					101 OTU & LMU
50					102 OTU Only
51					103 LMU Only
52	667/7/25171/000	Current Transformer			104 OTU & LMU + Up/Download
53					105 OUT Only + Up/DownLoad
54					NB Controller Has built in LMU
55					So LMU on Ancillary Processor
56					Not required included for info
57					only.
58					
59					
60					Note 3:
61	667/1/27000/101	Cabinet Export 8 Phase wired 16 Phase			Fit Current Transformer
62	667/1/27000/102	Cabinet Export 24 Phase wired 32 Phase			starting from position
63	667/1/27001/101	Rack Export 8 Phase wired 16 Phase			TLB/z/16 on the first phase
64	667/1/27001/102	Rack Export 24 Phase wired 32 Phase			driver PCB. if more than 3
65	667/1/27002/100	Export Lamp Switch Kit			sensors are called up fit the
66	667/1/27084/001	Dimming Assembly (1.5KVA)(Fit Std UK)			4th sensor to the second
67	667/1/27084/002	Dimming Assembly (2.0KVA)			Phases driver PCB, and so on
68	667/1/27084/003	Dimming Assembly (3.0KVA)			until all sensors have been
69	667/1/27130/000	30A Controller Kit			used up.
70					TLB/b/14 - 1st sensor terminal
71	667/1/27001/310	ST800 SE Export Rack up to 8 Phase			TLB/z/16 - 2nd sensor terminal
72	667/1/27223/003	ST800 SE 8 Phase Driver No LMU			TLB/z/14 - 3rd sensor terminal
73	667/1/27223/403	ST800 SE 4 Phase Driver No LMU			TLB/z/12 - 4th sensor terminal
74					TLB/z/12 - 4th sensor terminal
75					
76					
77	667/1/27000/301	ST800 P In a Cabinet 4Ph 1 Stream PED			TLB/z/12 - 4th sensor terminal
78	667/1/27012/000	PED 2nd Stream Kit for ST800 P			
79	667/1/27001/300	ST800 P Rack Only 4Ph 1 Stream PED			

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Special Instructions

Special Instructions

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Special Instructions

DETECTOR EQUIPMENT SHEET (*I*L*)

Item	Drawing Number	DESCRIPTION	QTY	TOT	REMARKS
1	667/1/20690/000	Detector 11 inch detector rack kit			
2	667/1/20690/001	Detector 19 inch detector rack kit	1		
3	667/1/17705/011	Detector Beehive kit (excl Pedestal)			
4	667/2/01999/000	Pedestal (Metric) D Detr. Housing			
5	667/1/17212/000	Detector L bracket kit			
6	667/1/22447/000	Detector Mounting Kit E.F.U. (T500)			
7	667/1/22470/000	Detector Frame Assy (T500)			
8	667/1/15990/002	Detector double backplane kit			
9	667/1/15990/003	Detector single backplane kit	7		
10	667/1/15990/004	Detector logic backplane kit			
11					
12	667/1/27663/000	Siemens STR4 (4 Channel) loop detector	7		
13	667/1/21029/001	48V WAIT SUPPLY KIT	6		
14	667/1/20292/008	24V AGD SUPPLY KIT	3		
15	667/1/03887/000	Detector Cableform (1 per 2 B/Planes)			
16	667/1/15854/000	Detector Cable termination kit	5		
17					
18	667/1/15991/000	Mod Kit Regulator PSU 1.5A 21-38V			
19	667/1/15991/001	Mod Kit Regulator PSU 0.5A 21-48V			
20					
21					
22	667/7/20360/002	Microsense Detr. Board 2 Channel			Eng. to supply
23	667/7/20360/004	Microsense Detr. Board 4 Channel			Eng. to supply
24	667/7/20368/000	Microsense Rack 3Ux19"			Eng. to supply
25	667/7/20365/000	Microsense 20-Way Backplane (Std)			Eng. to supply
26	667/7/20366/000	Microsense 20-Way Logic Backplane			
27	667/7/20369/000	Microsense Card Frame Guides (Pr.)			Eng. to supply
28					
29	667/7/20361/002	Microsense 2 Channel U/D Logic			
30	667/7/20361/004	Microsense 4 Channel U/D Logic			
31	667/7/20362/000	Microsense Count Logic N,N+1,U/D & DFM			
32	667/7/20363/000	Microsense Queue Logic with DFM			Eng. to supply
33	667/7/20364/000	Microsense Bus Detector 2-Channel			Eng. to supply
34					
35					
36	667/7/20377/000	Microsense MIX 3-1-R-24 I/R detector			Nearside mounting
37	667/7/20377/001	Microsense MIX 3-2-R-24 I/R detector			Offside mounting
38	667/7/20378/000	Short fixing bracket			
39	667/7/20379/000	Sighting Hood for MIX detectors			Eng. to supply
40	667/7/20380/000	Handbook for MIX detectors			Eng. to supply

[Template - Detector items.txt issue 1.0]

Special Instructions

SIEMENS SINGLE INTERNAL DETECTOR BACKPLANE INSTRUCTIONS SHEET (BACKPLANE 1)

CONNECTIONS MADE USING CABLEFORM 667/1/03887/002
UNUSED WIRE ENDS MUST BE TIED BACK AND INSULATED

DETECTOR RACK POWER CONNECTIONS

SIGNAL	WIRE COLOUR	SUPPLY TERMINALS FROM ST800	BACKPLANE No.1 TERMINALS
24 VOLTS	RED	1TBE 1 to 6	19
0 VOLTS	BLACK	1TBE 7 to 12	20
SCREEN	PINK	1TBE 7 to 12	22
COMMON	WHITE	1TBE 7 to 12	18

LOOP No.	LOOP DESIGNATION	INTERMEDIATE TERMINALS	WIRE COLOUR	BACKPLANE TERMINALS
1	AIN1	2TBR 1 & 2TBR 2	GREEN	1 & 2
2	AX2	2TBR 3 & 2TBR 4	BLUE	3 & 4
3	AIN3	2TBR 5 & 2TBR 6	ORANGE	5 & 6
4	AX4	2TBR 7 & 2TBR 8	BROWN	7 & 8

DETECTOR OUTPUTS

DETECTOR No.	BACKPLANE TERMINALS	COLOUR	CONTR TERMINALS
1	10	BLUE	1TBG 1
2	12	GREEN	1TBG 2
3	14	ORANGE	1TBG 3
4	16	YELLOW	1TBG 4

[Template - Internal intermediate Detectors.txt iss 1.0]

Note 1 If more than one backplane power Linking between B/Planes to be made using the Red, Black Pink and White from 667/1/03887/002

Note 2 Use the detector termination kit (667/1/15854/000) to do the intermediate wiring.

Note 3 Ensure that the correct colour wires are used for the inter-mediate wiring.

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Special Instructions

SIEMENS SINGLE INTERNAL DETECTOR BACKPLANE INSTRUCTIONS SHEET (BACKPLANE 2)

CONNECTIONS MADE USING CABLEFORM 667/1/03887/002
UNUSED WIRE ENDS MUST BE TIED BACK AND INSULATED

DETECTOR RACK POWER CONNECTIONS

SIGNAL	WIRE COLOUR	BACKPLANE NO.1 TERMINALS	BACKPLANE No.2 TERMINALS
24 VOLTS	RED	19	19
0 VOLTS	BLACK	20	20
SCREEN	PINK	22	22
COMMON	WHITE	18	18

LOOP No.	LOOP DESIGNATION	INTERMEDIATE TERMINALS	WIRE COLOUR	BACKPLANE TERMINALS
1	CSL12	2TBR 9 & 2TBR 10	SLATE	1 & 2
2	CSL14	2TBR 11& 2TBR 12	BLUE/WHITE	3 & 4
3	CX11	2TBS 1 & 2TBS 2	GREEN	5 & 6
4	CX13	2TBS 3 & 2TBS 4	BLUE	7 & 8

DETECTOR OUTPUTS

DETECTOR No.	BACKPLANE TERMINALS	COLOUR	CONTR TERMINALS
1	10	BLUE	1TBG 5
2	12	GREEN	1TBG 6
3	14	ORANGE	1TBG 7
4	16	YELLOW	1TBG 8

[Template - Internal intermediate Detectors.txt iss 1.0]

Note 1 If more than one backplane power Linking between B/Planes to be made using the Red, Black Pink and White from 667/1/03887/002

Note 2 Use the detector termination kit (667/1/15854/000) to do the intermediate wiring.

Note 3 Ensure that the correct colour wires are used for the inter-mediate wiring.

Special Instructions

SIEMENS SINGLE INTERNAL DETECTOR BACKPLANE INSTRUCTIONS SHEET (BACKPLANE 3)

CONNECTIONS MADE USING CABLEFORM 667/1/03887/002
UNUSED WIRE ENDS MUST BE TIED BACK AND INSULATED

DETECTOR RACK POWER CONNECTIONS

SIGNAL	WIRE COLOUR	BACKPLANE NO.2 TERMINALS	BACKPLANE No.3 TERMINALS
24 VOLTS	RED	19	19
0 VOLTS	BLACK	20	20
SCREEN	PINK	22	22
COMMON	WHITE	18	18

LOOP No.	LOOP DESIGNATION	INTERMEDIATE TERMINALS	WIRE COLOUR	BACKPLANE TERMINALS
1	CIN10	2TBS 5 & 2TBS 6	ORANGE	1 & 2
2		2TBS 7 & 2TBS 8	BROWN	3 & 4
3		2TBS 9 & 2TBS 10	SLATE	5 & 6
4	DSL19	2TBS 11& 2TBS 12	BLUE/WHITE	7 & 8

DETECTOR OUTPUTS

DETECTOR No.	BACKPLANE TERMINALS	COLOUR	CONTR TERMINALS
1	10	BLUE	1TBH 1
2	12	GREEN	1TBH 2
3	14	ORANGE	1TBH 3
4	16	YELLOW	1TBH 4

[Template - Internal intermediate Detectors.txt iss 1.0]

Note 1 If more than one backplane power Linking between B/Planes to be made using the Red, Black Pink and White from 667/1/03887/002

Note 2 Use the detector termination kit (667/1/15854/000) to do the intermediate wiring.

Note 3 Ensure that the correct colour wires are used for the inter-mediate wiring.

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Special Instructions

SIEMENS SINGLE INTERNAL DETECTOR BACKPLANE INSTRUCTIONS SHEET (BACKPLANE 4)

CONNECTIONS MADE USING CABLEFORM 667/1/03887/002
UNUSED WIRE ENDS MUST BE TIED BACK AND INSULATED

DETECTOR RACK POWER CONNECTIONS

SIGNAL	WIRE COLOUR	BACKPLANE No.3 TERMINALS	BACKPLANE No.4 TERMINALS
24 VOLTS	RED	19	19
0 VOLTS	BLACK	20	20
SCREEN	PINK	22	22
COMMON	WHITE	18	18

LOOP No.	LOOP DESIGNATION	INTERMEDIATE TERMINALS	WIRE COLOUR	BACKPLANE TERMINALS
1	DX16	2TBY 1 & 2TBY 2	GREEN	1 & 2
2	DX18	2TBY 3 & 2TBY 4	BLUE	3 & 4
3	DIN15	2TBY 5 & 2TBY 6	ORANGE	5 & 6
4	DIN17	2TBY 7 & 2TBY 8	BROWN	7 & 8

DETECTOR OUTPUTS

DETECTOR No.	BACKPLANE TERMINALS	COLOUR	CONTR TERMINALS
1	10	BLUE	1TBH 5
2	12	GREEN	1TBH 6
3	14	ORANGE	1TBH 7
4	16	YELLOW	1TBH 8

Note 1 If more than one backplane power Linking between B/Planes to be made using the Red, Black Pink and White from 667/1/03887/002

Note 2 Use the detector termination kit (667/1/15854/000) to do the intermediate wiring.

Note 3 Ensure that the correct colour wires are used for the inter-mediate wiring.

[Template - Internal intermediate Detectors.txt iss 1.0]

Special Instructions

SIEMENS SINGLE INTERNAL DETECTOR BACKPLANE INSTRUCTIONS SHEET (BACKPLANE 5)

CONNECTIONS MADE USING CABLEFORM 667/1/03887/002
UNUSED WIRE ENDS MUST BE TIED BACK AND INSULATED

DETECTOR RACK POWER CONNECTIONS

SIGNAL	WIRE COLOUR	BACKPLANE NO.4 TERMINALS	BACKPLANE No.5 TERMINALS
24 VOLTS	RED	19	19
0 VOLTS	BLACK	20	20
SCREEN	PINK	22	22
COMMON	WHITE	18	18

LOOP No.	LOOP DESIGNATION	INTERMEDIATE TERMINALS	WIRE COLOUR	BACKPLANE TERMINALS
1	ESL21	2TBY 9 & 2TBY 10	SLATE	1 & 2
2	EX20	2TBY 11& 2TBY 12	BLUE/WHITE	3 & 4
3	BX6	2TBN 1 & 2TBN 2	GREEN	5 & 6
4	BX8	2TBN 3 & 2TBN 4	BLUE	7 & 8

DETECTOR OUTPUTS

DETECTOR No.	BACKPLANE TERMINALS	COLOUR	CONTR TERMINALS
1	10	BLUE	1TBJ 1
2	12	GREEN	1TBJ 2
3	14	ORANGE	1TBJ 3
4	16	YELLOW	1TBJ 4

[Template - Internal intermediate Detectors.txt iss 1.0]

Note 1 If more than one backplane power Linking between B/Planes to be made using the Red, Black Pink and White from 667/1/03887/002

Note 2 Use the detector termination kit (667/1/15854/000) to do the intermediate wiring.

Note 3 Ensure that the correct colour wires are used for the inter-mediate wiring.

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Special Instructions

SIEMENS SINGLE INTERNAL DETECTOR BACKPLANE INSTRUCTIONS SHEET (BACKPLANE 6)

CONNECTIONS MADE USING CABLEFORM 667/1/03887/002
UNUSED WIRE ENDS MUST BE TIED BACK AND INSULATED

DETECTOR RACK POWER CONNECTIONS

SIGNAL	WIRE COLOUR	BACKPLANE NO.5 TERMINALS	BACKPLANE No.6 TERMINALS
24 VOLTS	RED	19	19
0 VOLTS	BLACK	20	20
SCREEN	PINK	22	22
COMMON	WHITE	18	18

LOOP No.	LOOP DESIGNATION	INTERMEDIATE TERMINALS	WIRE COLOUR	BACKPLANE TERMINALS
1	BX9	2TBN 5 & 2TBN 6	ORANGE	1 & 2
2	BIN5	2TBN 7 & 2TBN 8	BROWN	3 & 4
3	BIN7	2TBN 9 & 2TBN 10	SLATE	5 & 6
4		2TBN 11& 2TBN 12	BLUE/WHITE	7 & 8

DETECTOR OUTPUTS

DETECTOR No.	BACKPLANE TERMINALS	COLOUR	CONTR TERMINALS
1	10	BLUE	1TBJ 5
2	12	GREEN	1TBJ 6
3	14	ORANGE	1TBJ 7
4	16	YELLOW	1TBJ 8

[Template - Internal intermediate Detectors.txt iss 1.0]

Note 1 If more than one backplane power Linking between B/Planes to be made using the Red, Black Pink and White from 667/1/03887/002

Note 2 Use the detector termination kit (667/1/15854/000) to do the intermediate wiring.

Note 3 Ensure that the correct colour wires are used for the inter-mediate wiring.

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Special Instructions

SIEMENS SINGLE INTERNAL DETECTOR BACKPLANE INSTRUCTIONS SHEET (BACKPLANE 7)

CONNECTIONS MADE USING CABLEFORM 667/1/03887/002
UNUSED WIRE ENDS MUST BE TIED BACK AND INSULATED

DETECTOR RACK POWER CONNECTIONS

SIGNAL	WIRE COLOUR	BACKPLANE No.6 TERMINALS	BACKPLANE No.7 TERMINALS
24 VOLTS	RED	19	19
0 VOLTS	BLACK	20	20
SCREEN	PINK	22	22
COMMON	WHITE	18	18

LOOP No.	LOOP DESIGNATION	INTERMEDIATE TERMINALS	WIRE COLOUR	BACKPLANE TERMINALS
1	HSL24	2TBP 1 & 2TBP 2	GREEN	1 & 2
2	HSL24a	2TBP 3 & 2TBP 4	BLUE	3 & 4
3	JSL25	2TBP 5 & 2TBP 6	ORANGE	5 & 6
4	JSL25a	2TBP 7 & 2TBP 8	BROWN	7 & 8

DETECTOR OUTPUTS

DETECTOR No.	BACKPLANE TERMINALS	COLOUR	CONTR TERMINALS
1	10	BLUE	1TBL 1
2	12	GREEN	1TBL 2
3	14	ORANGE	1TBL 3
4	16	YELLOW	1TBL 4

[Template - Internal intermediate Detectors.txt iss 1.0]

Note 1 If more than one backplane power Linking between B/Planes to be made using the Red, Black Pink and White from 667/1/03887/002

Note 2 Use the detector termination kit (667/1/15854/000) to do the intermediate wiring.

Note 3 Ensure that the correct colour wires are used for the inter-mediate wiring.

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Special Instructions

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Input/Output

Input/Output

☐ Enable Signal Required Check boxes

Port Number & Type

Port: 0

◯ ◯

◉ Inputs & Outputs

DET No	Bit No	Type I or O	Name	Req'd	BP	Inv	U/D	Misc	DFM	DFM Group	Ext time	Used By Phs	UTC	SDE	Pri	HC	CC	AR	UD	Term Block	Term No
0	0	I	AIN1	☑	☐	☐	☐	☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	1TBG	1
1	1	I	AX2	☑	☐	☐	☐	☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	1TBG	2
2	2	I	AIN3	☑	☐	☐	☐	☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	1TBG	3
3	3	I	AX4	☑	☐	☐	☐	☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	1TBG	4
4	4	I	CSL12	☑	☐	☐	☐	☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	1TBG	5
5	5	I	CSL14	☑	☐	☐	☐	☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	1TBG	6
6	6	I	CX11	☑	☐	☐	☐	☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	1TBG	7
7	7	I	CX13	☑	☐	☐		☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	1TBG	8

Add | Delete | Move | Clear Used By

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Input/Output

Input/Output

☐ Enable Signal Required Check boxes

Port Number & Type

Port: 1

○ ○

◉ Inputs & Outputs

	DET No	Bit No	Type I or O	Name	Req'd	BP	Inv	U/D	Misc	DFM	DFM Group	Ext time	Used By Phs	UTC	SDE	Pri	HC	CC	AR	UD	Term Block	Term No
○	8	0	I	CIN10	☑	☐	☐	☐	☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	1TBH	1
○	9	1	I	SPARE1	☑	☐	☐	☐	☐	N		0.0	☐	☐	☐	☐	☐	☐	☐	☐	1TBH	2
○	10	2	I	SPARE2	☑	☐	☐	☐	☐	N		0.0	☐	☐	☐	☐	☐	☐	☐	☐	1TBH	3
○	11	3	I	DSL19	☑	☐	☐	☐	☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	1TBH	4
○	12	4	I	DX16	☑	☐	☐	☐	☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	1TBH	5
○	13	5	I	DX18	☑	☐	☐	☐	☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	1TBH	6
○	14	6	I	DIN15	☑	☐	☐	☐	☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	1TBH	7
○	15	7	I	DIN17	☑	☐	☐		☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	1TBH	8

Add | Delete | Move | Clear Used By

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Input/Output

Input/Output

☐ Enable Signal Required Check boxes

Port Number & Type

Port: 2

○ ○

◉ Inputs & Outputs

DET No	Bit No	Type I or O	Name	Req'd	BP	Inv	U/D	Misc	DFM	DFM Group	Ext time	Used By Phs	UTC	SDE	Pri	HC	CC	AR	UD	Term Block	Term No
16	0	I	ESL21	☑	☐	☐	☐	☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	1TBJ	1
17	1	I	EX20	☑	☐	☐	☐	☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	1TBJ	2
18	2	I	BX6	☑	☐	☐	☐	☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	1TBJ	3
19	3	I	BX8	☑	☐	☐	☐	☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	1TBJ	4
20	4	I	BX9	☑	☐	☐	☐	☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	1TBJ	5
21	5	I	BIN5	☑	☐	☐	☐	☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	1TBJ	6
22	6	I	BIN7	☑	☐	☐	☐	☐	A	0	0.0	☑	☐	☐	☐	☐	☐	☐	☐	1TBJ	7
23	7	I	SPARE3	☑	☐	☐		☐	N		0.0	☐	☐	☐	☐	☐	☐	☐	☐	1TBJ	8

Add | Delete | Move | Clear Used By

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Input/Output

Input/Output

☐ Enable Signal Required Check boxes

Port Number & Type

Port: 3

○ ○ ◉ Inputs & Outputs

DET No	Bit No	Type I or O	Name	Req'd	BP	Inv	U/D	Misc	DFM	DFM Group	Ext time	Phs	UTC	SDE	Pri	HC	CC	AR	UD	Term Block	Term No
24	0	I	HSL24	☑	☐	☐	☑	☐	A	2	0.0	☑	☐	☐	☐	☐	☐	☐	☐	1TBL	1
25	1	I	HSL24u	☑	☐	☐	☐	☐	A	2	0.0	☐	☐	☐	☐	☐	☐	☐	☑	1TBL	2
26	2	I	JSL25	☑	☐	☐	☐	☐	A	2	0.0	☑	☐	☐	☐	☐	☐	☐	☐	1TBL	3
27	3	I	SPARE4	☑	☐	☐	☐	☐	N		0.0	☐	☐	☐	☐	☐	☐	☐	☐	1TBL	4
28	4	I	PBUF	☑	☐	☐	☐	☐	A	2	0.0	☑	☐	☐	☐	☐	☐	☐	☐	1TBL	5
29	5	I	ONC3F	☑	☐	☐	☐	☐	A	0	1.6	☑	☐	☐	☐	☐	☐	☐	☐	1TBL	6
30	6	I	ONC16F	☑	☐	☐	☐	☐	A	0	1.6	☑	☐	☐	☐	☐	☐	☐	☐	1TBL	7
31	7	I		☐	☐	☐		☐				☐	☐	☐	☐	☐	☐	☐	☐	1TBL	8

Add | Delete | Move | Clear Used By

Input/Output

Input/Output

☐ Enable Signal Required Check boxes

Port Number & Type

Port: 6

○ ○

◉ Inputs & Outputs

	DET No	Bit No	Type I or O	Name	Req'd	BP	Inv	U/D	Misc	DFM	DFM Group	Ext time	Used By Phs	UTC	SDE	Pri	HC	CC	AR	UD	Term Block	Term No
○	48	0	I	PBUG	☑	☐	☐	☐	☐	A	2	0.0	☑	☐	☐	☐	☐	☐	☐	☐	1TBN	1
○	49	1	I	ONC6G	☑	☐	☐	☐	☐	A	0	1.6	☑	☐	☐	☐	☐	☐	☐	☐	1TBN	2
○	50	2	I	ONC7G	☑	☐	☐	☐	☐	A	0	1.6	☑	☐	☐	☐	☐	☐	☐	☐	1TBN	3
○	51	3	I	AMB32	☑	☐	☐	☐	☐	I	3	0.0	☑	☐	☐	☐	☐	☐	☐	☐	1TBN	4
○	52	4	I		☐	☐	☐	☐	☐				☐	☐	☐	☐	☐	☐	☐	☐	1TBN	5
○	53	5	I		☐	☐	☐	☐	☐				☐	☐	☐	☐	☐	☐	☐	☐	1TBN	6
○	54	6	I		☐	☐	☐	☐	☐				☐	☐	☐	☐	☐	☐	☐	☐	1TBN	7
○	55	7	I		☐	☐	☐		☐				☐	☐	☐	☐	☐	☐	☐	☐	1TBN	8

Add | Delete | Move | Clear Used By

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Aspect Drives

Aspect Drives

(●) A-L ( ) M-X ( ) Y-F2

Phase Driver Card 1

	Used For	Term Block	Term No
A - Red	Phase	1TBA	1
A - Amber	Phase	1TBA	2
A - Green	Phase	1TBA	3
B - Red	Phase	1TBA	4
B - Amber	Phase	1TBA	5
B - Green	Phase	1TBA	6
C - Red	Phase	1TBA	7
C - Amber	Phase	1TBA	8
C - Green	Phase	1TBA	9
D - Red	Phase	1TBA	10
D - Amber	Phase	1TBA	11
D - Green	Phase	1TBA	12

Phase Driver Card 1

	Used For	Term Block	Term No
E - Red	Phase	1TBB	1
E - Amber	Phase	1TBB	2
E - Green	Phase	1TBB	3
F - Red	Phase	1TBB	4
F - Amber	Phase	1TBB	5
F - Green	Phase	1TBB	6
G - Red	Phase	1TBB	7
G - Amber	Phase	1TBB	8
G - Green	Phase	1TBB	9
H - Red	Phase	1TBB	10
H - Amber	Phase	1TBB	11
H - Green	Phase	1TBB	12

Phase Driver Card 2

	Used For	Term Block	Term No
I - Red	Phase	1TBC	1
I - Amber	Phase	1TBC	2
I - Green	Phase	1TBC	3
J - Red	Phase	1TBC	4
J - Amber	Phase	1TBC	5
J - Green	Phase	1TBC	6
K - Red			
K - Amber			
K - Green			
L - Red			
L - Amber			
L - Green			

I/O - Group DFM Timings

I/O - Group DFM Timings

Input Group	State	SET A	SET B	SET C	SET D
Group 0	Active (Mins)	120	120	120	120
	InActive (Hrs)	18	18	18	18
Group 1	Active (Mins)	30	30	30	30
	InActive (Hrs)	72	72	72	72
Group 2	Active (Mins)	15	15	15	15
	InActive (Hrs)				
Group 3	Active (Mins)	5	5	5	5
	InActive (Hrs)				
Group 4	Active (Mins)	30	30	30	30
	InActive (Hrs)	18	18	18	18
Group 5	Active (Mins)	30	30	30	30
	InActive (Hrs)	18	18	18	18
Group 6	Active (Mins)	30	30	30	30
	InActive (Hrs)	18	18	18	18
Group 7	Active (Mins)	30	30	30	30
	InActive (Hrs)	18	18	18	18

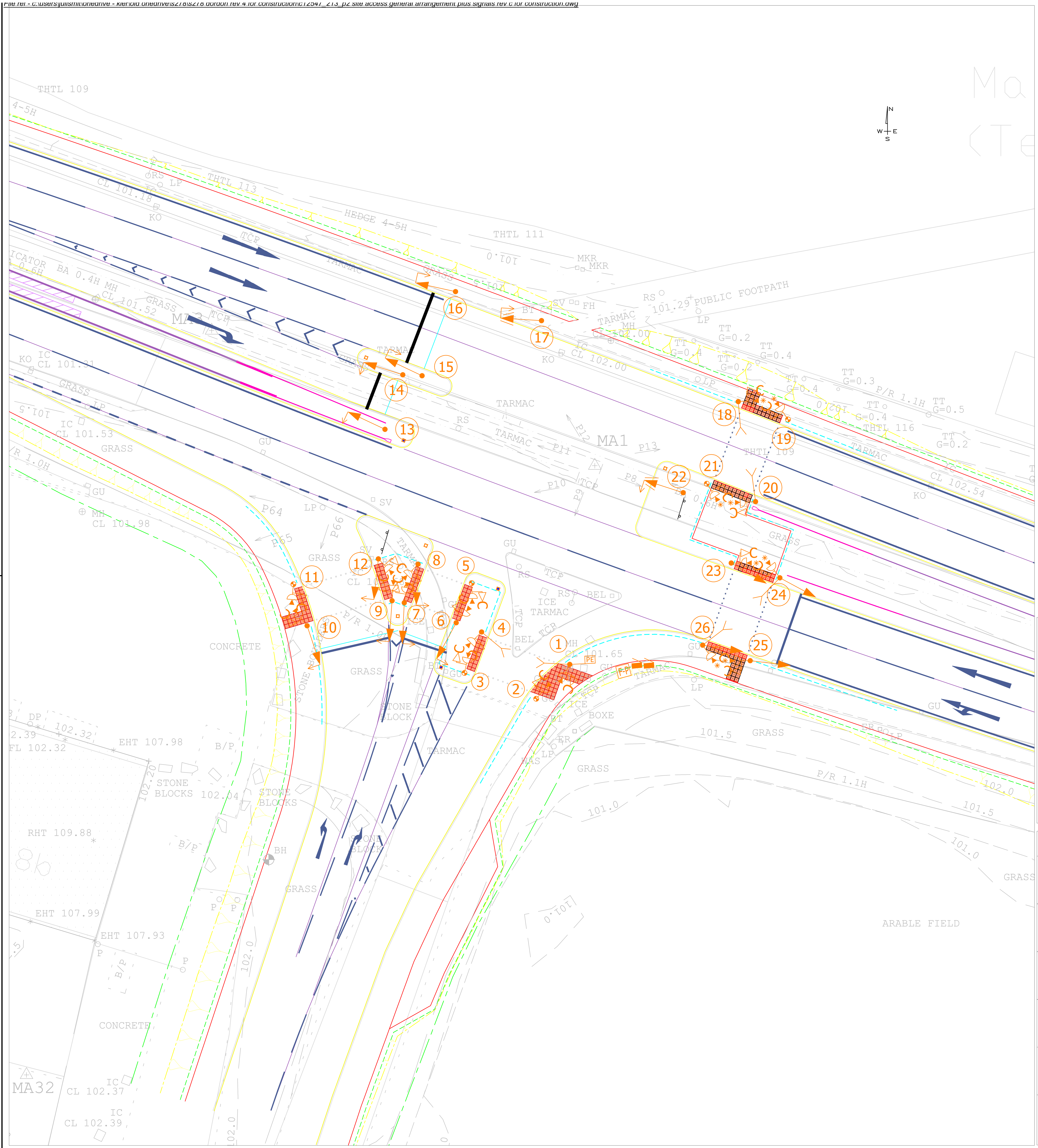
Note - 255 or blank disables DFM monitoring of that state (active or inactive) during that timeset (/

Handset Limiting Values

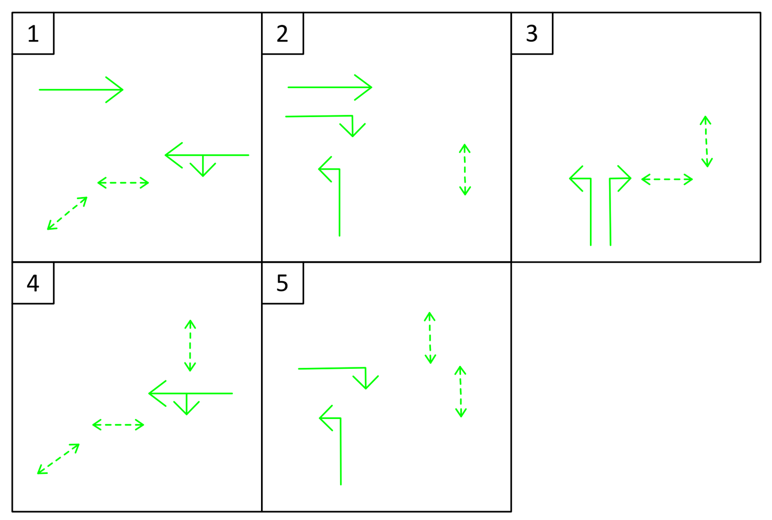
State	Min	Max
Active (Mins)	0	254
InActive (Hrs)	0	254

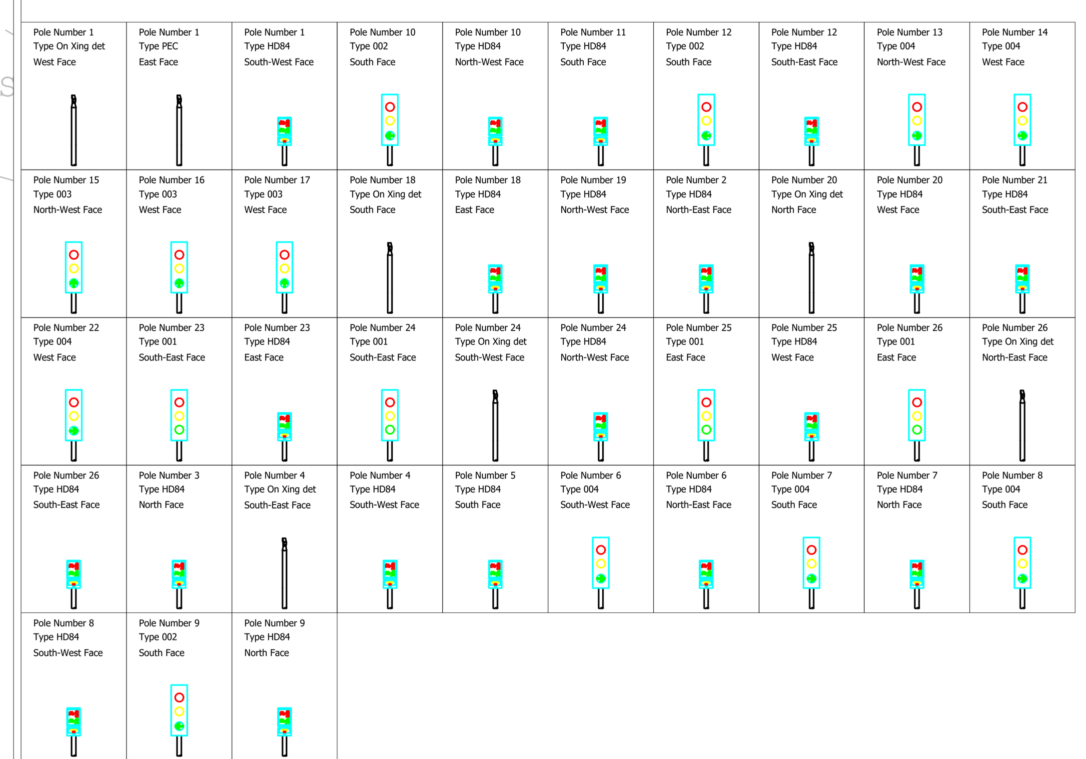
Index

File ref - c:\users\jrlsmit\onedrive - kier\old onedrive\s278\s278 dordon rev 4 for construction\c12547_213_p2 site access general arrangement plus signals rev c for construction.dwg



- New ELV traffic Signal Controller on NAL controller root
- Termination Cabinet on NAL controller root
- F-P Electricity feeder pillar
- 4m Passive safe aluminium signal pole
- 2m Passive safe aluminium signal pole
- Primary ELV RAG LED signal head complete with hoods and backing board
- Primary ELV RAGA ahead LED signal head complete with hoods and backing board
- Primary ELV RAGA left arrow LED signal head complete with hoods and backing board
- Primary ELV RAGA right arrow LED signal head complete with hoods and backing board
- Secondary ELV RAGA ahead arrow LED signal head complete with hoods and backing board
- Secondary ELV RAGA right arrow LED signal head complete with hoods and backing board
- Nearside LED PUFFIN pedestrian demand and display unit with tactile cone
- PUFFIN pedestrian demand unit with tactile cone
- Nearside TOUCAN demand and display unit with tactile cone.
- Pedestrian on-crossing detector
- PE PE photo Solar cell





RESIDUAL DESIGN HAZARDS

(The following information has been collected from Preconstruction Information and the EM CDM Hazard Management Process.)

1. Working adjacent to live traffic - Appropriate traffic management to be used to segregate work area from hazard.Please enter project specific hazards here.

NOTES

1. For ducting, chambers and detection see drawing 1200_010
2. The new ELV controller shall be type approved and equipped to operate in MOVA mode
3. A Siemens OMCU or OMCU/MOVA unit shall be installed to provide remote monitoring compatible with the existing Highways England RMS system.
4. All signal poles shall be passive safe aluminium poles with electrical isolation system in accordance with BS EN 12767
5. All poles shall be located in pole retention sockets. NAL duct foot or similar approved
6. All poles shall be fitted with access doors for cable termination from ground level and fitted with vented pole caps.
7. Pedestrian demand and display units shall be ELV LED units and installed and angled in agreement with the signal design engineer
8. All poles shall be numbered as shown on the drawing and fitted with reflective banding.
9. Close associated secondary signal heads on poles 8, 12, 23 and 26 shall be fitted with primary hoods.
10. Tactile cones shall be installed in all pushbutton units.

Rev	Revision details	Chkd	Appd	Date
C	Issued for Construction	JRS	JRS	20/6/16
B	Crossings changed to Toucans	JRS	JRS	1/4/16
A	Revised Junction layout	JB	JB	12/2/16

Drawn:	JRS	Preliminary	
Design:	JRS	For comment	
Chkd:	JB	For tender	
Appd:	JB	For construction	✓
Date:	22/12/14	As constructed	
		Other	

leaner, greener, safer

Client

highways england

Project Name
A5 Hall End Farm, Dordon

Drawing Title
Traffic Signals

Traffic Signals - Proposed Layout

Original Drawing Size : A1	Dimensions : -
Scale : 1:200	

Drawing No
M9/2210011 DR 1200 005

Rev
C

Project data

Project	A5 Hall End Lane 351570
Program date	29-11-2016
Version	1
Programmer	M.Broadhurst
Country	UK
City	Dordon
Street1	A5 Hall End Farm
Street2	
Controller type	1
Controller board	EC2 16 Mb RAM
12NC	0
Serial number	0
Report created at	12/19/2016 2:57 PM
Database filename (.cpf)	604_351570_A5_Hall_End_Farm.cpf
Configurator version	11.1.0.0

Configuration Notes
* This is memofield DESCRIPTION

FACILITIES MODES AND PRIORITIES

FACILITIES

Facility	Enabled
Manual Control	Yes
Manual Step On Mode	No
CLF	Yes
UTC Facility	Yes
Hurry Call Mode	No
Priority	No
MOVA via UTC TO bits	Yes
MOVA M-inputs / PSVP	No

Hurry call (high priority) options

Use hurry call (high priority) mode for all red moves:	Yes
Part Time shutdown HC priority movements required:	No

MODES AND PRIORITY

Mode	PRIO	Dem. set leave	Dem. set enter
Hurry call (high priority)	1	-	-
Urban Traffic Control (UTC)	4	-	-
Hurry call (std priority)	-	-	-
Manual control	2	Start-up demand set	-
Cableless linking facility (CLF)	-	-	-
Vehicle actuated (VA)	5	-	-
Simple fix time (FT)	5	-	-
Public service vehicle priority	-	-	-
Selected cableless linking	3	-	-
Selected vehicle actuated	3	Start-up demand set	-
Selected fix time	3	-	-

Revertive Demand Sets

Phase	Type	RDC	Start-up	2	3	4	5	6	7	8
A	802 T: vehicle	A	Yes	No	No	No	No	No	No	No
B	802 T: vehicle	B	Yes	No	No	No	No	No	No	No
C	802 T: vehicle	C	Yes	No	No	No	No	No	No	No
D	802 T: vehicle	D	Yes	No	No	No	No	No	No	No
E	802 T: vehicle	E	Yes	No	No	No	No	No	No	No
F	812 TN: toucan near side	-	Yes	No	No	No	No	No	No	No
G	812 TN: toucan near side	-	Yes	No	No	No	No	No	No	No
H	812 TN: toucan near side	-	Yes	No	No	No	No	No	No	No
I	812 TN: toucan near side	-	Yes	No	No	No	No	No	No	No
J	812 TN: toucan near side	-	Yes	No	No	No	No	No	No	No

STREAMS AND STAGES

STREAM

ID	Name	Type
1	STREAM1	Junction

STAGE

ID	Description	Stream No.	Demands AFTER Min Exp.	Demands BEFORE Min Exp.	Ripple Change	Startup stage	Arterial reversion stage	Switch off stage	All Red stage
1	STAGE1	1	No	Yes	No	Yes	Yes	Yes	No
2	STAGE2	1	No	Yes	No	No	No	No	No
3	STAGE3	1	No	Yes	No	No	No	No	No
4	STAGE4	1	No	Yes	No	No	No	No	No
5	STAGE5	1	No	Yes	No	No	No	No	No
6	STAGE6	1	No	Yes	No	No	No	No	No
7	STAGE7	1	No	Yes	No	No	No	No	Yes

Phases in stages

	A	B	C	D	E	F	G	H	I	J
1	X	X	-	-	-	X	X	-	-	-
2	X	-	X	-	-	X	X	-	X	-
3	X	-	-	X	-	-	-	X	X	-
4	X	-	X	X	-	-	-	-	X	-
5	-	-	-	X	X	-	-	X	X	-
6	-	X	-	-	-	X	X	-	-	X
7	-	-	-	-	-	-	-	-	-	-

PHASES

Types

Phase	Site Phase	Description	Type	Associated Phase
A	A	A5 Eastbound	802 T: vehicle	-
B	B	A5 Westbound	802 T: vehicle	-
C	C	A5 Eastbound RT	802 T: vehicle	-
D	D	Hall Farm LT	802 T: vehicle	-
E	E	Hall Farm RT	802 T: vehicle	-
F	F	Peds over Hall Farm LT	812 TN: toucan near side	-
G	G	Peds over Hall Farm RT	812 TN: toucan near side	-
H	H	Peds over Hall Farm Entry	812 TN: toucan near side	-
I	I	Peds over A5 Westbound	812 TN: toucan near side	-
J	J	Peds over A5 Eastbound	812 TN: toucan near side	-

CONDITIONS

Phase	Tactile Interlock	Appearance type	Termination type
A	No	Always	At end of stage
B	No	Always	At end of stage
C	No	Always	At end of stage
D	No	Always	At end of stage
E	No	Always	At end of stage
F	No	Demand before interstage	When minimum timer expires
G	No	Demand before interstage	When minimum timer expires
H	No	Demand before interstage	When minimum timer expires
I	No	Demand before interstage	When minimum timer expires
J	No	Demand before interstage	When minimum timer expires

TIMINGS

Phase	Type	Min green	Min red	Start Amber	Amber	Ped Period V	Ped Period VI	Ped Period VII	Ped Period VIII	Pre-time max
A	802 T: vehicle	7	1	2	3					No
B	802 T: vehicle	7	1	2	3					No
C	802 T: vehicle	7	1	2	3					No
D	802 T: vehicle	7	1	2	3					No
E	802 T: vehicle	7	1	2	3					No
F	812 TN: toucan near side	6	1			3	10	1	3	No
G	812 TN: toucan near side	6	1			3	10	1	3	No
H	812 TN: toucan near side	6	1			3	10	1	3	No
I	812 TN: toucan near side	6	1			3	10	1	3	No
J	812 TN: toucan near side	6	1			3	10	1	3	No

Note: Use of zero second blackout Ped Perod 5 on Type 814 PD: is not current DfT policy and should be discouraged

PHASE GREEN TIMING RANGES

PHASE	MIN Lower Limit	MIN Upper Limit	MAX Lower Limit	MAX Upper Limit
A	3	30	0	120
B	3	30	0	120
C	3	30	0	120
D	3	30	0	120
E	3	30	0	120
F	4	9	0	0
G	4	9	0	0
H	4	9	0	0
I	4	9	0	0
J	4	9	0	0

PHASE TIMING SETS

Regular maximums

	1	2	3	4
A	40	30	50	20
B	40	30	50	20
C	20	20	20	15
D	20	15	15	10
E	15	15	15	15
F				
G				
H				
I				
J				

Alternative maximums

	1	2	3	4
A				
B				
C				
D				
E				
F				
G				
H				
I				
J				

Variable blackout/red periods

	1	2	3	4
A				
B				
C				
D				
E				
F				
G				
H				
I				
J				

Minimum green

	1	2	3	4
A				
B				
C				
D				
E				
F				
G				
H				
I				
J				

PSVP inhibition times

	1	2	3	4
A				
B				
C				
D				

	1	2	3	4
E				
F				
G				
H				
I				
J				

PSVP maximum green times

	1	2	3	4
A				
B				
C				
D				
E				
F				
G				
H				
I				
J				

PHASE MATRICES

Settings

Starting intergreen	Handset maximum	Flashing Amber	All Red
9	30	0	0

Handset Int Offset	Default RLM Int
0	2

Opposing and conflicting

	A	B	C	D	E	F	G	H	I	J
A	–	–	–	–	C	–	–	–	–	C
B	–	–	C	C	C	–	–	C	C	–
C	–	C	–	–	C	–	–	C	–	–
D	–	C	–	–	–	C	–	–	–	–
E	C	C	C	–	–	–	C	–	–	C
F	–	–	–	C	–	–	–	–	–	–
G	–	–	–	–	C	–	–	–	–	–
H	–	C	C	–	–	–	–	–	–	–
I	–	C	–	–	–	–	–	–	–	–
J	C	–	–	–	C	–	–	–	–	–

Intergreen times

	A	B	C	D	E	F	G	H	I	J
A					5					9
B			6	8	7			9	5	
C		6			6			9		
D		5				5				
E	7	5	6				5			10
F				5						
G					5					
H		5	5							
I		5								
J	5				5					

Handset intergreen limits

	A	B	C	D	E	F	G	H	I	J
A					5					7
B			5	6	5			7	5	
C		6			5			7		
D		5				5				
E	6	5	5				5			8
F				5						
G					5					
H		5	5							
I		5								
J	5				5					

RLM additional intergreens

	A	B	C	D	E	F	G	H	I	J
A					2					2
B			2	2	2			2	2	
C		2			2			2		
D		2				2				
E	2	2	2				2			2
F										
G										
H										
I										
J										

RLM phase inhibits

	A	B	C	D	E	F	G	H	I	J
A	-	-	-	-	X	-	-	-	-	X
B	-	-	X	X	X	-	-	X	X	-
C	-	X	-	-	X	-	-	X	-	-
D	-	X	-	-	-	X	-	-	-	-
E	X	X	X	-	-	-	X	-	-	X
F	-	-	-	-	-	-	-	-	-	-
G	-	-	-	-	-	-	-	-	-	-
H	-	-	-	-	-	-	-	-	-	-
I	-	-	-	-	-	-	-	-	-	-
J	-	-	-	-	-	-	-	-	-	-

LAMP MONITORING

Applied sensing technology

Individual Monitoring Channels Used for RLUs ?	No

Lamp Switches

Phase	Type	SWR	SWA	SWG	SWWL
A	802 T: vehicle	R01	A01	G01	
B	802 T: vehicle	R02	A02	G02	
C	802 T: vehicle	R03	A03	G03	
D	802 T: vehicle	R04	A04	G04	
E	802 T: vehicle	R05	A05	G05	
F	812 TN: toucan near side	R06		G06	A06
G	812 TN: toucan near side	R07		G07	A07
H	812 TN: toucan near side	R08		G08	A08
I	812 TN: toucan near side	R09		G09	A09
J	812 TN: toucan near side	R10		G10	A10

Phase Lamp Types

Phase	Description	Type	Red	Amber	Green	Wait
A	A5 Eastbound	T	Elite TLED 48	Elite TLED 48	Elite TLED 48	-
B	A5 Westbound	T	Elite TLED 48	Elite TLED 48	Elite TLED 48	-
C	A5 Eastbound RT	T	Elite TLED 48	Elite TLED 48	Elite TLED 48	-
D	Hall Farm LT	T	Elite TLED 48	Elite TLED 48	Elite TLED 48	-
E	Hall Farm RT	T	Elite TLED 48	Elite TLED 48	Elite TLED 48	-
F	Peds over Hall Farm LT	TN	AGDMANCYCLE	-	AGDMANCYCLE	AGDWAIT
G	Peds over Hall Farm RT	TN	AGDMANCYCLE	-	AGDMANCYCLE	AGDWAIT
H	Peds over Hall Farm Entry	TN	AGDMANCYCLE	-	AGDMANCYCLE	AGDWAIT
I	Peds over A5 Westbound	TN	AGDMANCYCLE	-	AGDMANCYCLE	AGDWAIT
J	Peds over A5 Eastbound	TN	AGDMANCYCLE	-	AGDMANCYCLE	AGDWAIT

Lamp Monitor Settings

Phase	Description	Red 1	Red 2	Amber	Green
A	A5 Eastbound	Safety 1/2	None	Maintenance	Maintenance
B	A5 Westbound	Safety 1/2	None	Maintenance	Maintenance
C	A5 Eastbound RT	Safety 1/2	None	Maintenance	Maintenance
D	Hall Farm LT	Safety 1/2	None	Maintenance	Maintenance
E	Hall Farm RT	Safety 1/2	None	Maintenance	Maintenance
F	Peds over Hall Farm LT	Maintenance	None	None	Maintenance
G	Peds over Hall Farm RT	Maintenance	None	None	Maintenance
H	Peds over Hall Farm Entry	Maintenance	None	None	Maintenance
I	Peds over A5 Westbound	Maintenance	None	None	Maintenance
J	Peds over A5 Eastbound	Maintenance	None	None	Maintenance

Safety Lamp Monitor Shutdown Action

Phase	Description	Red 1	Red 2	Amber
A	A5 Eastbound	None	None	None
B	A5 Westbound	None	None	None
C	A5 Eastbound RT	None	None	None
D	Hall Farm LT	None	None	None
E	Hall Farm RT	None	None	None
F	Peds over Hall Farm LT	None	None	None
G	Peds over Hall Farm RT	None	None	None
H	Peds over Hall Farm Entry	None	None	None
I	Peds over A5 Westbound	None	None	None
J	Peds over A5 Eastbound	None	None	None

PHASE DELAYS

ID	Phase	From	To	Delay Time	Associated Phase	Delay Type
1	B	5	1	2	-	Delay phase gaining Right of way

FIXED TIME

FIXED TIME TO CURRENT MAXIMUM

STREAM	Fixed
STREAM1	Yes

Phase	Demand	Extend
A	Yes	Yes
B	Yes	Yes
C	Yes	Yes
D	Yes	Yes
E	Yes	Yes
F	No	No
G	No	No
H	No	No
I	No	No
J	No	No

STAGE MOVES

Move sets

Mode	SET
Hurry call (high priority)	1
Urban Traffic Control (UTC)	1
Hurry call (std priority)	0
Manual control	1
Cableless linking facility (CLF)	0
Vehicle actuated (VA)	1
Simple fix time (FT)	1
Public service vehicle priority	0

Set 1

	1	2	3	4	5	6	7
1	-	A	A	A	A	A	A
2	A	-	P	A	A	A	A
3	A	P	-	A	A	A	A
4	A	P	P	-	A	A	A
5	A	A	A	A	-	A	A
6	A	A	A	A	A	-	A
7	A	A	A	A	A	A	-

Set 2

	1	2	3	4	5	6	7
1	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-

Set 3

	1	2	3	4	5	6	7
1	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-

Set 4

	1	2	3	4	5	6	7
1	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-

Set 5

	1	2	3	4	5	6	7
1	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-

	1	2	3	4	5	6	7
7	–	–	–	–	–	–	–

Set 6

	1	2	3	4	5	6	7
1	–	–	–	–	–	–	–
2	–	–	–	–	–	–	–
3	–	–	–	–	–	–	–
4	–	–	–	–	–	–	–
5	–	–	–	–	–	–	–
6	–	–	–	–	–	–	–
7	–	–	–	–	–	–	–

Set 7

	1	2	3	4	5	6	7
1	–	–	–	–	–	–	–
2	–	–	–	–	–	–	–
3	–	–	–	–	–	–	–
4	–	–	–	–	–	–	–
5	–	–	–	–	–	–	–
6	–	–	–	–	–	–	–
7	–	–	–	–	–	–	–

Set 8

	1	2	3	4	5	6	7
1	–	–	–	–	–	–	–
2	–	–	–	–	–	–	–
3	–	–	–	–	–	–	–
4	–	–	–	–	–	–	–
5	–	–	–	–	–	–	–
6	–	–	–	–	–	–	–
7	–	–	–	–	–	–	–

MANUAL STAGE SELECTION

	1
But 1	1
But 2	2
But 3	3
But 4	4
But 5	5
But 6	6
But 7	-
But 8	-
But 9	-
But 10	-
But 11	-
But 12	-
But 13	-
But 14	-
But 15	-
But 16	-

Detectors

Application

ID	Detector	Type	Phase	Call	Cancel	Extend	Associated Det	DEM	CANCEL
1	AIN11	Vehicle loop	A				-	No	No
2	AIN12	Vehicle loop	A				-	No	No
3	AX1	Vehicle loop	A			4	-	Yes	No
4	AX2	Vehicle loop	A			4	-	Yes	No
5	BIN13	Vehicle loop	B				-	No	No
6	BIN14	Vehicle loop	B				-	No	No
7	BX3	Vehicle loop	B			4	-	Yes	No
8	BX4	Vehicle loop	B			4	-	Yes	No
9	CIN15	Vehicle loop	C				-	No	No
10	CX5	Vehicle loop	C			3.8	-	Yes	No
11	CSL25	Vehicle loop	C			0.6	-	Yes	No
12	DIN16	Vehicle loop	D				-	No	No
13	DX6	Vehicle loop	D			3.4	-	Yes	No
14	DSL26	Vehicle loop	D			0.6	-	Yes	No
15	SPARE_1	-	-				-	No	No
16	EX7	Vehicle loop	E			3.4	-	Yes	No
17	ESL27	Vehicle loop	E			0.6	-	Yes	No
18	SPARE_2	-	-				-	No	No
19	PBFU1	Push button	F				-	Yes	No
20	PBUF2	Push button	F				-	Yes	No
21	PBUF3	Push button	F				-	Yes	No
22	PBUF4	Push button	F				-	Yes	No
23	PBUG1	Push button	G				-	Yes	No
24	PBUG2	Push button	G				-	Yes	No
25	PBUG3	Push button	G				-	Yes	No
26	PBUG4	Push button	G				-	Yes	No
27	PBUH1	Push button	H				-	Yes	No
28	PBUH2	Push button	H				-	Yes	No
29	PBUH3	Push button	H				-	Yes	No
30	PBUH4	Push button	H				-	Yes	No
31	PBUI1	Push button	I				-	Yes	No
32	PBUI2	Push button	I				-	Yes	No
33	PBUI3	Push button	I				-	Yes	No
34	PBUI4	Push button	I				-	Yes	No
35	PBUJ1	Push button	J				-	Yes	No
36	PBUJ2	Push button	J				-	Yes	No
37	PBUJ3	Push button	J				-	Yes	No
38	PBUJ4	Push button	J				-	Yes	No
39	ONXH1	Pedestrian on-crossing detector	H			1	-	No	No
40	ONXH2	Pedestrian on-crossing detector	H			1	-	No	No
41	ONXI1	Pedestrian on-crossing detector	I			1	-	No	No
42	ONXI2	Pedestrian on-crossing detector	I			1	-	No	No
43	ONXJ1	Pedestrian on-crossing detector	J			1	-	No	No
44	ONXJ2	Pedestrian on-crossing detector	J			1	-	No	No

Detector Fault Monitoring

ID	Detector	DFM Active Set 1	DFM Inactive Set 2	DFM Active Set 2	DFM Inactive Set 2	DFM Active Set 3	DFM Inactive Set 3	DFM Active Set 4	DFM Inactive Set 4	Detector DFM Error State	Detector Ok Count
1	AIN11	00:30	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	8
2	AIN12	00:30	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	8
3	AX1	00:30	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	8
4	AX2	00:30	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	8
5	BIN13	00:30	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	8
6	BIN14	00:30	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	8
7	BX3	00:30	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	8
8	BX4	00:30	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	8
9	CIN15	00:30	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	8
10	CX5	00:30	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	8
11	CSL25	00:30	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	8

ID	Detector	DFM Active Set 1	DFM Inactive Set 2	DFM Active Set 2	DFM Inactive Set 2	DFM Active Set 3	DFM Inactive Set 3	DFM Active Set 4	DFM Inactive Set 4	Detector DFM Error State	Detector Ok Count
12	DIN16	00:30	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	8
13	DX6	00:30	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	8
14	DSL26	00:30	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	8
15	SPARE_1	100:00	255:00	00:00	00:00	00:00	00:00	00:00	00:00	-	
16	EX7	00:30	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	8
17	ESL27	00:30	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	8
18	SPARE_2	100:00	255:00	00:00	00:00	00:00	00:00	00:00	00:00	-	
19	PBFU1	00:10	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	2
20	PBUF2	00:10	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	2
21	PBUF3	00:10	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	2
22	PBUF4	00:10	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	2
23	PBUG1	00:10	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	2
24	PBUG2	00:10	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	2
25	PBUG3	00:10	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	2
26	PBUG4	00:10	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	2
27	PBUH1	00:10	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	2
28	PBUH2	00:10	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	2
29	PBUH3	00:10	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	2
30	PBUH4	00:10	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	2
31	PBUI1	00:10	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	2
32	PBUI2	00:10	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	2
33	PBUI3	00:10	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	2
34	PBUI4	00:10	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	2
35	PBUJ1	00:10	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	2
36	PBUJ2	00:10	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	2
37	PBUJ3	00:10	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	2
38	PBUJ4	00:10	18:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	2
39	ONXH1	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	8
40	ONXH2	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	8
41	ONXI1	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	8
42	ONXI2	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	8
43	ONXJ1	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	8
44	ONXJ2	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	Occupied	8

IMFLOW

Enable ImFlow	Log to TDC
No	No

Settings

Wait time on deadlock (s)	Retries on UTC deadlock	Retries on UTC conflict
300	5	1

MASTER TIME CLOCK

MTC table

ID	Function	Arg1	Arg2	Start	End	Mo	Tu	We	Th	Fr	Sa	Su	G1	G2	G3	G4	G5	G6	G7	G8	Description
1	Control plan	1	0	00:00:00	24:00:00	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	
2	Timing set	4	0	00:00:00	24:00:00	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	
3	Timing set	1	0	07:00:00	24:00:00	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	Max Set A
4	Timing set	2	0	09:30:00	24:00:00	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	Max Set B
5	Timing set	3	0	16:00:00	24:00:00	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	Max Set C
6	Timing set	4	0	19:00:00	24:00:00	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	Max Set D

CONFLICT EXTENSION RED

CABLELESS LINKING FACILITY

Global settings

Setting	Value
Sync. Mode	Daily
Sync. Day	Monday
Ref. time	06:00

Plans

Functions and actions

OTU

Units

General Integral OTU options

Discrete OTU

ID	Invert control bits	Invert reply bits
1	No	Yes

Control and reply bits

Control / Reply

Function	Arg	Label	Position ID	Label	Arg	Function
F	1	F1	1	G1	1	G
F	2	F2	2	G2	2	G
F	3	F3	3	G3	3	G
F	4	F4	4	G4	4	G
F	5	F5	5	G5	5	G
F	6	F6	6	G6	6	G
F	7	F7	7	G7	7	G
-	0		8	LE	0	LE
-	0		9		0	-
-	0		10		0	-
-	0		11		0	-
-	0		12		0	-
-	0		13		0	-
SF	1	TO1	14		0	-
-	0		15	CRB1	1	UF
-	0		16		0	-

Keep default Demand reply options

Default Stage Demand (SD) reply	No
Default Phase Demand (DR) reply	No

RTC

Synchronisation time (UTC TS input)	12:00
Confirm time (UTC RT output)	0:0:0

Special UTC Reply bits

	G1/G2	RR
Manual mode operative	No	Yes
Manual mode selected	No	Yes
No lamp power (excluding RLM and PT)	Yes	n/a
Normal not selected on the manual panel	No	Yes

CG reply bit weekday-coded	No

UG405 bit mapping

Settings

Enable UG405	No
OTU System Code Number(SCN)	

Control / Reply

ID	Label	Controller SCN	UG405 Name	Bit Index	Label	Controller SCN	UG405 name	Bit index
1	F1		-		G1		-	
2	F2		-		G2		-	
3	F3		-		G3		-	
4	F4		-		G4		-	
5	F5		-		G5		-	
6	F6		-		G6		-	
7	F7		-		G7		-	
8			-		LE		-	
9			-				-	
10			-				-	
11			-				-	

ID	Label	Controller SCN	UG405 Name	Bit Index	Label	Controller SCN	UG405 name	Bit index
12			-				-	
13			-				-	
14	TO1		-				-	
15			-		CRB1		-	
16			-				-	

HURRY CALLS

PUBLIC SERVICE VEHICLE PRIORITY

SPEED ASSESSMENT AND SPEED DISCRIMINATION

APPLICATION BUILDING BLOCKS

Event Pulses

ID	Name	Type	Input Type	On	OFF
1	CRB1	Wave	Level	2	600

Event Pulse Input Conditioning
evp1() = (macm(0)>1) && (stgc(0)!=0) && mpauto(0) && (mUTC(0)==0) && (mPSVP(0)==0);

Event Filter Input Conditioning

SPECIAL CONDITIONING - (VM Functions)

O.T.U. Control & Reply Bit Special Conditioning

```
rf_2(arg) = cfa;

rf_32(arg)
if (arg==1) then
  return ((mpauto(0) && (((mPSVP(0) || evp(CRB1)) && (mUTC(0)==0)) || (in(utciTO1) && ufac(0)))) != 1);
endif
return 0;
end

rf_34(arg) = (macm(xp) != 6);

rf_40(arg) = mPSVP(xp);

urG1() = (stgc(0)==1) && (stgr(0,0,0));

urDR1() = dr(A) || dr(B) || dr(F) || dr(G);

urG2() = (stgc(0)==2) && (stgr(0,0,0));

urDR2() = dr(A) || dr(C) || dr(F) || dr(G) || dr(I);

urG3() = (stgc(0)==3) && (stgr(0,0,0));

urDR3() = dr(A) || dr(D) || dr(H) || dr(I);

urG4() = (stgc(0)==4) && (stgr(0,0,0));

urDR4() = dr(A) || dr(C) || dr(D) || dr(I);

urG5() = (stgc(0)==5) && (stgr(0,0,0));

urDR5() = dr(D) || dr(E) || dr(H) || dr(I);

urG6() = (stgc(0)==6) && (stgr(0,0,0));

urDR6() = dr(B) || dr(F) || dr(G) || dr(J);

urG7() = (stgc(0)==7) && (stgr(0,0,0));
```

Integral O.T.U. Special Conditioning

```
otu_dstate(d) = get(h_xdet_sts, d) & DET_BEZET_MASK;

otu_dfault(d) = get(h_xdet_sts, d) & DET_FAULT_MASK;

otu_dcnt(d) = get(h_xdet_cnt, d);
```

U.T.C. (G1/G2) Special Conditioning

CLF Request & Inhibit Special Conditioning

P.S.V.P. Pre Check-in, Check-in & Check-out Special Conditioning

Hurry Call Delay, Force, Demand & Inhibit Special Conditioning

Phase Delay Appearance Special Conditioning

Stream On/Off Control Special Conditioning

```
roffsync() = okoff(0);

mac1_swon(t) = yellow_period(0,t);

macon1() = (minon(xp)==0);

macoff1() = ((macm(xp) <= 1) && (mact(xp) <= tson(7)));
```

Detector Count Activity Window Special Conditioning

```
nokbs()

var det;
for det=0 to (nrel(h_dfunc) -1) do
  if ddo(det) && fcr(get(h_dsg,det)) && (ddr(det)!=1) && (geti(h_dfunc,det) & 16)  then
    put(h_dfunc, det, 65);
  endif
  if  (get(h_dfunc,det)==65) &&  fcg(get(h_dsg,det)) then
    put(h_dfunc, det, geti(h_dfunc,det));
  endif
endfor
end

dact_ONXH1() = fcg(H) || fcr(H) || (fcbo(H) >= 3);

dact_ONXH2() = fcg(H) || fcr(H) || (fcbo(H) >= 3);

dact_ONXI1() = fcg(I) || fcr(I) || (fcbo(I) >= 3);

dact_ONXI2() = fcg(I) || fcr(I) || (fcbo(I) >= 3);

dact_ONXJ1() = fcg(J) || fcr(J) || (fcbo(J) >= 3);

dact_ONXJ2() = fcg(J) || fcr(J) || (fcbo(J) >= 3);
```

Phase Control Special Conditioning

```
latch(ph) = dx(ph) && (fcg(ph)==0);

pd_ALL(ph)

if ((xsf(XSF_PSET_ERR) != AUTOSET_STATE_DONE) && (xsf(XSF_PSET_ERR) != AUTOSET_STATE_ERROR)) then return (1); endif
end

pe_ALL(ph) = ngp1(ph);

wl_F() = dr(F) || fci(F);

pa_F() = dr(F) && (stgt(xp) == 0);

pt_F() = fcg(F);

wl_G() = dr(G) || fci(G);

pa_G() = dr(G) && (stgt(xp) == 0);

pt_G() = fcg(G);

wl_H() = dr(H) || fci(H);

pa_H() = dr(H) && (stgt(xp) == 0);

pt_H() = fcg(H);

pvbo_H() = ((dact(ONXH1)==0) || dde(ONXH1) || (ddg1(ONXH1)==0)) || ((dact(ONXH2)==0) || dde(ONXH2) || (ddg1(ONXH2)==0));

wl_I() = dr(I) || fci(I);

pa_I() = dr(I) && (stgt(xp) == 0);

pt_I() = fcg(I);

pvbo_I() = ((dact(ONXI1)==0) || dde(ONXI1) || (ddg1(ONXI1)==0)) || ((dact(ONXI2)==0) || dde(ONXI2) || (ddg1(ONXI2)==0));

wl_J() = dr(J) || fci(J);

pa_J() = dr(J) && (stgt(xp) == 0);

pt_J() = fcg(J);

pvbo_J() = ((dact(ONXJ1)==0) || dde(ONXJ1) || (ddg1(ONXJ1)==0)) || ((dact(ONXJ2)==0) || dde(ONXJ2) || (ddg1(ONXJ2)==0));
```

Phase Timing Set Selection Special Conditioning

Dummy Detector Special Conditioning

Mode Control Special Conditioning

Mode Control Special Conditioning

```
rHCH() = rar(xp);

rUTC()
if (xp==0) then
  return ufac(xp) && in(utciTO1);
endif
return ufav(xp)||ufpv(xp);
end

rMAN() = mpman(xp);

rVA() = 1;

rFT() = 1;

rSCLF() = clfp && (mpclf(xp) || clfmp);

rSVA() = mpva(xp);

rSFT() = mpft(xp);
```

All Red Detection Operation Special Conditioning

Manual Panel Stage LED Conditions

Manual Panel Stage LED Conditions

```
MpStageLEDsNoDefault()
mpdiso(20,1);
mpdiso(21,1);
mpdiso(22,1);
mpdiso(23,1);
mpdiso(24,1);
mpdiso(25,1);
mpdiso(26,1);
mpdiso(27,1);
mpdiso(28,1);
mpdiso(29,1);
mpdiso(30,1);
mpdiso(31,1);
mpdiso(32,1);
mpdiso(33,1);
mpdiso(34,1);
mpdiso(35,1);
end

DriveMpStageLEDs()
MpStageLEDsNoDefault();
mpledfunc20();
mpledfunc21();
mpledfunc22();
mpledfunc23();
mpledfunc24();
mpledfunc25();
mpledfunc26();
mpledfunc27();
mpledfunc28();
mpledfunc29();
mpledfunc30();
mpledfunc31();
mpledfunc32();
mpledfunc33();
mpledfunc34();
mpledfunc35();
end

mpledfunc20() = cmled(20,(stgc(0)==1)*(2-stgr(0,1,0)));

mpledfunc21() = cmled(21,(stgc(0)==2)*(2-stgr(0,1,0)));

mpledfunc22() = cmled(22,(stgc(0)==3)*(2-stgr(0,1,0)));

mpledfunc23() = cmled(23,(stgc(0)==4)*(2-stgr(0,1,0)));

mpledfunc24() = cmled(24,(stgc(0)==5)*(2-stgr(0,1,0)));

mpledfunc25() = cmled(25,(stgc(0)==6)*(2-stgr(0,1,0)));

mpledfunc26() = cmled(26,(stgc(0)==7)*(2-stgr(0,1,0)));

mpledfunc27() = 0;

mpledfunc28() = 0;

mpledfunc29() = 0;

mpledfunc30() = 0;

mpledfunc31() = 0;

mpledfunc32() = 0;

mpledfunc33() = 0;

mpledfunc34() = 0;

mpledfunc35() = 0;
```

Initialisation & General Special Conditioning

```
init()
open_handles();
return 1;
end

dfm_f() = sf1(-1) || fci(-1);
```

User Defined VM Functions

User Defined VM Functions

```
post_100ms() = mova_outputs();

mova_outputs()
cout(MDET1,ddo(AX1));
cout(MDET2,ddo(AX2));
cout(MDET3,ddo(BX3));
cout(MDET4,ddo(BX4));
cout(MDET5,ddo(CX5));
cout(MDET6,ddo(DX6));
cout(MDET7,ddo(EX7));
cout(MDET11,ddo(AIN11));
cout(MDET12,ddo(AIN12));
cout(MDET13,ddo(BIN13));
cout(MDET14,ddo(BIN14));
cout(MDET15,ddo(CIN15));
cout(MDET16,ddo(DIN16));
cout(MDET20,dr(F));
cout(MDET21,dr(G));
cout(MDET22,dr(H));
cout(MDET23,dr(I));
cout(MDET24,dr(J));
cout(MDET25,ddo(CSL25));
cout(MDET26,ddo(DSL26));
cout(MDET27,ddo(ESL27));
cout(SISPWR,in(sispwr));
cout(SISFLT,in(sisflt));
end
```

Stage Moves

Hurry Call High Mode - HCH (Normally for Part Time / Prom Swap Facility)
mHCH1_7d() = rar(xp); mHCH2_7d() = rar(xp); mHCH3_7d() = rar(xp); mHCH4_7d() = rar(xp); mHCH5_7d() = rar(xp); mHCH6_7d() = rar(xp);

Hurry Call Standard Mode - HCL

Vehicle Actuated Mode - VA

```
mVA1_2d() = dSTGd(1, 2);

mVA1_2e() = dSTGe(1, 2);

mVA1_2i() = FALSE;

mVA1_3d() = dSTGd(1, 3);

mVA1_3e() = dSTGe(1, 3);

mVA1_3i() = FALSE;

mVA1_4d() = dSTGd(1, 4);

mVA1_4e() = dSTGe(1, 4);

mVA1_4i() = FALSE;

mVA1_5d() = dSTGd(1, 5);

mVA1_5e() = dSTGe(1, 5);

mVA1_5i() = FALSE;

mVA1_6d() = dSTGd(1, 6);

mVA1_6e() = dSTGe(1, 6);

mVA1_6i() = FALSE;

mVA1_7d() = dSTGd(1, 7);

mVA1_7e() = dSTGe(1, 7);

mVA1_7i() = FALSE;

mVA2_4d() = dSTGd(2, 4);

mVA2_4e() = dSTGe(2, 4);

mVA2_4i() = FALSE;

mVA2_5d() = dSTGd(2, 5);

mVA2_5e() = dSTGe(2, 5);

mVA2_5i() = FALSE;

mVA2_6d() = dSTGd(2, 6);

mVA2_6e() = dSTGe(2, 6);

mVA2_6i() = FALSE;

mVA2_7d() = dSTGd(2, 7);

mVA2_7e() = dSTGe(2, 7);

mVA2_7i() = FALSE;

mVA2_1d() = dSTGd(2, 1);

mVA2_1e() = dSTGe(2, 1);

mVA2_1i() = FALSE;

mVA2_1du4() = dn();

mVA2_1eu4() = dSTGe(2, 1);

mVA2_1iu4() = FALSE;

mVA3_4d() = dSTGd(3, 4);
```

Vehicle Actuated Mode - VA

```
mVA3_4e() = dSTGe(3, 4);

mVA3_4i() = FALSE;

mVA3_5d() = dSTGd(3, 5);

mVA3_5e() = dSTGe(3, 5);

mVA3_5i() = FALSE;

mVA3_6d() = dSTGd(3, 6);

mVA3_6e() = dSTGe(3, 6);

mVA3_6i() = FALSE;

mVA3_7d() = dSTGd(3, 7);

mVA3_7e() = dSTGe(3, 7);

mVA3_7i() = FALSE;

mVA3_1d() = dSTGd(3, 1);

mVA3_1e() = dSTGe(3, 1);

mVA3_1i() = FALSE;

mVA3_1du4() = dn();

mVA3_1eu4() = dSTGe(3, 1);

mVA3_1iu4() = FALSE;

mVA4_5d() = dSTGd(4, 5);

mVA4_5e() = dSTGe(4, 5);

mVA4_5i() = FALSE;

mVA4_6d() = dSTGd(4, 6);

mVA4_6e() = dSTGe(4, 6);

mVA4_6i() = FALSE;

mVA4_7d() = dSTGd(4, 7);

mVA4_7e() = dSTGe(4, 7);

mVA4_7i() = FALSE;

mVA4_1d() = dSTGd(4, 1);

mVA4_1e() = dSTGe(4, 1);

mVA4_1i() = FALSE;

mVA4_1du4() = dn();

mVA4_1eu4() = dSTGe(4, 1);

mVA4_1iu4() = FALSE;

mVA5_6d() = dSTGd(5, 6);

mVA5_6e() = dSTGe(5, 6);

mVA5_6i() = FALSE;

mVA5_7d() = dSTGd(5, 7);

mVA5_7e() = dSTGe(5, 7);

mVA5_7i() = FALSE;

mVA5_1d() = dSTGd(5, 1);

mVA5_1e() = dSTGe(5, 1);

mVA5_1i() = FALSE;

mVA5_2d() = dSTGd(5, 2);

mVA5_2e() = dSTGe(5, 2);

mVA5_2i() = FALSE;

mVA5_3d() = dSTGd(5, 3);

mVA5_3e() = dSTGe(5, 3);

mVA5_3i() = FALSE;

mVA5_4d() = dSTGd(5, 4);

mVA5_4e() = dSTGe(5, 4);

mVA5_4i() = FALSE;

mVA5_1du4() = dn();

mVA5_1eu4() = dSTGe(5, 1);
```

Vehicle Actuated Mode - VA

```
mVA5_1iu4() = FALSE;
mVA6_7d() = dSTGd(6, 7);
mVA6_7e() = dSTGe(6, 7);
mVA6_7i() = FALSE;
mVA6_1d() = dSTGd(6, 1);
mVA6_1e() = dSTGe(6, 1);
mVA6_1i() = FALSE;
mVA6_2d() = dr(C);
mVA6_2e() = dSTGe(6, 2);
mVA6_2i() = FALSE;
mVA6_3d() = dSTGd(6, 3);
mVA6_3e() = dSTGe(6, 3);
mVA6_3i() = FALSE;
mVA6_4d() = dSTGd(6, 4);
mVA6_4e() = dSTGe(6, 4);
mVA6_4i() = FALSE;
mVA6_5d() = dSTGd(6, 5);
mVA6_5e() = dSTGe(6, 5);
mVA6_5i() = FALSE;
mVA6_1du4() = dn();
mVA6_1eu4() = dSTGe(6, 1);
mVA6_1iu4() = FALSE;
mVA7_1d() = dSTGd(7, 1);
mVA7_1e() = dSTGe(7, 1);
mVA7_1i() = FALSE;
mVA7_2d() = dSTGd(7, 2);
mVA7_2e() = dSTGe(7, 2);
mVA7_2i() = FALSE;
mVA7_3d() = dSTGd(7, 3);
mVA7_3e() = dSTGe(7, 3);
mVA7_3i() = FALSE;
mVA7_4d() = dSTGd(7, 4);
mVA7_4e() = dSTGe(7, 4);
mVA7_4i() = FALSE;
mVA7_5d() = dSTGd(7, 5);
mVA7_5e() = dSTGe(7, 5);
mVA7_5i() = FALSE;
mVA7_6d() = dSTGd(7, 6);
mVA7_6e() = dSTGe(7, 6);
mVA7_6i() = FALSE;
mVA7_1du4() = dn();
mVA7_1eu4() = dSTGe(7, 1);
mVA7_1iu4() = FALSE;
```

Fixed Time Mode - FT

```
mFT1_2d() = dSTGd(1, 2);
mFT1_2e() = dSTGe(1, 2);
mFT1_2i() = FALSE;
mFT1_3d() = dSTGd(1, 3);
mFT1_3e() = dSTGe(1, 3);
```

Fixed Time Mode - FT

```
mFT1_3i() = FALSE;

mFT1_4d() = dSTGd(1, 4);

mFT1_4e() = dSTGe(1, 4);

mFT1_4i() = FALSE;

mFT1_5d() = dSTGd(1, 5);

mFT1_5e() = dSTGe(1, 5);

mFT1_5i() = FALSE;

mFT1_6d() = dSTGd(1, 6);

mFT1_6e() = dSTGe(1, 6);

mFT1_6i() = FALSE;

mFT1_7d() = dSTGd(1, 7);

mFT1_7e() = dSTGe(1, 7);

mFT1_7i() = FALSE;

mFT2_4d() = dSTGd(2, 4);

mFT2_4e() = dSTGe(2, 4);

mFT2_4i() = FALSE;

mFT2_5d() = dSTGd(2, 5);

mFT2_5e() = dSTGe(2, 5);

mFT2_5i() = FALSE;

mFT2_6d() = dSTGd(2, 6);

mFT2_6e() = dSTGe(2, 6);

mFT2_6i() = FALSE;

mFT2_7d() = dSTGd(2, 7);

mFT2_7e() = dSTGe(2, 7);

mFT2_7i() = FALSE;

mFT2_1d() = dSTGd(2, 1);

mFT2_1e() = dSTGe(2, 1);

mFT2_1i() = FALSE;

mFT2_1du4() = dn();

mFT2_1eu4() = dSTGe(2, 1);

mFT2_1iu4() = FALSE;

mFT3_4d() = dSTGd(3, 4);

mFT3_4e() = dSTGe(3, 4);

mFT3_4i() = FALSE;

mFT3_5d() = dSTGd(3, 5);

mFT3_5e() = dSTGe(3, 5);

mFT3_5i() = FALSE;

mFT3_6d() = dSTGd(3, 6);

mFT3_6e() = dSTGe(3, 6);

mFT3_6i() = FALSE;

mFT3_7d() = dSTGd(3, 7);

mFT3_7e() = dSTGe(3, 7);

mFT3_7i() = FALSE;

mFT3_1d() = dSTGd(3, 1);

mFT3_1e() = dSTGe(3, 1);

mFT3_1i() = FALSE;

mFT3_1du4() = dn();

mFT3_1eu4() = dSTGe(3, 1);

mFT3_1iu4() = FALSE;

mFT4_5d() = dSTGd(4, 5);

mFT4_5e() = dSTGe(4, 5);

mFT4_5i() = FALSE;
```

Fixed Time Mode - FT

```
mFT4_6d() = dSTGd(4, 6);
mFT4_6e() = dSTGe(4, 6);
mFT4_6i() = FALSE;
mFT4_7d() = dSTGd(4, 7);
mFT4_7e() = dSTGe(4, 7);
mFT4_7i() = FALSE;
mFT4_1d() = dSTGd(4, 1);
mFT4_1e() = dSTGe(4, 1);
mFT4_1i() = FALSE;
mFT4_1du4() = dn();
mFT4_1eu4() = dSTGe(4, 1);
mFT4_1iu4() = FALSE;
mFT5_6d() = dSTGd(5, 6);
mFT5_6e() = dSTGe(5, 6);
mFT5_6i() = FALSE;
mFT5_7d() = dSTGd(5, 7);
mFT5_7e() = dSTGe(5, 7);
mFT5_7i() = FALSE;
mFT5_1d() = dSTGd(5, 1);
mFT5_1e() = dSTGe(5, 1);
mFT5_1i() = FALSE;
mFT5_2d() = dSTGd(5, 2);
mFT5_2e() = dSTGe(5, 2);
mFT5_2i() = FALSE;
mFT5_3d() = dSTGd(5, 3);
mFT5_3e() = dSTGe(5, 3);
mFT5_3i() = FALSE;
mFT5_4d() = dSTGd(5, 4);
mFT5_4e() = dSTGe(5, 4);
mFT5_4i() = FALSE;
mFT5_1du4() = dn();
mFT5_1eu4() = dSTGe(5, 1);
mFT5_1iu4() = FALSE;
mFT6_7d() = dSTGd(6, 7);
mFT6_7e() = dSTGe(6, 7);
mFT6_7i() = FALSE;
mFT6_1d() = dSTGd(6, 1);
mFT6_1e() = dSTGe(6, 1);
mFT6_1i() = FALSE;
mFT6_2d() = dSTGd(6, 2);
mFT6_2e() = dSTGe(6, 2);
mFT6_2i() = FALSE;
mFT6_3d() = dSTGd(6, 3);
mFT6_3e() = dSTGe(6, 3);
mFT6_3i() = FALSE;
mFT6_4d() = dSTGd(6, 4);
mFT6_4e() = dSTGe(6, 4);
mFT6_4i() = FALSE;
mFT6_5d() = dSTGd(6, 5);
mFT6_5e() = dSTGe(6, 5);
mFT6_5i() = FALSE;
```

Fixed Time Mode - FT

```
mFT6_1du4() = dn();

mFT6_1eu4() = dSTGe(6, 1);

mFT6_1iu4() = FALSE;

mFT7_1d() = dSTGd(7, 1);

mFT7_1e() = dSTGe(7, 1);

mFT7_1i() = FALSE;

mFT7_2d() = dSTGd(7, 2);

mFT7_2e() = dSTGe(7, 2);

mFT7_2i() = FALSE;

mFT7_3d() = dSTGd(7, 3);

mFT7_3e() = dSTGe(7, 3);

mFT7_3i() = FALSE;

mFT7_4d() = dSTGd(7, 4);

mFT7_4e() = dSTGe(7, 4);

mFT7_4i() = FALSE;

mFT7_5d() = dSTGd(7, 5);

mFT7_5e() = dSTGe(7, 5);

mFT7_5i() = FALSE;

mFT7_6d() = dSTGd(7, 6);

mFT7_6e() = dSTGe(7, 6);

mFT7_6i() = FALSE;

mFT7_1du4() = dn();

mFT7_1eu4() = dSTGe(7, 1);

mFT7_1iu4() = FALSE;
```

Cableless Linking Mode - CLF

Urban Traffic Control Mode - UTC

```
mUTC1_2d() = dUTCd(1, 2);

mUTC1_2i() = dUTCi(1, 2);

mUTC1_3d() = dUTCd(1, 3);

mUTC1_3i() = dUTCi(1, 3);

mUTC1_4d() = dUTCd(1, 4);

mUTC1_4i() = dUTCi(1, 4);

mUTC1_5d() = dUTCd(1, 5);

mUTC1_5i() = dUTCi(1, 5);

mUTC1_6d() = dUTCd(1, 6);

mUTC1_6i() = dUTCi(1, 6);

mUTC1_7d() = dUTCd(1, 7);

mUTC1_7i() = dUTCi(1, 7);

mUTC2_4d() = dUTCd(2, 4);

mUTC2_4i() = dUTCi(2, 4);

mUTC2_5d() = dUTCd(2, 5);

mUTC2_5i() = dUTCi(2, 5);

mUTC2_6d() = dUTCd(2, 6);

mUTC2_6i() = dUTCi(2, 6);

mUTC2_7d() = dUTCd(2, 7);

mUTC2_7i() = dUTCi(2, 7);

mUTC2_1d() = dUTCd(2, 1);

mUTC2_1i() = dUTCi(2, 1);
```

Urban Traffic Control Mode - UTC

```
mUTC3_4d() = dUTCd(3, 4);
mUTC3_4i() = dUTCi(3, 4);
mUTC3_5d() = dUTCd(3, 5);
mUTC3_5i() = dUTCi(3, 5);
mUTC3_6d() = dUTCd(3, 6);
mUTC3_6i() = dUTCi(3, 6);
mUTC3_7d() = dUTCd(3, 7);
mUTC3_7i() = dUTCi(3, 7);
mUTC3_1d() = dUTCd(3, 1);
mUTC3_1i() = dUTCi(3, 1);
mUTC4_5d() = dUTCd(4, 5);
mUTC4_5i() = dUTCi(4, 5);
mUTC4_6d() = dUTCd(4, 6);
mUTC4_6i() = dUTCi(4, 6);
mUTC4_7d() = dUTCd(4, 7);
mUTC4_7i() = dUTCi(4, 7);
mUTC4_1d() = dUTCd(4, 1);
mUTC4_1i() = dUTCi(4, 1);
mUTC5_6d() = dUTCd(5, 6);
mUTC5_6i() = dUTCi(5, 6);
mUTC5_7d() = dUTCd(5, 7);
mUTC5_7i() = dUTCi(5, 7);
mUTC5_1d() = dUTCd(5, 1);
mUTC5_1i() = dUTCi(5, 1);
mUTC5_2d() = dUTCd(5, 2);
mUTC5_2i() = dUTCi(5, 2);
mUTC5_3d() = dUTCd(5, 3);
mUTC5_3i() = dUTCi(5, 3);
mUTC5_4d() = dUTCd(5, 4);
mUTC5_4i() = dUTCi(5, 4);
mUTC6_7d() = dUTCd(6, 7);
mUTC6_7i() = dUTCi(6, 7);
mUTC6_1d() = dUTCd(6, 1);
mUTC6_1i() = dUTCi(6, 1);
mUTC6_2d() = dUTCd(6, 2);
mUTC6_2i() = dUTCi(6, 2);
mUTC6_3d() = dUTCd(6, 3);
mUTC6_3i() = dUTCi(6, 3);
mUTC6_4d() = dUTCd(6, 4);
mUTC6_4i() = dUTCi(6, 4);
mUTC6_5d() = dUTCd(6, 5);
mUTC6_5i() = dUTCi(6, 5);
mUTC7_1d() = dUTCd(7, 1);
mUTC7_1i() = dUTCi(7, 1);
mUTC7_2d() = dUTCd(7, 2);
mUTC7_2i() = dUTCi(7, 2);
mUTC7_3d() = dUTCd(7, 3);
mUTC7_3i() = dUTCi(7, 3);
mUTC7_4d() = dUTCd(7, 4);
mUTC7_4i() = dUTCi(7, 4);
mUTC7_5d() = dUTCd(7, 5);
```

Urban Traffic Control Mode - UTC

```
mUTC7_5i() = dUTCi(7, 5);

mUTC7_6d() = dUTCd(7, 6);

mUTC7_6i() = dUTCi(7, 6);
```

Public Service Priority Mode - PSVP

Manual Control Mode - MAN

```
mMAN1_2d() = mstg(xp)==2;

mMAN1_3d() = mstg(xp)==3;

mMAN1_4d() = mstg(xp)==4;

mMAN1_5d() = mstg(xp)==5;

mMAN1_6d() = mstg(xp)==6;

mMAN1_7d() = mstg(xp)==7;

mMAN2_4d() = mstg(xp)==4;

mMAN2_5d() = mstg(xp)==5;

mMAN2_6d() = mstg(xp)==6;

mMAN2_7d() = mstg(xp)==7;

mMAN2_1d() = mstg(xp)==1;

mMAN3_4d() = mstg(xp)==4;

mMAN3_5d() = mstg(xp)==5;

mMAN3_6d() = mstg(xp)==6;

mMAN3_7d() = mstg(xp)==7;

mMAN3_1d() = mstg(xp)==1;

mMAN4_5d() = mstg(xp)==5;

mMAN4_6d() = mstg(xp)==6;

mMAN4_7d() = mstg(xp)==7;

mMAN4_1d() = mstg(xp)==1;

mMAN5_6d() = mstg(xp)==6;

mMAN5_7d() = mstg(xp)==7;

mMAN5_1d() = mstg(xp)==1;

mMAN5_2d() = mstg(xp)==2;

mMAN5_3d() = mstg(xp)==3;

mMAN5_4d() = mstg(xp)==4;

mMAN6_7d() = mstg(xp)==7;

mMAN6_1d() = mstg(xp)==1;

mMAN6_2d() = mstg(xp)==2;

mMAN6_3d() = mstg(xp)==3;

mMAN6_4d() = mstg(xp)==4;

mMAN6_5d() = mstg(xp)==5;

mMAN7_1d() = mstg(xp)==1;

mMAN7_2d() = mstg(xp)==2;

mMAN7_3d() = mstg(xp)==3;

mMAN7_4d() = mstg(xp)==4;

mMAN7_5d() = mstg(xp)==5;

mMAN7_6d() = mstg(xp)==6;
```

General (default) Stage Move Conditions

```
dSTGd(f,t) = drs(t);

dSTGe(f,t) = exm(t);
```

General (default) Stage Move Conditions

```
dUTCd(f,t)
if t==1 then return uF(1) || (uFD(1) && (uD(1) || in(utciTO1))); endif
if t==2 then return uF(2) || (uFD(2) && (uD(2) || in(utciTO1))); endif
if t==3 then return uF(3) || (uFD(3) && (uD(3) || in(utciTO1))); endif
if t==4 then return uF(4) || (uFD(4) && (uD(4) || in(utciTO1))); endif
if t==5 then return uF(5) || (uFD(5) && (uD(5) || in(utciTO1))); endif
if t==6 then return uF(6) || (uFD(6) && (uD(6) || in(utciTO1))); endif
if t==7 then return uF(7) || (uFD(7) && (uD(7) || in(utciTO1))); endif
return uF(t) || (uFD(t) && (uD(t) || drs(t)));
end

dUTCi(f,t) = ((uF(f) || uFD(f)) && ((uGO(xp)==0) || ex(t)));

dCLFd(f,t) = cIM(t) || (cDD(t) && drs(t)) || (cPS(t) && drs(t));

dCLFi(f,t) = cIM(f) || cDD(f) || cH(xp) || (cPS(t) && ex(t));

dPSVPd(f,t) = drs(t);

dPSVPe(f,t) = exm(t);

dSTGd1() = dr(A) || dr(B) || dr(F) || dr(G);

dSTGe1() = er(A) || er(B) || er(F) || er(G);

dPSVPd1() = pdp(A) || pdp(B) || pdp(F) || pdp(G);

dPSVPe1() = pep(A) || pep(B) || pep(F) || pep(G);

dUTCd1(t) = uF(t) || (uFD(t) && (uD(t) || dr(A) || dr(B) || dr(F) || dr(G)));

dUTCi1(f,t) = ((uF(f) || uFD(f)) && ((uGO(xp)==0) || ex(t)));

dCLFd1(t) = cIM(t) || (cDD(t) && (dr(A) || dr(B) || dr(F) || dr(G))) || (cPS(t) && (dr(A) || dr(B) || dr(F) || dr(G)));

dCLFi1(f,t) = cIM(f) || cDD(f) || cH(xp) || (cPS(t) && ex(t));

dSTGd2() = dr(A) || dr(C) || dr(F) || dr(G) || dr(I);

dSTGe2() = er(A) || er(C) || er(F) || er(G) || er(I);

dPSVPd2() = pdp(A) || pdp(C) || pdp(F) || pdp(G) || pdp(I);

dPSVPe2() = pep(A) || pep(C) || pep(F) || pep(G) || pep(I);

dUTCd2(t) = uF(t) || (uFD(t) && (uD(t) || dr(A) || dr(C) || dr(F) || dr(G) || dr(I)));

dUTCi2(f,t) = ((uF(f) || uFD(f)) && ((uGO(xp)==0) || ex(t)));

dCLFd2(t) = cIM(t) || (cDD(t) && (dr(A) || dr(C) || dr(F) || dr(G) || dr(I))) || (cPS(t) && (dr(A) || dr(C) || dr(F) || dr(G) || dr(I)));

dCLFi2(f,t) = cIM(f) || cDD(f) || cH(xp) || (cPS(t) && ex(t));

dSTGd3() = dr(A) || dr(D) || dr(H) || dr(I);

dSTGe3() = er(A) || er(D) || er(H) || er(I);

dPSVPd3() = pdp(A) || pdp(D) || pdp(H) || pdp(I);

dPSVPe3() = pep(A) || pep(D) || pep(H) || pep(I);

dUTCd3(t) = uF(t) || (uFD(t) && (uD(t) || dr(A) || dr(D) || dr(H) || dr(I)));

dUTCi3(f,t) = ((uF(f) || uFD(f)) && ((uGO(xp)==0) || ex(t)));

dCLFd3(t) = cIM(t) || (cDD(t) && (dr(A) || dr(D) || dr(H) || dr(I))) || (cPS(t) && (dr(A) || dr(D) || dr(H) || dr(I)));

dCLFi3(f,t) = cIM(f) || cDD(f) || cH(xp) || (cPS(t) && ex(t));

dSTGd4() = dr(A) || dr(C) || dr(D) || dr(I);

dSTGe4() = er(A) || er(C) || er(D) || er(I);

dPSVPd4() = pdp(A) || pdp(C) || pdp(D) || pdp(I);

dPSVPe4() = pep(A) || pep(C) || pep(D) || pep(I);

dUTCd4(t) = uF(t) || (uFD(t) && (uD(t) || dr(A) || dr(C) || dr(D) || dr(I)));

dUTCi4(f,t) = ((uF(f) || uFD(f)) && ((uGO(xp)==0) || ex(t)));

dCLFd4(t) = cIM(t) || (cDD(t) && (dr(A) || dr(C) || dr(D) || dr(I))) || (cPS(t) && (dr(A) || dr(C) || dr(D) || dr(I)));

dCLFi4(f,t) = cIM(f) || cDD(f) || cH(xp) || (cPS(t) && ex(t));

dSTGd5() = dr(D) || dr(E) || dr(H) || dr(I);

dSTGe5() = er(D) || er(E) || er(H) || er(I);

dPSVPd5() = pdp(D) || pdp(E) || pdp(H) || pdp(I);

dPSVPe5() = pep(D) || pep(E) || pep(H) || pep(I);

dUTCd5(t) = uF(t) || (uFD(t) && (uD(t) || dr(D) || dr(E) || dr(H) || dr(I)));

dUTCi5(f,t) = ((uF(f) || uFD(f)) && ((uGO(xp)==0) || ex(t)));

dCLFd5(t) = cIM(t) || (cDD(t) && (dr(D) || dr(E) || dr(H) || dr(I))) || (cPS(t) && (dr(D) || dr(E) || dr(H) || dr(I)));

dCLFi5(f,t) = cIM(f) || cDD(f) || cH(xp) || (cPS(t) && ex(t));

dSTGd6() = dr(B) || dr(F) || dr(G) || dr(J);
```

General (default) Stage Move Conditions

```
dSTGe6() = er(B) || er(F) || er(G) || er(J);

dPSVPd6() = pdp(B) || pdp(F) || pdp(G) || pdp(J);

dPSVPe6() = pep(B) || pep(F) || pep(G) || pep(J);

dUTCd6(t) = uF(t) || (uFD(t) && (uD(t) || dr(B) || dr(F) || dr(G) || dr(J)));

dUTCi6(f,t) = ((uF(f) || uFD(f)) && ((uGO(xp)==0) || ex(t)));

dCLFd6(t) = cIM(t) || (cDD(t) && (dr(B) || dr(F) || dr(G) || dr(J))) || (cPS(t) && (dr(B) || dr(F) || dr(G) || dr(J)));

dCLFi6(f,t) = cIM(f) || cDD(f) || cH(xp) || (cPS(t) && ex(t));

dUTCd7(t) = uF(t) || (uFD(t) && (uD(t) || drs(t)));

dUTCi7(f,t) = ((uF(f) || uFD(f)) && ((uGO(xp)==0) || ex(t)));

dCLFd7(t) = cIM(t) || (cDD(t) && (drs(t))) || (cPS(t) && (drs(t)));

dCLFi7(f,t) = cIM(f) || cDD(f) || cH(xp) || (cPS(t) && ex(t));
```

SYSTEM PARAMETERS

UK Parameters

Name	Description	Min	Max	Def	Value
MAN_TIMEOUT	Manual control timeout	60	600	600	600
MAN_DEMAND_ERROR	Duration of the manual demand error indication	0	60	5	5
MAN_ENABLE	Manual control enabled.	0	1	1	1
DFM_FUNC	Bit mask specifying behaviour of DFM indicator	0	999	1	1
CLF_TIMER_SYNC	Duration of the CLF group Timer Synchronisation Signal	0	0	0	0
UTC_TS	Time in HH:MM used for COTU_TS	0	2359	1200	1200
UTC_FORCE_TIMEOUT	The force bit watchdog timeout	120	300	200	200
UTC_FORCE_ACCEPT	The force accept timeout in system ticks.	1	10	4	4
UTC_LO_DELAY	Delay in seconds before COTU_LO changes is accepted.	0	99	10	10
UTC_RT_HOUR	Hours used for RT reply bit (-1 = any hour).	-1	23	0	0
UTC_RT_MIN	Minutes used for RT reply bit (-1 = any minute).	-1	59	0	0
UTC_RT_SEC	Seconds used for RT reply bit	-1	59	0	0
UTC_RT_DURATION	Duration of the RT reply bit in seconds	1	10	3	3
UTC_CG_DURATION	Duration of the CG reply bit in seconds	1	10	3	3
UTC_TSR_DURATION	Duration of the TSR reply bit in seconds	1	10	3	3
UTC_G1G2_FUNC	Bit mask specifying behaviour of G1/G2 reply bits	0	255	1	1
UTC_RR_FUNC	Bit mask specifying behaviour of RR reply bit	0	255	14	14
UTC_PV_ACCEPT	The PV accept time in system ticks	0	255	0	0
UTC_PV_HOLD	The PV hold time in system ticks	0	255	40	40
UKSTG_DIM_ALARM	The maximum time [in hours] for dimmed operation (-1 = solar cell disabled, 0 = enabled without timeout processing)	-1	100	24	24
UKSTG_DIM_FILTER	The call/cancel delay [in sec] for the DIM relays	0	255	15	15
UTC_CRB_PULSE_ON_TIME	CRB On Timer	0	1800	600	600
UTC_CRB_PULSE_OFF_TIME	CRB Off Timer	0	10	2	2

System Parameters

Name	Description	Min	Max	Value
MMI8408	XMMI: 8 x 40 MMI	0	1	1
XIN_L	XIN_L: Number of IN logging lines	1	999	10
XOUT_L	XOUT_L: Number of OUT logging lines	1	999	10
XDET_L	XDET_L: Number of DET logging lines	1	999	100
XDET_F	XDET_F: Status in case of fault	0	2	0
XSG_L	XSG_L: Number of SG logging lines	0	999	100
XHTTP	XHTTP: Presence of web server	0	1	1
XHTTP_PORT	XHTTP_PORT: Webserver port	0	65535	80
XLM_MAL	XLM_MAL: Go to major alarm if power reference(s) are not set	0	1	0
XLM_RLM	XLM_RLM: RLM callback interval in 0.1 [s]	0	100	10
XLM_T	XLM_T: Tracking off / on	0	20	5
XLM_TF	XLM_TF: Tracking filter	1	20	8
XLM_NV	XLM_NV: Nominal (bright) voltage	0	240	230
XLM_MON	XLM_MON: Monitoring type	0	10	3
XLM_AC	XLM_AC: Automatic calibration	0	1	1
XLM_DIM	XLM_DIM: Bright Din Calibration off / on	0	1	1
CLF_SYNC	CLF Synchronisation option.	0	3	0
CLF_SYNC_WDAY	CLF Weekly sync is done on..	1	7	1
CLF_TIMER_SYNC	Duration of the CLF group Timer Synchronisation Signal	0	2400	600
CLF_NON_BASE_TIME	Select base time or non base time (0 or 1)	0	1	1
XIOTU_RTS	RTS activated after # received characters (use 1, 2 or 3)	1	3	1
XIOTU_SCOOT	Default bit number used for scoot counted detectors (0 to 7)	0	7	0
XIOTU_CTS	CTS timeout per 10ms	4	10	6
UKMP_TYPE	UK Manual panel type (0=std, 1=ped, 2=multiple stages)	0	2	2
ENGTERM_BAUD	Engterm baudrate	0	99999	9600
HCH_ALLRED	Use HCH for all red stage moves	0	1	1
HCH_SWOFF	Use HCH for switch off stage moves	0	1	0
PT_SYNC	Synchronize move to part time mode	0	1	1
CLF_MANUAL_STEP	Enable the Manual Step	0	1	0
CLF_DEFAULT_PLAN		-1	999	0
CLF_MANUAL_MEMOS	Memo for the manual step	0	1	0
COMPRESS_HARDWARE	Compress Hardware	0	1	0
XWDS_SENSOR_TIMEOUT	Wireless Detection sensor time out value	0	65535	60
ALERTPLUS_ENABLE	Alert+: Enable the service	0	1	0
ALERTPLUS_NRSESSIONS	Alert+: Number of sessions	1	99	2
ALERTPLUS_LOGINUSERG1	Alert+: Login code for user group 1	0	9999	0

Name	Description	Min	Max	Value
ALERTPLUS_LOGINUSERG2	Alert+: Login code for user group 2	0	9999	0
ALERTPLUS_LOGINUSERG3	Alert+: Login code for user group 3	0	9999	0
ALERTPLUS_LOGINUSERG4	Alert+: Login code for user group 4	0	9999	0
IMFLOW_ENABLE	ImFlow enabled	0	1	0
IMFLOW_WDG_TIME	ImFlow: Wait time for deadlock supervision [s]	1	999	300
IMFLOW_MAX_WDG_RETRIES	ImFlow: Max. retries on deadlocks in UTC control	1	99	5
IMFLOW_MAX_CONFL_RETRIES	ImFlow: Max. retries on conflicts in UTC control	1	99	1
IMFLOW_SIM_IF	ImFlow Sim. interface	0	1	1
IMFLOW_TDC	ImFlow TDC logging	0	1	0

Traffic Data Collector (TDC)

TDC enabled	Persistent	Readonly	MF (max. files)	Assigned memory
No	0	0	0	1 Mb

MEMO FIELDS

HISTORY	
Description	Text in the History text block between: --CREDAT-- and --UPDATE--
Contents	* This is memofield HISTORY

B_HISTORY	
Description	Text in the History text block between: --CREDAT-- and --UPDATE-- (AMSEC1.CNF)
Contents	; This is memofield HISTORY_B

ABC_INC	
Description	Code at the end of the file before the end of file remark (AMSEC1.CNF)
Contents	; This is memofield AMSEC_INC

XP1_INC	
Description	Code at the begin of the file, just below History, under the heading 'XP1_INC'.
Contents	**/* This is memofield XP1_INC** */

XP2_INC	
Description	Code under the heading 'XP2_INC', just before the 'XIN INPUTS' definitions.
Contents	**/* This is memofield XP2_INC** */

XP3_INC	
Description	Code under the heading 'XP3_INC', at the end of the file.
Contents	**/* This is memofield XP3_INC** */ P("MPDISO.R1") { P(0);D(1); P(1);D(1); P(2);D(1); P(3);D(1); P(4);D(1); P(5);D(1); P(6);D(1); P(7);D(1); }

SADAT_INC	
Description	Code at end of the file. (SADAT.CNF)
Contents	**/* This is memofield SADAT_INC** */ **/* Function Stops CER Dets Extending phase A** */ P("DFUNC.R30") { **/* P(Clearance Det); D(0b00000000);** */ }

VMFUNC_INC1	
Description	VMFUNC process conditions
Contents	**/* This is memofield VMFUNC_INC1** */

VMFUNC_INC2	
Description	VMFUNC process conditions
Contents	**/* This is memofield VMFUNC_INC2** */

HARDWARE CONFIGURATION

Device counts

Lamp control devices	Count	Detection devices	Count	I/O devices	Count
VIRTUAL-LCM	3	ED316	0	IO1616	3
LCM	3	MTS4E	4	RIO	0
RLU	0	WDS	0		
RLU-9	0	FLIR-ZONE	0		
		FLIR-OUTPUT	0		
Dummy-Phase	0	Dummy-Detector	2		

Optional devices	Setting
Manual Panel Type	Multi stage
Manual Panel Flashing	Disabled
Solar Cell Monitor	24 hour time out
Dimming Operating	ELV 24V Solar Cell

Configuration - RLU / LCM

RLU	LCM
	LCM --- Physical LCM: 01 --- 001: A/Red (R01) 002: A/Amber (A01) 003: A/Green (G01) 004: B/Red (R02) 005: B/Amber (A02) 006: B/Green (G02) 007: C/Red (R03) 008: C/Amber (A03) 009: C/Green (G03) 010: D/Red (R04) 011: D/Amber (A04) 012: D/Green (G04) --- Physical LCM: 02 --- 001: E/Red (R05) 002: E/Amber (A05) 003: E/Green (G05) 004: F/Red (R06) 005: F/Wait (A06) 006: F/Green (G06) 007: G/Red (R07) 008: G/Wait (A07) 009: G/Green (G07) 010: H/Red (R08) 011: H/Wait (A08) 012: H/Green (G08) --- Physical LCM: 03 --- 001: I/Red (R09) 002: I/Wait (A09) 003: I/Green (G09) 004: J/Red (R10) 005: J/Wait (A10) 006: J/Green (G10)

Configuration - ED316 / MTS4E

ED316	MTS4E
	MTS4E --- Unit: 01 --- 001: Detector AIN11 002: Detector AIN12 003: Detector AX1 004: Detector AX2 --- Unit: 02 --- 001: Detector BIN13 002: Detector BIN14 003: Detector BX3 004: Detector BX4 --- Unit: 03 --- 001: Detector CIN15 002: Detector CX5 003: Detector CSL25 004: Detector DIN16 --- Unit: 04 --- 001: Detector DX6 002: Detector DSL26 003: Detector EX7 004: Detector ESL27

Configuration - WDS

WDS

IOT State - Lamp control

RLU	LCM

RLU

```
RLU

Unit    Addr  *
======= ====  ==============
```

LCM

```
LCM

Unit    Addr  *
======= ====  ==============
 01      001  A/Red (R01)
 01      002  A/Amber (A01)
 01      003  A/Green (G01)
 01      004  B/Red (R02)
 01      005  B/Amber (A02)
 01      006  B/Green (G02)
 01      007  C/Red (R03)
 01      008  C/Amber (A03)
 01      009  C/Green (G03)
 01      010  D/Red (R04)
 01      011  D/Amber (A04)
 01      012  D/Green (G04)

 02      001  E/Red (R05)
 02      002  E/Amber (A05)
 02      003  E/Green (G05)
 02      004  F/Red (R06)
 02      005  F/Wait (A06)
 02      006  F/Green (G06)
 02      007  G/Red (R07)
 02      008  G/Wait (A07)
 02      009  G/Green (G07)
 02      010  H/Red (R08)
 02      011  H/Wait (A08)
 02      012  H/Green (G08)

 03      001  I/Red (R09)
 03      002  I/Wait (A09)
 03      003  I/Green (G09)
 03      004  J/Red (R10)
 03      005  J/Wait (A10)
 03      006  J/Green (G10)
```

IOT State - Detection

ED316

```
ED316

Unit    Addr  *
======= ====  ==============
```

MTS4E

```
MTS4E

Unit    Addr  *
======= ====  ==============
 01      001  AIN11
 01      002  AIN12
 01      003  AX1
 01      004  AX2

 02      001  BIN13
 02      002  BIN14
 02      003  BX3
 02      004  BX4

 03      001  CIN15
 03      002  CX5
 03      003  CSL25
 03      004  DIN16

 04      001  DX6
 04      002  DSL26
 04      003  EX7
 04      004  ESL27
```

WDS

```
WDS

Unit    Addr  *
======= ====  ==============
```

FLIR-ZONE

```
FLIR-ZONE

Unit    Addr  *
======= ====  ==============
```

FLIR-OUTPUT

```
FLIR-OUTPUT

Unit    Addr  *
======= ====  ==============
```

IOT State - IO1616, RIO

IN	OUT

IN

```
IO1616-IN

Unit    Addr  *
======= ====  ==============
 01      001  UTC_I1
 01      002  UTC_I2
 01      003  UTC_I3
 01      004  UTC_I4
 01      005  UTC_I5
 01      006  UTC_I6
 01      007  UTC_I7
 01      008  sispwr
 01      009  sisflt
 01      010  UTC_I10
 01      011  UTC_I11
 01      012  UTC_I12
 01      013  UTC_I13
 01      014  UTC_I14
 01      015  UTC_I15
 01      016  UTC_I16

 02      001  PBFU1
 02      002  PBUF2
 02      003  PBUF3
 02      004  PBUF4
 02      005  PBUG1
 02      006  PBUG2
 02      007  PBUG3
 02      008  PBUG4
 02      009  PBUH1
 02      010  PBUH2
 02      011  PBUH3
 02      012  PBUH4
 02      013  PBUI1
 02      014  PBUI2
 02      015  PBUI3
 02      016  PBUI4

 03      001  PBUJ1
 03      002  PBUJ2
 03      003  PBUJ3
 03      004  PBUJ4
 03      005  ONXH1
 03      006  ONXH2
 03      007  ONXI1
 03      008  ONXI2
 03      009  ONXJ1
 03      010  ONXJ2
```

OUT

```
IO1616-OUT

Unit    Addr  *
======= ====  ==============
 01      001  UTC_O1
 01      002  UTC_O2
 01      003  UTC_O3
 01      004  UTC_O4
 01      005  UTC_O5
 01      006  UTC_O6
 01      007  UTC_O7
 01      008  UTC_O8
 01      009  UTC_O9
 01      010  UTC_O10
 01      011  UTC_O11
 01      012  UTC_O12
 01      013  UTC_O13
 01      014  UTC_O14
 01      015  UTC_O15
 01      016  UTC_O16

 02      001  MDET1
 02      002  MDET2
 02      003  MDET3
 02      004  MDET4
 02      005  MDET5
 02      006  MDET6
 02      007  MDET7
 02      008  MDET11
 02      009  MDET12
 02      010  MDET13
 02      011  MDET14
 02      012  MDET15
 02      013  MDET16
 02      014  MDET20
 02      015  MDET21
 02      016  MDET22

 03      001  MDET23
 03      002  MDET24
 03      003  MDET25
 03      004  MDET26
 03      005  MDET27
 03      006  SISPWR
 03      007  SISFLT
```

IOT State - Controller connections (KOPMV)

KOPMV-IN

```
KOPMV-IN

Unit    Addr  *
======= ====  ==============
```

KOPMV-OUT

```
KOPMV-OUT

Unit    Addr  *
======= ====  ==============
```

INPUTS and OUTPUTS

Detectors

ID	Detector Name	Invert	Unit Type	Unit Pos.
1	AIN11	No	MTS4E-1	1
2	AIN12	No	MTS4E-1	2
3	AX1	No	MTS4E-1	3
4	AX2	No	MTS4E-1	4
5	BIN13	No	MTS4E-2	1
6	BIN14	No	MTS4E-2	2
7	BX3	No	MTS4E-2	3
8	BX4	No	MTS4E-2	4
9	CIN15	No	MTS4E-3	1
10	CX5	No	MTS4E-3	2
11	CSL25	No	MTS4E-3	3
12	DIN16	No	MTS4E-3	4
13	DX6	No	MTS4E-4	1
14	DSL26	No	MTS4E-4	2
15	SPARE_1	No	DUMMY-1	1
16	EX7	No	MTS4E-4	3
17	ESL27	No	MTS4E-4	4
18	SPARE_2	No	DUMMY-2	1
19	PBFU1	No	IO1616-2	1
20	PBUF2	No	IO1616-2	2
21	PBUF3	No	IO1616-2	3
22	PBUF4	No	IO1616-2	4
23	PBUG1	No	IO1616-2	5
24	PBUG2	No	IO1616-2	6
25	PBUG3	No	IO1616-2	7
26	PBUG4	No	IO1616-2	8
27	PBUH1	No	IO1616-2	9
28	PBUH2	No	IO1616-2	10
29	PBUH3	No	IO1616-2	11
30	PBUH4	No	IO1616-2	12
31	PBUI1	No	IO1616-2	13
32	PBUI2	No	IO1616-2	14
33	PBUI3	No	IO1616-2	15
34	PBUI4	No	IO1616-2	16
35	PBUJ1	No	IO1616-3	1
36	PBUJ2	No	IO1616-3	2
37	PBUJ3	No	IO1616-3	3
38	PBUJ4	No	IO1616-3	4
39	ONXH1	Yes	IO1616-3	5
40	ONXH2	Yes	IO1616-3	6
41	ONXI1	Yes	IO1616-3	7
42	ONXI2	Yes	IO1616-3	8
43	ONXJ1	Yes	IO1616-3	9
44	ONXJ2	Yes	IO1616-3	10

Inputs

ID	Input	Label	Invert	Toggle	Unit Type	Unit Pos.
1	sispwr		No	No	IO1616-1	8
2	sisflt		No	No	IO1616-1	9
3	UTC_I1	F1	No	No	IO1616-1	1
4	UTC_I2	F2	No	No	IO1616-1	2
5	UTC_I3	F3	No	No	IO1616-1	3
6	UTC_I4	F4	No	No	IO1616-1	4
7	UTC_I5	F5	No	No	IO1616-1	5
8	UTC_I6	F6	No	No	IO1616-1	6
9	UTC_I7	F7	No	No	IO1616-1	7
10	UTC_I8		No	No	-	8
11	UTC_I9		No	No	-	9
12	UTC_I10		No	No	IO1616-1	10
13	UTC_I11		No	No	IO1616-1	11
14	UTC_I12		No	No	IO1616-1	12
15	UTC_I13		No	No	IO1616-1	13
16	UTC_I14	TO1	No	No	IO1616-1	14
17	UTC_I15		No	No	IO1616-1	15

ID	Input	Label	Invert	Toggle	Unit Type	Unit Pos.
18	UTC_I16		No	No	IO1616-1	16
19	DIM_IN		No	No	DIMMING	1

Outputs

ID	Output	Label	Invert	Unit Type	Unit Pos.
1	MDET1		No	IO1616-2	1
2	MDET2		No	IO1616-2	2
3	MDET3		No	IO1616-2	3
4	MDET4		No	IO1616-2	4
5	MDET5		No	IO1616-2	5
6	MDET6		No	IO1616-2	6
7	MDET7		No	IO1616-2	7
8	MDET11		No	IO1616-2	8
9	MDET12		No	IO1616-2	9
10	MDET13		No	IO1616-2	10
11	MDET14		No	IO1616-2	11
12	MDET15		No	IO1616-2	12
13	MDET16		No	IO1616-2	13
14	MDET20		No	IO1616-2	14
15	MDET21		No	IO1616-2	15
16	MDET22		No	IO1616-2	16
17	MDET23		No	IO1616-3	1
18	MDET24		No	IO1616-3	2
19	MDET25		No	IO1616-3	3
20	MDET26		No	IO1616-3	4
21	MDET27		No	IO1616-3	5
22	SISPWR		No	IO1616-3	6
23	SISFLT		No	IO1616-3	7
24	UTC_O1	G1	No	IO1616-1	1
25	UTC_O2	G2	No	IO1616-1	2
26	UTC_O3	G3	No	IO1616-1	3
27	UTC_O4	G4	No	IO1616-1	4
28	UTC_O5	G5	No	IO1616-1	5
29	UTC_O6	G6	No	IO1616-1	6
30	UTC_O7	G7	No	IO1616-1	7
31	UTC_O8	LE	No	IO1616-1	8
32	UTC_O9		No	IO1616-1	9
33	UTC_O10		No	IO1616-1	10
34	UTC_O11		No	IO1616-1	11
35	UTC_O12		No	IO1616-1	12
36	UTC_O13		No	IO1616-1	13
37	UTC_O14		No	IO1616-1	14
38	UTC_O15	CRB1	No	IO1616-1	15
39	UTC_O16		No	IO1616-1	16
40	DIM_OUT		No	DIMMING	1

Report executed at 12/19/2016 2:57 PM

APPENDIX C

Saturation Flows 23-Mar-22 South Bound Slip Road (Site 1 Location 13) at Junction 10

Jack H AM Lane 1 (Nearside)

Stop Line	Cycle	6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
		Seconds of Saturated Flow - Stop Line														
	1	2.3	2.3	2.0										2	1	6
	2	2.0	3.3	4.0	1.0									7	2	12
	3	3.0	4.0	1.0										4	1	6
	4	1.5	3.0	2.0	1.0									5	2	12
	5	3.0	2.5	3.0	3.0									9	3	18
	6	3.0	3.0	3.0										6	2	12
	7	3.0	5.0											5	1	6
	8	2.0	3.0	3.0	1.0									6	2	12
	9	3.3	3.0	2.0	2.0									7	3	18
	10													0	0	0
	Total	23	29	20	8	0	0	0	0	0	0	0				
														51		**102**

TOTAL FLOW 51

TOTAL TIME 102

SAT FLOW 1804

"=" traffic flow not included in saturation flow calculation

Additional Green time

Saturation Flows **23-Mar-22** **South Bound Slip Road (Site 1 Location 13) at Junction 10**

Jack H **AM** **Lane 3**

Stop Line	Cycle	Seconds of Saturated Flow - Stop Line													
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	1	1.0	4.6	2.0										5	1	6
	2	2.0	2.0											2	1	6
	3	2.3	3.0	3.0	2.0									6	2	12
	4	2.0	3.0	1.0										3	1	6
	5	2.3	2.0	1.0										2	1	6
	6	2.0	3.3											3	1	6
	7	2.5	3.0	2.0										3	1	6
	8	2.0	3.3	1.0										3	1	6
	9													0	0	0
	10													0	0	0
	Total	16	24	10	2	0	0	0	0	0	0	0				
														27		**54**

TOTAL FLOW **27**
TOTAL TIME **54**
SAT FLOW **1813**

"=" traffic flow not included in saturation flow calculation
Additional Green time

Saturation Flows

23-Mar-22 — West Bound A5 (Site 1 Location 14) at Junction 10

Jack H — AM — Lane 1 (Nearside)

Stop Line	Cycle	6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
		Seconds of Saturated Flow - Stop Line														
	1	2.0	4.0	3.0										7	2	12
	2	2.0	3.3	3.0	4.0									10	3	18
	3	1.5	2.5	3.0										6	2	12
	4	2.0	4.0	4.3	1.0									8	2	12
	5	2.0	3.0	3.0	2.0									6	2	12
	6	3.0	3.0	3.5										7	2	12
	7	2.0	3.0	4.3	1.0									7	2	12
	8	3.0	2.0	3.0	3.0	3.0	1.0							11	4	24
	9	1.5	3.3	3.0	3.0									9	3	18
	10	2.0	3.0	3.0										6	2	12
	Total	21	31	33	14	3	1	0	0	0	0	0				
														77		**144**

TOTAL FLOW 77

TOTAL TIME 144

SAT FLOW 1930

"=" traffic flow not included in saturation flow calculation

Additional Green time

Saturation Flows 23-Mar-22 **West Bound A5 (Site 1 Location 14) at Junction 10**
Jack H **AM** **Lane 3**

Stop Line	Cycle	Seconds of Saturated Flow - Stop Line													
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	1	2.3	3.0	3.0	2.0	3.0	1.0							11	4	24
	2	3.0	3.0	3.0	3.0	4.0	3.0							16	5	30
	3	3.0	2.0	2.3	2.0	4.0	3.0	4.0						17	6	36
	4	2.0	4.0	3.0	4.0	2.5	2.0							14	4	24
	5	2.0	3.0	3.0	3.0									9	3	18
	6	2.0	4.0	3.0	4.0	3.0								14	4	24
	7	3.0	3.0	3.0	3.0									9	3	18
	8	3.0	2.0	4.0	2.0	3.0								11	4	24
	9	2.5	3.0	3.0	1.0									6	2	12
	10	3.0	2.0	4.6	3.0	3.0	4.0	1.0						17	5	30
	Total	26	29	32	27	23	13	5	0	0	0	0				
														123		**240**

TOTAL FLOW **123**
TOTAL TIME **240**
SAT FLOW **1851**

"=" traffic flow not included in saturation flow calculation
Additional Green time

Saturation Flows

23-Mar-22 **Northbound Slip Road (Site 1 Location 17) at Junction 10**

Jack H **AM** **Lane 1 (nearside)**

Stop Line	Cycle	Seconds of Saturated Flow - Stop Line													
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	1	2.0	3.0	1.0										3	1	6
	2	3.3	2.0	3.0										5	2	12
	3	2.3	3.0	3.0										6	2	12
	4	3.0	3.0											3	1	6
	5	2.5	2.0	3.0	1.0									5	2	12
	6	2.0	3.0	2.5										6	2	12
	7	2.5	3.0	4.0										7	2	12
	8	2.0	3.0											3	1	6
	9	2.5	3.3	3.0	2.0									6	2	12
	10	2.0	4.0	1.5										6	2	12
	Total	24	29	21	3	0	0	0	0	0	0	0				
														49		**102**

TOTAL FLOW **49**
TOTAL TIME **102**
SAT FLOW **1740**

"=" traffic flow not included in saturation flow calculation

Additional Green time

Saturation Flows

23-Mar-22 — Northbound Slip Road (Site 1 Location 17) at Junction 10

Jack H — AM — Lane 2

Stop Line	Cycle	6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
		Seconds of Saturated Flow - Stop Line														
	1	1.5	2.3	4.6										7	2	12
	2	2.3	3.0	3.0										6	2	12
	3	3.3	1.0	4.3										4	1	6
	4	2.0	3.3	2.5	1.0									6	2	12
	5	2.0	2.5	2.3										5	2	12
	6	2.3	2.3											2	1	6
	7	2.3	3.3											3	1	6
	8	2.3	2.3	2.3										2	1	6
	9	2.5	2.0	2.5										5	2	12
	10	2.3	3.3	2.0										3	1	6
	Total	23	25	24	1	0	0	0	0	0	0	0				
														44		**90**

TOTAL FLOW 44

TOTAL TIME 90

SAT FLOW 1740

"=" traffic flow not included in saturation flow calculation

Additional Green time

Saturation Flows 23-Mar-22 **Northbound Slip Road (Site 1 Location 17) at Junction 10**

Jack H **AM** **Lane 5 offside**

Stop Line	Cycle	**Seconds of Saturated Flow - Stop Line**														
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	1	2.0	3.0	3.0	2.0									6	2	12
	2	3.0	3.0	3.0	2.0									6	2	12
	3	2.3	3.0	2.0										3	1	6
	4	2.0	3.0	3.3										6	2	12
	5	2.3	3.0	2.3										3	1	6
	6	3.0	3.0	2.0	1.0									5	2	12
	7	2.0	3.0	4.6										8	2	12
	8	3.5	3.5	1.0										4	1	6
	9	3.0	3.0	3.0										6	2	12
	10	2.0	3.0	3.0	1.0									6	2	12
	Total	25	31	27	6	0	0	0	0	0	0	0				
														52		**102**

TOTAL FLOW	**52**
TOTAL TIME	**102**
SAT FLOW	**1849**

"=" traffic flow not included in saturation flow calculation

Additional Green time

Saturation Flows | **23-Mar-22** | **East Bound A5 (Site 1 Location 18) at Junction 10**
Jack H | **AM** | **Lane 1 (nearside)**

Stop Line	Cycle	Seconds of Saturated Flow - Stop Line													
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	1	2.3	2.0	3.0	4.0	3.0	4.0	2.0						16	5	30
	2	3.0	3.0	2.5	3.5	2.0	1.0							11	4	24
	3	2.0	4.0	2.3	2.0	2.3	2.0							11	4	24
	4	2.0	2.5	4.3	3.3	2.0								10	3	18
	5	3.0	4.3	2.0	2.0	3.0								11	4	24
	6	1.0	2.0	3.0	3.0	2.0								8	3	18
	7	2.0	3.0	3.0	3.0	3.0	3.0	2.0						15	5	30
	8	2.0	3.0	3.0	3.5									10	3	18
	9	2.0	3.0	3.0	4.0	2.3	4.0	2.0						16	5	30
	10	2.0	4.0	4.0	3.0	2.0								11	3	18
	Total	21	31	30	31	22	14	6	0	0	0	0				
														119		**234**

TOTAL FLOW 119
TOTAL TIME 234
SAT FLOW 1828

"=" traffic flow not included in saturation flow calculation
Additional Green time

Saturation Flows 23-Mar-22 **East Bound A5 (Site 1 Location 18) at Junction 10**

Jack H **AM** **Lane 2**

Stop Line	Cycle	Seconds of Saturated Flow - Stop Line												TOTAL	TIME PERIODS	TIME
		6	12	18	24	30	36	42	48	54	1m	1m 6				
	1	2.3	2.5	2.0	3.0									8	3	18
	2	2.0	3.0	4.0	2.0									7	2	12
	3	3.0	3.0	3.0	2.0	1.0								6	2	12
	4	2.0	4.0	3.0	2.0									7	2	12
	5	3.0	3.0	2.0	4.0									9	3	18
	6	2.0	4.0	3.0										7	2	12
	7	2.5	3.0	4.0	2.0									7	2	12
	8	3.0	3.0	2.0										3	1	6
	9	2.0	3.0	2.0										3	1	6
	10	3.0	3.0	4.0	3.0	1.0								10	3	18
	Total	25	32	29	18	2	0	0	0	0	0	0				
														67		**126**

TOTAL FLOW 67
TOTAL TIME 126
SAT FLOW 1900

"=" traffic flow not included in saturation flow calculation

Additional Green time

Saturation Flows

Jack H | 23-Mar-22 AM | Trinity Road (Site 1 Location 25) at Junction 10 Lane 1 nearside

Stop Line	Cycle	Seconds of Saturated Flow - Stop Line													
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	1	2.3	3.0	3.3	1.0									7	3	18
	2	2.3	3.3	1.5										3	1	6
	3	2.3	2.3	2.0	3.0									7	3	18
	4	3.0	3.0	1.0										3	1	6
	5	2.3	3.3	2.3										3	1	6
	6	3.0	3.0											3	1	6
	7	2.3	2.3	4.6										7	2	12
	8	2.3	2.3	3.0										5	2	12
	9	3.3	2.3	3.3	1.0									6	2	12
	10	3.3	2.3											2	1	6
	Total	26	27	21	5	0	0	0	0	0	0	0				
														47		**102**

TOTAL FLOW 47
TOTAL TIME 102
SAT FLOW 1669

(grey) "=" traffic flow not included in saturation flow calculation
(red) Additional Green time

Saturation Flows | 23-Mar-22 | Green Lane (Site 1 Location 22) at Junction 10

Jack H | AM | Lane 1 nearside

Stop Line	Cycle	Seconds of Saturated Flow - Stop Line												TOTAL	TIME PERIODS	TIME
		6	12	18	24	30	36	42	48	54	1m	1m 6				
	1	1.0	3.0	2.0										3	1	6
	2	2.3	2.0											2	1	6
	3	3.3	3.3											3	1	6
	4	2.3	3.0											3	1	6
	5	1.0	3.0	2.0										3	1	6
	6	2.0	2.3	1.5										2	1	6
	7	2.3	2.3	1.0										2	1	6
	8	2.0	3.0											3	1	6
	9	2.3	2.5											3	1	6
	10	2.3	2.3	1.0										2	1	6
	Total	21	27	8	0	0	0	0	0	0	0	0				
														27		**60**

TOTAL FLOW 27

TOTAL TIME 60

SAT FLOW 1602

"=" traffic flow not included in saturation flow calculation

Additional Green time

Saturation Flows

23-Mar-22 **Eastbound Overbridge (Site 1 Location 7) - Southbound circulatory on Junction 10**

Jack H **AM** **Lane 1 (Nearside)**

Stop Line	Cycle	**Seconds of Saturated Flow - Stop Line**														
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	1	1.0	4.6	3.0	2.5									8	2	12
	2	2.3	2.5	3.3	3.3	2.0								9	3	18
	3	2.0	3.0	2.5	4.0									10	3	18
	4	3.0	2.5	3.0	3.0									9	3	18
	5	4.6	3.0	3.0	3.0									9	3	18
	6	2.5	3.3	3.0	2.3									6	2	12
	7	2.5	4.6	3.3	3.3									11	3	18
	8	3.3	4.3	2.5	2.0									7	2	12
	9	2.3	4.0	3.0	1.0									7	2	12
	10	2.3	2.5	4.0	2.0									7	2	12
	Total	26	34	31	26	2	0	0	0	0	0	0				
														82		**150**

TOTAL FLOW	**82**
TOTAL TIME	**150**
SAT FLOW	**1956**

"=" traffic flow not included in saturation flow calculation

Additional Green time

Saturation Flows

23-Mar-22 Eastbound Overbridge (Site 1 Location 7) - Southbound circulatory on Junction 10

Jack H AM Lane 3 (Offside Middle)

Stop Line	Cycle	Seconds of Saturated Flow - Stop Line														
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	1	3.0	4.0	3.5	2.0									8	2	12
	2	3.0	3.5	2.0	2.0	3.3	3.3							14	5	30
	3	3.0	3.0	2.5	4.3	1.0								10	3	18
	4	2.3	2.5	3.0										6	2	12
	5	2.5	2.0	3.0	3.0	3.0	1.0							11	4	24
	6	3.3	2.0	4.0	2.0									6	2	12
	7	2.0	3.3	2.0	2.0									5	2	12
	8	2.0	2.5	1.0	3.3	3.0	3.0	3.0						15	5	30
	9	3.0	4.0	2.0	4.0	3.0								13	4	24
	10	2.0	3.0	3.0	3.0	3.0								12	4	24
	Total	26	30	26	26	16	7	3	0	0	0	0				
														99		**198**

TOTAL FLOW 99

TOTAL TIME 198

SAT FLOW 1800

"=" traffic flow not included in saturation flow calculation

Additional Green time

Saturation Flows 23-Mar-22 **Green Lane Circulatory (Site 1 Location 12) on Junction 10**

Jack H **AM** **Lane 1 nearside**

Stop Line	Cycle	Seconds of Saturated Flow - Stop Line														
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	1	2.3	3.3	2.0										5	2	12
	2	3.0	2.5	3.3	3.0	4.0	4.5	3.0						20	6	36
	3	2.3	2.0	3.5										6	2	12
	4	2.3	3.0	3.3	4.3	3.0								14	4	24
	5	3.3	2.0	3.5										6	2	12
	6	2.0	2.3	3.0	3.5	4.0	4.0	3.8	1.0					21	6	36
	7	2.0	3.3	3.8	2.0	3.0	3.3	2.0						15	5	30
	8	1.5	3.0	2.0	4.0	3.3	4.3	2.0						17	5	30
	9	2.3	2.0	4.3	3.3	3.0	4.0	3.0	3.3	4.3	2.3			27	8	48
	10	2.3	1.5											0	0	0
	Total	23	25	29	20	20	20	14	4	4	2	0				
														130		**240**

TOTAL FLOW **130**
TOTAL TIME **240**
SAT FLOW **1950**

"=" traffic flow not included in saturation flow calculation

Additional Green time

Saturation Flows 23-Mar-22 **Green Lane Circulatory (Site 1 Location 12) on Junction 10**

Jack H **AM** **Lane 2 Middle**

Stop Line	Cycle	Seconds of Saturated Flow - Stop Line													
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	1	2.0	3.3	3.0	4.3	2.0								11	3	18
	2	3.5	2.0	1.0										0	0	0
	3	2.0	2.0	4.0	4.0	3.0								10	3	18
	4	1.5	2.0	2.0	2.0	4.0	4.5	3.0						18	6	36
	5	2.0	2.0											0	0	0
	6	2.0	3.0											3	1	6
	7	2.0	2.0	2.0	3.3	2.0	2.0	3.0						14	6	36
	8	3.0	3.0	3.0										6	2	12
	9	3.0	3.0	2.0										5	2	12
	10	1.5	2.3	4.0										6	2	12
	Total	23	25	21	14	11	7	6	0	0	0	0				
														73		**150**

TOTAL FLOW	**73**
TOTAL TIME	**150**
SAT FLOW	**1745**

"=" traffic flow not included in saturation flow calculation

Additional Green time

Saturation Flows

23-Mar-22 | M42 Northbound Slip Road Circulating (Site 1 Location 10) on Junction 10

Jack H | AM | Lane 1 nearside

Stop Line	Cycle	Seconds of Saturated Flow - Stop Line														
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	1	2.0	4.0	4.0	1.0									8	2	12
	2	2.0	3.0	4.0	2.3	4.3	3.0	3.8						20	6	36
	3	2.0	3.8	3.0	3.3	2.5	3.0	3.0	4.0	2.0				23	7	42
	4	3.3	3.0	3.5	3.5	4.0	3.0	4.0	3.0	2.5				24	7	42
	5	3.0	2.0	3.0	2.5									5	2	12
	6	2.0	3.5	3.3	4.3	4.0	3.5	1.0						19	5	30
	7	2.0	2.3	4.0	4.3	1.0								11	3	18
	8	2.3	3.0	3.0	3.0	4.0	4.0	4.0	2.0					21	6	36
	9	2.0	4.0	3.0	2.0	4.3	3.0	4.0	3.0					20	6	36
	10	1.5	2.0	4.0	4.0	2.0	4.0							16	5	30
	Total	22	31	35	30	26	24	20	12	5	0	0				
														167		**294**

TOTAL FLOW 167
TOTAL TIME 294
SAT FLOW 2039

"=" traffic flow not included in saturation flow calculation
Additional Green time

Saturation Flows 23-Mar-22 M42 Northbound Slip Road Circulating (Site 1 Location 10) on Junction 10

Jack H **AM** **Lane 2 offside**

Stop Line	Cycle	**Seconds of Saturated Flow - Stop Line**														
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	1	3.0	3.0	3.5	3.0	2.0								10	3	18
	2	3.3	3.0	3.0	1.0									6	2	12
	3	2.0	2.5	3.0	3.0	1.0								9	3	18
	4	2.3	4.0	1.5	3.0									9	3	18
	5	2.0	3.0	3.0	2.3									6	2	12
	6	2.0	4.0	3.0	2.5	1.0								10	3	18
	7	2.0	4.5	1.0										5	1	6
	8	3.0	4.0	1.0										4	1	6
	9	2.3	3.3	2.3	2.5	2.0								8	3	18
	10	2.0	3.0	3.0	3.0	2.5								9	3	18
	Total	24	34	24	20	9	0	0	0	0	0	0				
														74		**144**

TOTAL FLOW **74**
TOTAL TIME **144**
SAT FLOW **1840**

"=" traffic flow not included in saturation flow calculation

Additional Green time

Saturation Flows 23-Mar-22 **Trinity Road Circulating (Site 1 Location 9) on Junction 10**

Jack H **AM** **Lane 2 nearside middle**

Stop Line	Cycle	Seconds of Saturated Flow - Stop Line														
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	1	2.0	3.0	3.0	4.0	1.0								10	3	18
	2	2.5	3.0	2.0										3	1	6
	3	3.0	3.0	1.0										3	1	6
	4	2.0	4.0	3.0	1.0									7	2	12
	5	1.0	4.3	2.0										4	1	6
	6	3.3	2.0	2.0	1.0									4	2	12
	7	2.0	3.0	2.0	1.0									5	2	12
	8	3.5	3.0	4.0										7	2	12
	9	3.5	2.0											2	1	6
	10	3.0	3.0	4.0	1.0									7	2	12
	Total	26	30	23	8	1	0	0	0	0	0	0				
														52		**102**

TOTAL FLOW **52**
TOTAL TIME **102**
SAT FLOW **1846**

"=" traffic flow not included in saturation flow calculation

Additional Green time

Saturation Flows | 23-Mar-22 | Trinity Road Circulating (Site 1 Location 9) on Junction 10

Jack H | **AM** | **Lane 3 offside middle**

Stop Line	Cycle	Seconds of Saturated Flow - Stop Line													
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	1	2.0	3.0	3.0	4.5	2.5	2.0							13	4	24
	2	2.0	3.0											3	1	6
	3	1.0	2.5	2.3	3.0	2.0	3.5	2.5	4.0	2.0				20	7	42
	4	2.0	4.0	4.0	2.0	1.0								10	3	18
	5	2.0	2.0	3.3	4.6	3.0								13	4	24
	6	3.0	3.0	3.0										6	2	12
	7	1.0	3.0	2.0										3	1	6
	8	2.0	2.0											2	1	6
	9	2.0	4.0	3.0	2.0									7	2	12
	10	2.0	3.0	4.8	1.0									8	2	12
	Total	19	30	25	17	9	6	3	4	2	0	0				
														85		**162**

TOTAL FLOW	**85**	"=" traffic flow not included in saturation flow calculation
TOTAL TIME	**162**	Additional Green time
SAT FLOW	**1878**	

Saturation Flows

23-Mar-22 **A5 Westbound Circulating (Site 1 Location 8) on Junction 10**

Jack H **AM** **Lane 1 nearside**

Stop Line	Cycle	Seconds of Saturated Flow - Stop Line														
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	1	3.3	2.0											2	1	6
	2	2.0	3.0	3.3										6	2	12
	3	2.3	2.0	4.0										6	2	12
	4	1.0	3.3	3.0										6	2	12
	5	1.0	3.3	3.3	1.0									7	2	12
	6	2.0	2.5	3.0	4.3	2.0								10	3	18
	7	2.0	3.0	2.0										3	1	6
	8	2.0	2.0	3.3	2.3									5	2	12
	9	2.0	1.0	4.3										5	2	12
	10	3.0	3.3	2.0										3	1	6
	Total	21	25	28	8	2	0	0	0	0	0	0				
														54		**108**

TOTAL FLOW	**54**
TOTAL TIME	**108**
SAT FLOW	**1797**

"=" traffic flow not included in saturation flow calculation

Additional Green time

Saturation Flows

Jack H **23-Mar-22** **AM**

A5 Westbound Circulating (Site 1 Location 8) on Junction 10
Lane 3 offside middle

Stop Line	Cycle	Seconds of Saturated Flow - Stop Line														
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	1	2.0	4.0	2.0										4	1	6
	2	2.3	4.3	2.0										4	1	6
	3	2.0	3.0	3.0	2.0									6	2	12
	4	2.0	3.0	1.0										3	1	6
	5	1.5	3.3	1.0										3	1	6
	6	3.3	2.0	2.0										4	2	12
	7	2.0	4.0	2.0										4	1	6
	8	2.3	4.3	1.0										4	1	6
	9	2.3	3.0											3	1	6
	10	1.5	3.0	2.3	1.0									5	2	12
	Total	21	34	16	3	0	0	0	0	0	0	0				
														41		**78**

TOTAL FLOW 41
TOTAL TIME 78
SAT FLOW 1902

"=" traffic flow not included in saturation flow calculation

Additional Green time

Saturation Flows 23-Mar-22 **A5 Westbound ahead at Birch Coppice (Site 2 Location 4)**

Jack H **AM** **Lane 3 Offside**

Stop Line	Cycle	Seconds of Saturated Flow - Stop Line														
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	1	2.0	3.0	4.0	2.0									7	2	12
	2	2.0	4.0	3.0	3.0	3.0	2.0	2.0						15	5	30
	3	2.0	3.0	4.0	3.0	4.0	3.0	3.0						17	5	30
	4	2.0	3.0	4.0	4.0	2.0								11	3	18
	5	3.0	4.0	3.0	4.0	3.0	1.0							14	4	24
	6	2.0	4.0	3.0	3.0	3.0	4.0	3.0						20	6	36
	7	3.0	4.0	4.0	4.0	3.0	4.0	2.0						19	5	30
	8	3.0	3.0	3.0	4.0	1.0								10	3	18
	9	3.0	2.0	3.0	3.0	3.0	2.0							11	4	24
	10	3.0	4.0	3.0	3.0									7	2	12
	Total	25	34	34	33	22	16	10	0	0	0	0				
														131		**234**

TOTAL FLOW 131
TOTAL TIME 234
SAT FLOW 2015

"=" traffic flow not included in saturation flow calculation
Additional Green time

Saturation Flows 23-Mar-22 **Birch Coppice Left Turn Exit on to A5 (Site 2 Location 5)**

Jack H **AM** **Lane 1 nearside**

Stop Line	Cycle	Seconds of Saturated Flow - Stop Line														
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	1	2.3	2.3	2.0	1.5									4	2	12
	2	2.3	2.3	2.5										5	2	12
	3	2.0	2.3	4.6	2.3									7	2	12
	4	2.0	2.3	3.3	2.3	2.3								8	3	18
	5	2.3	1.0	2.3	3.8	1.0								7	3	18
	6	2.3	3.3	1.0										3	1	6
	7	2.0	2.3	4.3										7	2	12
	8	2.0	3.0	1.0										3	1	6
	9	2.0	4.0	3.0	2.0									7	2	12
	10	2.3	3.3	2.3										6	2	12
	Total	22	26	26	12	3	0	0	0	0	0	0				
														57		**120**

TOTAL FLOW	**57**	"=" traffic flow not included in saturation flow calculation
TOTAL TIME	**120**	Additional Green time
SAT FLOW	**1695**	

Saturation Flows 23-Mar-22 **Birch Coppice Left Turn Exit on to A5 (Site 2 Location 5)**
Jack H **AM** **Lane 2 middle**

Stop Line	Cycle	Seconds of Saturated Flow - Stop Line												TOTAL	TIME PERIODS	TIME
		6	12	18	24	30	36	42	48	54	1m	1m 6				
	1	2.0	4.0											4	1	6
	2	3.0	3.0	4.0	4.0	3.0								11	3	18
	3	2.0	3.0	2.0	2.0									5	2	12
	4	1.0	3.3	4.0	1.0									7	2	12
	5	2.0	3.0	3.0										6	2	12
	6	2.0	3.0	2.0	4.5									10	3	18
	7	2.5	3.0	2.5	4.5									10	3	18
	8	3.0	4.0	2.5										4	1	6
	9	2.0	3.0											3	1	6
	10	2.0	3.0	1.0										3	1	6
	Total	22	32	21	16	3	0	0	0	0	0	0				
														63		**114**

TOTAL FLOW	**63**	"=" traffic flow not included in saturation flow calculation
TOTAL TIME	**114**	Additional Green time
SAT FLOW	**1983**	

Saturation Flows 23-Mar-22 **Birch Coppice Right Turn Exit on to A5 (Site 2 Location 5)**

Jack H **AM** **Lane 3 (Right Turn)**

Stop Line	Cycle	Seconds of Saturated Flow - Stop Line													
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	1	2.5	2.0											2	1	6
	2	2.5	1.5	2.3										4	2	12
	3	2.0	3.5	1.0										4	1	6
	4	2.0	2.0											2	1	6
	5	2.0	3.0											3	1	6
	6	3.0	4.0	2.0	3.5	2.0								10	3	18
	7	3.0	3.0	3.0										6	2	12
	8	2.0	4.0	1.0										4	1	6
	9													0	0	0
	10													0	0	0
	Total	19	23	9	4	2	0	0	0	0	0	0				
														34		**72**

TOTAL FLOW 34

TOTAL TIME 72

SAT FLOW 1690

"=" traffic flow not included in saturation flow calculation

Additional Green time

Saturation Flows

23-Mar-22 **A5 Eastbound ahead at Birch Coppice (Site 2 Location 6)**

Jack H **AM** **Lane 1 nearside**

Stop Line	Cycle	Seconds of Saturated Flow - Stop Line														
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	1	2.0	2.0	2.5	2.3	3.0	2.0							10	4	24
	2	2.0	3.0	3.8	1.0									7	2	12
	3	3.8	2.0	1.0										0	0	0
	4	2.0	2.5	3.5	2.0	3.8	2.0							12	4	24
	5	2.0	3.5	3.0	3.0	3.5								13	4	24
	6	3.0	3.0	2.5	3.0	3.0								12	4	24
	7	2.0	4.0	3.0	1.0									7	2	12
	8	2.3	3.0	2.5	4.0	2.0	2.0							10	3	18
	9	2.0	3.0	3.0	4.0									10	3	18
	10	3.0	1.0	4.3	3.0									8	3	18
	Total	24	27	29	23	15	6	0	0	0	0	0				
														88		**174**

TOTAL FLOW 88
TOTAL TIME 174
SAT FLOW 1814

"=" traffic flow not included in saturation flow calculation

Additional Green time

Saturation Flows 23-Mar-22 **A5 Eastbound ahead at Birch Coppice (Site 2 Location 6)**

Jack H **AM** **Lane 2**

Stop Line	Cycle	Seconds of Saturated Flow - Stop Line														
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	1	3.0	4.0	4.0	4.0	2.0								12	3	18
	2	3.0	3.0	3.0	1.0									6	2	12
	3	3.0	3.0	2.0										3	1	6
	4	3.0	3.0											3	1	6
	5	3.0	3.0	1.0										3	1	6
	6	3.3	2.0	2.0										2	1	6
	7	3.0	4.0											4	1	6
	8	2.3	3.0	2.0										3	1	6
	9	3.0	4.0	5.0										9	2	12
	10	3.0	3.0	4.0	3.0	4.0	1.0							14	4	24
	Total	30	32	23	8	6	1	0	0	0	0	0				
														59		**102**

TOTAL FLOW **59**

TOTAL TIME **102**

SAT FLOW **2082**

"=" traffic flow not included in saturation flow calculation

Additional Green time

Saturation Flows | **23-Mar-22** | **A5 Eastbound right turn to Birch Coppice (Site 2 Location 6)**

Jack H | **AM** | **Lane 3 nearside**

Stop Line	Cycle	**Seconds of Saturated Flow - Stop Line**													
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	1	3.3	2.5	2.0										3	1	6
	2	3.3	2.3	3.3										6	2	12
	3	1.0	4.6	2.3										7	2	12
	4	2.0	3.3	3.3	2.3									7	2	12
	5	3.3	4.6	3.3	1.0	3.3								12	4	24
	6	2.3	2.3	4.6										7	2	12
	7	2.3	3.8	3.8										8	2	12
	8	2.3	4.6											5	1	6
	9	2.3	2.3	3.3	3.8	1.5								9	3	18
	10	2.5	2.5	3.8	2.3									6	2	12
	Total	25	33	30	9	5	0	0	0	0	0	0				
														69		**126**

TOTAL FLOW	**69**
TOTAL TIME	**126**
SAT FLOW	**1960**

"=" traffic flow not included in saturation flow calculation

Additional Green time

Saturation Flows **Jack H** **23-Mar-22** **AM** **A5 Eastbound right turn to Birch Coppice (Site 2 Location 6)** **Lane 4 offside**

Stop Line	Cycle	Seconds of Saturated Flow - Stop Line														
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	1	2.0	4.0	3.0	1.0									7	2	12
	2	2.0	2.0											2	1	6
	3	2.0	3.0											3	1	6
	4	2.0	3.0	1.0										3	1	6
	5	3.0	3.0											3	1	6
	6	3.0	2.0	3.0										5	2	12
	7	2.0	2.0											2	1	6
	8													0	0	0
	9													0	0	0
	10													0	0	0
	Total	16	19	7	1	0	0	0	0	0	0	0				
														25		**54**

TOTAL FLOW **25**
TOTAL TIME **54**
SAT FLOW **1667**

"=" traffic flow not included in saturation flow calculation
Additional Green time

Saturation Flows

Jack H	23-Mar-22 AM	**A5 Westbound ahead and left turn at Core 42 (Site 3 Location 4)** **Lane 1 nearside**

Stop Line	Cycle	Seconds of Saturated Flow - Stop Line													
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	1	2.0	4.0	2.0										4	1	6
	2	2.0	3.0	1.0										3	1	6
	3	3.0	3.0	3.0										6	2	12
	4	2.0	2.0	4.0	3.0	2.0								9	3	18
	5	2.0	2.0	3.0	1.0									5	2	12
	6	2.5	4.0	3.0	1.0									7	2	12
	7	3.3	3.0	3.0	2.0									6	2	12
	8	2.0	4.0	3.0	3.0									7	2	12
	9	3.0	4.0	4.0	4.0	4.0	1.0							16	4	24
	10	3.0	4.0	2.0	3.0	3.0	2.0	2.0						12	4	24
	Total	25	33	28	17	9	3	2	0	0	0	0				
														75		**138**

TOTAL FLOW	**75**
TOTAL TIME	**138**
SAT FLOW	**1957**

"=" traffic flow not included in saturation flow calculation

Additional Green time

Saturation Flows

Jack H | 23-Mar-22 | AM | A5 Westbound ahead at Core 42 (Site 3 Location 4) | Lane 2 offside

Stop Line	Cycle	Seconds of Saturated Flow - Stop Line												TOTAL	TIME PERIODS	TIME
		6	12	18	24	30	36	42	48	54	1m	1m 6				
	1	2.3	2.0	3.3	2.5									8	3	18
	2	2.0	4.0	4.0	1.0									8	2	12
	3	2.0	4.3	3.0	1.0									7	2	12
	4	2.0	3.0	3.0	2.0									6	2	12
	5	2.0	3.0	1.0										3	1	6
	6	3.3	1.0	2.0										0	0	0
	7	2.3	4.3	2.0										4	1	6
	8	2.0	3.0	2.0										3	1	6
	9	2.3	3.0	2.5	3.0	3.0	1.0							12	4	24
	10													0	0	0
	Total	20	28	23	10	3	1	0	0	0	0	0				
														51		96

TOTAL FLOW 51
TOTAL TIME 96
SAT FLOW 1909

"=" traffic flow not included in saturation flow calculation

Additional Green time

Saturation Flows 23-Mar-22 A5 Eastbound ahead at Core 42 (Site 3 Location 6)

Jack H **AM** **Lane 1 nearside**

Stop Line	Cycle	Seconds of Saturated Flow - Stop Line											TOTAL	TIME PERIODS	TIME
		6	12	18	24	30	36	42	48	54	1m	1m 6			
	1	3.3	2.0	1.0									2	1	6
	2	2.3	3.0	2.0									3	1	6
	3	2.0	4.0	2.5	2.5	1.0							9	3	18
	4	2.0	3.0	3.0	3.0	3.0	2.0						12	4	24
	5	2.0	2.5	3.0	1.0								6	2	12
	6	2.5	2.0	3.5	4.0	3.0	4.0	4.0	3.0	1.0			24	7	42
	7												0	0	0
	8												0	0	0
	9												0	0	0
	10												0	0	0
	Total	14	17	15	11	7	6	4	3	1	0	0			
													55		**108**

TOTAL FLOW	**55**
TOTAL TIME	**108**
SAT FLOW	**1833**

"=" traffic flow not included in saturation flow calculation

Additional Green time

APPENDIX D

Table 4.1: M42/ Junction 10 + A5/ Birch Coppice + A5/ Core 42, 2022 Surveyed Year

				AM Peak		PM Peak	
M42 Junction 10							
Traffic Stream(s)	Lane	Saturation Flow pcu/hr	Model Output	Observed Queue	Results	Observed Queue	Results
1/1	M42 Northbound Offslip Lane 1	1740	Queue Aver Delay	7	7 33 secs	7	8 48 secs
1/2	M42 Northbound Offslip Lane 2	1740	Queue Aver Delay	4	3 25 secs	5	6 31 secs
1/3	M42 Northbound Offslip Lane 3	1740	Queue Aver Delay	3	2 21 secs	3	3 25 secs
3/1	M42 Northbound Offslip Lane 4	1849	Queue Aver Delay	4	6 30 secs	6	7 37 secs
3/2	M42 Northbound Offslip Lane 5	1849	Queue Aver Delay	7	4 24 secs	9	4 27 secs
7/1	M42 Northbound Circulating Lane 1	2039	Queue Aver Delay	15	13 13 secs	16	15 14 secs
7/2	M42 Northbound Circulating Lane 2	1840	Queue Aver Delay	12	13 16 secs	12	11 14 secs
8/1 + 9/1 + 11/1	A5 Eastbound Lane 1	1828	Queue Aver Delay	37	56 3m 35s	35	46 2m 49s
8/2	A5 Eastbound Lane 2	1900	Queue Aver Delay	10	5 24 secs	10	5 23 secs
8/3 + 9/2 + 11/2	A5 Eastbound Lane 3	1900	Queue Aver Delay	33	21 1m 11s	25	19 1m 10s
12/1	A5 Eastbound Circulating Lane 1	1846	Queue Aver Delay	6	4 15 secs	4	5 18 secs
12/2	A5 Eastbound Circulating Lane 2	1878	Queue Aver Delay	7	7 21 secs	7	7 21 secs
12/3	A5 Eastbound Circulating Lane 3	1878	Queue Aver Delay	5	5 17 secs	4	3 19 secs
12/4	A5 Eastbound Circulating Lane 4	1878	Queue Aver Delay	1	1 14 secs	1	1 16 secs
14/1	Green Lane Lane 1	1602	Queue Aver Delay	3	4 59 secs	6	5 47 secs
14/2	Green Lane Lane 2	1602	Queue Aver Delay	4	9 2m 3s	7	8 1m 12s
15/1	Green Lane Circulating Lane 1	1950	Queue Aver Delay	9	10 6 secs	6	9 9 secs
15/2	Green Lane Circulating Lane 2	1745	Queue Aver Delay	9	6 7 secs	8	5 8 secs
15/3	Green Lane Circulating Lane 3	1745	Queue Aver Delay	1	1 2 secs	1	1 3 secs
18/1	M42 Southbound Offslip Lane 1	1804	Queue Aver Delay	4	1 22 secs	3	1 19 secs
18/2	M42 Southbound Offslip Lane 2	1813	Queue Aver Delay	5	9 1m 9s	4	4 28 secs
18/3	M42 Southbound Offslip Lane 3	1813	Queue Aver Delay	6	8 49 secs	6	4 31 secs
17/1	M42 Southbound Circulating Lane 1	1956	Queue Aver Delay	5	5 6 secs	6	5 7 secs
17/2	M42 Southbound Circulating Lane 2	1956	Queue Aver Delay	9	12 12 secs	8	12 11 secs
17/3	M42 Southbound Circulating Lane 3	1800	Queue Aver Delay	7	3 8 secs	7	12 11 secs
17/4	M42 Southbound Circulating Lane 4	1800	Queue Aver Delay	1	1 5 secs	2	1 5 secs
23/1	A5 Westbound Lane 1	1930	Queue Aver Delay	5	4 19 secs	6	6 16 secs
23/2	A5 Westbound Lane 2	1851	Queue Aver Delay	6	3 17 secs	5	4 15 secs
23/3 + 24/1 + 25/1	A5 Westbound Lane 3	1851	Queue Aver Delay	13	10 30 secs	15	14 1 min
23/4 + 24/1	A5 Westbound Lane 4	1851	Queue Aver Delay	7	4 19 secs	8	7 22 secs
22/1	A5 Westbound Circulating Lane 1	1797	Queue Aver Delay	7	8 17 secs	7	9 25 secs
22/2	A5 Westbound Circulating Lane 2	1797	Queue Aver Delay	7	3 13 secs	9	4 16 secs
22/3	A5 Westbound Circulating Lane 3	1902	Queue Aver Delay	5	3 11 secs	6	3 16 secs
22/4	A5 Westbound Circulating Lane 4	1902	Queue Aver Delay	5	5 12 secs	6	3 16 secs

28/1 + 29/1	Trinity Road Lane 1	1669	Queue Aver Delay	7	7 48 secs	6	5 46 secs
28/2	Trinity Road Lane 2	1669	Queue Aver Delay	7	5 40 secs	7	5 39 secs
27/1	Trinity Road Circulating Lane 1	1846	Queue Aver Delay	3	3 7 secs	3	5 8 secs
27/2	Trinity Road Circulating Lane 2	1846	Queue Aver Delay	8	4 9 secs	10	7 10 secs
27/3	Trinity Road Circulating Lane 3	1878	Queue Aver Delay	10	7 5 secs	9	6 6 secs
27/4	Trinity Road Circulating Lane 4	1878	Queue Aver Delay	7	12 8 secs	8	5 9 secs
A5/ Birch Coppice							
31/1	A5 Eastbound Ahead Lane 1	1814	Queue Aver Delay	10	7 8 secs	8	2 9 secs
31/2	A5 Eastbound Ahead Lane 2	2082	Queue Aver Delay	6	4 5 secs	5	1 5 secs
32/1	A5 Eastbound Right Turn Lane 3	1960	Queue Aver Delay	6	5 36 secs	5	6 35 secs
32/2	A5 Eastbound Right Turn Lane 4	1667	Queue Aver Delay	6	6 37 secs	4	3 33 secs
37/1	A5 Westbound Ahead Lane 1	1751	Queue Aver Delay	2	2 16 secs	2	2 15 secs
37/2 + 38/1	A5 Westbound Ahead Lane 2	2015	Queue Aver Delay	10	8 20 secs	10	10 21 secs
37/3 + 38/2	A5 Westbound Ahead Lane 3	2015	Queue Aver Delay	16	9 23 secs	18	13 25 secs
42/1	Birch Coppice Left Turn Lane 1	1695	Queue Aver Delay	5	7 37 secs	6	8 41 secs
42/2	Birch Coppice Left Turn Lane 2	1983	Queue Aver Delay	5	4 31 secs	8	6 36 secs
43/1	Birch Coppice Right Turn Lane 3	1690	Queue Aver Delay	3	2 36 secs	5	5 46 secs
A5/ Core 42							
46/1	A5 Eastbound Ahead Lane 1	1833	Queue Aver Delay	1	1 2 secs	5	3 4 secs
46/2	A5 Eastbound Ahead Lane 2	2082	Queue Aver Delay	1	1 1 sec	2	2 2 secs
47/1	A5 Eastbound Right Turn Lane 3	1667	Queue Aver Delay	2	1 36 secs	1	1 34 secs
49/1	A5 Westbound Ahead & Left Turn Lane 1	1957	Queue Aver Delay	4	6 5 secs	5	6 7 secs
49/2	A5 Westbound Ahead Lane 2	1909	Queue Aver Delay	5	4 5 secs	6	7 7 secs
51/1	Core 42 Left Turn Lane 1	1695	Queue Aver Delay	1	1 31 secs	2	1 32 secs
52/1	Core 42 Right Turn Lane 2	1690	Queue Aver Delay	0	1 5m 21s	1	1 1m 49s
			Network PI	3918.78		4030.28	

APPENDIX C TRANSYT FUTURE YEAR MODELLING REPORT

1 INTRODUCTION

1.1 Tetra Tech (TT) have been appointed by Hodgetts Estates to provide technical support for their outline planning application for a proposed development of up to 100,000sqm of employment uses and 150 space overnight lorry park (including an associated 400sqm amenity block) on land to the northeast of M42 Junction 10. The application is also supported by a Transport Assessment (TA) prepared by Bancroft Consulting, Version C dated November 2021.

1.2 A Modelling Strategy Report dated 18th March 2022 was approved by Warwickshire County Council (WCC) and National Highways (NH). The Modelling Strategy identified the opening and future year assessments for Reference Case and Local Plan scenarios. This report follows the agreed strategy.

1.3 Traffic surveys to underpin a TRANSYT 16 model were undertaken in April 2022 and a network model was prepared. A 2022 Baseline Validation Report, dated 13th May 2022 sets out the surveys used, the model structure and its validation. The model was reviewed by AECOM, National Highways (NH) consultants. AECOM provided comments to the model and TT made various adjustments to the model and provided further clarifications. On 1st August 2022 the base TRANSYT 16 model was approved by AECOM and is suitable for use in assessing the future year scenarios.

2 AGREED SCOPE OF NETWORK

2.1 It has been agreed in the Modelling Strategy Report that in order to test the traffic impacts of the proposed development, the following four junctions require detailed analysis.

1. M42 Junction 10 Interchange (6 arm grade separated signalised roundabout)
2. A5 Watling Street/ Site Access junction (proposed 3 arm signalised junction)
3. A5 Watling Street/ Danny Morson Way (4 arm signalised junction, known as Birch Coppice)
4. A5 Watling Street/ Meridian Drive (3 arm signalised junction, known as Core 42)

2.2 The first stage is now complete which has set up a validated 2022 baseline model of the existing operational performance for junctions 1, 3 and 4. This report considers the performance of the network without the proposed development (junctions 1, 3 and 4) and with the addition of the proposed development generated traffic and its associated access junction (junctions 1, 2, 3 and 4).

3 TRAFFIC FLOWS

Reference Case – 2026 Opening & 2031 Future Year Flows

3.1 As agreed with NH and WCC, an opening assessment year and future design year assessment is required for the reference case, i.e. without the Local Plan generated traffic and associated highway infrastructure. An opening assessment year of 2026 and future assessment year of 2031 has previously been agreed and will be the years used in this TRANSYT modelling assessment.

3.2 The following scenarios have been modelled in the AM peak (08:00 to 09:00) and PM peak (17:00 to 18:00) periods;

a) 2026 Reference Case - No Development
b) 2031 Reference Case - No Development

3.3 The traffic flows have been extracted from the demand flows supplied by Vectos from the WCC Atherstone A5 PARAMICS model and for ease of reference Bancroft Consulting Figure 10 shows the AM peak flows for scenario a) and Figure 11 shows the PM peak flows also for scenario a) – both attached in Appendix A. Bancroft Consulting Figure 14 shows the AM peak flows for scenario b) and Figure 15 shows the PM peak flows also for scenario b) – both attached in Appendix A.

3.4 The traffic flows from the Bancroft TA did not include the Core 42 junction, therefore these have been added to the network diagram. The 2022 traffic surveys (discussed in the 2022 Baseline Validation Report) have been used to establish the current traffic to/ from Core 42 as well as the turning proportions, refer to TT Figure 1 at Appendix B for the AM peak and TT Figure 2 for the PM peak. Core 42 was not fully built and occupied at the time of the 2022 traffic surveys therefore the approved trip generation from the site has been extracted from the supporting Transport Assessment under the planning reference PAP/2013/0272. The turning proportions have been applied to the total predicted generated traffic at Core 42 and the development was assumed to be fully built and occupied for the 2026 and 2031 assessment years.

3.5 The Bancroft Consulting traffic flows show all vehicle movements, plus the HGV vehicle movements. As set out in the agreed LMVR, the flows have been converted to Passenger Car Units (PCU) by adding the HGV flow to the total vehicle movement effectively doubling the HGV flow and is effectively a 2.0 pcu factor. TT Figure 3 attached in Appendix B shows the 2026 Reference Case flows and TT Figure 4 shows the PM peak equivalent. TT Figure 5 attached in Appendix B shows the 2031 Reference Case flows and TT Figure 6 shows the PM peak equivalent.

3.6 The proposed site access junction as shown at TT Drawing B033920-TTE-00-ZZ-PL-H-0002 Rev P01 attached at Appendix C (discussed in more detail below) has been coded into the TRANSYT model to assess the following scenarios;

c) 2026 Reference Case – With Development
d) 2031 Reference Case – With Development

3.7 Bancroft Consulting Figure 12 shows the AM peak flows for scenario c) and Figure 13 shows the PM peak flows also for scenario c) – both attached in Appendix A. Bancroft Consulting Figure 14 shows the AM peak flows for scenario d) and Figure 15 shows the PM peak flows also for scenario d) – both attached in Appendix A.

3.8 For the purpose of the TRANSYT model, the flows have been converted to Passenger Car Units (PCU) as described in para 3.5. TT Figure 7 attached in Appendix B shows the 2026 Reference Case + Development flows and TT Figure 8 shows the PM peak equivalent. TT Figure 9 attached in Appendix B shows the 2031 Reference Case + Development flows and TT Figure 10 shows the PM peak equivalent.

<u>Proposed Site Access Arrangement</u>

3.9 The proposed site access junction as shown at TT Drawing B033920-TTE-00-ZZ-PL-H-0002 Rev P01 attached at Appendix C. At the site access it is proposed to develop a 3rd lane from the Junction 10 eastbound exit upto the site access stop line. The nearside lane is allocated for left turn and head movements, and the middle and offside lanes for ahead movements only. The A5 eastbound exit would facilitate an offside merge to DMRB standard. The site access would provide three lanes at the stop line, the nearside lane for left turning traffic and the middle and offside lanes for traffic turning right. On the A5 westbound movement it is proposed to retain the two ahead lanes and develop a third lane for traffic turning right into the site. On the westbound approach to Junction 10 it is proposed to lengthen the three lane flared section by circa 80m to cater for the additional traffic demands.

3.10 It is also proposed to provide a DMRB CD143 compliant 3m shared foot/ cycleway with a 2m separation strip on the north side of the A5 between the site access roundabout heading west to Junction 10. To the east of the site access junction the proposed 3m shared foot/ cycleway will run off carriageway within the development site as shown at TT Drawing B033920-TTE-00-ZZ-PL-H-0002 Rev P01 attached at Appendix C. The foot/ cycleway will connect to the existing foot/ cycleway on the A5 immediately before the A5/ Core 42 access junction.

3.11 Pedestrian and cycle controlled facilities are proposed across the site access junction and pedestrian only controlled facilities the A5 on the eastern side of the junction. The crossings can all run during traffic phases, ensuring no unnecessary delays to vehicles.

3.12 The proposals will also include diverting the 766/767 bus service into the site. In accordance with DMRB the existing eastbound bus layby is relocated to the west and at the same time the layby length will be increased and a modern bus shelter installed.

Local Plan – 2031 Future Year Flows

3.13 As agreed with NH and WCC, and as previously agreed during scooping discussions, a future design year assessment is required for the Local Plan case, which includes all the Local Plan allocations and associated highway infrastructure. A future assessment year of 2031 has been agreed with NH and WCC and will be the year used in this TRANSYT modelling assessment.

3.14 The Local Plan highways schemes and PARAMICS model included a mitigation scheme at Junction 10. It was agreed at a meeting held in March 2022 with NH and WCC that when assessing the network including the traffic associated with the Local Plan allocations, the scheme at Junction 10 must be included. The Junction 10 proposal was supplied by WCC and is attached at Appendix B as Phil Jones Associates Drawing No. 02853-01 Rev A.

3.15 The following scenarios have been modelled in the AM peak (08:00 to 09:00) and PM peak (17:00 to 18:00) periods;

e) 2031 Local Plan
f) 2031 Local Plan – With Development

3.16 The traffic flows have been extracted from the demand flows supplied from the strategic PARAMICS model and for ease of reference Bancroft Consulting Figure 18 shows the AM peak flows for scenario e) and Figure 19 shows the PM peak flows also for scenario e) – both attached in Appendix A.

3.17 For the purpose of the TRANSYT model, the flows have been converted to PCU as described in para 3.5. TT Figure 11 attached in Appendix B shows the 2031 Local Plan flows and TT Figure 12 shows the PM peak equivalent.

2031 Reference Case – With Development

3.18 Bancroft Consulting Figure 20 shows the AM peak flows for scenario f) and Figure 21 shows the PM peak flows also for scenario f) – both attached in Appendix A.

3.19 For the purpose of the TRANSYT model, the flows have been converted to PCU as described in para 3.5. TT Figure 13 attached in Appendix B shows the 2031 Local Plan + Development flows and TT Figure 14 shows the PM peak equivalent.

4 REFERENCE CASE MODELLING RESULTS

No Development

4.1 The approved baseline TRANSYT model has been used to assess the predicted performance of the network in 2026 and 2031. The 2022 flows have been replaced by the reference case flows and the 2022 timings were initially used. The model predicted extensive queueing and delays and so improvements to the signal timings were required. The Lane Simulation feature in TRANSYT does not have the capability to optimise the signal timings, therefore the model was switched to the Platoon Dispersion Model (PDM) with flared approaches and the internal circulatory stop lines on Junction 10 switched to "flared" approaches to model any blocking back effects. The PDM was optimised and an 80 second cycle time for all junctions was considered to provide the lowest Network Performance Index.

4.2 The model was then switched back to Lane Simulation and the signal timings retained. An iterative process was carried out, manually adjusting the signal timings each time to get the network to perform with the lowest queues and delays, similar to how it would operate in the real world under MOVA control. In addition to the manual phase timings, the following changes were also implemented at the A5 Birch Coppice junction;

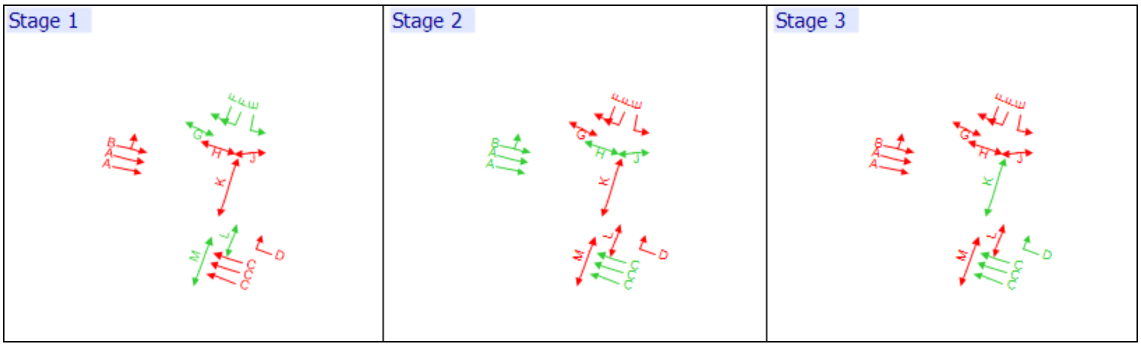
- The pedestrian phase G (across the A5 westbound movement) was removed from stage 4 in order to increase the phase B phase time (A5 westbound traffic stream).
- The pedestrian phase G was extended between stage 2 and 4 to lengthen the time available for pedestrians to cross the road.
- Within the confines of the intergreen timings, phase D (left turn out of Birch Coppice) was adjusted to start 3 seconds earlier.

4.3 The 2026 and 2031 AM Peak No Development results are shown at Table 4.1 in Appendix D. The results are discussed in more detail later on when comparing to the With Development results.

<u>With Development</u>

4.4 The approved baseline TRANSYT model has been updated to incorporate the proposed site access junction arrangement as shown at TT Drawing B033920-TTE-00-ZZ-PL-H-0002 Rev P01 in Appendix C. It should be noted that the proposed westbound flared approach extension to Junction 10 was modelled with a slightly shorter extension of some 50m. The proposed stage sequence of the new site access junction is shown below at Image 4.1. Phases G, H and J across the site access junction are for pedestrians and cyclists, whilst phases M, L and K across the A5 are for pedestrians only.

Image 4.1- Proposed Site Access Stage Sequence



4.5 The volume of traffic departing the site in the AM (148pcu) and PM (216pcu) peaks is relatively low and as such it is unlikely that the site access arm (Stage 1) will be required every cycle. However, for robustness, Stage 1 has been assumed to be activated every cycle. The volume of right turning vehicles into the site is low at 44pcu in the AM peak and 14pcu in the PM peak, therefore Stage 3 which facilitates the phase D right turn has been set up to occur every 2nd cycle.

4.6 It has been assumed for the AM and PM peak scenarios that 20% of traffic travelling eastbound on the A5 at the site access junction will use the offside ahead lane. In the AM peaks it has been assumed that 35% of A5 eastbound ahead traffic will use the nearside lane (+ the left turning traffic) and 45% use the middle lane. The imbalance in ahead flows is to take account of the development generated traffic turning left into the site from the nearside lane. In the PM peaks it has been assumed that 40% of eastbound ahead traffic will use the nearside and middle lanes.

2026 & 2031 AM Peak Existing Arrangement Summary Results

4.7 The 2026 and 2031 AM Peak results are shown at Table 4.1 in Appendix D.

4.8 The results show that in the 2026 No Development scenario in the AM Peak there is a long queue of over 55pcu and nearly 3½ min delay on the A5 Eastbound Lane 1 (stream 8/1 etc.) at Junction 10. The effects of the development generated traffic would increase this queue to 107pcu with a 3 minute increase in delay. The queue in the A5 Eastbound Lane 3 (stream 8/3 etc in the table) increases from 58pcu to 117pcu with a 2½ minute increase in delay. On all of the other lanes on the network the impact of the proposed development is considered negligible to minor with queue increases of no more than 6pcu and no more than 16 sec increase in delay. The proposed site access junction is predicted to operate well with queues of no more than 15pcu on the A5 eEastbound approach (stream 56/1). Queueing does not extend back to affect the operation of Junction 10. The model predicts a queue of 2pcu with a 1min 5sec delay on the A5 right turn (stream 60/1) into the site.

4.9 In the 2031 AM peak scenario, the effects of the proposed development are similar to 2026 in that the A5Eastbound approach (stream 8/1 etc) to Junction 10 increases from 110pcu queue to 157pcu with a delay increase of 2½ mins in the nearside lane, whilst the A5 Eastboundoffside lane (stream 8/3 etc) increases from 82pcu to 145pcu with a 2½ min delay increase. On all of the other lanes on the network the impact of the proposed development is considered negligible to minor with queue increases of no more than 7pcu and no more than a 22 sec increase in delay. The proposed site access junction is predicted to operate well with queues of no more than 16pcu on the A5 eastbound approach (stream 56/1). Queueing does not extend back to affect the operation of Junction 10. The model predicts a queue of 2pcu with a 1min 4 sec delay on the A5 right turn (stream 60/1) into the site.

4.10 The results demonstrate mitigation is required to reduce the queueing and delays on the A5 eastbound approach to Junction 10, discussed later in this note.

2026 & 2031 PM Peak Existing Arrangement Summary Results

4.11 The 2026 and 2031 PM Peak results are shown at Table 4.2 in Appendix D.

4.12 The results show that in the 2026 No Development scenario in the PM Peak the queuing on the A5 Eastbound Lane 1 approach (stream 8/1 etc) at Junction 10 is significantly less than the AM peak with the longest queue of 14pcu which will increase by 13 pcu to 27pcu and the delay increases by 47 seconds with the proposed development traffic. The M42 Northbound Offslip is predicted to operate with a 16pcu queue and 2 minute 10 sec delay on the busiest lane, Lane 5 (stream 3/2), but would only increase by 7pcu with an additional 59 sec delay with the development generated traffic. On the A5 Westbound approach to Junction 10 the longest queue is precited to be 24pcu with a 54 sec delay in Lane 3 (stream 23/3 etc), which would increase to a 36pcu queue and a 27 sec delay increase. The A5 Westbound Lane 4 (stream 23/4 etc) has a 15pcu queue in the No development scenario and would increase to 28pcu with a 26 sec delay increase. On all of the other lanes on the network the impact of the proposed development is considered negligible to minor with queue increases of no more than 3pcu and no more than 10 sec increase in delay.

4.13 In the 2031 PM peak scenario the effects of the proposed development are similar to 2026 in that the A5Eastbound approach (stream 8/1 etc) at Junction 10 is significantly less than the AM peak with the longest queue of 12pcu which would increase by 6 pcu to 18pcu and the delay increases by 40 seconds to 1 minute 10 sec with the proposed development traffic. The M42 Northbound Offslip is predicted to operate with a 15pcu queue and 2 minute 1 sec delay on the busiest lane, Lane 5 (stream 3/2), but would only increase by 1pcu with an additional 14 sec delay with the development generated traffic. On the A5 Westbound approach to Junction 10 the longest queue is in Lane 3 and is precited to be 34pcu with a 1 minute 10 sec delay, which would increase to a 35pcu queue with development. The A5 Westbound Lane 4 (stream 23/4 etc) has a 18pcu queue in the No development scenario and would increase to 29pcu with a 18 sec delay increase in the With Development scenario. On all of the other lanes on the network the impact of the proposed development is considered negligible to minor with queue increases of no more than 4pcu and no more than 43 sec increase in delay.

Proposed Mitigation Results

4.14 It is clear from the AM peak hour results that mitigation is required to reduce the queueing and delays on the A5 Eastbound approach to Junction 10 as a result of the development generated traffic.

4.15 There is an opportunity to increase the capacity of the A5 eastbound approach by developing a 4th lane at the stop line and creating a 3-lane section up to the Pennine Way eastbound merge arrangement. In addition, a fourth lane would be added on the circulating lanes adjacent to Green Lane. TT Drawing B033920-TTE-00-ZZ-PL-H-0001 Rev P01 attached at Appendix C shows the proposed improvement works.

4.16 Owing to land constraints on the A5 Eastbound approach some 170m west of the stopline the offside and middle lanes have been reduced from 3.5m to 3.0m. The nearside lane width has been retained at 3.5m and 1.0m hard strips have also been retained, both nearside and offside. In addition the foot/cycle way has been reduced from 2.0m to 1.8m and the separation from moving vehicles reduced from 1.5m to 1.0m In association with the reduction in two lane widths and reduction in the foot/cycleway, it is proposed that the speed limit is reduced on the eastbound A5 carriageway from national (70mph) to 50mph between the Pennine Way overbridge in the west to the existing 50mph speed limit which commences 500m east of Jn10. It is also proposed that the existing 50mph speed limit on the A5 westbound carriageway is extended by 500m to Jn10.

4.17 It is also proposed to install toucan crossing facilities on the M42 north facing slip roads and on Green Lane. This would significantly enhance the safety of the crossing facilities for pedestrians and cyclists. The crossing facilities have been coded into the TRANSYT model to model any queuing back effects. The crossing phase would occur every cycle at the M42 southbound off-slip and on the Green Lane approach to Junction 10, whilst it has been assumed the crossing phase would be called on demand, every other cycle on the exit to the M42 northbound and the exit to Green Lane.

4.18 The modelling also replicates the full proposed westbound flared extension to Junction 10 from the site access as shown at TT Drawing B033920-TTE-00-ZZ-PL-H-0002 Rev P01 attached at Appendix C.

4.19 The 2026 and 2031 results with the mitigation proposals are shown at Tables 4.1 and 4.2 in Appendix D.

4.20 Focusing on the 2031 assessment year, the results show that in the AM peak the A5) Eastbound improvement significantly reduces the queuing and delays. The No Development scenario has a queue of 110pcu in Lane 1 (steam 8/1 etc)and 82pcu in Lane 3 (stream 8/3 etc), whilst with the proposed improvement together with the additional traffic the queue in Lane 1 reduces to 3pcu and the delay reduces from 6¼ minutes to 10 seconds per vehicle (compared to No Development), whilst the queue in Lane 3 reduces from to 18pcu with a 3 minute reduction in delay (compared to No Development). With the mitigation in place, the traffic queues on the A5 would not extend back to beyond the Pennine Way slip road merge, as a result queuing is very unlikely to extend back to affect the operation of the Pennine Way roundabout junction and is a significant betterment to the No Development scenario. The queues and delays on all the other lanes on the network are broadly the same in the No Development and With Development scenarios.

4.21 In the 2031 PM peak hour, the queues and delays on the majority of the lanes on the network are broadly the same in the No Development and With Development scenarios, where there are increases, they are not considered severe. For example, on the M42 northbound off-slip the queue in Lane 5 (stream 3/2) increases from 15pcu to 20pcu and the delays increases by 39 secs. This queue is readily accommodated on the slip road with very low risk of extending back to the M42 mainline.

Summary

4.22 The proposed development generated traffic has a significant impact on the performance and operation of the A5 Eastbound approach to Junction 10 in the AM peak hour, which requires mitigation. With carriageway widening to the A5 Eastbound approach and to the circulating island adjacent to Green Lane, the performance of the Eastbound approach is significantly improved. The proposed mitigation works also provide safety enhancements for pedestrians and cyclists crossing the M42 north facing slip roads and Green Lane, a considerable betterment to the existing crossing facilities.

4.23 With the proposed site access junction and mitigation works to Junction 10, it is considered they satisfy all of the components of NPPF paragraph 110; that the site is highly accessible by sustainable modes of travel; that the proposed highway works and alterations constitute “safe, suitable, adequate and cost effective mitigation”, that there would be no unacceptable impact on highway safety, and no residual cumulative highway impacts that could be considered to be severe.

5 LOCAL PLAN MODELLING RESULTS

No Development

5.1 Following discussions with NH and WCC, the Local Plan scenario includes an assessment of the M42 Junction 10 indicative scheme as shown at Phil Jones Associates Drawing 02853-01 Rev A attached in Appendix C. The indicative scheme includes the following improvements:

- Re-align the existing A5 eastbound merge taper as a lane gain from Pennine Way;
- Fourth lane added to the A5 eastbound approach to Junction 10.
- The central island at Green lane modified to create a 4th lane, facilitating a 2 lane exit to the M42 north.

- Amend the M42 southbound slip road to create a segregated left turn lane with a physical island, the lane then merges into the A5 eastbound carriageway.
- Third Lane added to the Trinity Road approach.
- A new/ widened southern overbridge to facilitate 4 lanes.

5.2 The 2031 AM and PM Peak No Development results are shown at Table 5.1 in Appendix D. The results are discussed in more detail later on when comparing to the With Development results.

With Development

5.3 The No Development model with the Local Plan indicative scheme discussed above has been used as the base and adjusted for the following:

- Site access junction added, operating with the same stage sequence and frequency as per the Reference Case model, see Chapter 4.
- To facilitate the site access junction the segregated left turn slip arrangement from the M42 southbound slip road has been removed, effectively leaving the arrangement as it is.
- Removing the 2 lane exit to the M42 northbound on slip road.
- The inclusion of 4 toucan crossing facilities on the M42 north facing slip roads and Green Lane.

5.4 The 2031 AM and PM Peak With Development results are shown at Table 5.1 in Appendix D. The results are discussed in more detail below.

2031 AM & PM Peak Local Plan Summary Results

5.5 The 2031 AM and PM peak results comparing the Local Plan scenario with and without the proposed development are shown at Table 5.1 in Appendix D.

5.6 In the AM peak the results show the biggest increase in queue and delay at Junction 10 is on the A5 Eastbound approach, Lane 2 (stream 8/2 etc) with the queue increasing from 14pcu to

33pcu and the delay increasing from 32 secs to 1 minute 37 secs. Although the queue increases on this approach, it is significantly less than the No Development scenario in the Reference Case scenario (110pcu) and the queue is unlikely to extend back and affect the performance of the Pennine Way roundabout junction. The proposed development generated traffic has negligible to minor impacts on the other approaches to Junction 10.

5.7 The site access junction performs well with manageable queues and delays. The A5 Eastbound, Lane 2 (stream 56/2 etc) queue of 23pcu and 24 secs delay does not extend back and interfere with the performance of Junction 10. The A5 Westbound, Lane 2 (stream 59/3 etc) operates with a queue of 11pcu and 16 sec delay. The site access operates with queues of 1pcu on each lane with delays all under 30 secs.

5.8 The queues and delays at the A5/ Birch Coppice junction are very similar in the No Development and With Development scenarios. At the A5/ Core 42 junction the A5 Westbound, Lane 1 (stream 49/2) queue increases from 85pcu to 92pcu with a 23 sec delay increase.

5.9 In the PM peak the results show the biggest increase in queue and delay at Junction 10 is on the A5 Eastbound Lane 3 (stream 8/3 etc) approach with the queue increasing from 41pcu to 66pcu and the delay increasing from 2 minutes 27 secs to 3 minutes 59 secs. The queue on Lane 2 (stream 14/2) of the Green Lane approach increases from 19pcu to 26pcu with a 1 minute 19 sec delay increase. The proposed development generated traffic has negligible to minor impacts on the other approaches to Junction 10.

5.10 The site access junction performs well with manageable queues and delays. The A5 Eastbound Lane 1 (stream 56/1 queue of 15pcu and 24 secs delay does not extend back and interfere with the performance of Junction 10. The A5 Westbound, Lane 1 (stream 59/2 etc) operates with a queue of 13pcu and 18 sec delay. The site access operates with queues of 1pcu on each lane with delays all under 30 secs.

5.11 The queues and delays at the A5/ Birch Coppice junction are broadly similar in the No Development and With Development scenarios. At the A5/ Core 42 junction the A5 Westbound Lane 1 (stream 49/2) queue increases from 39pcu to 46pcu with a 18 sec delay increase.

5.12 The residual cumulative impact of the proposed development in the AM and PM peaks on the performance of the indicative the Local Plan scheme for M42Jn10 are not considered severe with reference to NPPF para 111.

6 SUMMARY

6.1 TT have been appointed by Hodgetts Estates to provide technical support of their outline planning application for a proposed development of up to 100,000sqm of employment uses and 150 space overnight lorry park (including an associated 400sqm amenity block) on land to the northeast of M42 Junction 10.

6.2 To assess the impacts of the proposed development its has been agreed with NH and WCC to assess the M42 Junction 10 interchange, the A5/ Birch Coppice and A5/ Core 42 signalised junctions, and with the site access junction in the With Development scenarios. It was also agreed to assess a Reference Case scenario in 2026 and 2031, whilst a Local Plan scenario in 2031 was also considered necessary.

6.3 In the Reference Case scenario mitigation was required to address the impacts of the proposed development particularly on the A5 Eastbound approach to M42 Junction 10 in the AM peak. A scheme has been identified which would considerably reduce the queuing and delays on the A5 Eastbound approach, a significant improvement compared to the No Development scenario. Meanwhile enhanced and widened pedestrian/ cycle provisions around Junction 10 together with toucan crossings on the M42 north facing slips and Green Lane would also provide substantially safer crossing facilities.

6.4 In the Local Plan scenario, an indicative improvement scheme provided by WCC has been assessed which shows the proposed development does not have a severe impact when comparing to the No Development scenario. Indeed, the modelling has also shown that a left turn segregated slip from the M42 southbound slip road is not required, whilst, as part of the proposed development, toucan crossing facilities would also be provided on the M42 north facing slips and Green Lane.

6.5 This modelling note has demonstrated the proposed signalised site access junction can be readily accommodated on the network which, with mitigation in the Reference Case scenario, achieves the aims set out at para 110 of NPPF. In the indicative Local Plan scenario the proposed development does not have a severe impact with reference to NPPF para 111.

APPENDIX A

BANCROFT CONSULTING FIGURES

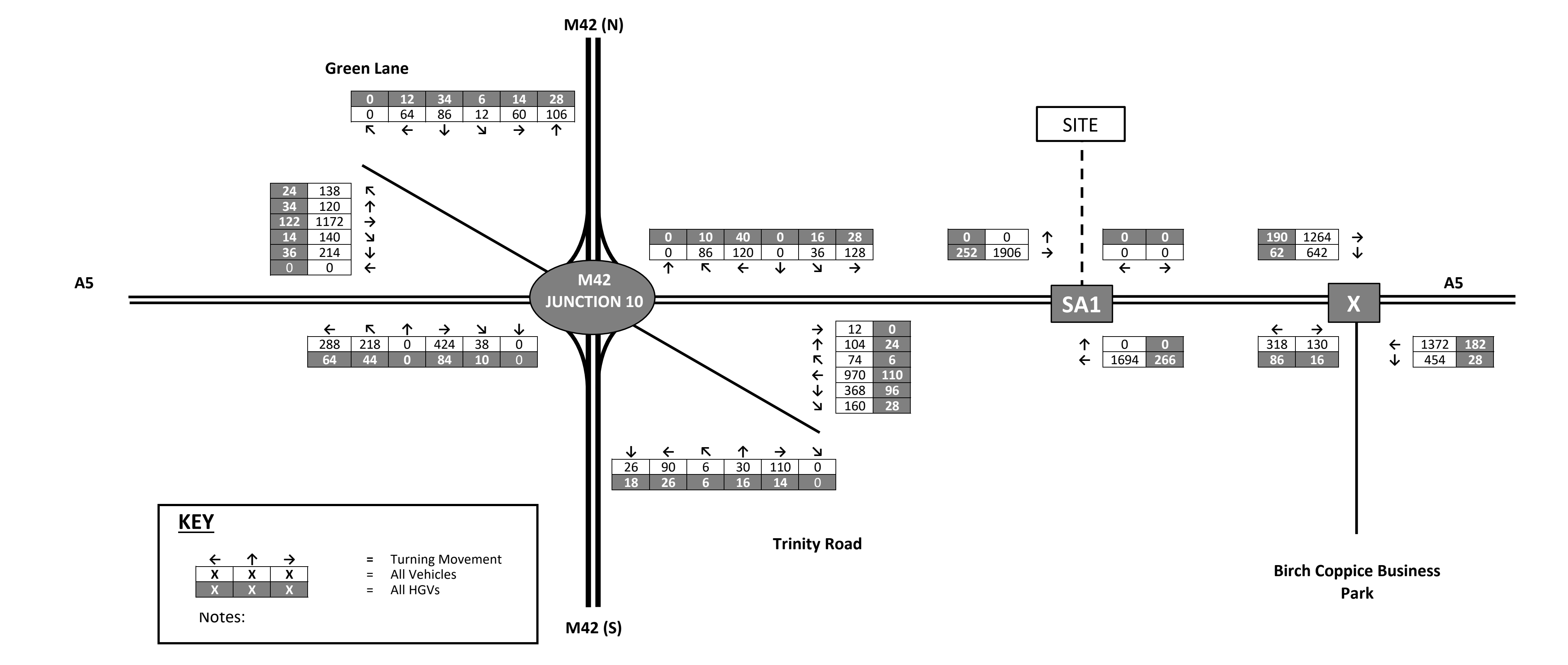


FIGURE 10

2026 REFERENCE - AM PEAK (0800 TO 0900) - DEMAND FLOWS

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB

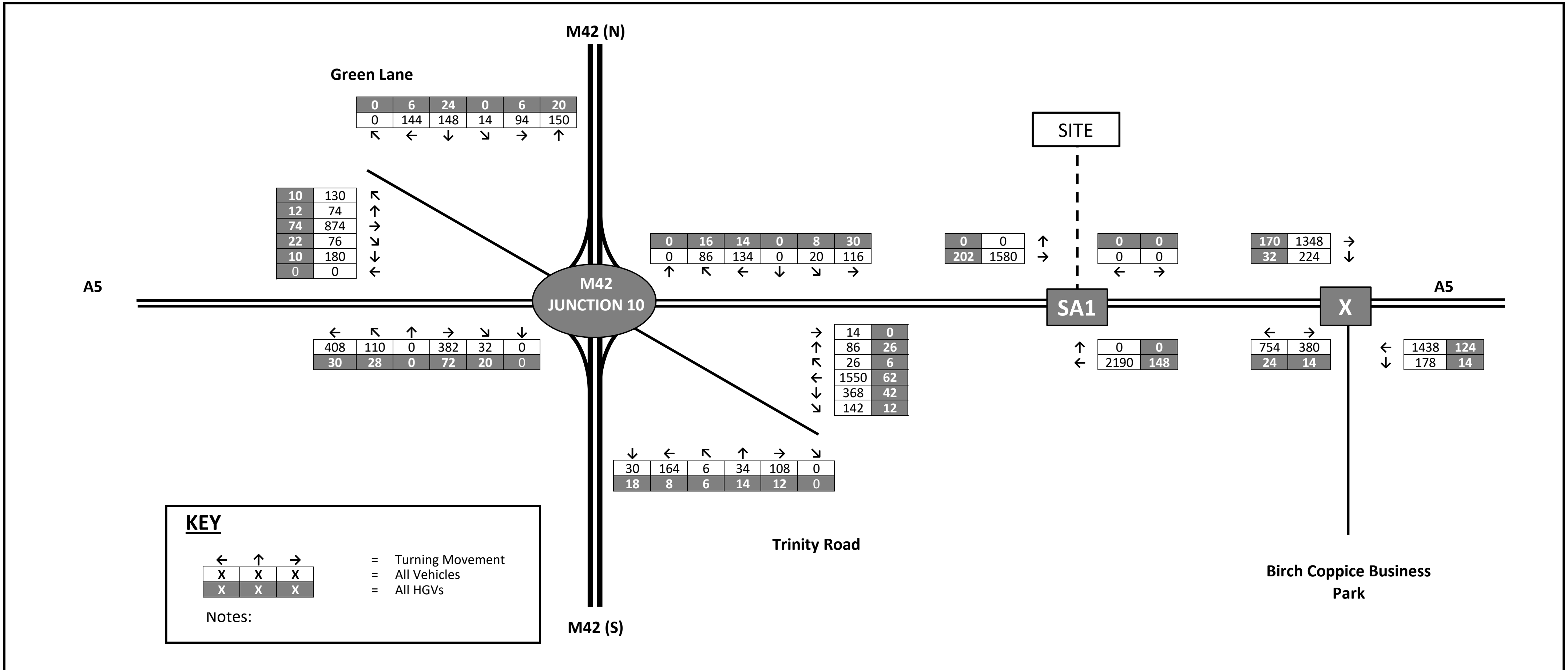


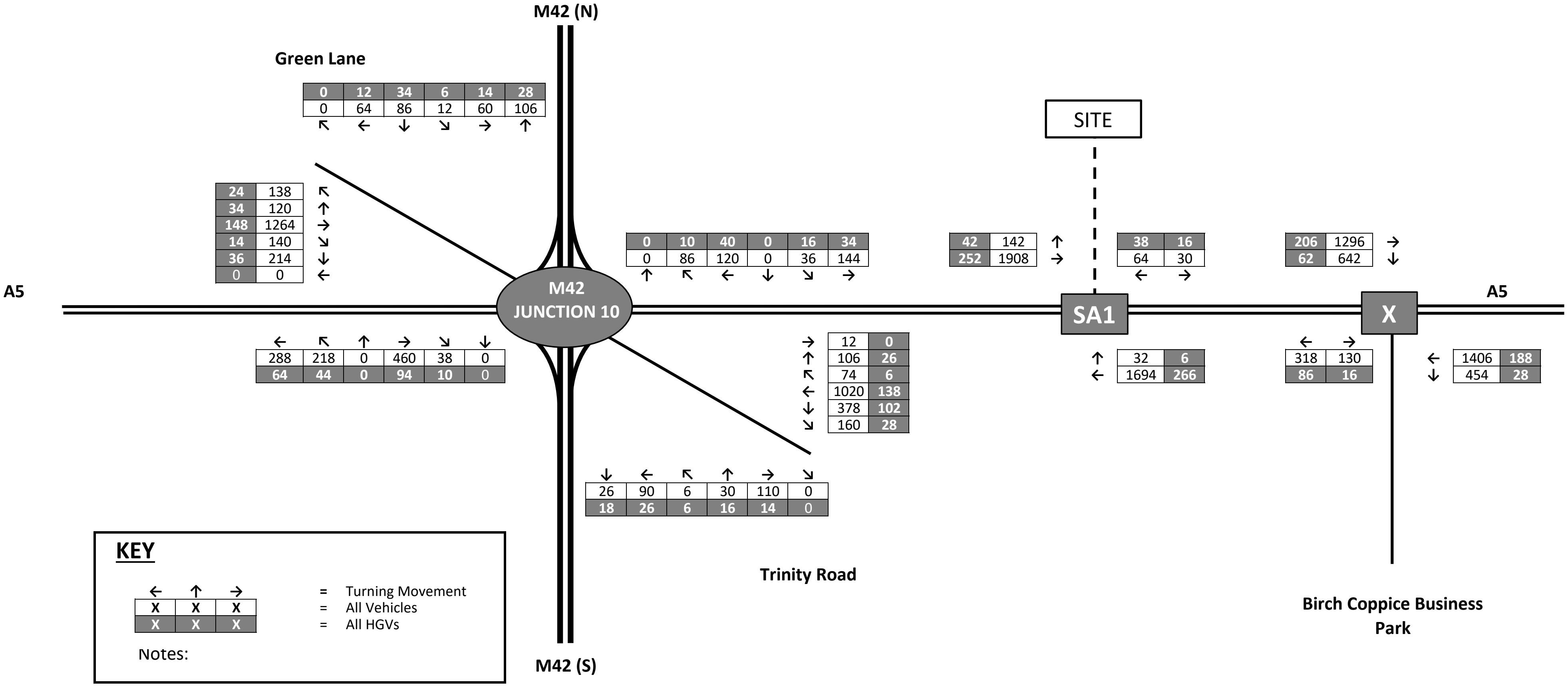
FIGURE 11

2026 REFERENCE - PM PEAK (1700 TO 1800) - DEMAND FLOWS

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB



BANCROFT CONSULTING

FIGURE 12

2026 REFERENCE + DEVELOPMENT - AM PEAK (0800 TO 0900) - DEMAND FLOWS

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB

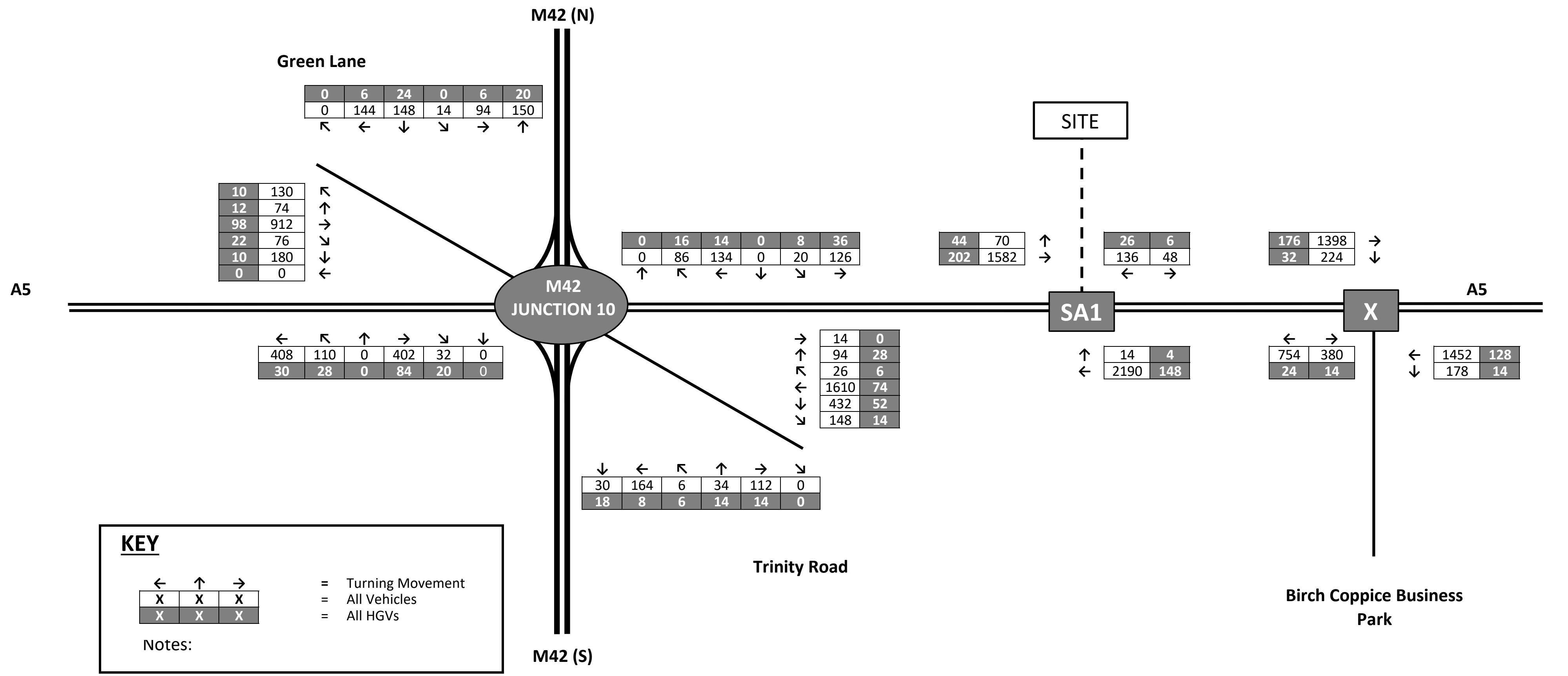


FIGURE 13

2026 REFERENCE + DEVELOPMENT - PM PEAK (1700 TO 1800) - DEMAND FLOWS

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB

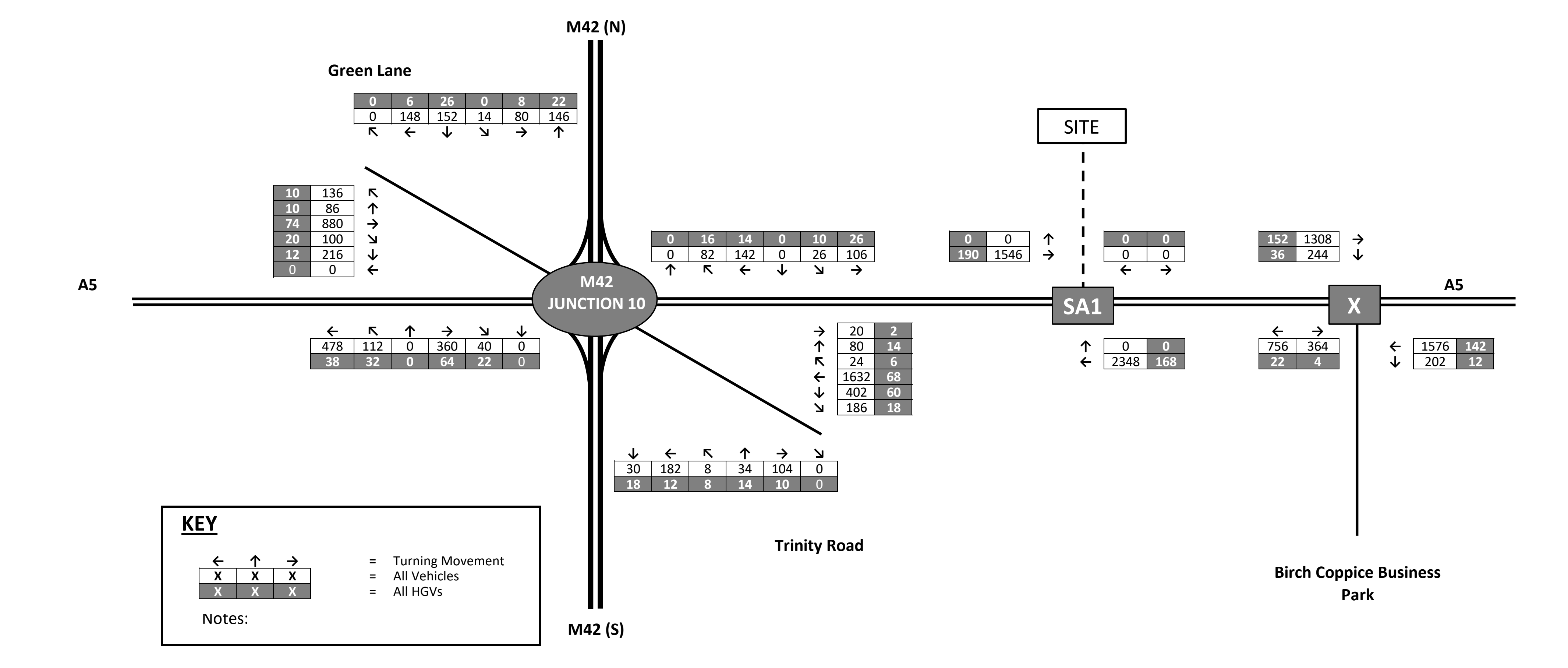


FIGURE 15

2031 REFERENCE - PM PEAK (1700 TO 1800) - DEMAND FLOWS

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB

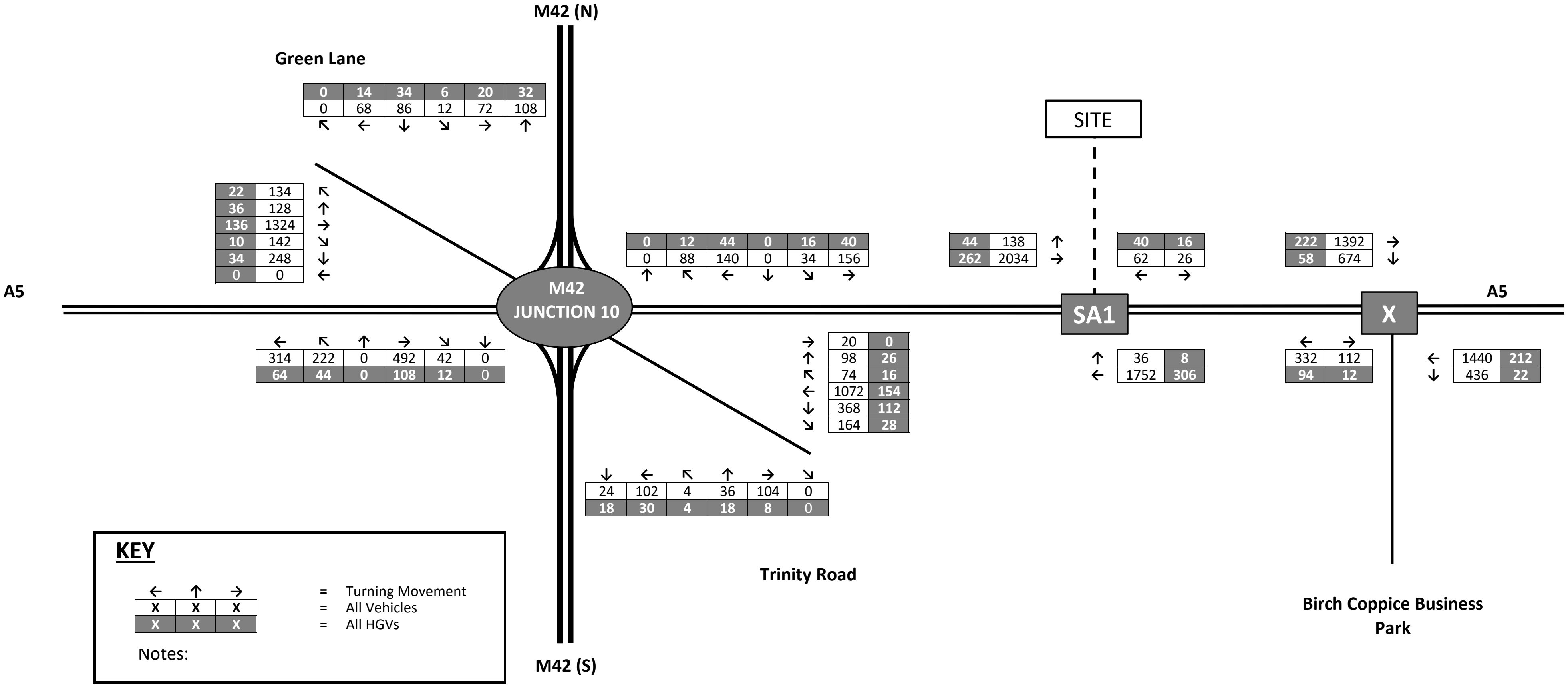


FIGURE 16

2031 REFERENCE + DEVELOPMENT - AM PEAK (0800 TO 0900) - DEMAND FLOWS

BANCROFT CONSULTING

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB

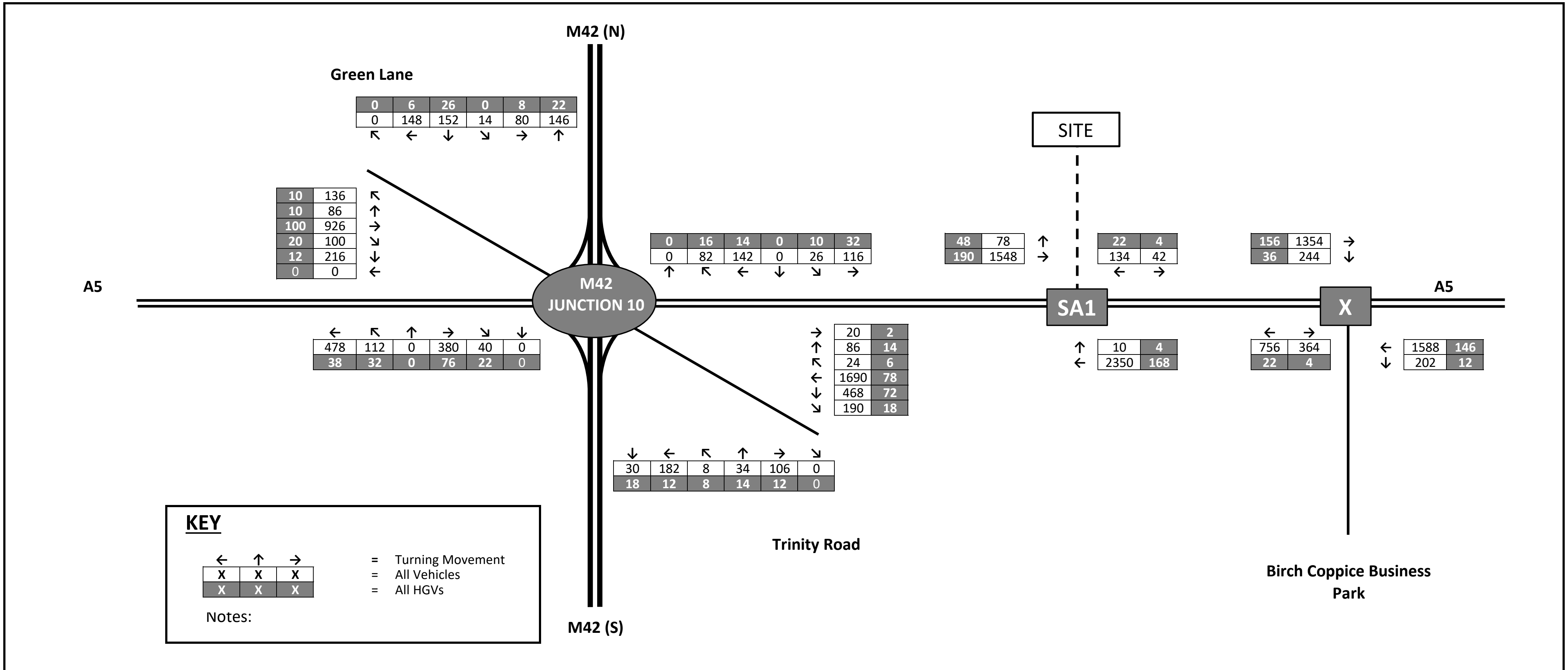


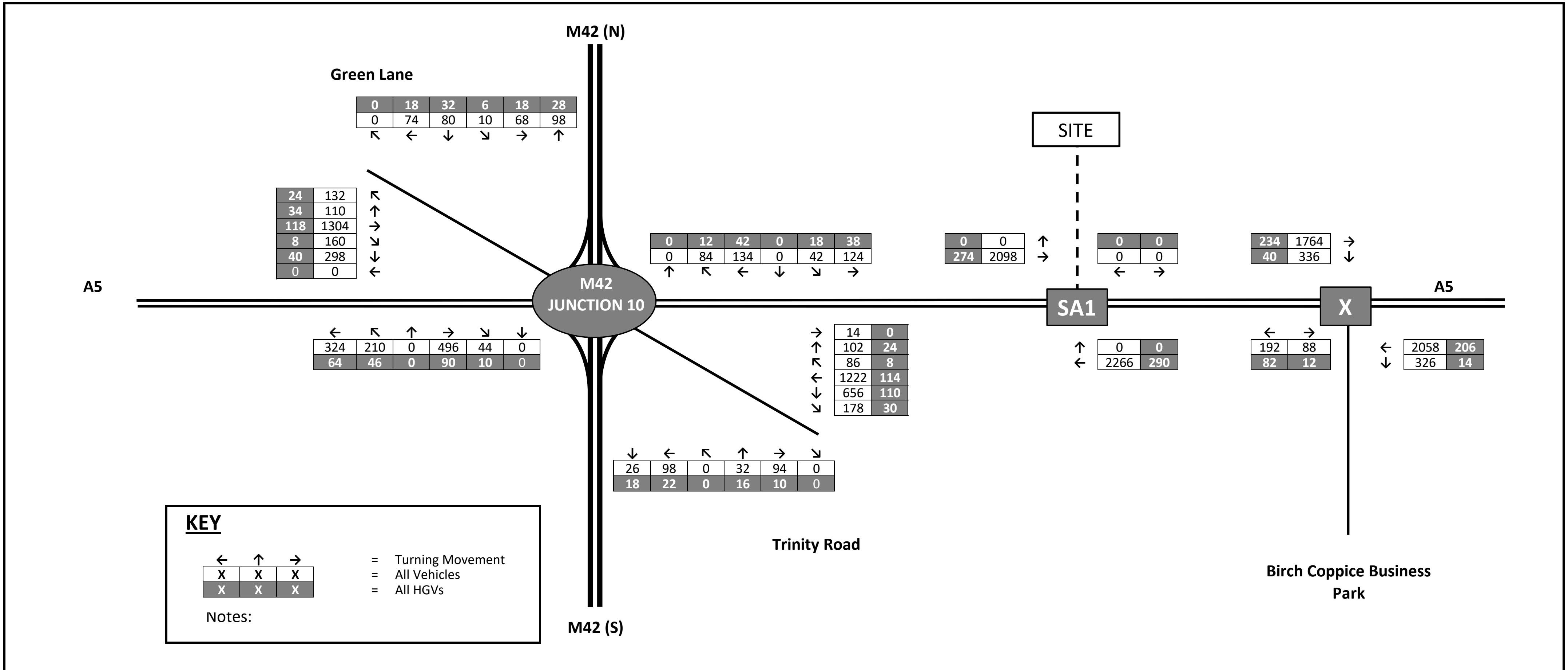
FIGURE 17

2031 REFERENCE + DEVELOPMENT - PM PEAK (1700 TO 1800) - DEMAND FLOWS

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB



BANCROFT CONSULTING

FIGURE 18

2031 LOCAL PLAN - AM PEAK (0800 TO 0900) - DEMAND FLOWS

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB

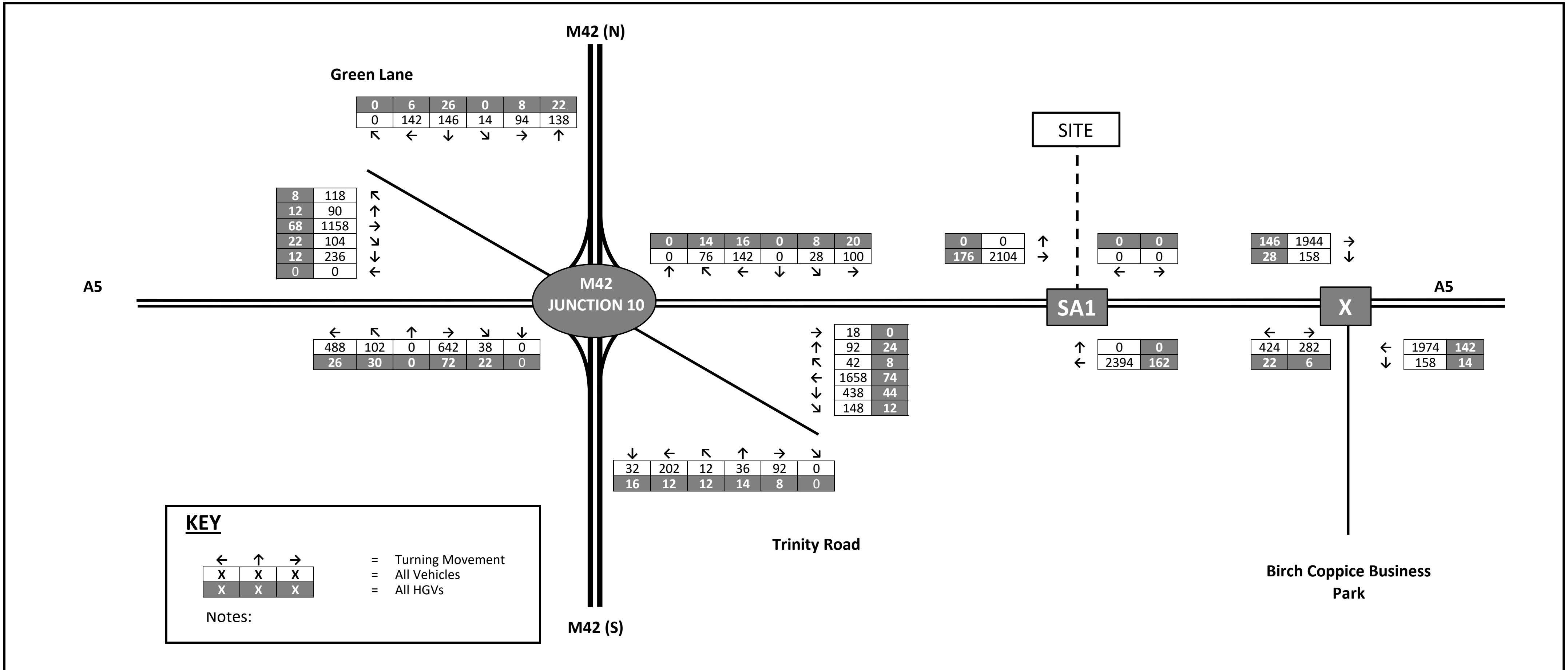


FIGURE 19

2031 LOCAL PLAN - PM PEAK (1700 TO 1800) - DEMAND FLOWS

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB

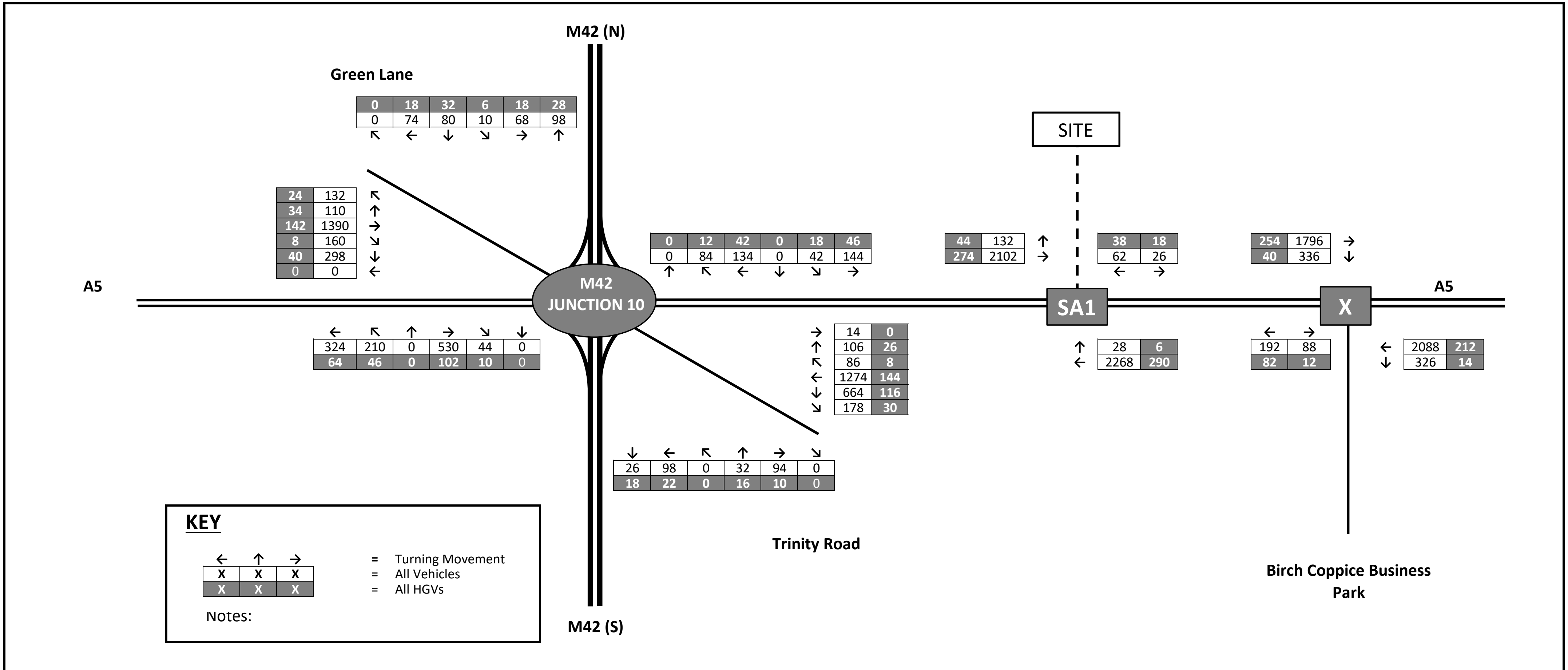


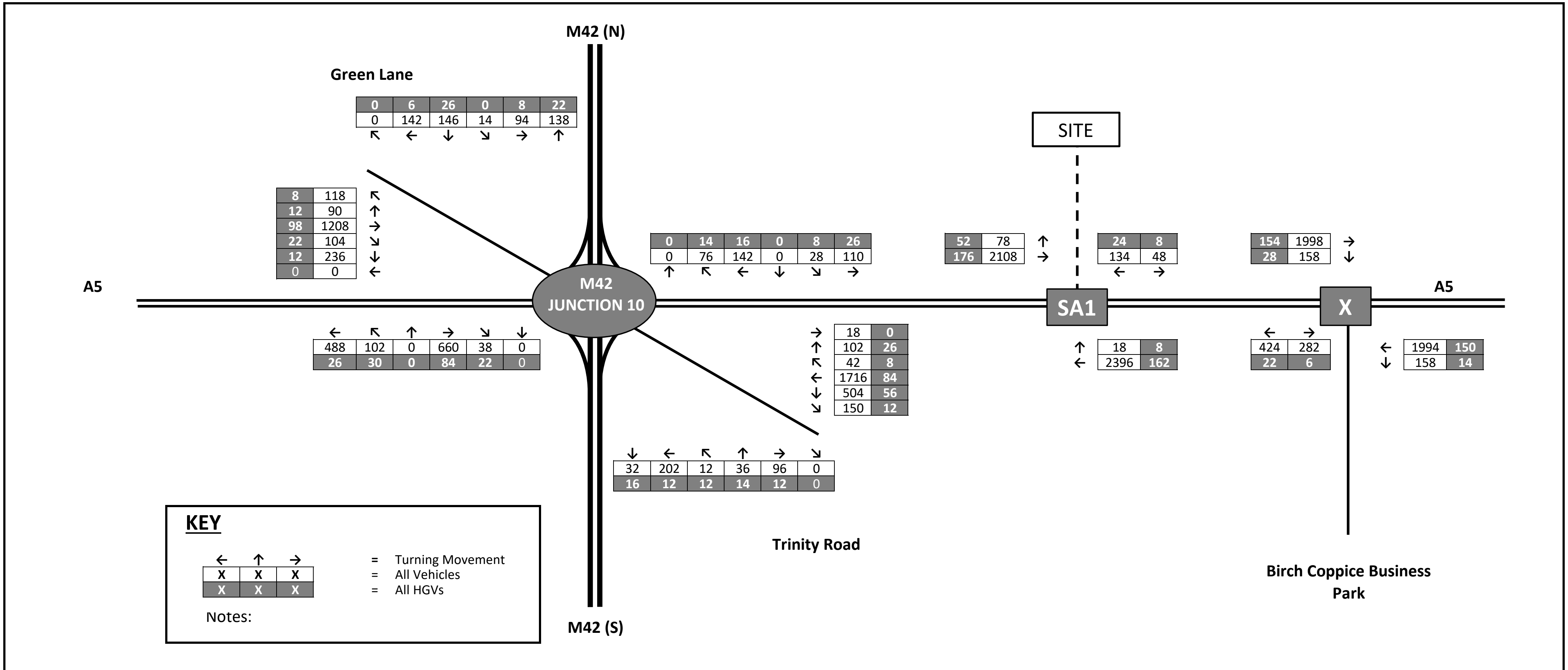
FIGURE 20

2031 LOCAL PLAN + DEVELOPMENT - AM PEAK (0800 TO 0900) - DEMAND FLOWS

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB



BANCROFT CONSULTING

FIGURE 21

2031 LOCAL PLAN + DEVELOPMENT - PM PEAK (1700 TO 1800) - DEMAND FLOWS

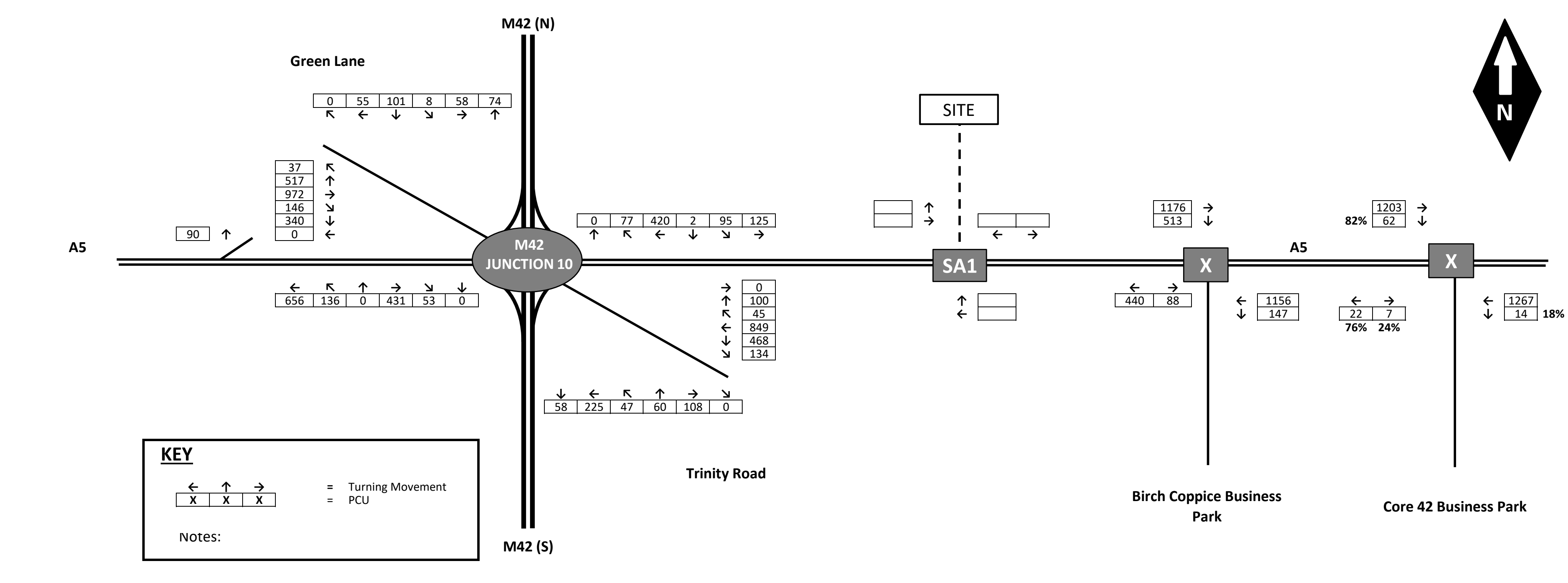
LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB

APPENDIX B

TT FIGURES



TETRA TECH

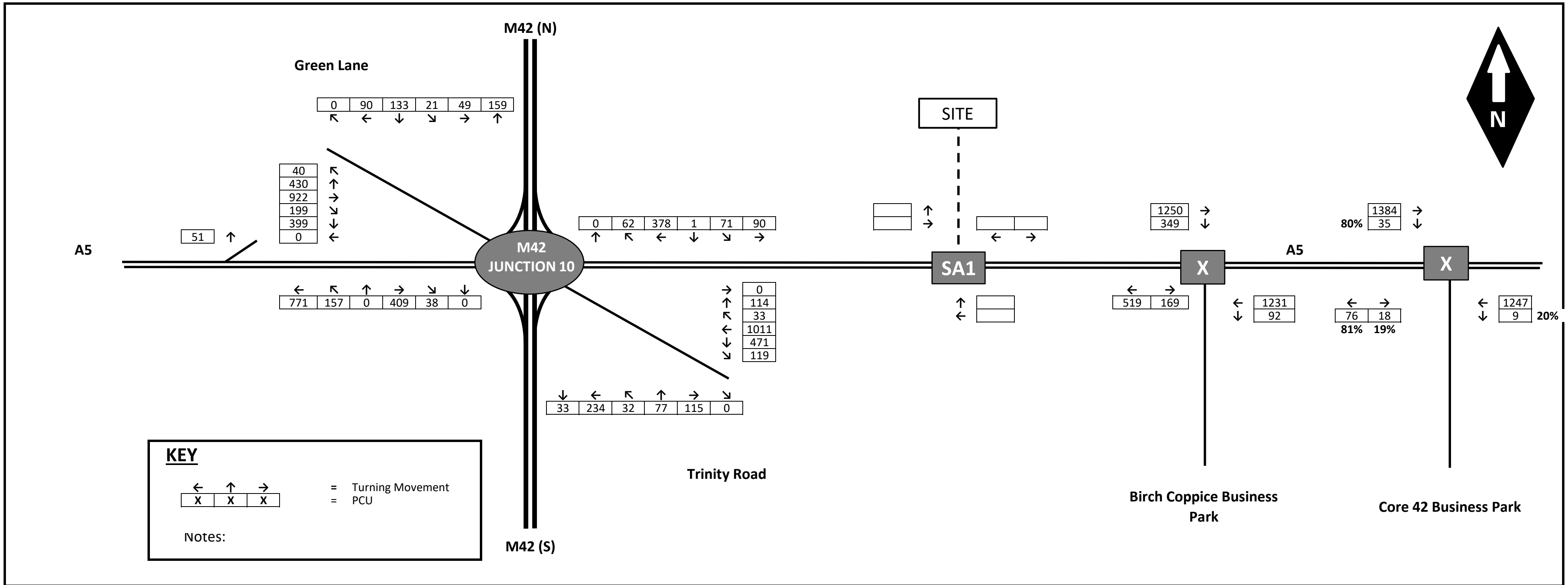
TT FIGURE 1

2022 AM PEAK (0730 TO 0830) - DEMAND FLOWS

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH



TETRA TECH

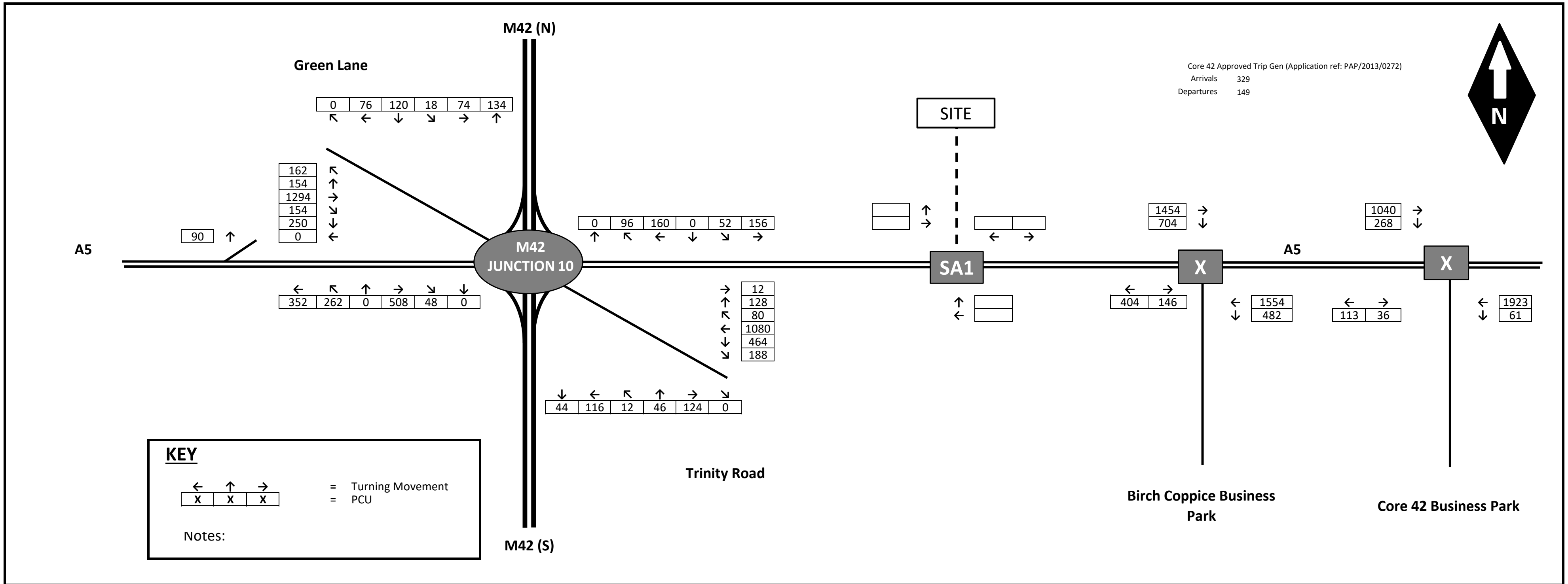
TT FIGURE 2

2022 PM PEAK (1600 TO 1700) - DEMAND FLOWS

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH



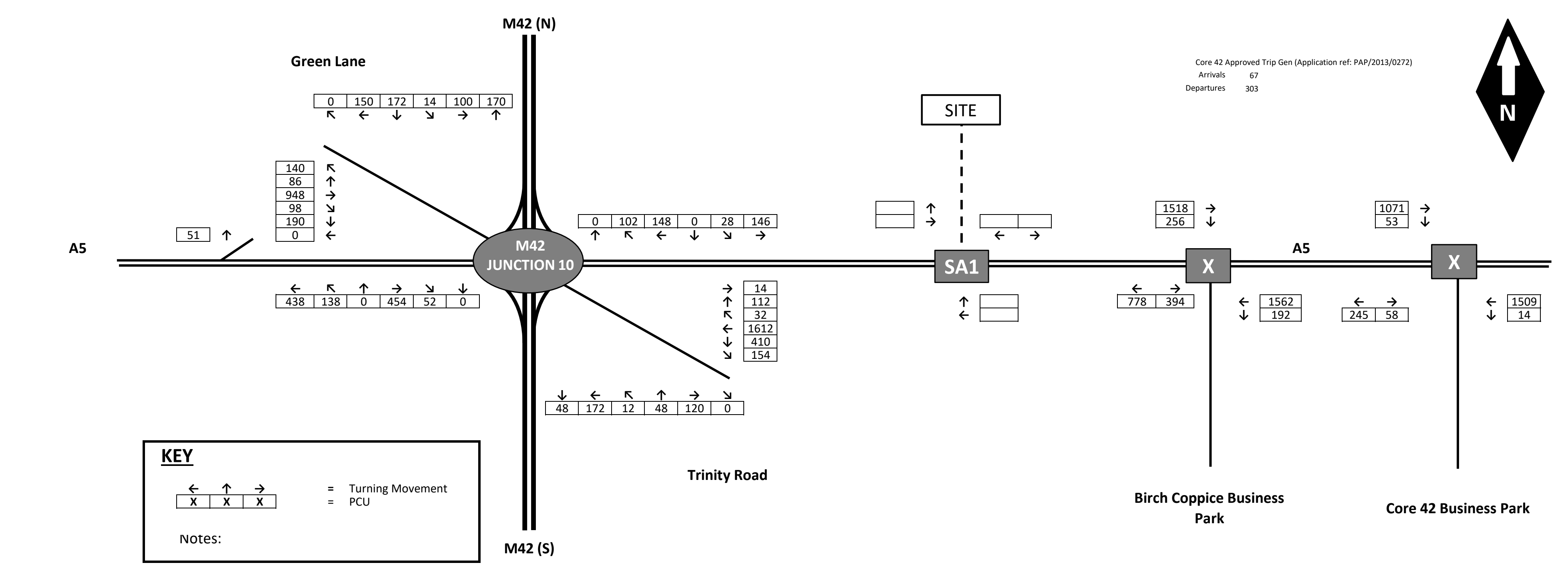
TT FIGURE 3

2026 Reference Case AM Peak - DEMAND FLOWS

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH



TETRA TECH

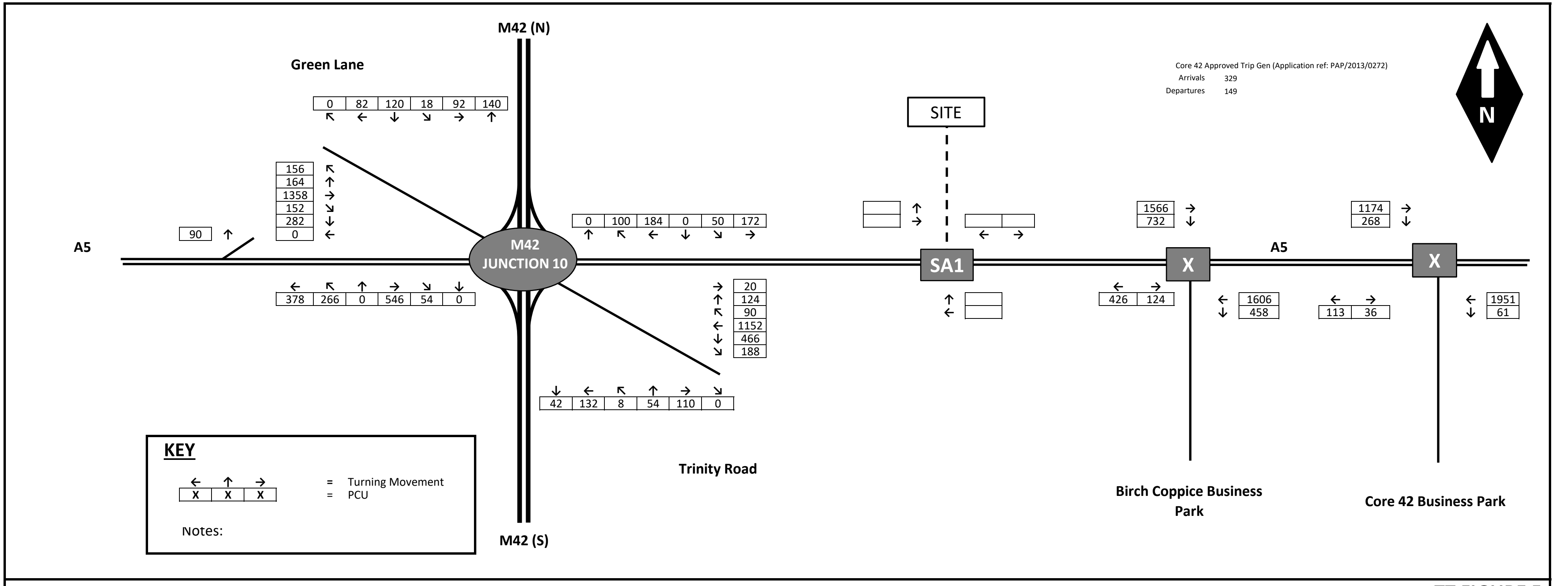
TT FIGURE 4

2026 Reference Case PM Peak - DEMAND FLOWS

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH



TETRA TECH

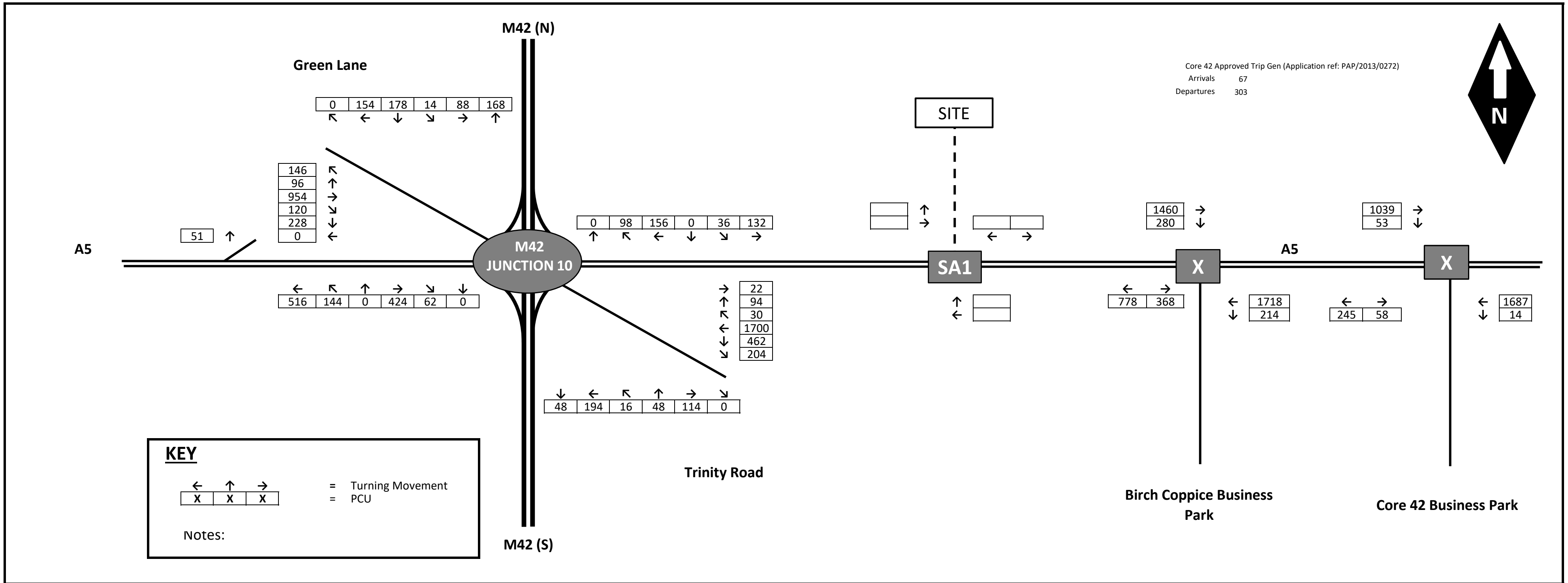
TT FIGURE 5

2031 Reference Case AM Peak - DEMAND FLOWS

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH



TETRA TECH

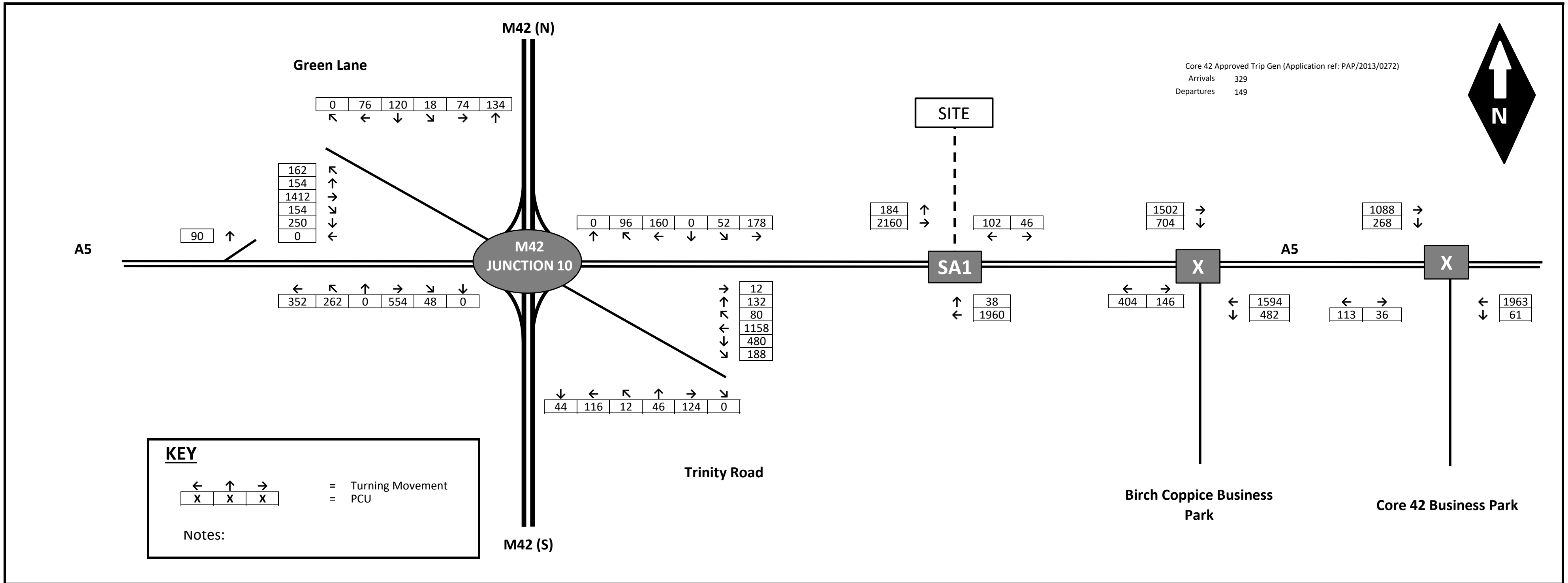
TT FIGURE 6

2031 Reference Case PM Peak - DEMAND FLOWS

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH



TT FIGURE 7

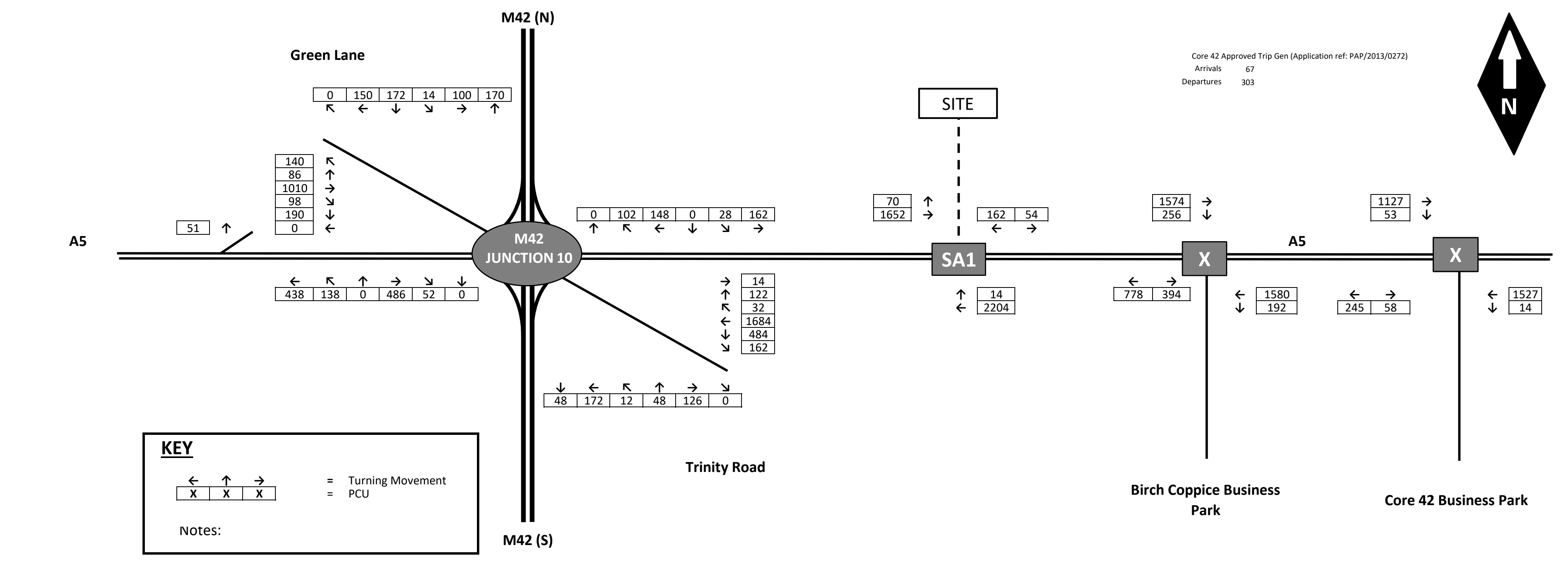
2026 Reference Case + Development AM Peak - DEMAND FLOWS

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH

TETRA TECH



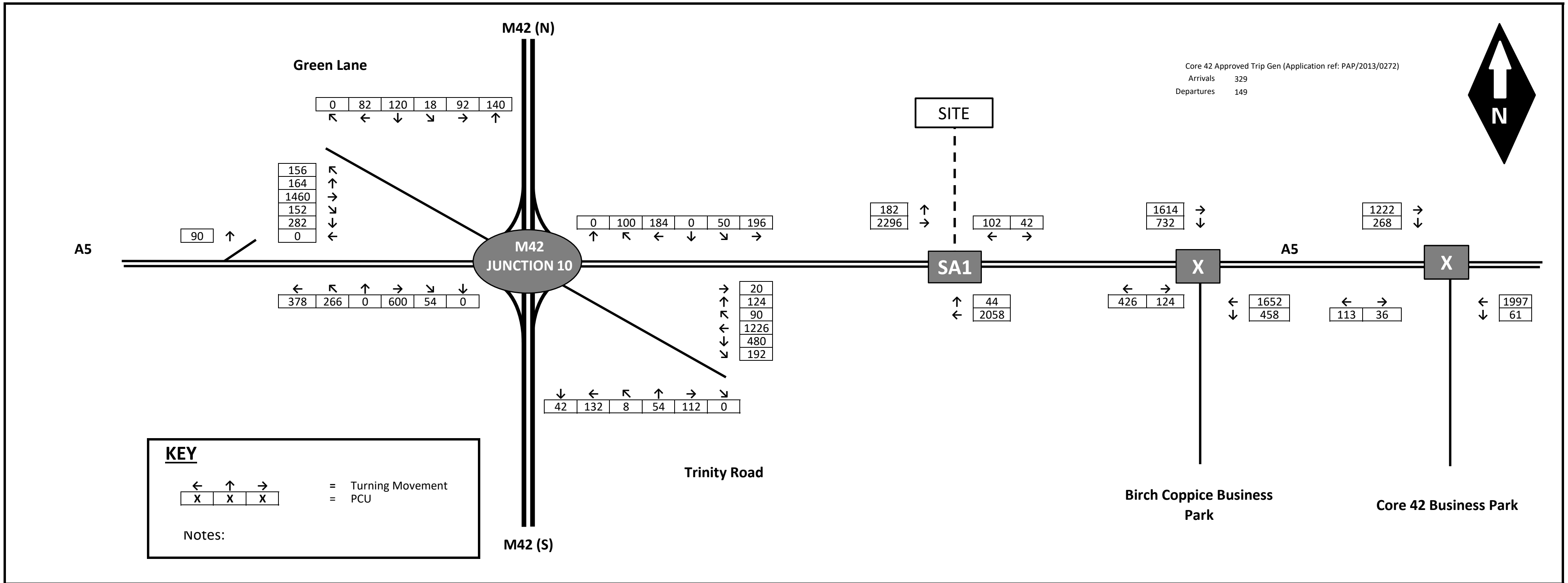
TT FIGURE 8

2026 Reference Case + Development PM Peak - DEMAND FLOWS

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH



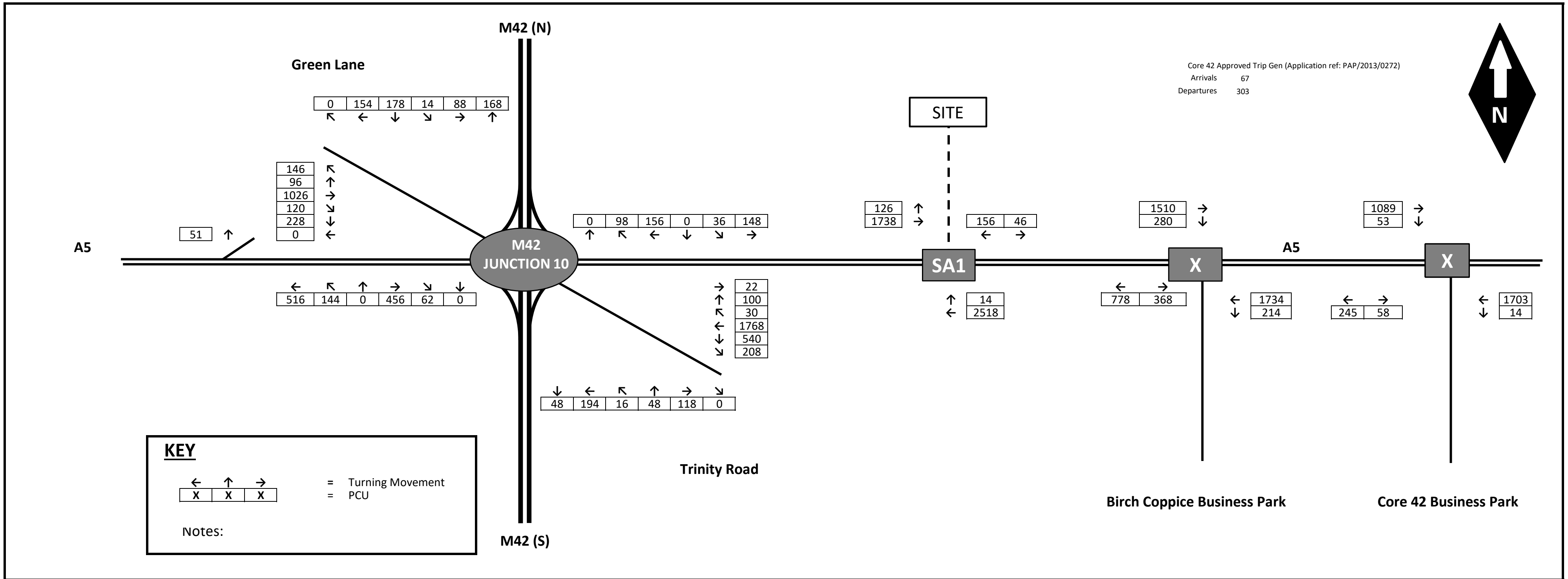
TT FIGURE 9

2031 Reference Case + Development AM Peak - DEMAND FLOWS

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH



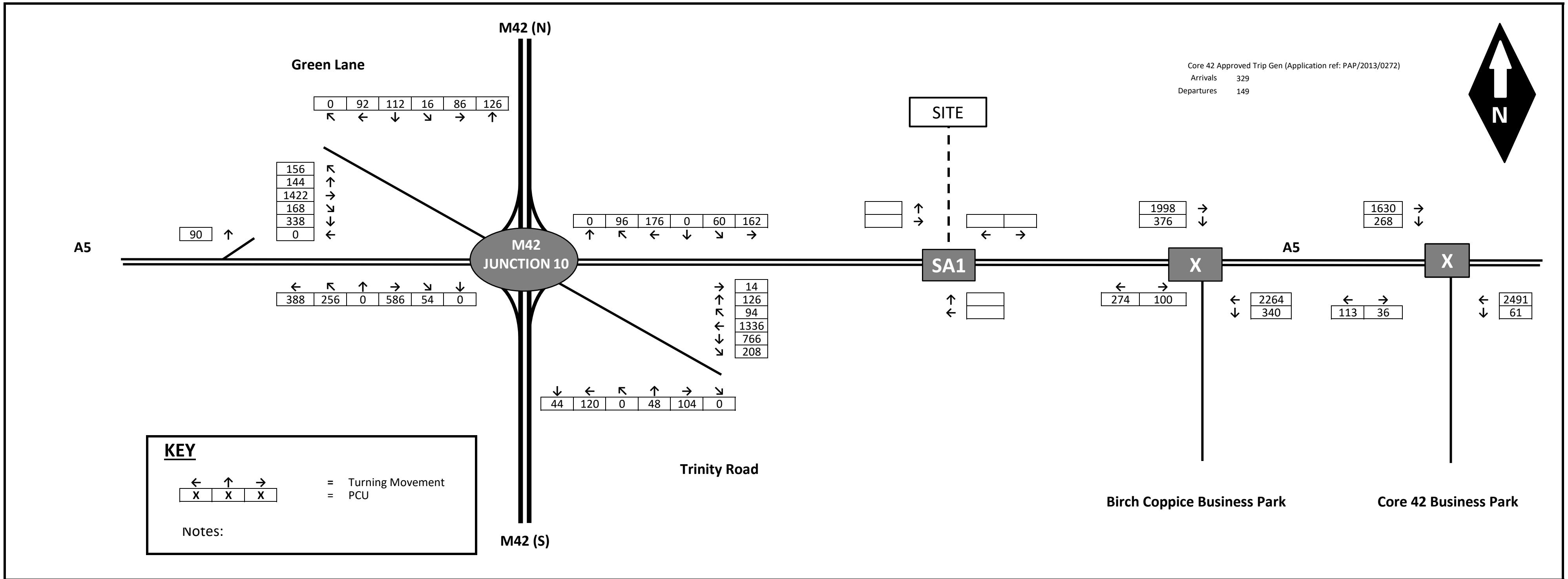
TT FIGURE 10

2031 Reference + Development PM Peak - DEMAND FLOWS

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH



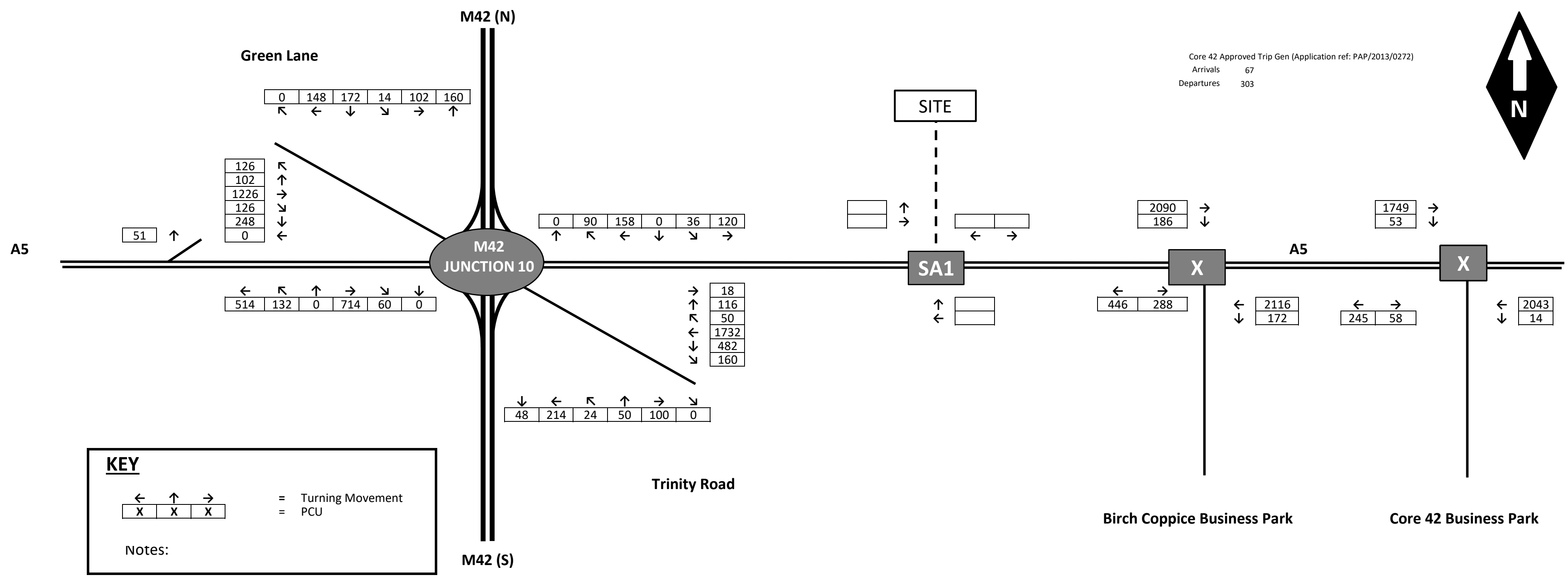
TT FIGURE 11

2031 Local Plan AM Peak - DEMAND FLOWS

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH



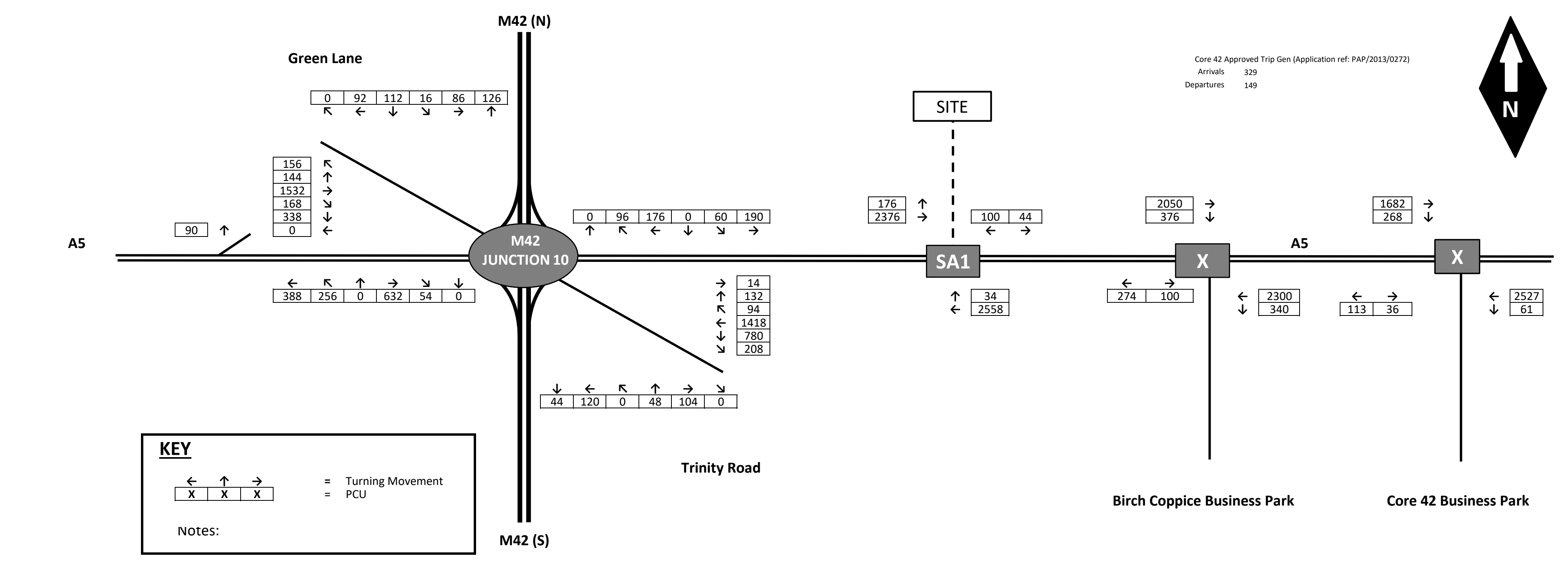
TT FIGURE 12

2031 Local Plan PM Peak - DEMAND FLOWS

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH



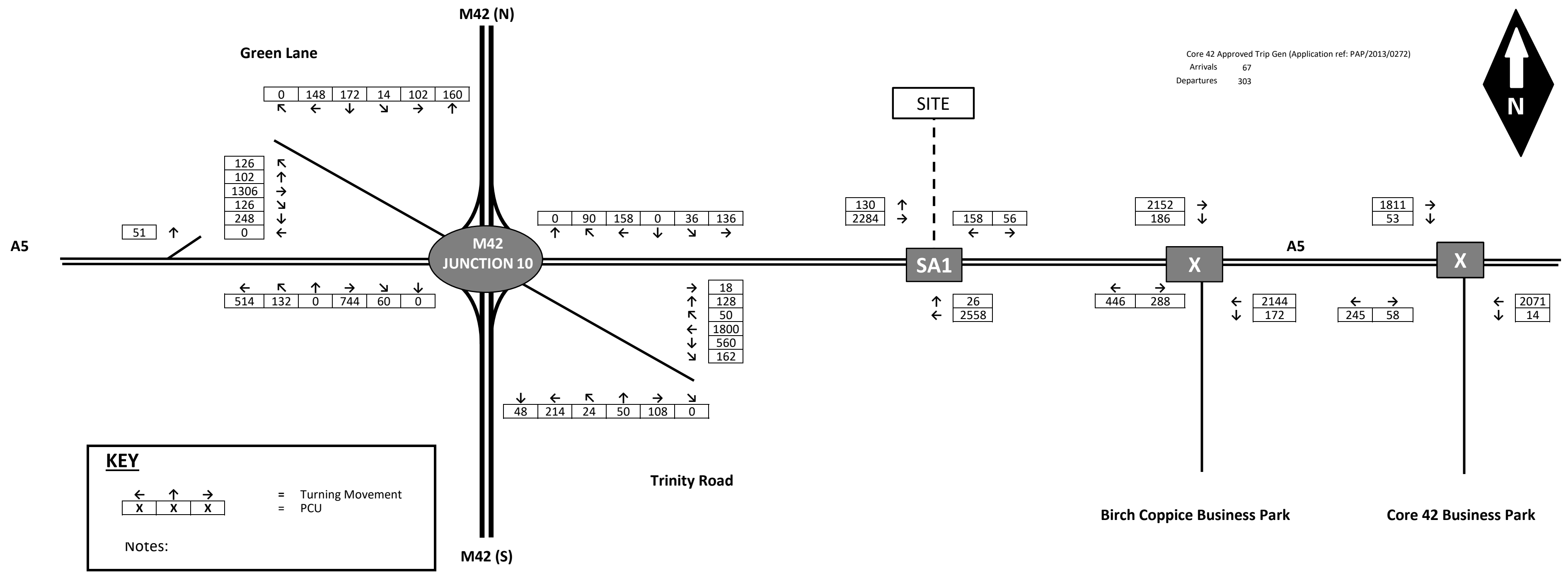
TT FIGURE 13

2031 Local Plan + Development AM Peak - DEMAND FLOWS

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH



TT FIGURE 14

2031 Local Plan + Development PM Peak - DEMAND FLOWS

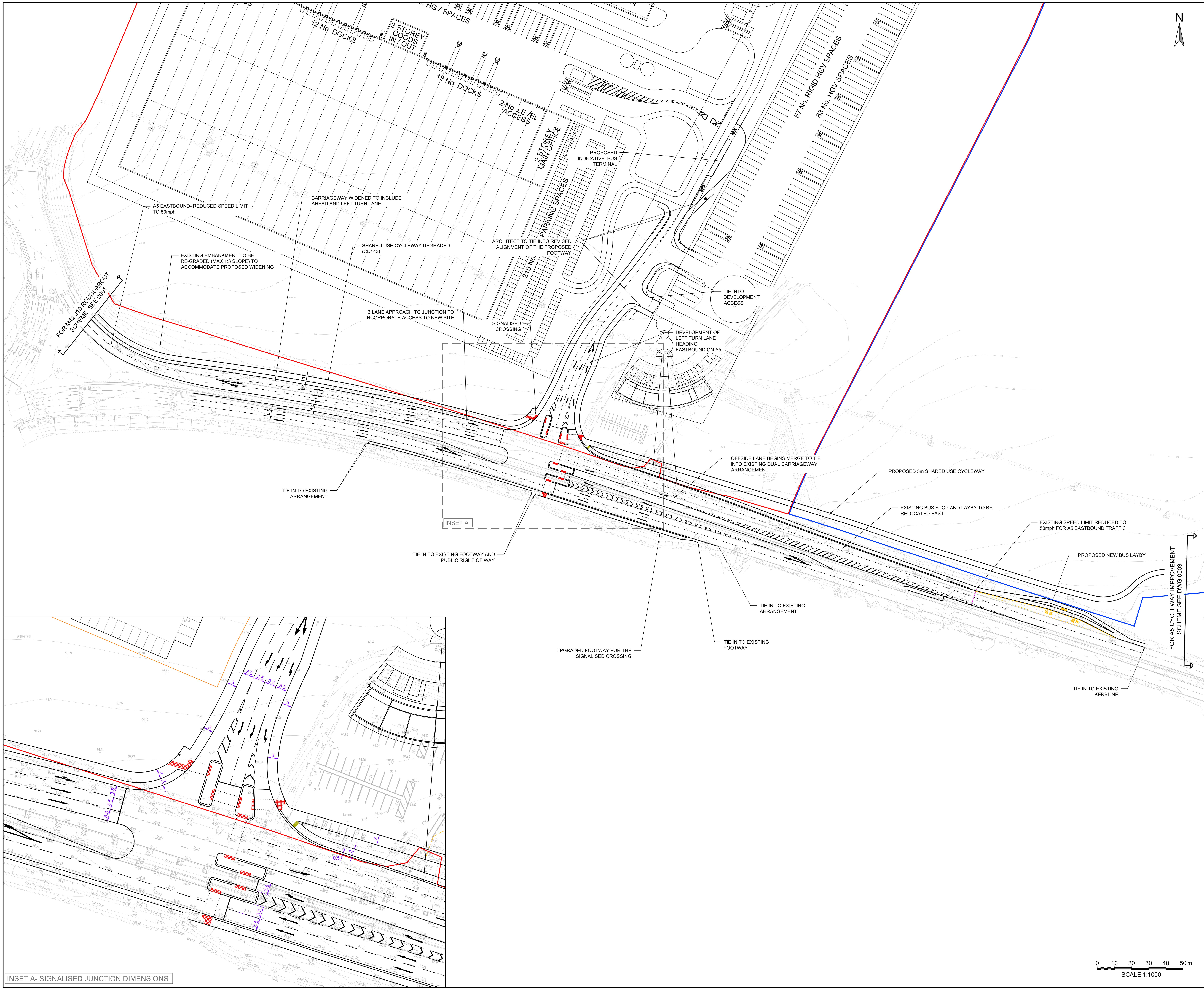
Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH

APPENDIX C

DRAWINGS



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NOTES -

1. ALL DIMENSIONS IN METRES UNLESS STATED OTHERWISE.
2. THE INFORMATION SHOWN ON THIS DRAWING IS INTENDED TO PROVIDE A GENERAL OUTLINE OF THE HIGHWAY IMPROVEMENT WORKS.

KEY:

SITE BOUNDARY 1

SITE BOUNDARY 2

PRELIMINARY ISSUE

Rev	Description	Date	Drn / Chk / App		
P01	PRELIMINARY FIRST ISSUE	04.11.2022	LJB	LB	NB

Document Control

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TETRA TECH

Client

HODGETTS ESTATES

Project Name

M42 JUNCTION 10
A5 CYCLEWAY IMPROVEMENT

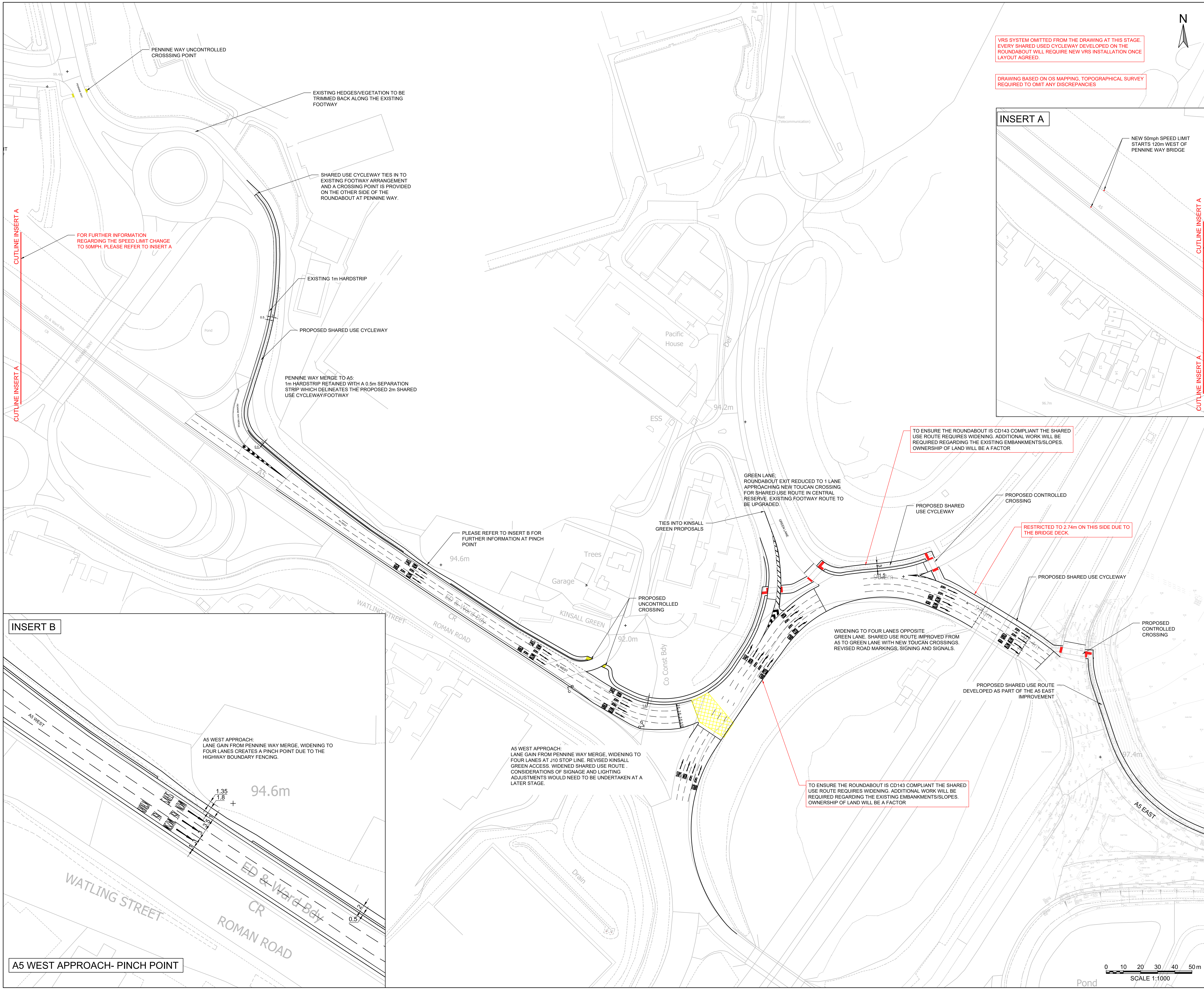
Sheet Title

PROPOSED LAYOUT FOR A5 AND NEW SITE ACCESS

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A1	Suitability
784-B033920	LJB	Oct'22	LB	Oct '22	NB	Oct '22	1:1000	S3

Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision
B033920	TTE	00	ZZ	PL	H	0002	P01

TTE_MT_v1



1. THIS DRAWING SHOULD BE READ IN RELATION TO THE SUBJECT OF THE TITLE ONLY. OTHER INFORMATION SHOWN ON THE DRAWING IS TO BE CONSIDERED INDICATIVE ONLY. REFERENCE SHOULD BE MADE TO APPROPRIATE DRAWING SERIES/SPECIFICATIONS FOR OTHER INFORMATION.
2. ALL DIMENSIONS ARE IN METRES UNLESS SPECIFIED OTHERWISE.

PRELIMINARY ISSUE

Rev	Description	Date	Drn / Chk / App		
P01	PRELIMINARY FIRST ISSUE	04.11.2022	LJB	LB	NB

Document Control

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TETRA TECH

Client

HODGETTS ESTATES

Project Name

M42 JUNCTION 10
ROUNDABOUT IMPROVEMENT

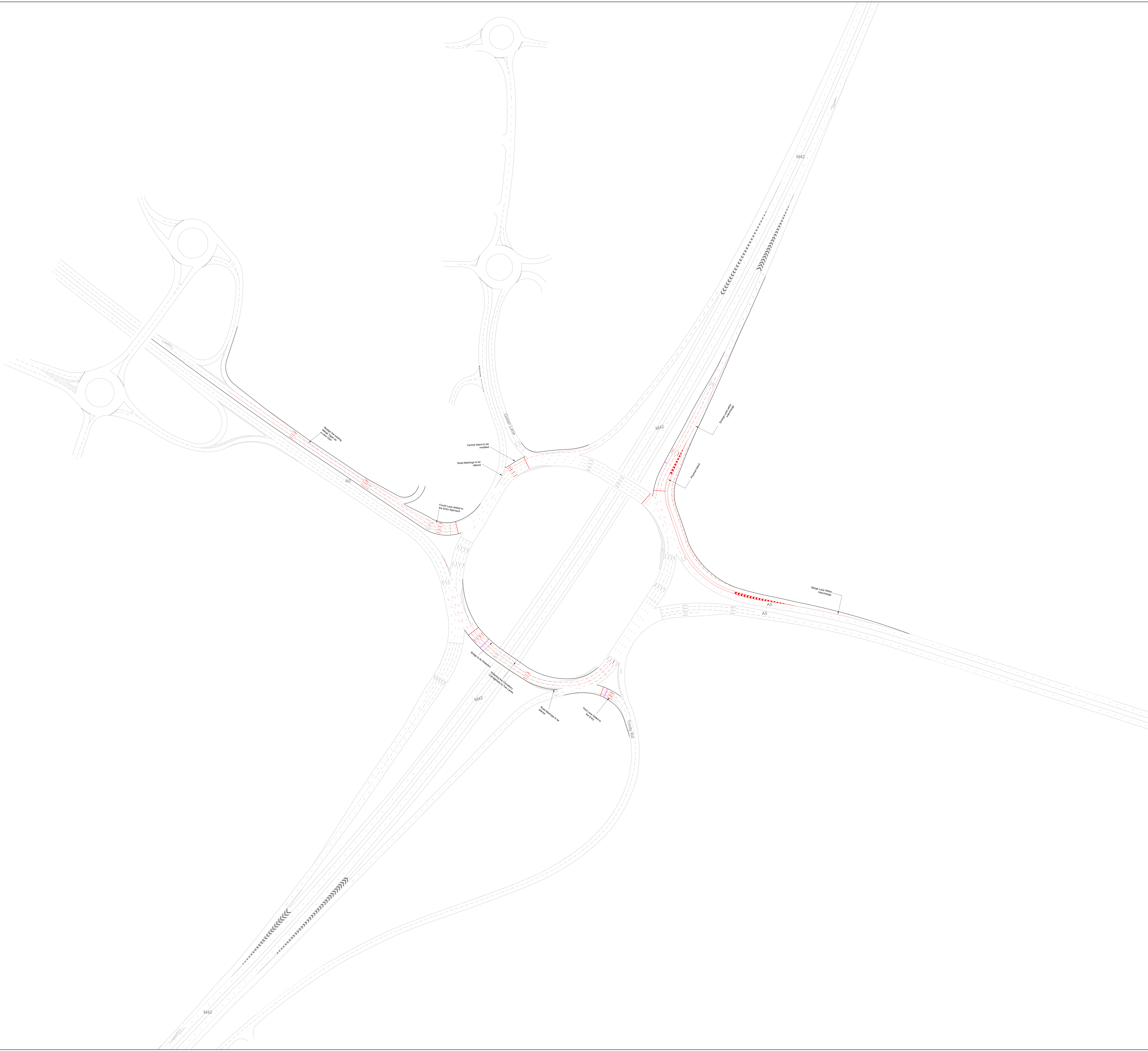
Sheet Title

PROPOSED LAYOUT

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A1	Suitability
784-B033920	LJB	Sep'22	LB	Sep '22	NB	Sep '22	1:1000	S3

Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision
B033920	TTE	00	ZZ	PL	H	0001	P01

TTE_MT_v1



Drawing Status:
These drawings have been produced with reference to the CDM Regulations 2015; Regulation 9.

These Drawings are for planning approvals and are not to be used for construction purposes. It is the responsibility of the contractor and client to identify risks associated with the construction stage and to design appropriate measures to mitigate. The risks identified on the PJA Scheme Design Risk Assessment are based on the information available at the time of the design (drawing date) Where shown on PJA Design Drawings, the position of services is based on information provided by other parties at the time of the design and is for guidance only. It is the responsibility of the Client and Contractor to verify the exact position of any services before commencing works on site.

Client Duties:
The client is directed to Regulation 4 of the CDM 2015 Regulations: Client duties in relation to managing projects

Rev / Date	Description	Drn	Chck'd

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reading@philjonesassociates.co.uk
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Client
Warwickshire County Council (WCC)

Project
02853 M42 Junction 10

Drawing
Indicative Solution.
Level Intervention
2 B+C+D+E+F

Drawn by: AH 24/08/2017
Checked by: MN 24/08/2017
Scale: 1:2000 @ A1

Drawing No. 02853 - 01
Revision A

File: T:\Projects Current\#2800\02853 M42 J10 HS2 Impact\2. Drawings\Design\Preliminary Design\Level Intervention 2B&C&D&E&F\Level Intervention 2B+C+D+E+F.dwg

APPENDIX D

TRANSYT SUMMARY RESULTS

Table 4.1: M42/ Junction 10 + A5/ Birch Coppice + A5/ Core 42, 2026 & 2031 Reference Case, AM Peak

				2026 AM Peak			2031 AM Peak		
M42 Junction 10									
Traffic Stream(s)	Lane	Saturation Flow pcu/hr	Model Output	No Dev	With Dev	With Dev Mitigation	No Dev	With Dev	With Dev Mitigation
1/1	M42 Northbound Offslip Lane 1	1740	Queue	3	3	3	3	3	2
			Aver Delay	23 secs	23 secs	23 secs	24 secs	24 secs	24 secs
1/2	M42 Northbound Offslip Lane 2	1740	Queue	2	2	2	2	2	2
			Aver Delay	23 secs	22 secs	23 secs	23 secs	22 secs	23 secs
1/3	M42 Northbound Offslip Lane 3	1740	Queue	2	2	1	2	2	1
			Aver Delay	22 secs	22 secs	22 secs	22 secs	23 secs	22 secs
3/1	M42 Northbound Offslip Lane 4	1849	Queue	10	11	14	11	13	18
			Aver Delay	36 secs	42 secs	50 secs	40 secs	47 secs	1m 5s
3/2	M42 Northbound Offslip Lane 5	1849	Queue	6	7	7	7	8	9
			Aver Delay	27 secs	29 secs	30 secs	28 secs	30 secs	33 secs
7/1	M42 Northbound Circulating Lane 1	2039	Queue	9	8	12	10	12	17
			Aver Delay	6 secs	6 secs	7 secs	6 secs	7 secs	9 secs
7/2	M42 Northbound Circulating Lane 2	1840	Queue	18	24	24	24	24	27
			Aver Delay	14 secs	19 secs	19 secs	19 secs	21 secs	24 secs
8/1 + 9/1 + 11/1	A5 Eastbound Lane 1	1828	Queue	55	107	3	110	157	3
			Aver Delay	3m 22s	6m 30s	10 secs	6m 14s	8m 53s	10 secs
8/2 + 9/2 + 11/2 + 63/1	A5 Eastbound Lane 2	1900	Queue	7	7	13	8	7	18
			Aver Delay	29 secs	31 secs	27 secs	31 secs	34 secs	44 secs
8/3 + 9/2 + 11/2 (9/3 +11/3) +63/2	A5 Eastbound Lane 3	1900	Queue	58	117	13	82	145	18
			Aver Delay	2m 36s	4m 59s	29 secs	3m 52s	6m 12s	43 secs
8/4	A5 Eastbound Lane 4	1900	Queue	N/A	N/A	4	N/A	N/A	4
			Aver Delay			14 secs			17 secs
12/1	A5 Eastbound Circulating Lane 1	1846	Queue	11	11	10	10	11	10
			Aver Delay	35 secs	35 secs	32 secs	35 secs	36 secs	32 secs
12/2	A5 Eastbound Circulating Lane 2	1878	Queue	11	11	2	13	11	2
			Aver Delay	32 secs	35 secs	15 secs	35 secs	37 secs	15 secs
12/3	A5 Eastbound Circulating Lane 3	1878	Queue	7	8	6	9	9	7
			Aver Delay	35 secs	35 secs	30 secs	35 secs	36 secs	30 secs
12/4	A5 Eastbound Circulating Lane 4	1878	Queue	1	1	10	2	2	12
			Aver Delay	33 secs	33 secs	39 secs	33 secs	33 secs	43 secs
14/1	Green Lane Lane 1	1602	Queue	11	12	11	21	23	22
			Aver Delay	2m 33s	2m 35s	2m 26s	4m 49s	4m 43s	4m 45s
14/2	Green Lane Lane 2	1602	Queue	15	15	14	18	15	16
			Aver Delay	3m 22s	3m 12s	3m 11s	3m 54s	3m 19s	3m 40s
15/1	Green Lane Circulating Lane 1	1950	Queue	12	12	3	14	12	3
			Aver Delay	7 secs	8 secs	6 secs	8 secs	8 secs	6 secs
15/2	Green Lane Circulating Lane 2	1745	Queue	14	15	9	15	15	11
			Aver Delay	12 secs	13 secs	8 secs	13 secs	13 secs	9 secs
15/3	Green Lane Circulating Lane 3	1745	Queue	2	2	14	2	2	16
			Aver Delay	4 secs	5 secs	10 secs	5 secs	5 secs	10 secs
15/4	Green Lane Circulating Lane 4	1745	Queue	N/A	N/A	1	N/A	N/A	2
			Aver Delay			3 secs			3 secs
13/1	Exit to Green Lane Toucan Crossing	2272	Queue	N/A	N/A	1	N/A	N/A	1
			Aver Delay			2 secs			2 secs
18/1	M42 Southbound Offslip Lane 1	1804	Queue	3	4	4	3	4	5
			Aver Delay	35 secs	38 secs	38 secs	36 secs	43 secs	42 secs
18/2	M42 Southbound Offslip Lane 2	1813	Queue	3	3	3	4	3	3
			Aver Delay	33 secs	33 secs	33 secs	35 secs	34 secs	34 secs
18/3	M42 Southbound Offslip Lane 3	1813	Queue	4	4	3	4	4	4
			Aver Delay	38 secs	37 secs	37 secs	41 secs	42 secs	40 secs
17/1	M42 Southbound Circulating Lane 1	1956	Queue	3	3	8	3	3	10
			Aver Delay	2 secs	2 secs	2 secs	2 secs	2 secs	3 secs
17/2	M42 Southbound Circulating Lane 2	1956	Queue	11	11	11	13	12	12
			Aver Delay	3 secs	3 secs	3 secs	3 secs	3 secs	3 secs
17/3	M42 Southbound Circulating Lane 3	1800	Queue	4	5	2	6	4	2
			Aver Delay	6 secs	6 secs	4 secs	5 secs	6 secs	4 secs
17/4	M42 Southbound Circulating Lane 4	1800	Queue	2	2	2	2	2	3
			Aver Delay	17 secs	17 secs	7 secs	16 secs	17 secs	7 secs
16/1	Exit to M42 Northbound Toucan Crossing	2200	Queue	N/A	N/A	1	N/A	N/A	1
			Aver Delay			2 secs			2 secs
23/1	A5 Westbound Lane 1	1930	Queue	8	7	6	8	7	6
			Aver Delay	14 secs	12 secs	10 secs	15 secs	12 secs	10 secs
23/2	A5 Westbound Lane 2	1851	Queue	3	3	4	3	3	3
			Aver Delay	12 secs	10 secs	9 secs	12 secs	10 secs	8 secs
23/3 + 24/2 + 25/2	A5 Westbound Lane 3	1851	Queue	14	15	12	15	22	12
			Aver Delay	48 secs	44 secs	25 secs	50 secs	1m 11s	28 secs
23/4 + 24/3 + 25/3	A5 Westbound Lane 4	1851	Queue	8	14	11	10	16	17
			Aver Delay	19 secs	35 secs	25 secs	40 secs	1m 2s	1m 1s
22/1	A5 Westbound Circulating Lane 1	1797	Queue	6	6	6	7	6	8
			Aver Delay	29 secs	27 secs	30 secs	30 secs	27 secs	39 secs
22/2	A5 Westbound Circulating Lane 2	1797	Queue	3	3	4	3	3	4
			Aver Delay	21 secs	20 secs	31 secs	22 secs	21 secs	35 secs

22/3	A5 Westbound Circulating Lane 3	1902	Queue Aver Delay	1 0 secs	1 0 secs	1 1 sec	1 0 secs	1 0 secs	1 4 secs
22/4	A5 Westbound Circulating Lane 4	1902	Queue Aver Delay	1 0 secs	1 1 sec	1 1 sec	1 1 sec	1 2 secs	2 3 secs
28/1 + 29/1	Trinity Road Lane 1	1669	Queue Aver Delay	3 29 secs	2 29 secs	3 32 secs	3 29 secs	2 29 secs	3 36 secs
28/2	Trinity Road Lane 2	1669	Queue Aver Delay	4 31 secs	4 31 secs	4 34 secs	3 31 secs	4 31 secs	4 41 secs
27/1	Trinity Road Circulating Lane 1	1846	Queue Aver Delay	6 9 secs	6 7 secs	4 6 secs	5 9 secs	5 8 secs	3 6 secs
27/2	Trinity Road Circulating Lane 2	1846	Queue Aver Delay	5 6 secs	5 5 secs	6 7 secs	5 6 secs	3 5 secs	5 7 secs
27/3	Trinity Road Circulating Lane 3	1878	Queue Aver Delay	9 4 secs	10 4 secs	9 4 secs	10 5 secs	11 5 secs	11 4 secs
27/4	Trinity Road Circulating Lane 4	1878	Queue Aver Delay	8 7 secs	13 9 secs	12 8 secs	11 10 secs	14 11 secs	15 12 secs
A5/ Site Access									
56/1	A5 Eastbound Left Turn Lane 1	1751	Queue Aver Delay	N/A	15 15 secs	18 21 secs	N/A	16 16 secs	20 25 secs
56/2 + 21/1	A5 Eastbound Lane 2	1814	Queue Aver Delay	N/A	14 14 secs	19 19 secs	N/A	15 14 secs	22 23 secs
53/3 + 21/2	A5 Eastbound Lane 3	2082	Queue Aver Delay	N/A	5 7 secs	6 8 secs	N/A	5 7 secs	6 9 secs
59/2 + 62/1 + 61/1 + 39/1	A5 Westbound Lane 1	2015	Queue Aver Delay	N/A	4 15 secs	1 23 secs	N/A	7 20 secs	5 15 secs
59/3 + 62/2 + 61/2 + 39/2	A5 Westbound Lane 2	2015	Queue Aver Delay	N/A	4 15 secs	1 27 secs	N/A	6 22 secs	6 17 secs
60/1	A5 Westbound Right Turn Lane 3	1667	Queue Aver Delay	N/A	2 1m 5s	1 26 secs	N/A	2 1m 4s	2 1m 4s
54/1	Site Access Left Turn Lane 1	1695	Queue Aver Delay	N/A	1 23 secs	3 12 secs	N/A	1 23 secs	1 23 secs
55/1	Site Access Right Turn Lane 2	1690	Queue Aver Delay	N/A	1 28 secs	3 12 secs	N/A	1 30 secs	1 28 secs
55/2	Site Access Right Turn Lane 3	1690	Queue Aver Delay	N/A	1 28 secs	2 1m 4s	N/A	1 30 secs	1 28 secs
A5/ Birch Coppice									
31/1	A5 Eastbound Ahead Lane 1	1814	Queue Aver Delay	7 5 secs	5 7 secs	3 8 secs	7 5 secs	4 8 secs	4 9 secs
31/2	A5 Eastbound Ahead Lane 2	2082	Queue Aver Delay	3 2 secs	1 3 secs	1 4 secs	2 2 secs	2 4 secs	2 4 secs
32/1	A5 Eastbound Right Turn Lane 3	1960	Queue Aver Delay	10 42 secs	9 36 secs	11 47 secs	9 42 secs	8 36 secs	11 51 secs
32/2	A5 Eastbound Right Turn Lane 4	1667	Queue Aver Delay	7 41 secs	7 37 secs	9 48 secs	7 41 secs	5 36 secs	9 46 secs
37/1	A5 Westbound Left Turn Lane 1	1751	Queue Aver Delay	5 16 secs	6 16 secs	5 16 secs	6 16 secs	5 15 secs	4 15 secs
37/2 + 38/1 + 53/1	A5 Westbound Ahead Lane 2	2015	Queue Aver Delay	9 26 secs	9 19 secs	9 20 secs	9 27 secs	9 20 secs	9 21 secs
37/3 + 38/2 + 53/2	A5 Westbound Ahead Lane 3	2015	Queue Aver Delay	9 26 secs	9 20 secs	9 20 secs	9 27 secs	9 21 secs	9 21 secs
42/1	Birch Coppice Left Turn Lane 1	1695	Queue Aver Delay	6 40 secs	5 42 secs	6 40 secs	7 47 secs	6 43 secs	6 44 secs
42/2	Birch Coppice Left Turn Lane 2	1983	Queue Aver Delay	3 30 secs	3 31 secs	3 30 secs	4 31 secs	4 31 secs	3 31 secs
43/1 + 44/2	Birch Coppice Right Turn Lane 3	1690	Queue Aver Delay	5 1m 23s	5 1m 24s	5 1m 16s	3 52 secs	4 57 secs	3 56 secs
A5/ Core 42									
46/1 + 45/1	A5 Eastbound Ahead Lane 1	1833	Queue Aver Delay	1 4 secs	1 4 secs	2 5 secs	1 4 secs	1 4 secs	2 5 secs
46/2 + 45/2	A5 Eastbound Ahead Lane 2	2082	Queue Aver Delay	1 2 secs	1 2 secs	1 2 secs	1 2 secs	1 2 secs	1 2 secs
47/1	A5 Eastbound Right Turn Lane 3	1667	Queue Aver Delay	7 48 secs	6 42 secs	9 1 min	5 41 secs	5 35 secs	8 49 secs
49/1	A5 Westbound Ahead & Left Turn Lane 1	1957	Queue Aver Delay	22 33 secs	25 39 secs	24 3 secs	21 32 secs	27 38 secs	28 47 secs
49/2	A5 Westbound Ahead Lane 2	1909	Queue Aver Delay	27 46 secs	34 58 secs	32 58 secs	30 53 secs	36 1m 5s	35 1m 8s
51/1	Core 42 Left Turn Lane 1	1695	Queue Aver Delay	1 22 secs	1 22 secs	1 22 secs	1 22 secs	1 22 secs	1 21 secs
52/1	Core 42 Right Turn Lane 2	1690	Queue Aver Delay	2 1m 44s	2 1m 45s	2 1m 43s	2 1m 42s	2 1m 45s	2 1m 43s
			Network PI	6195.22	8495.28	5380.73	7840.38	10250.89	6511.17

= new traffic streams as a result of the proposed development site access junction
= new traffic streams as a result of proposed off-site mitigation improvements

Table 4.2: M42/ Junction 10 + A5/ Birch Coppice + A5/ Core 42, 2026 & 2031 Reference Case, PM Peak

				2026 PM Peak			2031 PM Peak		
M42 Junction 10									
Traffic Stream(s)	Lane	Saturation Flow pcu/hr	Model Output	No Dev	With Dev	With Dev Mitigation	No Dev	With Dev	With Dev Mitigation
1/1	M42 Northbound Offslip Lane 1	1740	Queue Aver Delay	4 36 secs	4 36 secs	4 37 secs	6 45 secs	6 42 secs	6 45 secs
1/2	M42 Northbound Offslip Lane 2	1740	Queue Aver Delay	3 32 secs	3 32 secs	3 33 secs	4 34 secs	4 35 secs	4 34 secs
1/3	M42 Northbound Offslip Lane 3	1740	Queue Aver Delay	2 30 secs	2 30 secs	2 30 secs	2 30 secs	3 31 secs	2 30 secs
3/1	M42 Northbound Offslip Lane 4	1849	Queue Aver Delay	15 2mins	18 2m 20s	18 2m 35s	14 1m 37s	14 2m 6s	16 2m 16s
3/2	M42 Northbound Offslip Lane 5	1849	Queue Aver Delay	16 2m 10s	23 3m 9s	21 2m 54s	15 2m 1s	16 2m 15s	20 2m 40s
7/1	M42 Northbound Circulating Lane 1	2039	Queue Aver Delay	23 8 secs	22 7 secs	23 7 secs	25 9 secs	23 8 secs	24 8 secs
7/2	M42 Northbound Circulating Lane 2	1840	Queue Aver Delay	25 10 secs	27 11 secs	27 11 secs	25 10 secs	26 10 secs	26 11 secs
8/1 + 9/1 + 11/1	A5 Eastbound Lane 1	1828	Queue Aver Delay	14 45 secs	27 1m 32s	3 12 secs	12 30 secs	18 1m 10s	3 12 secs
8/2 + 9/2 + 11/2	A5 Eastbound Lane 2	1900	Queue Aver Delay	6 22 secs	12 49 secs	8 16 secs	6 19 secs	7 26 secs	8 16 secs
8/3 + 9/2 + 11/2 (9/3 +11/3)	A5 Eastbound Lane 3	1900	Queue Aver Delay	6 22 secs	4 17 secs	6 15 secs	9 20 secs	8 35 secs	6 15 secs
8/4	A5 Eastbound Lane 4	1900	Queue Aver Delay	N/A	N/A	4 12 secs	N/A	N/A	5 13 secs
12/1	A5 Eastbound Circulating Lane 1	1846	Queue Aver Delay	5 23 secs	5 23 secs	5 23 secs	5 24 secs	6 24 secs	5 24 secs
12/2	A5 Eastbound Circulating Lane 2	1878	Queue Aver Delay	7 31 secs	8 32 secs	3 14 secs	7 32 secs	7 32 secs	2 15 secs
12/3	A5 Eastbound Circulating Lane 3	1878	Queue Aver Delay	7 40 secs	7 40 secs	6 37 secs	7 39 secs	7 40 secs	5 37 secs
12/4	A5 Eastbound Circulating Lane 4	1878	Queue Aver Delay	1 36 secs	1 36 secs	8 41 secs	1 37 secs	1 36 secs	9 41 secs
14/1	Green Lane Lane 1	1602	Queue Aver Delay	7 36 secs	7 37 secs	7 38 secs	4 34 secs	6 34 secs	6 35 secs
14/2	Green Lane Lane 2	1602	Queue Aver Delay	12 1m 16s	12 1m 11s	12 1m 19s	13 1m 33s	14 1m 35s	14 1m 30s
15/1	Green Lane Circulating Lane 1	1950	Queue Aver Delay	12 11 secs	12 12 secs	4 10 secs	10 10 secs	12 11 secs	3 9 secs
15/2	Green Lane Circulating Lane 2	1745	Queue Aver Delay	15 14 secs	16 16 secs	9 10 secs	13 13 secs	16 15 secs	8 10 secs
15/3	Green Lane Circulating Lane 3	1745	Queue Aver Delay	2 6 secs	2 8 secs	12 12 secs	2 6 secs	3 8 secs	11 11 secs
15/4	Green Lane Circulating Lane 4	1745	Queue Aver Delay	N/A	N/A	2 4 secs	N/A	N/A	2 5 secs
13/1	Exit to Green Lane Toucan Crossing	2272	Queue Aver Delay	N/A	N/A	1 10 secs	N/A	N/A	1 10 secs
18/1	M42 Southbound Offslip Lane 1	1804	Queue Aver Delay	2 19 secs	3 19 secs	3 20 secs	2 20 secs	2 19 secs	2 19 secs
18/2	M42 Southbound Offslip Lane 2	1813	Queue Aver Delay	2 18 secs	2 19 secs	2 19 secs	2 19 secs	2 21 secs	2 19 secs
18/3	M42 Southbound Offslip Lane 3	1813	Queue Aver Delay	3 20 secs	3 20 secs	3 20 secs	3 20 secs	3 20 secs	3 20 secs
17/1	M42 Southbound Circulating Lane 1	1956	Queue Aver Delay	11 11 secs	12 12 secs	16 11 secs	10 10 secs	11 11 secs	17 10 secs
17/2	M42 Southbound Circulating Lane 2	1956	Queue Aver Delay	18 8 secs	18 8 secs	18 11 secs	16 8 secs	18 8 secs	17 11 secs
17/3	M42 Southbound Circulating Lane 3	1800	Queue Aver Delay	7 16 secs	8 16 secs	6 17 secs	8 16 secs	9 16 secs	6 17 secs
17/4	M42 Southbound Circulating Lane 4	1800	Queue Aver Delay	3 30 secs	3 30 secs	4 18 secs	3 30 secs	4 30 secs	4 17 secs
16/1	Exit to M42 Northbound Toucan Crossing	2200	Queue Aver Delay	N/A	N/A	1 2 secs	N/A	N/A	1 1 sec
23/1 + 25/1	A5 Westbound Lane 1	1930	Queue Aver Delay	3 8 secs	3 8 secs	4 8 secs	3 12 secs	4 9 secs	4 8 secs
23/2	A5 Westbound Lane 2	1851	Queue Aver Delay	2 6 secs	2 7 secs	3 7 secs	2 8 secs	2 7 secs	3 7 secs
23/3 + 24/2 + 25/2	A5 Westbound Lane 3	1851	Queue Aver Delay	24 54 secs	36 1m 21s	33 1m 18s	34 1m 10s	35 1m 20s	39 1m 35s
23/4 + 24/3 + 25/3	A5 Westbound Lane 4	1851	Queue Aver Delay	15 46 secs	28 1m 12s	30 1m 19s	18 52 secs	29 1m 10s	31 1m 28s
22/1	A5 Westbound Circulating Lane 1	1797	Queue Aver Delay	8 53 secs	8 53 secs	6 47 secs	8 55 secs	11 1m 13s	8 55 secs

22/2	A5 Westbound Circulating Lane 2	1797	Queue Aver Delay	6 53 secs	7 52 secs	7 58 secs	7 51 secs	7 54 secs	8 1m 4s
22/3	A5 Westbound Circulating Lane 3	1902	Queue Aver Delay	3 37 secs	4 37 secs	3 37 secs	4 37 secs	4 37 secs	4 36 secs
22/4	A5 Westbound Circulating Lane 4	1902	Queue Aver Delay	5 22 secs	5 22 secs	5 22 secs	5 22 secs	5 22 secs	4 23 secs
28/1 + 29/1	Trinity Road Lane 1	1669	Queue Aver Delay	7 1m 7s	12 1m 45s	10 1m 38s	8 1m 15s	12 1m 58s	12 1m 57s
28/2	Trinity Road Lane 2	1669	Queue Aver Delay	5 1m 4s	6 1m 17s	5 1m 19s	4 1m 1s	5 1m 11s	6 1m 14s
27/1	Trinity Road Circulating Lane 1	1846	Queue Aver Delay	3 6 secs	4 8 secs	2 6 secs	4 7 secs	4 8 secs	3 7 secs
27/2	Trinity Road Circulating Lane 2	1846	Queue Aver Delay	7 8 secs	7 10 secs	8 8 secs	9 9 secs	8 10 secs	8 8 secs
27/3	Trinity Road Circulating Lane 3	1878	Queue Aver Delay	13 13 secs	16 14 secs	16 14 secs	15 14 secs	16 14 secs	16 14 secs
27/4	Trinity Road Circulating Lane 4	1878	Queue Aver Delay	15 15 secs	16 15 secs	16 15 secs	15 15 secs	16 115 secs	16 15 secs
A5/ Site Access									
56/1	A5 Eastbound Left Turn Lane 1	1751	Queue Aver Delay	N/A	14 16 secs	14 16 secs	N/A	14 17 secs	14 17 secs
56/2 + 21/1	A5 Eastbound Lane 2	1814	Queue Aver Delay	N/A	14 13 secs	14 14 secs	N/A	12 13 secs	13 13 secs
53/3 + 21/2	A5 Eastbound Lane 3	2082	Queue Aver Delay	N/A	5 8 secs	5 8 secs	N/A	5 8 secs	5 8 secs
59/2 + 62/1 + 61/1 + 39/1	A5 Westbound Lane 1	2015	Queue Aver Delay	N/A	97 56 secs	20 44 secs	N/A	43 1m 36s	32 1m 15s
59/3 + 62/2 + 61/2 + 39/2	A5 Westbound Lane 2	2015	Queue Aver Delay	N/A	23 56 secs	20 44 secs	N/A	42 1m 37s	30 1m 14s
60/1	A5 Westbound Right Turn Lane 3	1667	Queue Aver Delay	N/A	1 1m 5s	1 1 min	N/A	1 53 secs	1 1 min
54/1	Site Access Left Turn Lane 1	1695	Queue Aver Delay	N/A	1 23 secs	1 23 secs	N/A	1 23 secs	1 23 secs
55/1	Site Access Right Turn Lane 2	1690	Queue Aver Delay	N/A	2 32 secs	1 34 secs	N/A	1 32 secs	1 37 secs
55/2	Site Access Right Turn Lane 3	1690	Queue Aver Delay	N/A	2 33 secs	2 35 secs	N/A	2 31 secs	2 37 secs
A5/ Birch Coppice									
31/1	A5 Eastbound Ahead Lane 1	1814	Queue Aver Delay	10 13 secs	5 14 secs	4 14 secs	13 12 secs	5 12 secs	4 13 secs
31/2	A5 Eastbound Ahead Lane 2	2082	Queue Aver Delay	11 11 secs	4 10 secs	3 9 secs	8 10 secs	3 9 secs	3 9 secs
32/1	A5 Eastbound Right Turn Lane 3	1960	Queue Aver Delay	4 1m 3s	5 59 secs	5 1m 1s	7 1m 25s	5 1m 5s	6 1m 18s
32/2	A5 Eastbound Right Turn Lane 4	1667	Queue Aver Delay	2 52 secs	2 43 secs	3 44 secs	3 51 secs	2 45 secs	2 44 secs
37/1	A5 Westbound Ahead Lane 1	1751	Queue Aver Delay	2 12 secs	2 13 secs	2 12 secs	2 11 secs	2 10 secs	2 11 secs
37/2 + 38/1	A5 Westbound Ahead Lane 2	2015	Queue Aver Delay	9 29 secs	9 32 secs	9 29 secs	10 39 secs	10 45 secs	10 43 secs
37/3 + 38/2	A5 Westbound Ahead Lane 3	2015	Queue Aver Delay	9 31 secs	9 32 secs	9 29 secs	11 40 secs	10 45 secs	10 44 secs
42/1	Birch Coppice Left Turn Lane 1	1695	Queue Aver Delay	8 27 secs	7 29 secs	8 30 secs	9 30 secs	8 33 secs	8 32 secs
42/2	Birch Coppice Left Turn Lane 2	1983	Queue Aver Delay	8 35 secs	7 34 secs	8 42 secs	9 33 secs	8 36 secs	8 37 secs
43/1 + 44/2	Birch Coppice Right Turn Lane 3	1690	Queue Aver Delay	19 1m 39s	16 1m 33s	16 1m 36s	15 1m 23s	15 1m 29s	16 1m 37s
A5/ Core 42									
46/1	A5 Eastbound Ahead Lane 1	1833	Queue Aver Delay	1 9 secs	1 9 secs	2 9 secs	3 9 secs	2 8 secs	1 8 secs
46/2	A5 Eastbound Ahead Lane 2	2082	Queue Aver Delay	1 5 secs	1 5 secs	1 5 secs	1 5 secs	1 4 secs	1 4 secs
47/1	A5 Eastbound Right Turn Lane 3	1667	Queue Aver Delay	1 21 secs	1 19 secs	1 22 secs	1 21 secs	1 22 secs	1 22 secs
49/1	A5 Westbound Ahead & Left Turn Lane 1	1957	Queue Aver Delay	21 52 secs	18 49 secs	12 26 secs	21 46 secs	20 52 secs	22 57 secs
49/2	A5 Westbound Ahead Lane 2	1909	Queue Aver Delay	21 43 secs	17 45 secs	12 26 secs	24 53 secs	22 1m 3s	24 58 secs
51/1	Core 42 Left Turn Lane 1	1695	Queue Aver Delay	3 17 secs	3 17 secs	4 20 secs	3 20 secs	4 25 secs	3 23 secs
52/1	Core 42 Right Turn Lane 2	1690	Queue Aver Delay	3 1m 22s	3 1m 22s	3 1m 19s	3 1m 20s	3 1m 22s	3 1m 22s
			Network PI	5805.88	7376.85	6651.73	6456.33	8194.02	7585.32

= new traffic streams as a result of the proposed development site access junction
= new traffic streams as a result of proposed off-site mitigation improvements

Table 5.1: M42/ Junction 10 + A5/ Birch Coppice + A5/ Core 42, 2031 Local Plan

M42 Junction 10				2031			
Traffic Stream(s)	Lane	Saturation Flow pcu/hr	Model Output	AM Peak No Dev	AM Peak With Dev	PM Peak No Dev	PM Peak With Dev
1/1	M42 Northbound Offslip Lane 1	1740	Queue Aver Delay	3 24 secs	3 24 secs	4 23 secs	4 23 secs
1/2	M42 Northbound Offslip Lane 2	1740	Queue Aver Delay	2 23 secs	2 23 secs	3 22 secs	3 22 secs
1/3	M42 Northbound Offslip Lane 3	1740	Queue Aver Delay	3 23 secs	1 21 secs	3 22 secs	2 21 secs
3/1	M42 Northbound Offslip Lane 4	1849	Queue Aver Delay	6 28 secs	13 52 secs	8 27 secs	10 33 secs
3/2	M42 Northbound Offslip Lane 5	1849	Queue Aver Delay	10 36 secs	12 40 secs	10 32 secs	10 32 sec
7/1	M42 Northbound Circulating Lane 1	2039	Queue Aver Delay	3 5 secs	3 6 secs	7 8 secs	8 7 secs
7/2	M42 Northbound Circulating Lane 2	1840	Queue Aver Delay	6 4 secs	6 4 secs	22 20 secs	15 18 secs
7/3	M42 Northbound Circulating Lane 3	1840	Queue Aver Delay	6 7 secs	9 7 secs	15 16 secs	21 18 secs
7/4	M42 Northbound Circulating Lane 4	1840	Queue Aver Delay	3 4 secs	3 7 secs	4 17 secs	5 21 secs
8/1 + 9/1 + 11/1	A5 Eastbound Lane 1	1828	Queue Aver Delay	3 10 secs	3 11 secs	3 15 secs	3 16 secs
8/2 + 9/2 + 11/2 + 63/1	A5 Eastbound Lane 2	1900	Queue Aver Delay	14 32 secs	33 1m 37s	34 2m 34s	46 3m 11s
8/3 + 9/2 + 11/2 (9/3 +11/3) + 63/2	A5 Eastbound Lane 3	1900	Queue Aver Delay	11 27 secs	24 1m 4s	41 2m 27s	66 3m 59s
8/4	A5 Eastbound Lane 4	1900	Queue Aver Delay	5 16 secs	5 21 secs	6 29 secs	6 30 secs
12/1	A5 Eastbound Circulating Lane 1	1846	Queue Aver Delay	10 35 secs	10 31 secs	4 20 secs	5 22 secs
12/2	A5 Eastbound Circulating Lane 2	1878	Queue Aver Delay	2 9 secs	2 12 secs	1 3 secs	2 4 secs
12/3	A5 Eastbound Circulating Lane 3	1878	Queue Aver Delay	6 32 secs	6 31 secs	8 36 secs	9 37 secs
12/4	A5 Eastbound Circulating Lane 4	1878	Queue Aver Delay	12 43 secs	12 47 secs	11 40 secs	12 46 secs
14/1	Green Lane Lane 1	1602	Queue Aver Delay	12 2m 35s	15 3m 3s	7 47 secs	6 53 secs
14/2	Green Lane Lane 2	1602	Queue Aver Delay	18 3m 54s	18 4m 5s	19 2m 47s	26 4m 6s
15/1	Green Lane Circulating Lane 1	1950	Queue Aver Delay	3 6 secs	3 6 secs	4 10 secs	3 9 secs
15/2	Green Lane Circulating Lane 2	1745	Queue Aver Delay	7 8 secs	11 9 secs	16 15 secs	19 16 secs
15/3	Green Lane Circulating Lane 3	1745	Queue Aver Delay	16 10 secs	18 11 secs	18 16 secs	19 17 secs
15/4	Green Lane Circulating Lane 4	1745	Queue Aver Delay	1 3 secs	2 4 secs	2 5 secs	2 5 secs
13/1	Exit to Green Lane Toucan Crossing	2272	Queue Aver Delay	N/A	1 2 secs	N/A	1 2 secs
18/1	M42 Southbound Offslip Lane 1	1804	Queue Aver Delay	2 43 secs	4 41 secs	1 47 secs	3 28 secs
18/2	M42 Southbound Offslip Lane 2	1813	Queue Aver Delay	2 32 secs	6 57 secs	3 34 secs	5 50 secs
18/3	M42 Southbound Offslip Lane 3	1813	Queue Aver Delay	3 35 secs	4 35 secs	2 25 secs	2 26 secs
17/1	M42 Southbound Circulating Lane 1	1956	Queue Aver Delay	9 3 secs	10 3 secs	11 7 secs	9 6 secs
17/2	M42 Southbound Circulating Lane 2	1956	Queue Aver Delay	12 3 secs	12 3 secs	10 6 secs	11 6 secs
17/3	M42 Southbound Circulating Lane 3	1800	Queue Aver Delay	3 5 secs	4 7 secs	7 14 secs	8 13 secs
17/4	M42 Southbound Circulating Lane 4	1800	Queue Aver Delay	2 7 secs	2 7 secs	3 10 secs	2 9 secs
16/1	Exit to M42 Northbound Toucan Crossing	2200	Queue Aver Delay	N/A	1 2 secs	N/A	1 2 secs
23/1	A5 Westbound Lane 1	1930	Queue Aver Delay	6 13 secs	8 14 secs	2 4 secs	5 9 secs
23/2 + 24/1 + 25/1	A5 Westbound Lane 2	1851	Queue Aver Delay	13 36 secs	12 28 secs	3 9 secs	8 15 secs
23/3 + 24/2 + 25/2	A5 Westbound Lane 3	1851	Queue Aver Delay	9 10 secs	9 12 secs	4 6 secs	4 8 secs

23/4 + 24/3 + 25/3	A5 Westbound Lane 4	1851	Queue Aver Delay	7 9 secs	9 12 secs	3 4 secs	12 20 secs
22/1	A5 Westbound Circulating Lane 1	1797	Queue Aver Delay	14 59 secs	16 1m 5s	13 1m 30s	15 1m 40s
22/2	A5 Westbound Circulating Lane 2	1797	Queue Aver Delay	6 29 secs	5 28 secs	13 1m 22s	6 50 secs
22/3	A5 Westbound Circulating Lane 3	1902	Queue Aver Delay	1 2 secs	1 2 secs	2 15 secs	3 12 secs
22/4	A5 Westbound Circulating Lane 4	1902	Queue Aver Delay	1 1 sec	1 1 sec	3 14 secs	3 11 secs
28/1 + 29/1	Trinity Road Lane 1	1669	Queue Aver Delay	1 30 secs	2 31 secs	3 29 secs	3 28 secs
28/2	Trinity Road Lane 2	1669	Queue Aver Delay	1 30 secs	1 30 secs	1 28 secs	2 28 secs
28/3	Trinity Road Lane 3	1669	Queue Aver Delay	4 39 secs	3 39 secs	5 34 secs	4 33 secs
27/1	Trinity Road Circulating Lane 1	1846	Queue Aver Delay	6 8 secs	9 7 secs	4 6 secs	4 7 secs
27/2	Trinity Road Circulating Lane 2	1846	Queue Aver Delay	15 10 secs	15 9 secs	14 13 secs	13 12 secs
27/3	Trinity Road Circulating Lane 3	1878	Queue Aver Delay	5 2 secs	6 3 secs	7 9 secs	5 7 secs
27/4	Trinity Road Circulating Lane 4	1878	Queue Aver Delay	6 5 secs	9 4 secs	6 7 secs	9 10 secs
A5/ Proposed Site Access							
56/1	A5 Eastbound Lane 1	1751	Queue Aver Delay	N/A	20 26 secs	N/A	15 24 secs
56/2 + 21/1	A5 Eastbound Lane 2	1814	Queue Aver Delay	N/A	23 24 secs	N/A	13 15 secs
53/3 + 21/2	A5 Eastbound Lane 3	2082	Queue Aver Delay	N/A	6 9 secs	N/A	5 9 secs
59/2 + 62/1 + 61/1 + 39/1	A5 Westbound Lane 1	2015	Queue Aver Delay	N/A	10 15 secs	N/A	13 18 secs
59/3 + 62/2 + 61/2 + 39/2	A5 Westbound Lane 2	2015	Queue Aver Delay	N/A	11 16 secs	N/A	11 19 secs
60/1	A5 Westbound Right Turn Lane 3	1667	Queue Aver Delay	N/A	1 1m 2s	N/A	1 1 min
54/1	Site Access Left Turn Lane 1	1695	Queue Aver Delay	N/A	1 23 secs	N/A	1 23 secs
55/1	Site Access Right Turn Lane 2	1690	Queue Aver Delay	N/A	1 27 secs	N/A	2 28 secs
55/2	Site Access Right Turn Lane 3	1690	Queue Aver Delay	N/A	1 29 secs	N/A	11 28 secs
A5/ Birch Coppice							
31/1	A5 Eastbound Ahead Lane 1	1814	Queue Aver Delay	7 7 secs	4 10 secs	19 20 secs	6 13 secs
31/2	A5 Eastbound Ahead Lane 2	2082	Queue Aver Delay	9 5 secs	4 7 secs	22 20 secs	10 12 secs
32/1	A5 Eastbound Right Turn Lane 3	1960	Queue Aver Delay	6 1m 8s	7 56 secs	3 53 secs	3 40 secs
32/2	A5 Eastbound Right Turn Lane 4	1667	Queue Aver Delay	5 1m 3s	5 55 secs	2 50 secs	2 37 secs
37/1	A5 Westbound Ahead Lane 1	1751	Queue Aver Delay	2 9 secs	2 9 secs	1 5 secs	2 6 secs
37/2 + 38/1 + 53/1	A5 Westbound Ahead Lane 2	2015	Queue Aver Delay	10 24 secs	9 27 secs	17 1m 6s	18 1m 10s
37/3 + 38/2 + 53/2	A5 Westbound Ahead Lane 3	2015	Queue Aver Delay	10 28 secs	10 28 secs	18 1m 11s	18 1m 16s
42/1	Birch Coppice Left Turn Lane 1	1695	Queue Aver Delay	3 31 secs	3 31 secs	4 27 secs	4 27 secs
42/2	Birch Coppice Left Turn Lane 2	1983	Queue Aver Delay	2 29 secs	2 39 secs	4 30 secs	4 33 secs
43/1 + 44/2	Birch Coppice Right Turn Lane 3	1690	Queue Aver Delay	3 44 secs	3 46 secs	11 1m 34s	14 1m 28s
A5/ Core 42							
46/1 + 45/1	A5 Eastbound Ahead Lane 1	1833	Queue Aver Delay	2 8 secs	1 7 secs	5 6 secs	5 5 secs
46/2 + 45/2	A5 Eastbound Ahead Lane 2	2082	Queue Aver Delay	2 3 secs	2 3 secs	7 7 secs	5 6 secs
47/1	A5 Eastbound Right Turn Lane 3	1667	Queue Aver Delay	14 1m 52s	9 1m 31s	1 23 secs	1 22 secs
49/1	A5 Westbound Ahead & Left Turn Lane 1	1957	Queue Aver Delay	73 2m 38s	87 3m 7s	37 1m 31s	44 1m 51s
49/2	A5 Westbound Ahead Lane 2	1909	Queue Aver Delay	85 3m 8s	92 3m 31s	39 1m 47s	46 2m 5s
51/1	Core 42 Left Turn Lane 1	1695	Queue Aver Delay	2 26 secs	2 26 secs	3 28 secs	3 26 secs
52/1	Core 42 Right Turn Lane 2	1690	Queue Aver Delay	3 3m 20s	4 3m 33s	3 1m 40s	4 1m 45s
			Network PI	6888.43	8738.53	7152.69	8965.65

= new traffic streams as a result of the proposed development site access junction
= new traffic streams as a result of proposed off-site mitigation works
= new traffic streams as a result of potential Local Plan Improvements (Phil Jones Associates Drawing 02853-01 Rev A)

APPENDIX D SOUTH PENNINE WAY MODELLING REPORT

Client: Hodgetts Estates   Date: 23 November 2022

1 INTRODUCTION

1.1 Tetra Tech (TT) have been appointed by Hodgetts Estates to provide technical support for their outline planning application for a proposed development of up to 100,000sqm of employment floorspace and 150 space overnight lorry park (including an associated 400sqm amenity block) on land north-east of M42 Junction 10. The application is also supported by a Transport Assessment (TA) prepared by Bancroft Consulting, Version C dated November 2021, which is currently being updated by TT.

1.2 This Pennine Way Roundabout Modelling Note follows discussions with highway officers at Staffordshire County Council (SCC). A meeting was held between TT and SCC on 9th September 2022 and the following actions were agreed;

1. Arrange traffic survey for the two Pennine Way roundabout junctions, as shown below at image 1.1.

Image 1.1 – Pennine Way Roundabout Junctions

2. Prepare an assignment for the Development Generated trips into Tamworth, west of the M42 Junction 10 Interchange.

3. Assess the impact at the Pennine Way North and South roundabouts. SCC requested that the model files are submitted that these are in Junctions 9 format.

1.3 This Note follows the order listed above and additional information has been provided where necessary to clearly set out the modelling approach undertaken.

2 TRAFFIC SURVEYS

2.1 The two Pennine Way roundabouts were surveyed on Wednesday 5th October 2022. The traffic flows were converted into Passenger Car Units (PCU) and the peak hour traffic flows derived. The AM peak hour was 07:45 to 08:45 and the PM peak hour was 16:00 to 17:00. The data can be provided as an excel file on request. TT Figure A shows the 2022 AM Peak surveyed flows and TT Figure B shows the PM peak equivalent, both attached in Appendix A.

2.2 At the same time of the traffic counts, queue observations per lane were recorded at minute intervals. The reported queues are attached at Appendix B. Junctions 9 reports the average queue in the busiest 15-minute period, therefore the longest queue observed during a 15-minute period within the peak hours has been determined. The longest average 15-minute queue has been highlighted yellow in Appendix B and the combined queues on each approach have been added together and are highlighted in cyan. Table 2.1 below summarises the average queue during the busiest 15-minute period in each peak hour.

Table 2.1: Pennine Way Roundabout – Observed Queues (Busiest 15 minute period)

	Northern Roundabout	
	AM Peak	PM Peak
B05080 Pennine Way Northbound	0	0
B05080 Pennine Way Southbound	0	0
A5 Bypass On/ Off slip	0	0
	Southern Roundabout	
	AM Peak	**PM Peak**
B5404 Quarry Hill	0	1
B05080 Pennine Way Southbound	0	0
A5 Bypass On/ Off slip	1	0
Centurion Way	0	1

2.3 The queueing results shows that the two roundabouts perform well with minimal queuing.

3 Development Generated Traffic Flows & Assignment

3.1 The assignment of development generated trips has been set out in an email to SCC on 14th October 2022 and agreed by SCC on 16th November (both attached at Appendix C), and for ease of reference is summarised below.

3.2 The Census 2011 Journey to Work Data has been analysed using the North Warwickshire MSOA 002 as the place of work (the area the proposed development sits within). As this element of work is only focused on the SCC network, only destinations that would be routed by the A5 Wilnecote Bypass have been retained, all other destinations have been removed from the sample set. Table 1 attached at Appendix C shows the Census 2011 journey routing assumptions, allocated to 6 routes, A to F through the Pennine Way roundabouts, the A5/ B5440 Marlborough Way interchange and the A5/ Bitterscote Drive interchange. TT Figure C shows the routing assumptions (A to F) diagrammatically and TT Figure D shows the resultant traffic assignment percentages, both attached in Appendix A.

3.3 Following previous discussions with SCC, it was demonstrated and agreed with SCC to use the Atherstone A5 PARAMICS modelled flows immediately west of the M42 Junction 10 interchange (Note, the A5 PARAMICS model was developed by Vectos on behalf of

Warwickshire CC for the North Warwickshire BC Local Plan and was agreed by National Highways and Staffordshire CC). SCC confirmed that the volume of development generated traffic immediately west of the Junction 10 interchange is 102pcu eastbound in the AM peak and 74pcu westbound. In the PM peak the eastbound flow is 72pcu and the westbound flow is 68pcu. These agreed flows have then been assigned through the SCC network based on the assignment as shown at TT Figure D. TT Figure E attached in Appendix A shows the development generated traffic flows in the AM Peak hour and TT Figure F shows the PM Peak equivalent.

<u>2031 Reference Case Flows</u>

3.4 The 2031 Reference Case flows have been supplied by Vectos from the WCC Atherstone A5 PARAMICS model. Vectos have confirmed that only the northern roundabout was calibrated and validated in their model, therefore only the northern roundabout flows have been used. TT Figure G attached in Appendix A shows the 2031 AM Peak Reference Case No Development flows and Figure H shows the PM peak equivalent.

3.5 To determine the southern roundabout turning flows (to/ from the northern roundabout) the northbound/ southbound flows on the overbridge have been applied to the surveyed turning proportions at the southern roundabout, refer to TT Figure G for the 2031 AM Peak, yellow and cyan cells.

3.6 No traffic growth has been applied to traffic to/ from Centurion Way as this development is fully built out and occupied.

3.7 One option for calculating the final east to west, west to east flows (green cells) at the southern roundabout flows is to apply a TEMPRO growth factor to the surveyed data. The TEMPRO growth factor for 2022 to 2031 using the Tamworth MSOA 008 area is 5.13% in the AM peak.

3.8 The alternative option is to determine the growth from using the surveyed flows at the northern roundabout and 2031 No Development flows from the PARAMICS model, which also takes into account traffic associated with committed developments in the Reference Case. The growth factor using this method is 16%, calculations shown at TT Figure G. Therefore, to be robust the 16% growth factor has been applied to the traffic flows.

3.9 To calculate the 2031 Reference Case With Development flows the AM Peak development generated flows have been added to the 2031 Reference No Development flows. TT Figure I shows the 2031 Reference Case With Development flows and Figure J shows the PM peak equivalent, both attached at Appendix A.

2031 Local Plan Flows

3.10 The 2031 Local Plan Flows have been derived in the same method as the 2031 Reference Case flows. TT Figure K shows the 2031 Local Plan AM Peak No Development flows and Figure L shows the PM peak equivalent, both attached in Appendix A. TT Figure M shows the 2031 Local Plan AM Peak With Development flows and Figure N shows the PM peak equivalent.

4 IMPACT ASSESSMENT

Model Validation

4.1 The two Pennine Way roundabouts have been modelled in TRL's Junctions 9 software program. The junction parameters were taken from OS Mapping and video footage from the survey data was used to establish which lanes drivers used for their choice of exit. The lane simulation mode was then set up in the model to recreate the observed driver behaviour and to accurately model the effects of unequal lane usage and also model any blocking back which would affect the performance of either junction. One noticeable observation was that drivers from the A5 eastbound off-slip (approach to the northern roundabout) predominantly use the nearside lane to travel ahead to Pennine Way. The offside lane is therefore used very infrequently for drivers heading north to Pennine Way, as such the lane is effectively redundant. In the model the offside lane has been allocated to enable 10% of drivers "consider" using the lane for journeys north to Pennine Way. This means that 10% of traffic wanting to travel to Pennine Way will only actually use that lane if the queue is shorter than the nearside lane.

4.2 Table 4.1 below shows the 2022 modelled results and the observed queues are reported alongside for validation purposes. Junction output files are attached at Appendix D. A positive intercept pcu/hr correction has been applied to the Pennine Way northbound approach to the northern roundabout to calibrate the modelled queues to those observed. No corrections were applied to the other approaches.

Table 4.1: Pennine Way Roundabout – 2022 Modelled v Observed Queues

		Northern Roundabout			
		AM Peak		PM Peak	
		Modelled Results	Observed Queue	Modelled Results	Observed Queue
B05080 Pennine Way Northbound	Queue Delay	1 4 secs	0	2 5 secs	0
B05080 Pennine Way Southbound	Queue Delay	3 9 secs	0	1 6 secs	0
A5 Bypass On/ Off slip	Queue Delay	3 9 secs	0	1 5 secs	0
		Southern Roundabout			
		AM Peak		PM Peak	
B5404 Quarry Hill	Queue Delay	1 8 secs	0	2 9 secs	1
B05080 Pennine Way Southbound	Queue Delay	1 6 secs	0	1 5 secs	0
A5 Bypass On/ Off slip	Queue Delay	2 8 secs	1	2 9 secs	0
Centurion Way	Queue Delay	0 6 secs	0	1 7 secs	1

4.3 The results show that in both the AM and PM peaks the junctions work well with minimal queues and delays in both peak hour periods. The modelled queues are generally 1 to 2 vehicles longer than those observed, therefore the model is considered to be validated and provides a good base for future projections.

2031 Reference Case

4.4 The validated model has been used to assess the performance of the two roundabouts in the 2031 Reference Case year, both with and without the proposed development traffic flows as discussed in Chapter 3. Table 4.2 below summarises the predicted results. Junction output files are attached at Appendix D.

Table 4.2: Pennine Way Roundabout – 2031 Reference Case

		Northern Roundabout			
		AM Peak		PM Peak	
		No Dev	With Dev	No Dev	With Dev
B05080 Pennine Way Northbound	Queue Delay	1 4 secs	2 4 secs	6 13 secs	6 14 secs
B05080 Pennine Way Southbound	Queue Delay	7 23 secs	10 32 secs	2 9 secs	2 9 secs
A5 Bypass On/ Off slip	Queue Delay	0 4 secs	0 4 secs	0 4 secs	1 4 secs
		Southern Roundabout			
		AM Peak		PM Peak	
B5404 Quarry Hill	Queue Delay	4 17 secs	5 20 secs	12 52 secs	14 1m 3s
B05080 Pennine Way Southbound	Queue Delay	1 5 secs	1 5 secs	1 5 secs	1 5 secs
A5 Bypass On/ Off slip	Queue Delay	2 9 secs	2 9 secs	8 24 secs	9 28 secs
Centurion Way	Queue Delay	0 6 secs	0 6 secs	1 8 secs	1 8 secs

4.5 In the No Development AM peak scenario the junction is predicted to operate with low levels of queues and delays; a maximum queue of 7pcu and average delay of 23 secs on the Pennine Way southbound approach to the northern roundabout is predicted. With the development generated traffic, the queue is predicted to increase by 3 pcu to 10pcu and delay increase by 9 secs to 32 seconds. The impact of the development traffic on the Pennine Way southbound approach is small and is negligible on all other approaches.

4.6 In the No Development PM peak scenario, the two roundabouts are predicted to operate low levels of queues and delays. The longest queues and delays occur on the Quarry Hill approach to the southern roundabout and a maximum queue of 12pcu and average delay of 52 secs on the Quarry Hill approach to the southern roundabout. With the addition of development generated traffic, the Quarry Hill queue is predicted to increase by 2 vehicles to 14pcu and delay increase by 11 secs to 63 seconds. The impact of the development traffic on the Quarry Hill approach is low and is negligible on all other approaches.

4.7 The residual cumulative impact of the proposed development in the AM and PM peaks on the two roundabouts in the 2031 Reference Case are not considered severe with reference to NPPF para 111 and mitigation is therefore not required.

2031 Local Plan

4.8 The validated model has been used to assess the performance of the two roundabouts in the 2031 Local Plan scenario, both with and without the proposed development traffic flows as discussed in Chapter 3. Table 4.3 below summarises the predicted results. Junction output files are attached at Appendix D.

Table 4.3: Pennine Way Roundabout – 2031 Local Plan

		Northern Roundabout			
		AM Peak		PM Peak	
		No Dev	With Dev	No Dev	With Dev
B05080 Pennine Way Northbound	Queue Delay	1 4 secs	2 4 secs	6 13 secs	6 11 secs
B05080 Pennine Way Southbound	Queue Delay	10 29 secs	14 42 secs	3 10 secs	3 11 secs
A5 Bypass On/ Off slip	Queue Delay	0 4 secs	0 4 secs	0 4 secs	0 4 secs
		Southern Roundabout			
		AM Peak		**PM Peak**	
B5404 Quarry Hill	Queue Delay	4 16 secs	5 19 secs	10 51 secs	14 1 min
B05080 Pennine Way Southbound	Queue Delay	1 5 secs	1 5 secs	1 5 secs	1 5 secs
A5 Bypass On/ Off slip	Queue Delay	2 9 secs	2 9 secs	8 25 secs	8 23 secs
Centurion Way	Queue Delay	0 6 secs	0 6 secs	1 8 secs	1 8 secs

4.9 In the No Development AM peak scenario the junction is predicted to operate with low levels of queues and delays; a maximum queue of 10pcu and average delay of 29 secs on the Pennine Way southbound approach to the northern roundabout is predicted. With the development generated traffic, the queue is predicted to increase by 4 pcu to 14pcu and delay increase by 13 secs to 42 seconds. The impact of the development traffic on the Pennine Way southbound approach is small and is negligible on all other approaches.

4.10 In the No Development PM peak scenario, the two roundabouts are predicted to operate low levels of queues and delays. The longest queues and delays occur on the Quarry Hill approach to the southern roundabout and a maximum queue of 10pcu and average delay of 51 secs on the Quarry Hill approach to the southern roundabout. With the addition of development generated traffic, the Quarry Hill queue is predicted to increase by 4 vehicles to 14pcu and delay increase by 9 secs to 1 minute. The impact of the development traffic the Quarry Hill approach is low and is negligible on all other approaches.

4.11 The residual cumulative impact of the proposed development in the AM and PM peaks on the two roundabouts in the 2031 Local Plan case are not considered severe with reference to NPPF para 111 and mitigation is therefore not required.

5 SUMMARY

5.1 An assessment of the impact of the proposed development generated traffic has been carried out at the two Pennine Way roundabout junctions as requested by SCC.

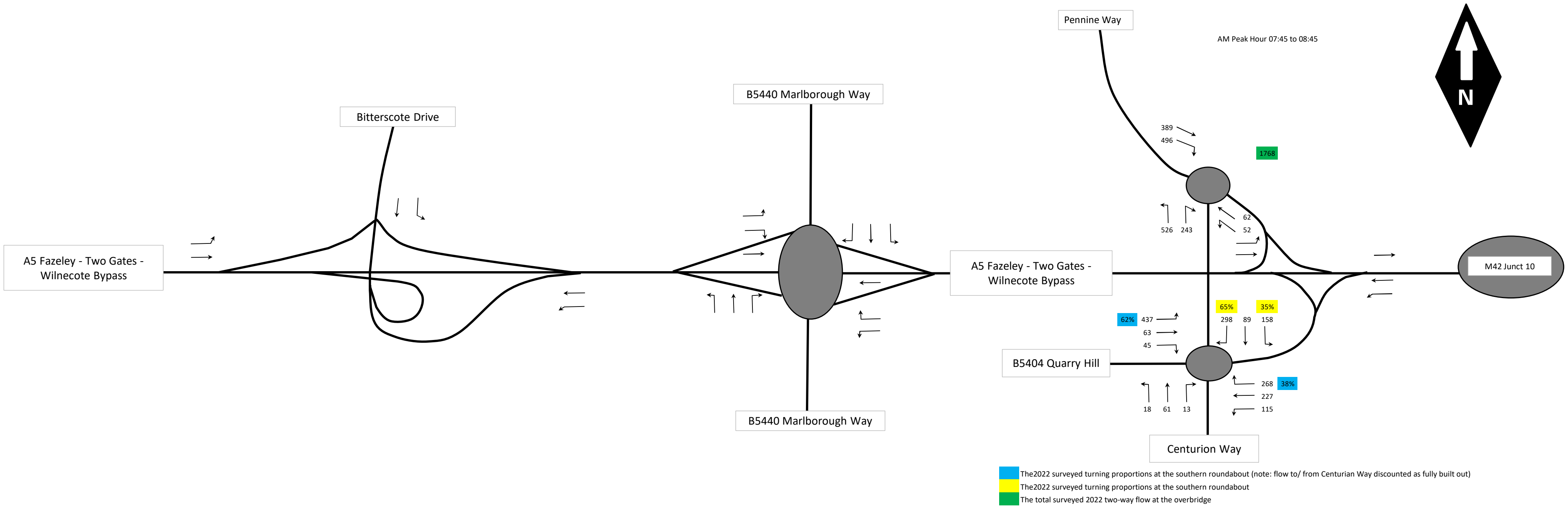
5.2 Traffic surveys were undertaken in October 2022 and queue observations demonstrated the junctions operate well with minimal queueing and delays. A validated Junctions 9 model was developed with marginally higher queues than those observed and is considered a sound base for future projections.

5.3 Future year (2031) traffic flows for the northern roundabout were provided by VECTOS from the WCC Atherstone A5 PARAMICS model (prepared for Warwickshire County Council for the North Warwickshire BC Local Plan, approved by National Highways and SCC) and growth was applied to the surveyed traffic flows at the southern roundabout

5.4 Development generated traffic has been assigned to the A5 and M42 Jn10 using, as agreed with NH and WCC, the Atherstone A5 PARAMICS model. As requested by SCC, the generated traffic west of M42 Jn10 has been separately assigned using Census 2011 data. This assignment has been agreed with SCC.

5.5 The assessment has shown that the impact of the development generated traffic on the operation of the 2031 Reference and 2031 Local Plan cases is small on the Pennine Way southbound approach to the north roundabout in the AM peak, is small on the Quarry Hill approach to the south roundabout in the PM and is negligible on all other approaches. With reference to NPPF para 111, the cumulative residual impact is not severe, and no mitigation is required.

APPENDIX A - FIGURES



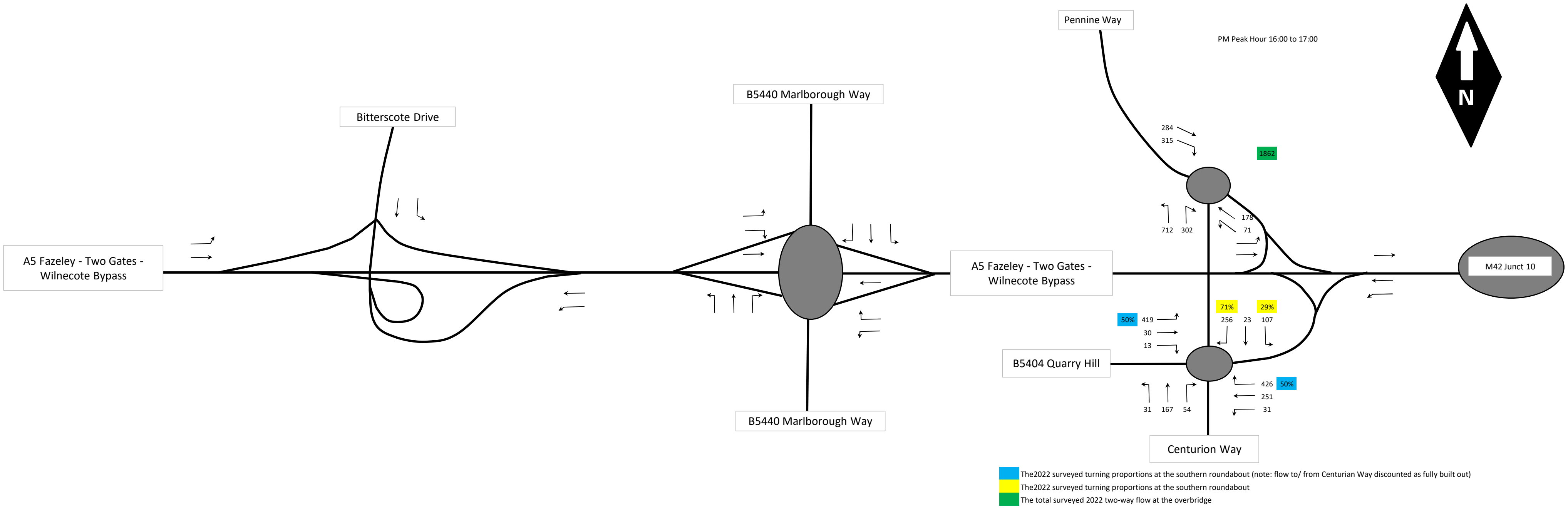
TT FIGURE A

2022 AM Peak Surveyed Flows

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH



TETRA TECH

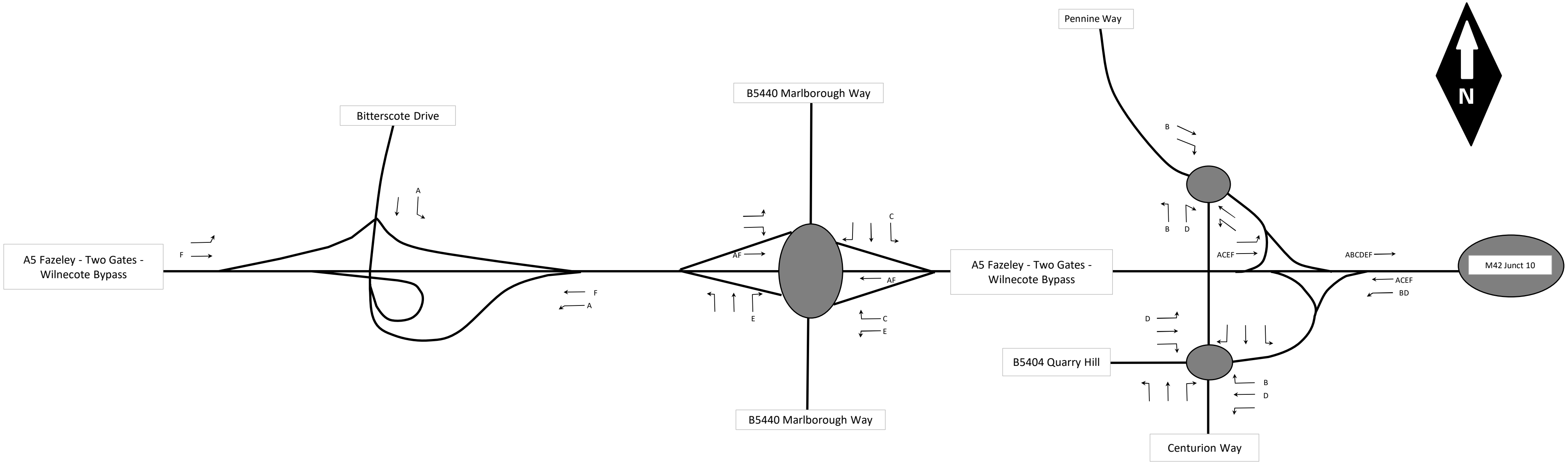
TT FIGURE B

2022 PM Peak Surveyed Flows

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH



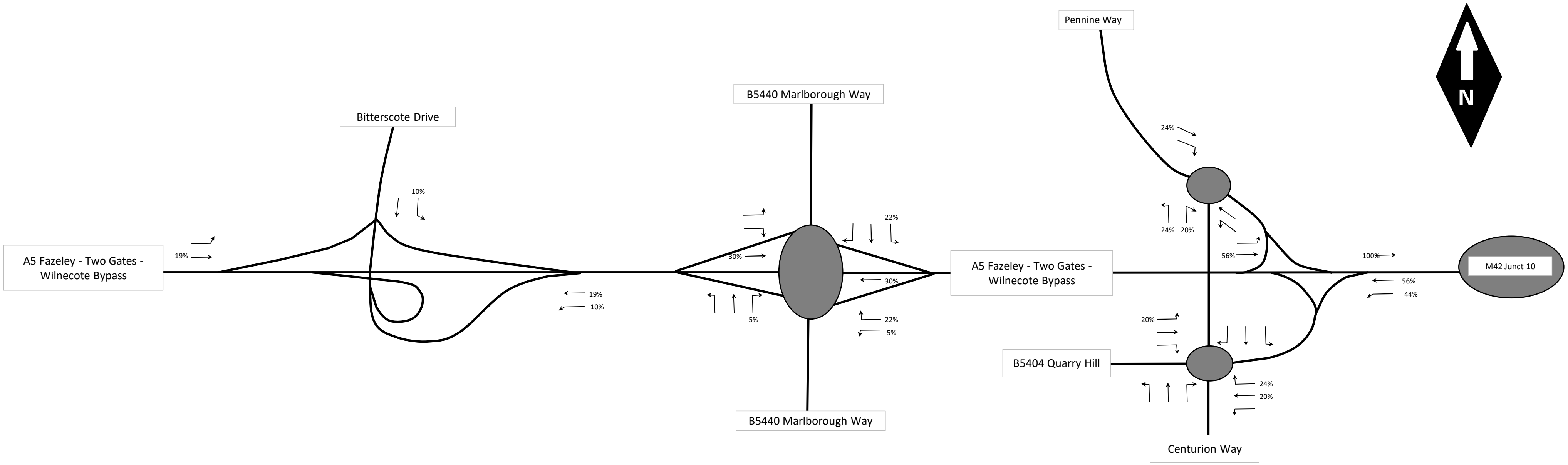
TT FIGURE C

Traffic Assignment Routing

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH



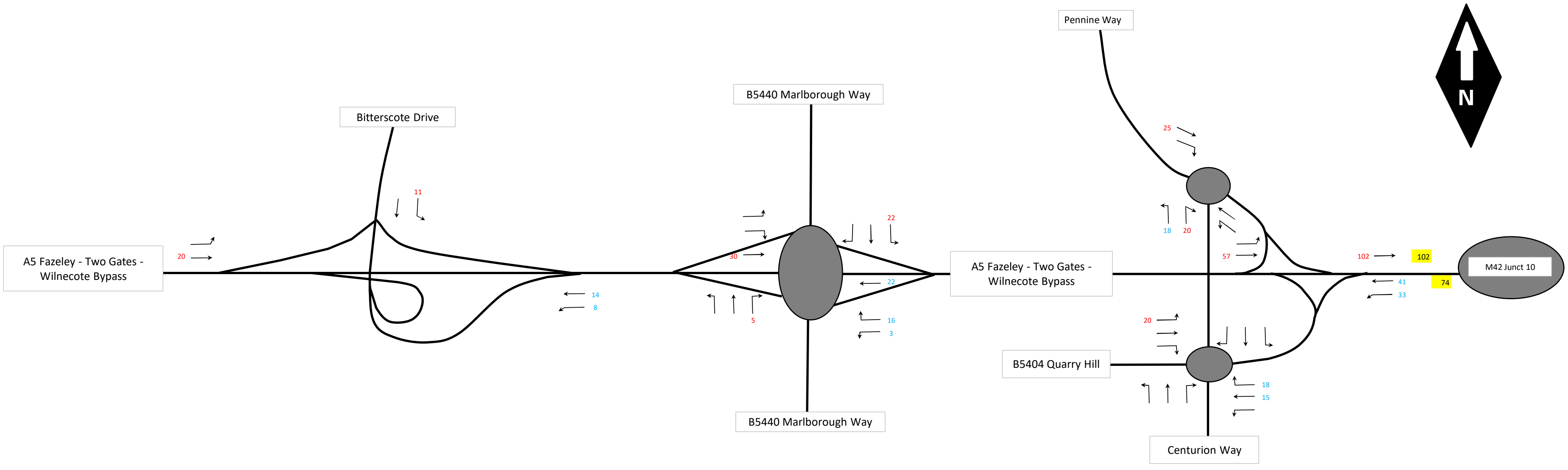
TT FIGURE D

Traffic Assignment %

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH



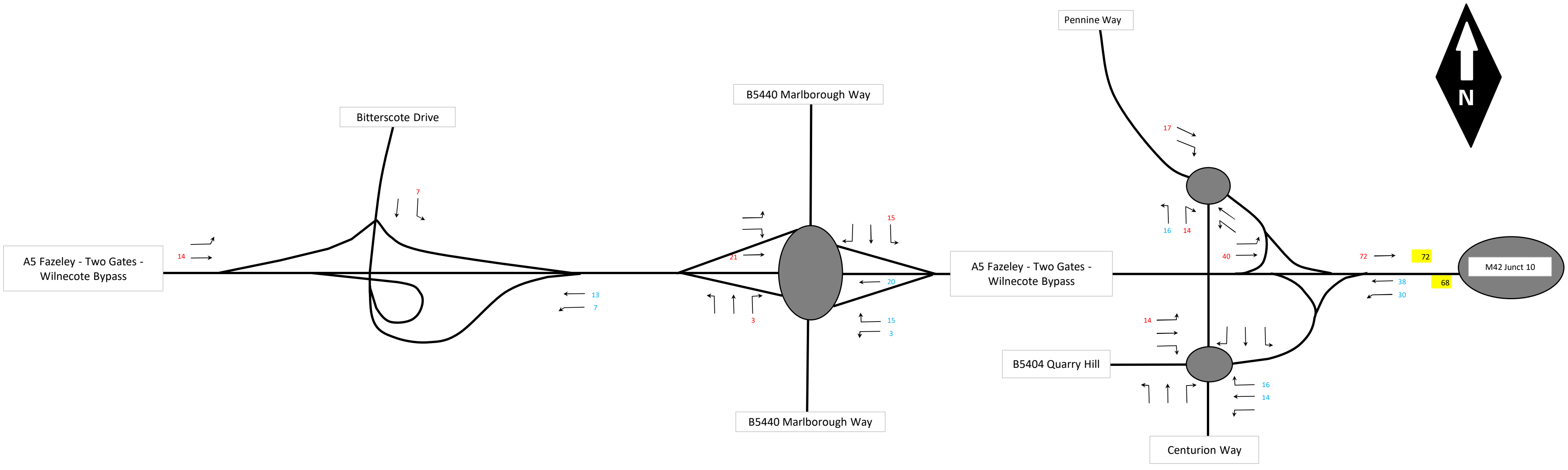
TT FIGURE E

AM Development Generated Traffic Flows

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH



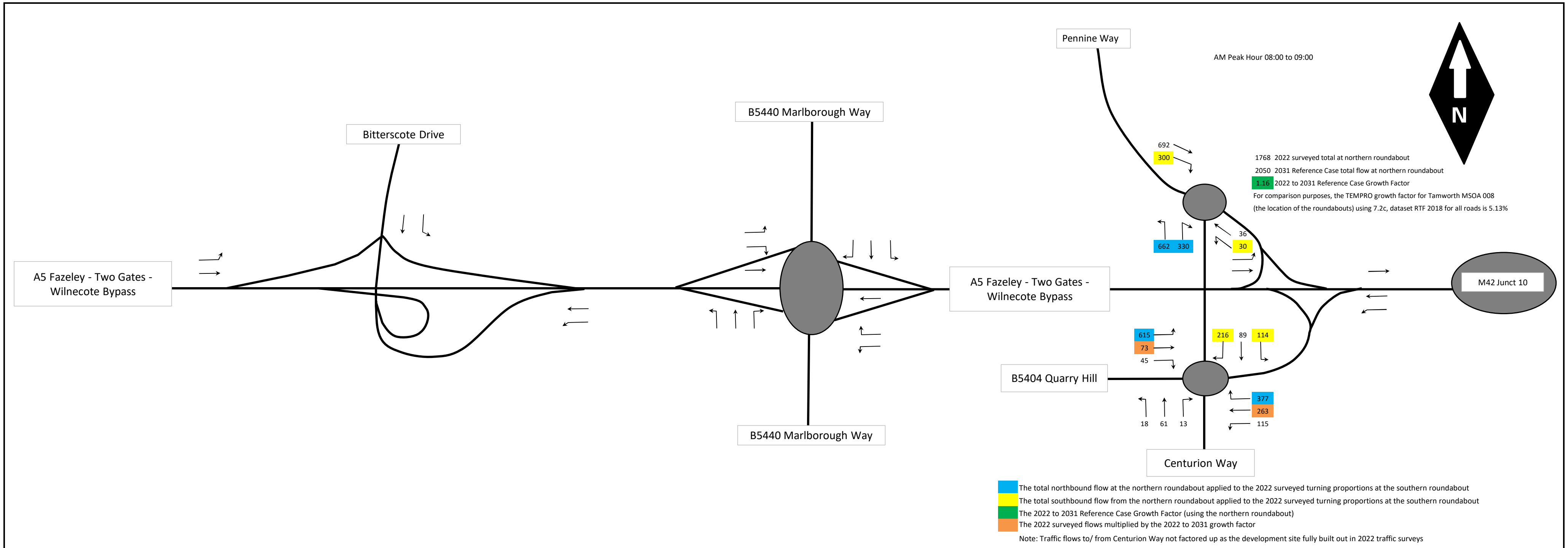
TT FIGURE F

PM Development Generated Traffic Flows

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH



TETRA TECH

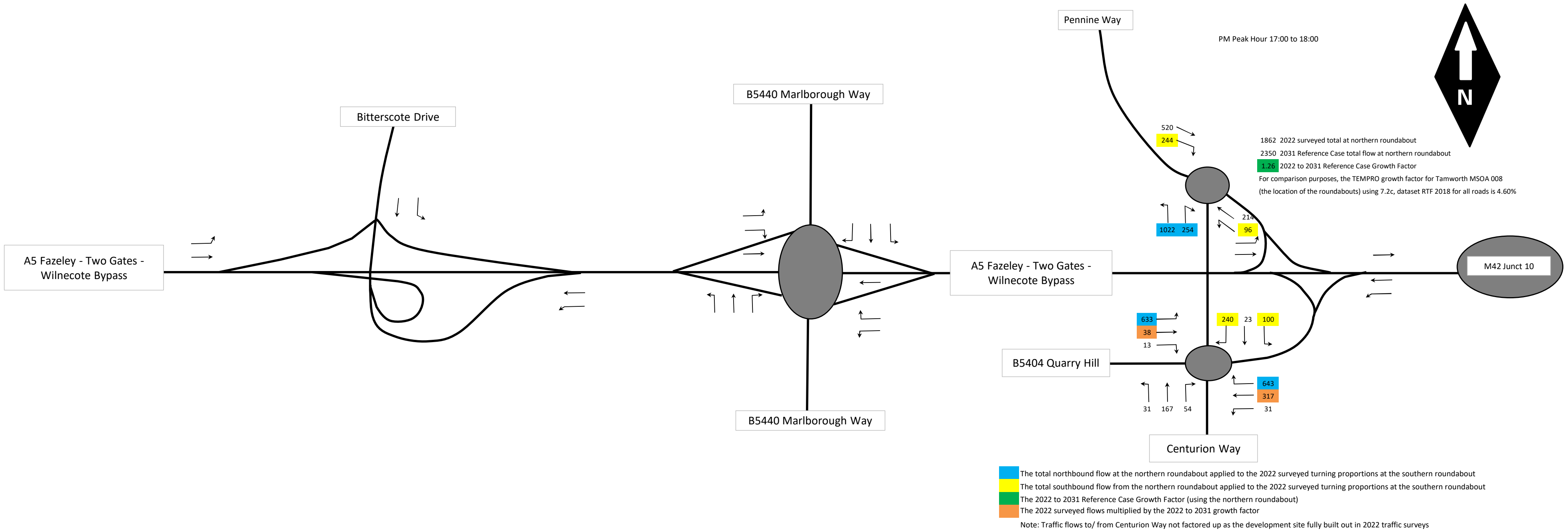
TT FIGURE G

2031 Reference Case No Development AM Peak

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH



TETRA TECH

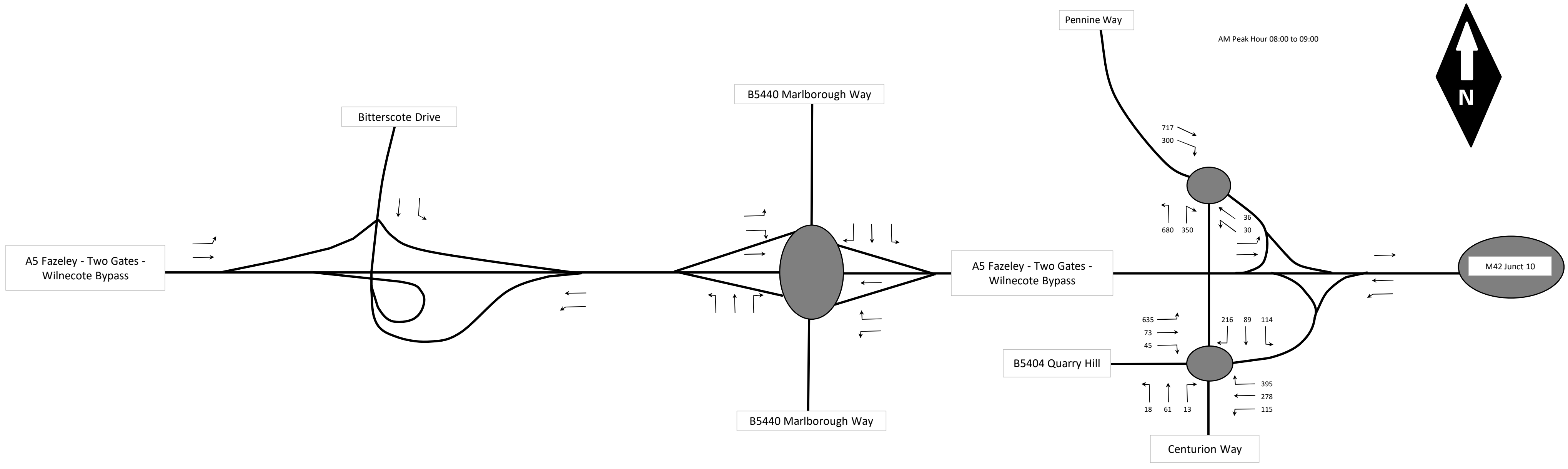
TT FIGURE H

2031 Reference Case No Development PM Peak

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH



TETRA TECH

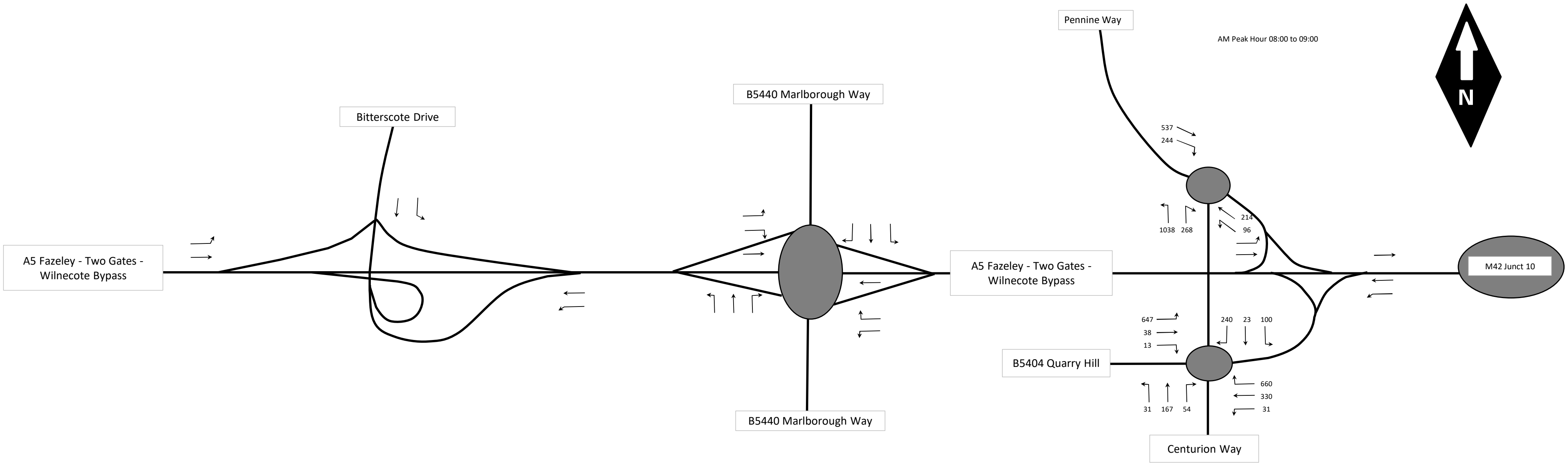
TT FIGURE I

2031 Reference Case With Development AM Peak

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH



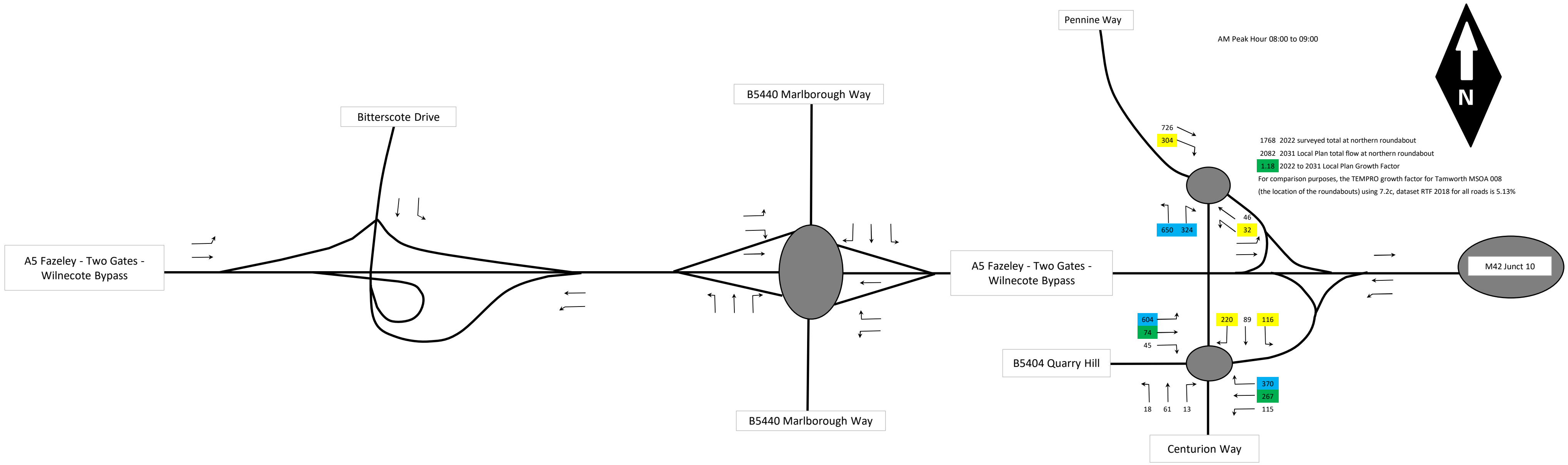
TT FIGURE J

2031 Reference Case With Development PM Peak

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH



The total northbound flow at the northern roundabout applied to the 2022 surveyed turning proportions at the southern roundabout
The total southbound flow from the northern roundabout applied to the 2022 surveyed turning proportions at the southern roundabout
The 2022 to 2031 Reference Case Growth Factor (using the northern roundabout)
The 2022 surveyed flows multiplied by the 2022 to 2031 growth factor
Note: Traffic flows to/ from Centurion Way not factored up as the development site fully built out in 2022 traffic surveys

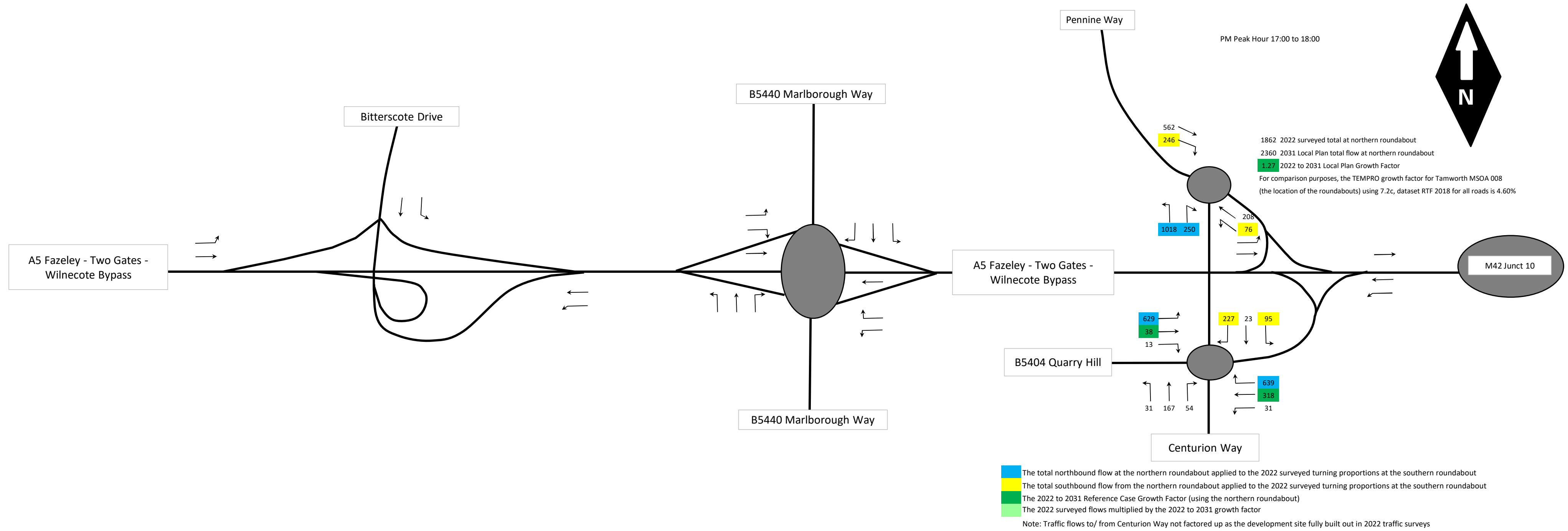
TT FIGURE K

2031 Local Plan No Development AM Peak

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH



TETRA TECH

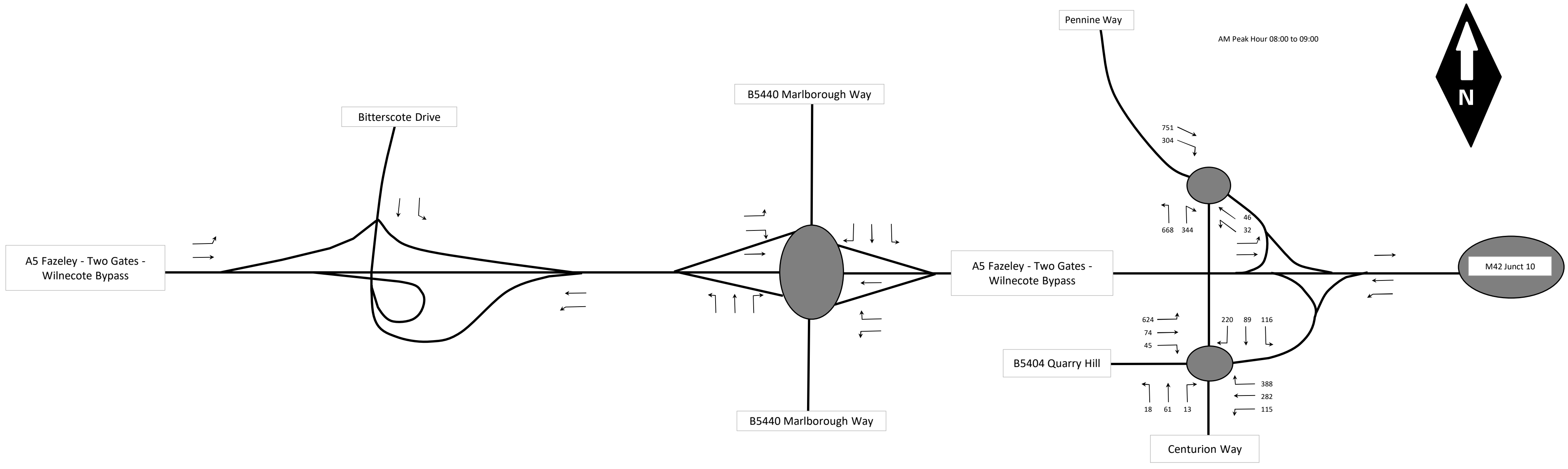
TT FIGURE L

2031 Local Plan No Development PM Peak

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH



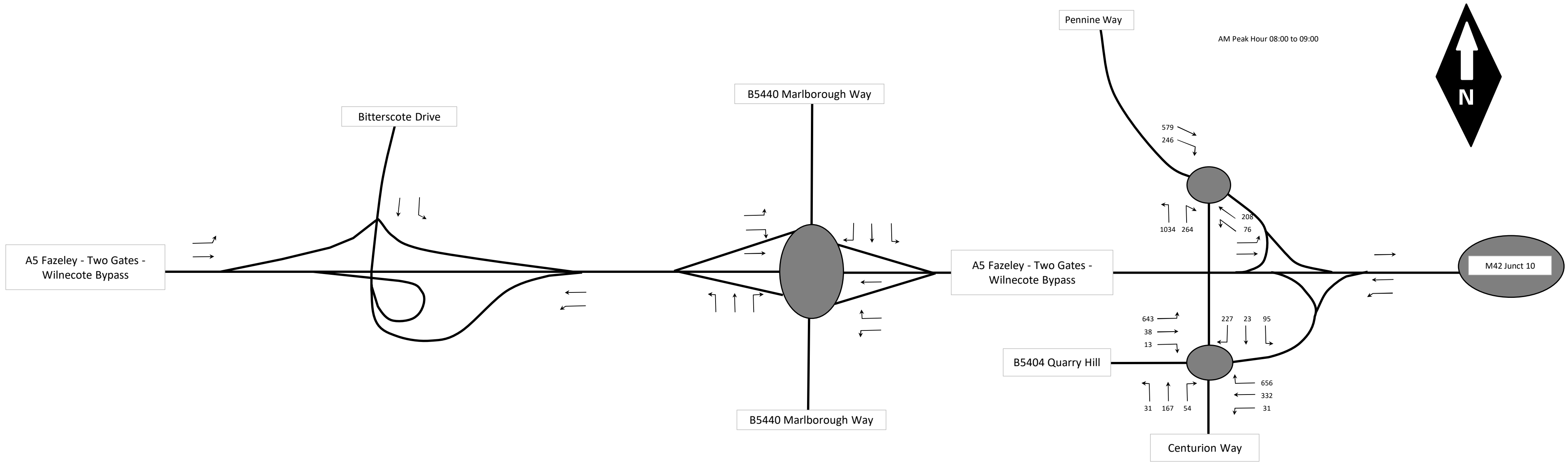
TT FIGURE M

2031 Local Plan With Development AM Peak

Land North East of M42 Junction 10

JOB NUMBER: 784-B033920

DRAWN BY: JH



TT FIGURE N

2031 Local Plan With Development PM Peak

Land North East of M42 Junction 10

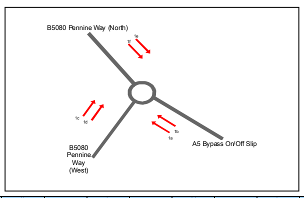
JOB NUMBER: 784-B033920

DRAWN BY: JH

APPENDIX B – QUEUE OBSERVATIONS

Tamworth
Queue Length Survey

Site 1 of 2
A5 Bypass On/Off Slip
B5080 Pennine Way (West)
B5080 Pennine Way (North)



Lat/Long
lat 52.606536° lon -1.647686°

Date
Wednesday 05 October 2022

Weather
Cloudy
Temp: 9°C

0700 - 0930 (Weekday AM Peak)

TIME	1a		1b		1c		1d		1e		1f	
07:00:00	0		0		0		0		0		0	
07:01:00	0		0		0		0		0		0	
07:02:00	0		0		0		0		0		0	
07:03:00	0		0		0		0		0		0	
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07:58:00	0		0		0		0		0		0	
07:59:00	0		0		0		0		0		0	
Average Queue on each approach			0.1				0.0				0.3	
Hourly Average	0.00		0.02		0.00		0.00		0.00		0.10	
08:00:00	0		0		0		0		0		0	
08:01:00	0		0		0		0		0		0	
08:02:00	0		0		0		0		0		0	
08:03:00	0		0		0		0		0		0	
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08:07:00	0	0	0	0	0	0	0	0	0	0.2	0	0.266666667
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08:09:00	0		0		0		0		1		1	
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08:13:00	0		0		0		0		0		0	
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08:59:00	0		0		0		0		0		0	
Hourly Average	0.00		0.00		0.00		0.00		0.05		0.10	
09:00:00	0		0		0		0		0		0	
09:01:00	0		0		0		0		0		0	
09:02:00	0		0		0		0		0		0	
09:03:00	0		0		0		0		0		0	
09:04:00	0		0		0		0		0		0	
09:05:00	0		0		1		0		0		0	
09:06:00	0		0		0		0		0		0	
09:07:00	0	0.066666667	0	0	0	0.066666667	0	0	0	0	0	0
09:08:00	0		0		0		0		0		0	
09:09:00	0		0		0		0		0		0	
09:10:00	0		0		0		0		0		0	
09:11:00	0		0		0		0		0		0	
09:12:00	0		0		0		0		0		0	
09:13:00	1		0		0		0		0		0	
09:14:00	0		0		0		0		0		0	
09:15:00	0		0		0		0		0		0	
09:16:00	0		0		0		0		0		0	
09:17:00	0		0		0		0		0		0	
09:18:00	0		0		0		0		0		0	
09:19:00	0		0		0		2		0		0	
09:20:00	0		0		0		0		0		0	
09:21:00	0		0		0		0		0		0	
09:22:00	0	0	0	0	0	0	0	0.133333333	0	0	0	0
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09:26:00	0		0		0		0		0		0	
09:27:00	0		0		0		0		0		0	
09:28:00	0		0		0		0		0		0	
09:29:00	0		0		0		0		0		0	
09:30:00	0		0		1		0		0		0	
1/2 Hourly Average	0.03		0.00		0.06		0.06		0.00		0.00	
Session Total	0.01		0.01		0.01		0.01		0.02		0.08	

Date
Wednesday 05 October 2022

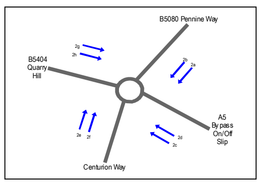
Weather
Sunny Intervals
Temp: 17°C

1600 - 1830 (Weekday PM Peak)

TIME	1a		1b		1c		1d		1e		1f	
16:00:00	0		0		0		0		0		0	
16:01:00	0		0		0		0		0		0	
16:02:00	0		0		0		0		0		1	
16:03:00	0		0		0		0		0		0	
16:04:00	0		0		0		0		0		0	
16:05:00	0		0		0		0		0		0	
16:06:00	0		0		0		0		0		0	
16:07:00	0	0.066666667	0	0	0	0.133333333	0	0.066666667	0	0	0	0.066666667
16:08:00	0		0		2		1		0		0	
16:09:00	0		0		0		0		0		0	
16:10:00	0		0		0		0		0		0	
16:11:00	0		0		0		0		0		0	
16:12:00	0		0		0		0		0		0	
16:13:00	0		0		0		0		0		0	
16:14:00	1		0		0		0		0		0	
16:15:00	0		0		0		0		0		0	
16:16:00	0		0		0		0		0		0	
16:17:00	0		0		0		0		0		0	
16:18:00	0		0		2		0		0		0	
16:19:00	2		0		0		0		0		0	
16:20:00	0		0		0		0		0		0	
16:21:00	0		0		0		0		0		0	
16:22:00	0	0.133333333	0	0	0	0.133333333	0	0	0	0	0	0
16:23:00	0		0		0		0		0		0	
16:24:00	0		0		0		0		0		0	
16:25:00	0		0		0		0		0		0	
16:26:00	0		0		0		0		0		0	
16:27:00	0		0		0		0		0		0	
16:28:00	0		0		0		0		0		0	
16:29:00	0		0		0		0		0		0	
16:30:00	0		0		0		0		0		0	
16:31:00	0		0		0		0		0		0	
16:32:00	0		0		0		0		0		0	
16:33:00	0		0		0		0		0		0	
16:34:00	0		0		0		0		0		0	
16:35:00	0		0		0		0		0		0	
16:36:00	0		0		0		0		0		0	
16:37:00	0	0	0	0	0	0	0	0	0	0	0	0.133333333
16:38:00	0		0		0		0		0		0	
16:39:00	0		0		0		0		0		0	
16:40:00	0		0		0		0		0		0	
16:41:00	0		0		0		0		0		0	
16:42:00	0		0		0		0		0		2	
16:43:00	0		0		0		0		0		0	
16:44:00	0		0		0		0		0		0	
16:45:00	0		0		0		0		0		2	
16:46:00	0		0		0		0		0		0	
16:47:00	0		0		0		0		0		0	
16:48:00	0		0		0		0		0		0	
16:49:00	0		0		0		0		0		0	
16:50:00	0		0		0		0		0		0	
16:51:00	0		0		0		0		0		0	
16:52:00	0	0	0	0	0	0.066666667	0	0	0	0	0	0.2
16:53:00	0		0		0		0		0		0	
16:54:00	0		0		0		0		0		0	
16:55:00	0		0		0		0		0		0	
16:56:00	0		0		1		0		0		0	
16:57:00	0		0		0		0		0		0	
16:58:00	0		0		0		0		0		1	
16:59:00	0		0		0		0		0		0	
Average Queue on each approach			0.1				0.2				0.2	
Hourly Average	0.05		0.00		0.08		0.02		0.00		0.10	
17:00:00	0		0		0		0		0		0	
17:01:00	0		0		0		0		0		0	
17:02:00	0		0		0		0		0		0	
17:03:00	0		0		0		0		0		0	
17:04:00	0		0		0		0		0		0	
17:05:00	0		0		0		0		0		0	
17:06:00	0		0		0		0		0		0	
17:07:00	0	0	0	0	0	0	0	0	0	0	0	0.2
17:08:00	0		0		0		0		0		0	
17:09:00	0		0		0		0		0		3	
17:10:00	0		0		0		0		0		0	
17:11:00	0		0		0		0		0		0	
17:12:00	0		0		0		0		0		0	
17:13:00	0		0		0		0		0		0	
17:14:00	0		0		0		0		0		0	
17:15:00	0		0		0		0		0		0	
17:16:00	0		0		0		0		0		0	
17:17:00	0		0		1		1		0		1	
17:18:00	0		0		0		0		0		0	
17:19:00	0		0		0		0		0		0	
17:20:00	0		0		0		0		0		0	
17:21:00	0		0		0		0		0		0	
17:22:00	0	0	0	0	0	0.066666667	0	0.066666667	0	0	0	0.066666667
17:23:00	0		0		0		0		0		0	
17:24:00	0		0		0		0		0		0	
17:25:00	0		0		0		0		0		0	
17:26:00	0		0		0		0		0		0	
17:27:00	0		0		0		0		0		0	
17:28:00	0		0		0		0		0		0	
17:29:00	0		0		0		0		0		0	
17:30:00	0		0		1		0		0		0	
17:31:00	0		0		0		0		0		0	
17:32:00	0		0		0		0		0		0	
17:33:00	0		0		0		0		0		0	
17:34:00	0		0		0		0		0		0	
17:35:00	0		0		0		0		0		0	
17:36:00	0		0		0		0		0		0	
17:37:00	0	0.133333333	0	0	0	0.066666667	4	0.266666667	0	0	0	0.066666667
17:38:00	0		0		0		0		0		0	
17:39:00	0		0		0		0		0		0	
17:40:00	0		0		0		0		0		1	
17:41:00	1		0		0		0		0		0	
17:42:00	0		0		0		0		0		0	
17:43:00	1		0		0		0		0		0	
17:44:00	0		0		0		0		0		0	
17:45:00	0		0		0		0		0		0	
17:46:00	0		0		0		0		0		0	
17:47:00	0		0		0		0		0		0	
17:48:00	0		0		0		0		0		0	
17:49:00	0		0		0		0		0		0	
17:50:00	0		0		0		0		0		0	
17:51:00	0		0		1		0		0		0	
17:52:00	0	0	0	0	0	0.4	0	0	0	0	0	0
17:53:00	0		0		0		0		0		0	
17:54:00	0		0		3		0		0		0	
17:55:00	0		0		0		0		0		0	
17:56:00	0		0		0		0		0		0	
17:57:00	0		0		2		0		0		0	
17:58:00	0		0		0		0		0		0	
17:59:00	0		0		0		0		0		0	
Hourly Average	0.03		0.00		0.13		0.08		0.00		0.08	
18:00:00	0		0		0		0		0		0	
18:01:00	0		0		0		0		0		0	
18:02:00	0		0		0		0		0		0	
18:03:00	0		0		0		0		0		0	
18:04:00	0		0		0		0		0		0	
18:05:00	0		0		0		0		0		0	
18:06:00	0		0		0		0		0		0	
18:07:00	0	0	0	0	0	0	0	0	0	0	0	0
18:08:00	0		0		0		0		0		0	
18:09:00	0		0		0		0		0		0	
18:10:00	0		0		0		0		0		0	
18:11:00	0		0		0		0		0		0	
18:12:00	0		0		0		0		0		0	
18:13:00	0		0		0		0		0		0	
18:14:00	0		0		0		0		0		0	
18:15:00	0		0		0		0		0		0	
18:16:00	0		0		0		0		0		0	
18:17:00	0		0		0		0		0		0	
18:18:00	0		0		0		0		0		0	
18:19:00	0		0		0		0		0		0	
18:20:00	0		0		0		0		0		0	
18:21:00	0		0		0		0		0		0	
18:22:00	0	0	0	0	0	0	0	0	0	0	0	0.066666667
18:23:00	0		0		0		0		0		0	
18:24:00	0		0		0		0		0		0	
18:25:00	0		0		0		0		0		1	
18:26:00	0		0		0		0		0		0	
18:27:00	0		0		0		0		0		0	
18:28:00	0		0		0		0		0		0	
18:29:00	0		0		0		0		0		0	
18:30:00	0		0		0		0		0		0	
1/2 Hourly Average	0.00		0.00		0.00		0.00		0.00		0.03	
Session Total	0.03		0.00		0.09		0.04		0.00		0.08	

Tamworth
Queue Length Survey

Site 2 of 2
B5080 Pennine Way
A5 Bypass On/Off Slip
Centurion Way
B5404 Quarry Hill



Lat/Long
lat 52.605036° lon -1.649240°

Date
Wednesday 05 October 2022

Weather
Cloudy
Temp: 9°C

0700 - 0930 (Weekday AM Peak)

TIME	2a		2b		2c		2d		2e		2f		2g		2h	
07:00:00	0		0		0		0		0		0		0		0	
07:01:00	0		0		0		0		0		0		0		0	
07:02:00	0		0		0		0		0		0		0		0	
07:03:00	0		0		0		0		0		0		0		0	
07:04:00	0		0		0		0		0		0		0		0	
07:05:00	0		0		0		0		0		0		0		0	
07:06:00	0		0		0		0		0		0		0		0	
07:07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:08:00	0		0		0		0		0		0		0		0	
07:09:00	0		0		0		0		0		0		0		0	
07:10:00	0		0		0		0		0		0		0		0	
07:11:00	0		0		0		0		0		0		0		0	
07:12:00	0		0		0		0		0		0		0		0	
07:13:00	0		0		0		0		0		0		0		0	
07:14:00	0		0		0		0		0		0		0		0	
07:15:00	0		0		0		0		0		0		0		0	
07:16:00	0		0		0		0		0		0		0		0	
07:17:00	0		0		0		0		0		0		0		0	
07:18:00	0		0		0		0		0		0		0		0	
07:19:00	0		0		0		0		0		0		0		0	
07:20:00	0		0		0		0		0		0		0		0	
07:21:00	0		0		0		0		0		0		0		0	
07:22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:23:00	0		0		0		0		0		0		0		0	
07:24:00	0		0		0		0		0		0		0		0	
07:25:00	0		0		0		0		0		0		0		0	
07:26:00	0		0		0		0		0		0		0		0	
07:27:00	0		0		0		0		0		0		0		0	
07:28:00	0		0		0		0		0		0		0		0	
07:29:00	0		0		0		0		0		0		0		0	
07:30:00	0		0		0		0		0		0		0		0	
07:31:00	0		0		0		0		0		0		0		0	
07:32:00	0		0		0		0		0		0		0		0	
07:33:00	0		0		0		0		0		0		0		0	
07:34:00	0		0		0		0		0		0		0		0	
07:35:00	0		0		0		0		0		0		0		0	
07:36:00	0		0		0		0		0		0		0		0	
07:37:00	0	0	0	0	0	0	0	0.066666667	0	0.066666667	0	0	0	0	0	0
07:38:00	0		0		0		0		0		0		0		0	
07:39:00	0		0		0		0		0		0		0		0	
07:40:00	0		0		0		0		0		0		0		0	
07:41:00	0		0		0		0		0		0		0		0	
07:42:00	0		0		0		1		0		0		0		0	
07:43:00	0		0		0		0		1		0		0		0	
07:44:00	0		0		0		0		0		0		0		0	
07:45:00	0		1		1		1		0		0		0		0	
07:46:00	0		0		0		0		0		0		0		0	
07:47:00	0		0		0		0		1		0		0		0	
07:48:00	0		0		1		0		0		0		0		0	
07:49:00	0		0		0		0		0		0		0		0	
07:50:00	0		0		0		0		0		0		0		0	
07:51:00	0		0		0		0		0		0		0		0	
07:52:00	0	0	0	0.133333333	0	0.333333333	0	0.333333333	0	0.2	0	0	0	0	0	0
07:53:00	0		1		1		2		0		0		0		0	
07:54:00	0		0		0		0		0		0		0		0	
07:55:00	0		0		0		0		0		0		0		0	
07:56:00	0		0		0		0		1		0		0		0	
07:57:00	0		0		0		0		0		0		0		0	
07:58:00	0		0		0		0		1		0		0		0	
07:59:00	0		0		2		2		0		0		0		0	
Average Queue on each approach			0.1				0.7				0.1				0.0	
Hourly Average	0.00		0.03		0.08		0.10		0.07		0.00		0.00		0.00	
08:00:00	0		0		0		0		0		0		0		0	
08:01:00	0		0		0		0		0		0		0		0	
08:02:00	0		0		1		0		0		0		0		0	
08:03:00	0		0		0		2		0		0		0		0	
08:04:00	0		0		0		0		0		0		0		0	
08:05:00	0		0		0		0		0		0		0		0	
08:06:00	0		0		0		0		0		0		0		0	
08:07:00	0	0	0	0	0	0.2	0	0.133333333	0	0	0	0	0	0	0	0
08:08:00	0		0		0		0		0		0		0		0	
08:09:00	0		0		0		0		0		0		0		0	
08:10:00	0		0		0		0		0		0		0		0	
08:11:00	0		0		0		0		0		0		0		0	
08:12:00	0		0		2		0		0		0		0		0	
08:13:00	0		0		0		0		0		0		0		0	
08:14:00	0		0		0		0		0		0		0		0	
08:15:00	0		0		0		0		0		0		0		0	
08:16:00	0		0		2		0		0		0		0		0	
08:17:00	0		0		0		0		0		0		0		0	
08:18:00	0		0		0		0		0		0		0		0	
08:19:00	0		0		0		0		0		0		0		0	
08:20:00	0		0		0		0		0		0		0		0	
08:21:00	0		0		0		0		0		0		6		0	
08:22:00	0	0	0	0	3	0.333333333	3	0.2	0	0.066666667	0	0.066666667	0	0.4	0	0
08:23:00	0		0		0		0		0		0		0		0	
08:24:00	0		0		0		0		0		0		0		0	
08:25:00	0		0		0		0		0		0		0		0	
08:26:00	0		0		0		0		0		1		0		0	
08:27:00	0		0		0		0		0		0		0		0	
08:28:00	0		0		0		0		0		0		0		0	
08:29:00	0		0		0		0		1		0		0		0	
08:30:00	0		0		0		0		0		0		0		0	
08:31:00	0		0		0		0		1		0		0		0	
08:32:00	0		0		0		0		0		0		0		0	
08:33:00	0		0		0		0		0		0		0		0	
08:34:00	0		0		0		0		0		0		0		0	
08:35:00	0		0		0		0		0		0		0		0	
08:36:00	0		0		0		0		0		0		1		0	
08:37:00	0	0	0	0	0	0.066666667	0	0	0	0.066666667	0	0	0	0.066666667	0	0
08:38:00	0		0		0		0		0		0		0		0	
08:39:00	0		0		0		0		0		0		0		0	
08:40:00	0		0		0		0		0		0		0		0	
08:41:00	0		0		0		0		0		0		0		0	
08:42:00	0		0		0		0		0		0		0		0	
08:43:00	0		0		1		0		0		0		0		0	
08:44:00	0		0		0		0		0		0		0		0	
08:45:00	0		0		2		0		0		0		0		0	
08:46:00	0		0		0		0		0		0		0		0	
08:47:00	0		0		0		0		0		0		0		0	
08:48:00	0		0		0		0		0		0		0		0	
08:49:00	0		0		0		0		0		0		0		0	
08:50:00	0		0		0		0		0		0		0		0	
08:51:00	0		0		0		0		0		0		0		0	
08:52:00	0	0	0	0	2	0.266666667	0	0	0	0	0	0	0	0.066666667	0	0
08:53:00	0		0		0		0		0		0		0		0	
08:54:00	0		0		0		0		0		0		0		0	
08:55:00	0		0		0		0		0		0		0		0	
08:56:00	0		0		0		0		0		0		0		0	
08:57:00	0		0		0		0		0		0		1		0	
08:58:00	0		0		0		0		0		0		0		0	
08:59:00	0		0		0		0		0		0		0		0	
Hourly Average	0.00		0.00		0.22		0.08		0.03		0.02		0.13		0.00	
09:00:00	0		0		0		0		0		0		0		0	
09:01:00	0		0		0		0		0		0		0		0	
09:02:00	0		0		0		0		0		0		0		0	
09:03:00	0		0		0		0		0		0		0		0	
09:04:00	0		0		0		0		0		0		0		0	
09:05:00	0		0		0		0		0		0		0		0	
09:06:00	0		0		0		0		0		0		0		0	
09:07:00	0	0	0	0	0	0	0	0	0	0.066666667	0	0	0	0	0	0
09:08:00	0		0		0		0		0		0		0		0	
09:09:00	0		0		0		0		0		0		0		0	
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09:13:00	0		0		0		0		0		0		0		0	
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09:22:00	0	0	0	0	0	0.066666667	0	0	0	0	0	0	0	0	0	0
09:23:00	0		0		0		0		0		0		0		0	
09:24:00	0		0		0		0		0		0		0		0	
09:25:00	0		0		0		0		0		0		0		0	
09:26:00	0		0		0		0		0		0		0		0	
09:27:00	0		0		0		0		0		0		0		0	
09:28:00	0		0		0		0		0		0		0		0	
09:29:00	0		0		0		0		0		0		0		0	
09:30:00	0.00		0.00		0.03		0.00		0.03		0.00		0.00		0.00	
Session Total	0.00		0.01		0.13		0.07		0.05		0.01		0.05		0.00	

Date
Wednesday 05 October 2022

Weather
Sunny Intervals
Temp: 17°C

1600 - 1830 (Weekday PM Peak)

TIME	2a		2b		2c		2d		2e		2f		2g		2h	
16:00:00	0		0		0		0		0		0		0		0	
16:01:00	0		0		0		0		0		0		0		0	
16:02:00	0		0		0		0		0		0		0		0	
16:03:00	0		0		0		0		2		3		9		0	
16:04:00	0		0		0		0		1		1		0		0	
16:05:00	0		2		0		0		0		0		0		0	
16:06:00	0		0		0		1		0		0		0		0	
16:07:00	0	0	0	0.133333333	0	0	0	0.066666667	4	0.6	0	0.333333333	0	0.6	0	0
16:08:00	0		0		0		0		0		0		0		0	
16:09:00	0		0		0		0		0		0		0		0	
16:10:00	0		0		0		0		0		0		0		0	
16:11:00	0		0		0		0		2		0		0		0	
16:12:00	0		0		0		0		0		0		0		0	
16:13:00	0		0		0		0		0		0		0		0	
16:14:00	0		0		0		0		0		1		0		0	
16:15:00	0		0		0		0		0		0		0		0	
16:16:00	0		0		0		0		0		0		0		0	
16:17:00	0		0		0		0		0		0		0		0	
16:18:00	0		0		0		0		0		0		0		0	
16:19:00	0		0		0		0		0		0		0		0	
16:20:00	0		0		0		0		0		0		1		0	
16:21:00	0		0		0		0		0		0		0		0	
16:22:00	0	0	0	0	0	0	0	0	0	0.066666667	0	0.2	0	0.266666667	0	0
16:23:00	0		0		0		0		0		0		0		0	
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16:25:00	0		0		0		0		0		0		0		0	
16:26:00	0		0		0		0		0		0		0		0	
16:27:00	0		0		0		0		0		0		0		0	
16:28:00	0		0		0		0		0		0		0		0	
16:29:00	0		0		0		0		0		1		0		0	
16:30:00	0		0		0		0		0		0		0		0	
16:31:00	0		0		0		0		1		0		0		0	
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16:33:00	0		0		0		0		0		0		0		0	
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16:35:00	0		0		0		0		0		0		0		0	
16:36:00	0		0		0		0		0		0		3		0	
16:37:00	0	0	0	0	0	0	0	0	0	0.2	1	0.2	0	0.266666667	0	0
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16:41:00	0		0		0		0		0		0		0		0	
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16:47:00	0		0		0		0		0		0		0		0	
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16:49:00	0		0		0		0		0		0		0		0	
16:50:00	0		0		0		0		1		0		0		0	
16:51:00	0		0		0		0		0		1		0		0	
16:52:00	0	0	0	0	0	0	0	0.066666667	0	0.266666667	0	0.066666667	0	0.2	0	0
16:53:00	0		0		0		1		0		0		0		0	
16:54:00	0		0		0		0		0		0		3		0	
16:55:00	0		0		0		0		1		0		0		0	
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16:57:00	0		0		0		0		0		0		0		0	
16:58:00	0		0		0		0		0		0		0		0	
16:59:00	0		0		0		0		0		0		0		0	
Average Queue on each approach			0.1				0.1				0.9				0.6	
Hourly Average	0.00		0.03		0.00		0.03		0.28		0.20		0.33		0.00	
17:00:00	0		0		0		0		0		0		0		0	
17:01:00	0		0		0		0		0		0		0		0	
17:02:00	0		0		0		0		0		0		0		0	
17:03:00	1		0		0		0		1		0		0		0	
17:04:00	0		0		0		0		1		0		0		0	
17:05:00	0		0		1		0		0		0		0		0	
17:06:00	0		0		0		0		2		0		3		0	
17:07:00	0	0.066666667	0	0	0	0.066666667	0	0	0	0.4	0	0.066666667	0	0.333333333	0	0
17:08:00	0		0		0		0		0		1		0		0	
17:09:00	0		0		0		0		0		0		0		0	
17:10:00	0		0		0		0		0		0		2		0	
17:11:00	0		0		0		0		0		0		0		0	
17:12:00	0		0		0		0		1		0		0		0	
17:13:00	0		0		0		0		1		0		0		0	
17:14:00	0		0		0		0		0		0		0		0	
17:15:00	0		0		0		0		0		0		0		0	
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17:21:00	0		0		0		0		0		0		0		0	
17:22:00	0	0	0	0	0	0	0	0.066666667	0	0.066666667	0	0.066666667	0	0.333333333	0	0
17:23:00	0		0		0		0		0		0		0		0	
17:24:00	0		0		0		0		1		0		0		0	
17:25:00	0		0		0		0		0		0		0		0	
17:26:00	0		0		0		0		0		1		2		0	
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17:28:00	0		0		0		0		0		0		0		0	
17:29:00	0		0		0		0		0		0		0		0	
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17:37:00	0	0	0	0	0	0.066666667	0	0.066666667	0	0.133333333	1	0.133333333	3	1.2	0	0
17:38:00	0		0		0		0		0		0		7		0	
17:39:00	0		0		0		0		0		0		4		0	
17:40:00	0		0		0		0		0		0		0		0	
17:41:00	0		0		0		0		0		0		0		0	
17:42:00	0		0		0		0		0		0		0		0	
17:43:00	0		0		0		0		0		0		0		0	
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17:45:00	0		0		0		0		0		0		0		0	
17:46:00	0		0		0		0		0		0		1		0	
17:47:00	0		0		0		0		3		0		0		0	
17:48:00	0		0		0		0		0		0		0		0	
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17:50:00	0		0		0		0		0		0		0		0	
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17:52:00	0	0	0	0	0	0	0	0	0	0.4	0	0.066666667	0	0.2	0	0.066666667
17:53:00	0		0		0		0		1		0		0		0	
17:54:00	0		0		0		0		0		0		2		0	
17:55:00	0		0		0		0		0		0		0		0	
17:56:00	0		0		0		0		1		0		0		0	
17:57:00	0		0		0		0		0		0		0		0	
17:58:00	0		0		0		0		0		1		0		1	
17:59:00	0		0		0		0		0		0		0		0	
Hourly Average	0.02		0.00		0.03		0.03		0.25		0.08		0.52		0.02	
18:00:00	0		0		0		0		0		0		0		0	
18:01:00	0		0		0		0		0		0		0		0	
18:02:00	0		0		0		0		0		0		0		0	
18:03:00	0		0		1		0		0		0		0		0	
18:04:00	0		0		0		0		0		0		0		0	
18:05:00	0		0		0		0		0		0		0		0	
18:06:00	0		0		0		0		0		0		0		0	
18:07:00	0	0.066666667	0	0.066666667	0	0.066666667	0	0	0	0	0	0	0	0.333333333	0	0
18:08:00	0		0		0		0		0		0		0		0	
18:09:00	0		0		0		0		0		0		0		0	
18:10:00	0		0		0		0		0		0		0		0	
18:11:00	0		0		0		0		0		0		0		0	
18:12:00	0		0		0		0		0		0		0		0	
18:13:00	0		0		0		0		0		0		5		0	
18:14:00	1		1		0		0		0		0		0		0	
18:15:00	0		0		0		0		0		0		0		0	
18:16:00	0		0		0		0		0		0		0		0	
18:17:00	0		0		0		0		0		0		0		0	
18:18:00	0		0		0		0		0		0		0		0	
18:19:00	0		0		0		0		0		0		0		0	
18:20:00	0		0		0		0		0		0		0		0	
18:21:00	0		0		0		0		0		0		0		0	
18:22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:23:00	0		0		0		0		0		0		0		0	
18:24:00	0		0		0		0		0		0		0		0	
18:25:00	0		0		0		0		0		0		0		0	
18:26:00	0		0		0		0		0		0		0		0	
18:27:00	0		0		0		0		0		0		0		0	
18:28:00	0		0		0		0		0		0		0		0	
18:29:00	0		0		0		0		0		0		0		0	
18:30:00	0.03		0.03		0.03		0.00		0.00		0.00		0.17		0.00	
Session Total	0.01		0.02		0.02		0.03		0.21		0.11		0.37		0.01	

APPENDIX C – CORRESPONDENCE WITH SCC

Wakenshaw, Gareth

From: Mudhar, Amrit (E,I&S) <amrit.mudhar1@staffordshire.gov.uk>
Sent: 16 November 2022 09:49
To: Wakenshaw, Gareth; Bunn, Nick; dwh@hodgettsestates.co.uk
Cc: Andrew Collinson; Jarvis, Jon (E,I&S); Simm, Ben; Tony Burrows; Evans, Mark (E,I&S)
Subject: RE: RE: Land NE of M42 (PAP/2021/0663) [Filed 16 Nov 2022 09:56]

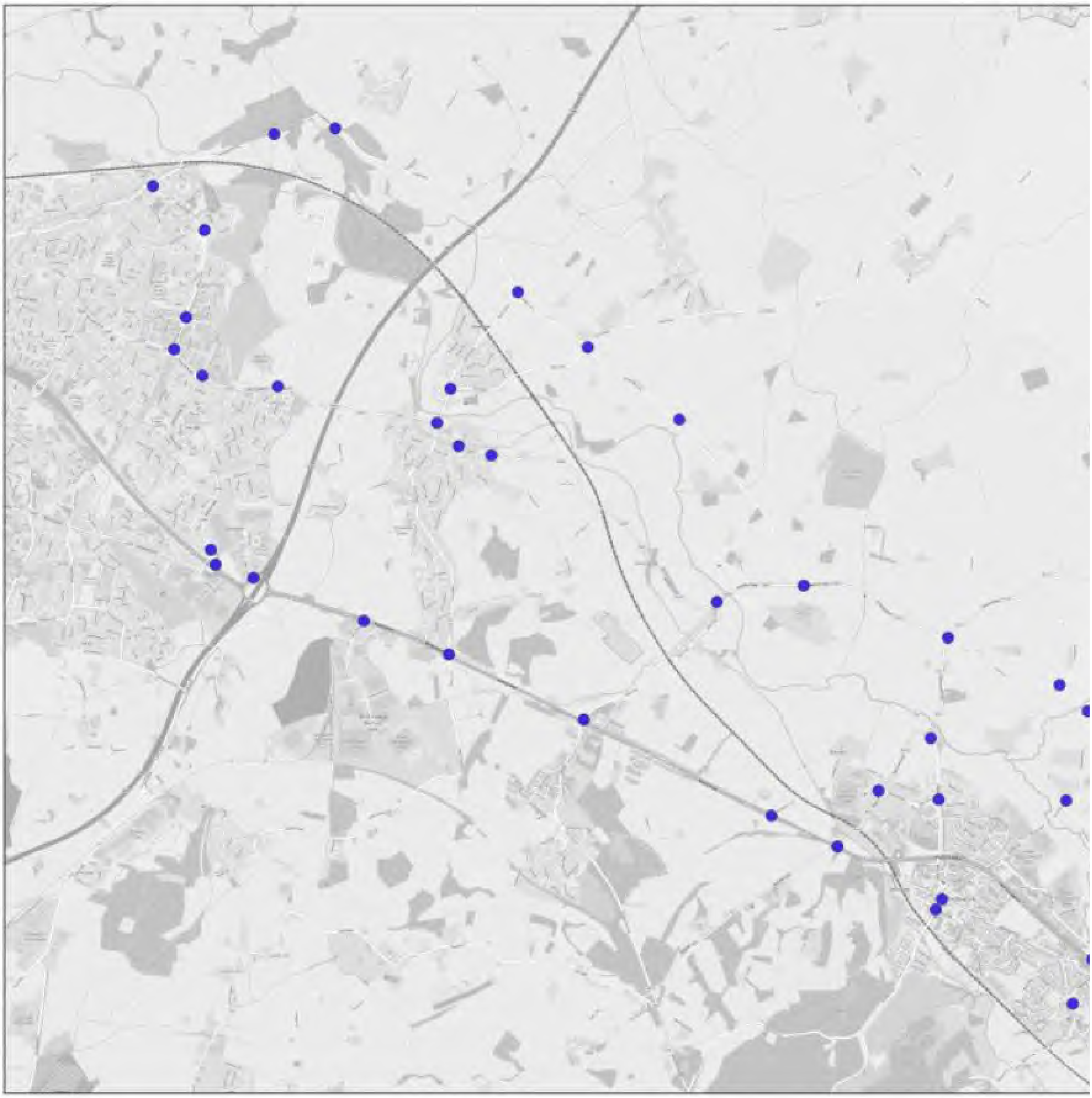
Hi all,

We have now reviewed the email and attachments sent on 14 October 2022. The distribution based on 2011 Census journey to work data is acceptable and we agree with the proposed approach to modelling the Pennine Way junctions, with no further assessment required for any of the other junctions on the Staffordshire network, based on the development flows which were submitted. 2011 Census data has also been used to inform the distribution in the Atherstone A5 model so this approach is consistent.

I am a bit surprised that the study area shown in the Atherstone A5 Model LMVR was not used to inform the junctions requiring assessment within Staffordshire as the reason for their inclusion was to assess cross boundary traffic impacts. Please see Figure 2 below which I have extracted from the LMVR.

Once the baseline model has been updated to include the Pennine Way junctions, please could we arrange to see a demonstration of the TRANSYT model working as we are unable to review TRANSYT models. As the model is a linked junction, depending on how the outputs are presented, there may not be a need for Junctions 9/10 modelling of the Pennine Way junctions. It will be more helpful to see the operation of these junctions as part of the network that is being assessed.

Figure 2 – Junction Count Survey Locations



Kind regards,
Amrit

Miss Amrit Mudhar | Project Engineer
Sustainable Development Team - Highways and Built County
Third Floor, Staffordshire Place 1
Tipping Street, Stafford ST16 2DH
Mobile: **07813396146**
Email: **amrit.mudhar1@staffordshire.gov.uk**
www.staffordshire.gov.uk

Staffordshire County Council

From: Mudhar, Amrit (E,I&S)
Sent: 09 November 2022 12:10
To: Wakenshaw, Gareth <Gareth.Wakenshaw@tetratech.com>; Evans, Mark (E,I&S) <mark.evans@staffordshire.gov.uk>
Cc: dwh@hodgettsestates.co.uk; Bunn, Nick <Nick.Bunn@tetratech.com>; Andrew Collinson <AndrewCollinson@NorthWarks.gov.uk>; Jarvis, Jon (E,I&S) <jon.jarvis@staffordshire.gov.uk>
Subject: CM: RE: Land NE of M42

Hi all,

Apologies for the delay responding to you. I have been out of the office a fair bit recently dealing with a personal matter. I will be returning to work full time next week and should be able to provide a response to the additional information that has been sent through.

David, I picked up your voicemail today and will give you a call once I have been through the additional information.

Kind regards,
Amrit

Staffordshire County Council

Miss Amrit Mudhar | Project Engineer
Sustainable Development Team - Highways and Built County
Third Floor, Staffordshire Place 1
Tipping Street, Stafford ST16 2DH
Mobile: **07813396146**
Email: **amrit.mudhar1@staffordshire.gov.uk**
www.staffordshire.gov.uk

From: Wakenshaw, Gareth <Gareth.Wakenshaw@tetratech.com>
Sent: 02 November 2022 10:03
To: Mudhar, Amrit (E,I&S) <amrit.mudhar1@staffordshire.gov.uk>; Evans, Mark (E,I&S) <mark.evans@staffordshire.gov.uk>
Cc: dwh@hodgettsestates.co.uk; Bunn, Nick <Nick.Bunn@tetratech.com>; Andrew Collinson <AndrewCollinson@NorthWarks.gov.uk>; Jarvis, Jon (E,I&S) <jon.jarvis@staffordshire.gov.uk>
Subject: FW: Land NE of M42

Hi Amrit,

Hope you are well.

Just wondering if you have had chance to review the email and attached documents, do you think you would be able to provide a response by the end of the week?

We are progressing the modelling work of the South Pennine Way roundabouts and will soon be using the Vectos PARAMICS traffic flows to assess the future year scenarios (No Development) and then add on the development generated flows based on my email below to assess the impacts of the development. It would be great if we could have your acceptance of the development generated traffic flows to save any abortive work.

Kind Regards

Gareth Wakenshaw
Principal Transport Planner

Tetra Tech
4th Floor, Rotterdam House, 116 Quayside, Newcastle Upon Tyne, NE1 3DY
Tel: +44 191 249 9817
Mob: +44 734 206 8031

tetratecheurope.com

From: Wakenshaw, Gareth
Sent: 14 October 2022 09:00
To: Mudhar, Amrit (E,I&S) <amrit.mudhar1@staffordshire.gov.uk>; Evans, Mark (E,I&S) <mark.evans@staffordshire.gov.uk>
Cc: dwh@hodgettsestates.co.uk; Bunn, Nick <Nick.Bunn@tetratech.com>; Andrew Collinson <AndrewCollinson@NorthWarks.gov.uk>; Jarvis, Jon (E,I&S) <jon.jarvis@staffordshire.gov.uk>
Subject: RE: Land NE of M42 [Filed 14 Oct 2022 09:00]

Hi Amrit,

Following my email last week a TT representative attended site on Tuesday 11th at 8am to observe the roadworks on Quarry Hill. The roadworks shown on the map further below were due to start on Monday 3rd October and end around 23rd December. Our TT representative saw no sign of roadworks at these locations, see attached photos at Stoneydelph and near Wilnecote Fish Bar. I also contacted Western Power Distribution and they confirmed the roadworks have been delayed by two weeks, starting on Monday 17th October, see attached email. I trust this gives you comfort the surveys undertaken are acceptable.

SCC Traffic Distribution & Assignment Work
With regards to the traffic distribution and assignment work, please see attached our excel document. We chose North Warwickshire MSOA 002 as the place of work (the area the proposed development sits within) and sieved out all those areas where traffic would not travel through the SCC network. This filtering process left those areas where traffic would use the A5 Wilnecote Bypass. Below as a description of each tab in the excel document.

- 1st tab – this shows the filtered MSOA's and the total number of car drivers. Six routes have been allocated (A to F) to assign the trips through the network.
- 2nd tab – this shows the six routes, A to F diagrammatically on the network, focusing on the South Pennine Way roundabouts, the A5/ B5440 Marlborough Interchange and the A5/ Bitterscote Drive interchange.
- 3rd tab- this shows the resultant traffic assignment %age which links back to the 1st tab.
- 4th tab – this shows the AM Peak development generated traffic flows on the SCC network. As previously identified (see attached email) the AM and PM peak hour traffic flows at the A5 immediately west of Junction 10 and at Junction 10 have been agreed with National Highways. We have therefore applied the traffic assignment % to these flows.
- 5th tab – this shows the PM peak hour equivalent.

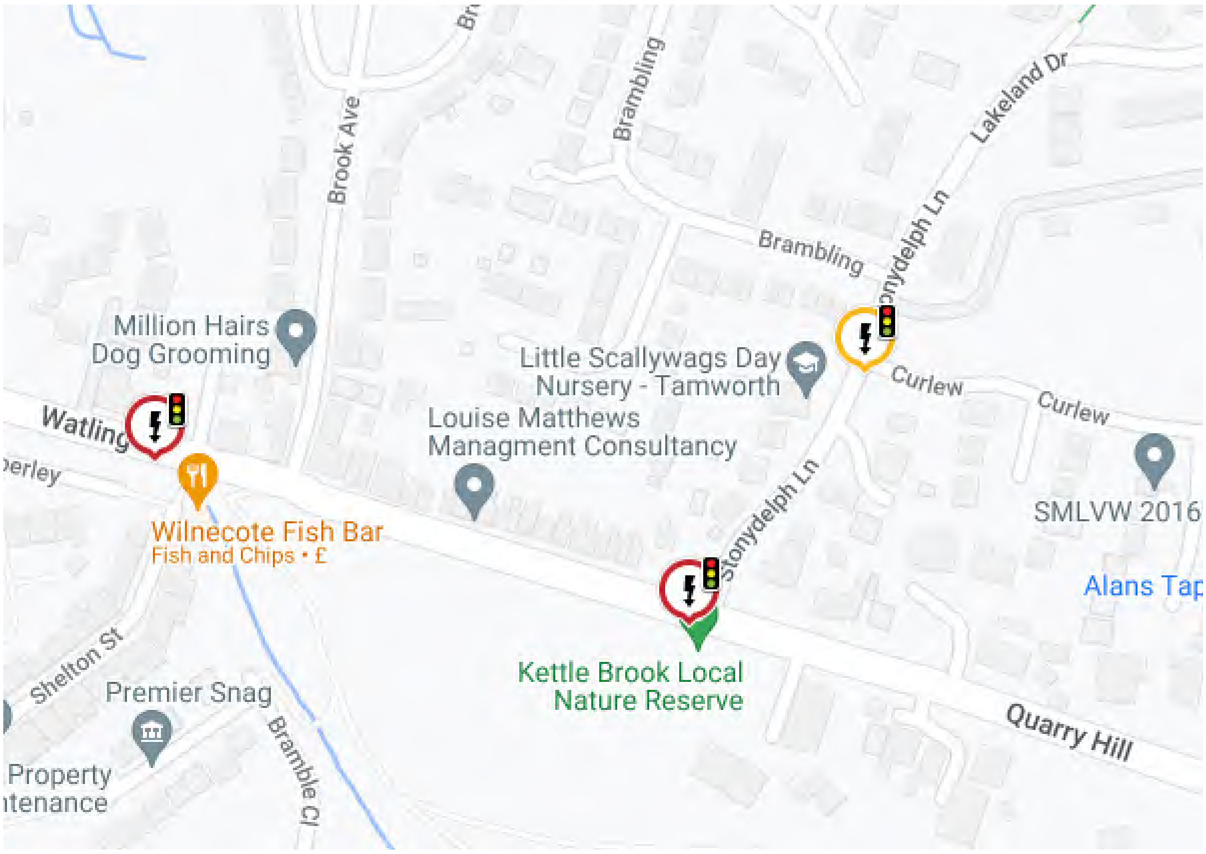
As you can see from the predicted traffic flows, the development has a small impact at the Pennine Way roundabouts in the AM peak with 33 trips on the westbound approach to the southern roundabout and 38 at the southern approach to the northern roundabout. The volumes are lower in the PM peak. The forthcoming junction assessment of the two roundabouts is therefore considered reasonable and will be assessed as agreed and included in our TA. The junctions will be modelled as a linked model in Junctions 10 using lane simulation to model the effects of any blocking back effects.

At the B5440 Marlborough Way Interchange the highest approach flow on any approach is 22 in the AM peak. The flows are lower in the PM peak. No assessment is considered necessary.

At the Bitterscote Drive interchange the highest approach flow on any approach is 11 in the AM peak. The flows are lower in the PM peak. No assessment is considered necessary.

It would be appreciated if you could confirm the assignment is acceptable before we assess the future performance of the Pennine Way roundabouts.

Kind Regards



Gareth Wakenshaw
Principal Transport Planner

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From: Wakenshaw, Gareth
Sent: 06 October 2022 15:04
To: Mudhar, Amrit (E,I&S) <amrit.mudhar1@staffordshire.gov.uk>; Evans, Mark (E,I&S) <mark.evans@staffordshire.gov.uk>
Cc: dwh@hodgettsestates.co.uk; Bunn, Nick <Nick.Bunn@tetratech.com>; Andrew Collinson <AndrewCollinson@NorthWarks.gov.uk>; Jarvis, Jon (E,I&S) <jon.jarvis@staffordshire.gov.uk>
Subject: RE: Land NE of M42 [Filed 06 Oct 2022 15:04]

Hi Amrit,

Thanks for your email. Time was of the essence for the order, we couldn't wait until next year to undertake the surveys (roadworks you refer to ending 23rd December). Our survey firm say they checked for roadworks and it appears they missed them. I first emailed you of the forthcoming surveys on 26th September and as we had no response it was assumed the surveys were acceptable.

Notwithstanding the above remember we are using the surveys to validate the junction models rather than use the data for future year assessments. We will be validating the 2 roundabouts in Junctions 10, using lane simulation to model any blocking back effects and unequal lane usage, to demonstrate for the traffic volumes surveyed the modelled queues reflect those recorded on the ground. Once the model is validated we will be replacing the 2022 surveyed flows with future year traffic flows, extracted from the Vectos Paramics A5 model (following the same methodology we have agreed with NH and WCC for the A5 TRANSYT model). To confirm we won't be using the surveys and manually adding on traffic growth, committed, Local Plan and development generated flows in the traditional way. They are being used for model validation purposes only.

For your info, we are obtaining the 2026 and 2031 No Development flows from Vectos, we will then manually add on the development generated traffic using the Census Journey to Work data as you have discussed with Nick Bunn previously. We were going to send the assignment and distribution of development traffic to you for approval, but it sounds like you would like us to submit everything in one package, unless you are ok to review the assignment separately in advance?

Kind Regards

Gareth Wakenshaw
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From: Mudhar, Amrit (E,I&S) <amrit.mudhar1@staffordshire.gov.uk>
Sent: 05 October 2022 17:10
To: Wakenshaw, Gareth <Gareth.Wakenshaw@tetratech.com>; Evans, Mark (E,I&S) <mark.evans@staffordshire.gov.uk>
Cc: dwh@hodgettsestates.co.uk; Bunn, Nick <Nick.Bunn@tetratech.com>; Andrew Collinson

<AndrewCollinson@NorthWarks.gov.uk>; Jarvis, Jon (E,I&S) <jon.jarvis@staffordshire.gov.uk>
Subject: RE: Land NE of M42 [Filed 06 Oct 2022 09:01]

Hi Gareth,

Many thanks for your email. It's a shame the surveys weren't undertaken slightly sooner as it appears that there are temporary traffic lights in place along the B5404 which were installed on Monday and are due to remain until the end of the year (according to one.network). This is something that should have been checked by your survey company or yourselves before commissioning/ confirming the date of traffic surveys.

If you have access to any existing data in this area it would be helpful to undertake a validation exercise to show that routeing has not been impacted significantly by the road works. If existing data is not available, then please include a justification in any future Technical Note/ updated Transport Assessment as to why the data collected is acceptable, especially as the survey day is towards the beginning of the temporary traffic light installation period. I am just trying to anticipate some of the feedback that may be received with regards to traffic impact. Unfortunately, we do not have any existing count data available which could be used as part of the validation exercise.

Could I also request that any further submission of data for review is packaged up rather than sent through ad-hoc as my case load is extremely high and I am struggling to get responses out. I will aim to respond in line with our 21-day response period.

Kind regards,
Amrit

Staffordshire County Council

Miss Amrit Mudhar | Project Engineer
Sustainable Development Team - Highways and Built County
Third Floor, Staffordshire Place 1
Tipping Street, Stafford ST16 2DH
Mobile: **07813396146**
Email: **amrit.mudhar1@staffordshire.gov.uk**
www.staffordshire.gov.uk

From: Wakenshaw, Gareth <Gareth.Wakenshaw@tetratech.com>
Sent: 29 September 2022 15:11
To: Mudhar, Amrit (E,I&S) <amrit.mudhar1@staffordshire.gov.uk>; Evans, Mark (E,I&S) <mark.evans@staffordshire.gov.uk>
Cc: dwh@hodgettsestates.co.uk; Bunn, Nick <Nick.Bunn@tetratech.com>
Subject: RE: Land NE of M42

Hi Amrit,

Just letting you know that the two Pennine Way roundabout junctions are being surveyed on Wednesday 5th October. Trust this is ok.

Kind Regards

Gareth Wakenshaw
Principal Transport Planner

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From: Wakenshaw, Gareth
Sent: 26 September 2022 11:58
To: Mudhar, Amrit (E,I&S) <amrit.mudhar1@staffordshire.gov.uk>; Evans, Mark (E,I&S) <mark.evans@staffordshire.gov.uk>
Cc: dwh@hodgettsestates.co.uk; Bunn, Nick <Nick.Bunn@tetratech.com>
Subject: RE: Land NE of M42 [Filed 26 Sep 2022 11:58]

Hi Amrit,

Just letting you know that we have instructed a firm to survey the two Pennine Way roundabout junctions on Wednesday 5th October as per the following spec, trust this is acceptable.

Classified Turning Count and Queue Length Surveys

- The two junctions are to be captured by camera.
- The survey/report hours are to be for a neutral weekday 07:00-09:30 and 16:00-18:30 (5hrs).
- Vehicle count classifications to include pedal cycles, power two-wheelers, cars, LGVs, OGV1, OGV2, PSV, plus PCU values.
- Count data is to be tabulated on .xlsx and summarised in 15-minute and hourly periods.
- Snapshot queue lengths are to be provided by lane on each approach road at 1-minute intervals.
- Queue lengths will be recorded as the number of vehicles when vehicles are stationary, or close to stationary.

Kind Regards

Gareth Wakenshaw
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From: Bunn, Nick
Sent: 09 September 2022 14:29
To: 'Mudhar, Amrit (E,I&S)' <amrit.mudhar1@staffordshire.gov.uk>; 'Evans, Mark (E,I&S)' <mark.evans@staffordshire.gov.uk>
Cc: 'dwh@hodgettsestates.co.uk' <dwh@hodgettsestates.co.uk>
Subject: RE: Land NE of M42

HI Amrit and Mark

When discussing the meeting with david this afternoon – I realised that I had omitted a couple points.. amended notes below

- Prepare an assignment for the Dev Gen trips into Tamworth. At the meeting we did not expect the impacts elsewhere in Tamworth to require investigation – subject to the assignment process. As discussed we'll use Census journey to work data. Once done we'll forward to you for agreement.
- Assess the impact at the Pennine Way N and S roundabouts. Amrit requested that id model files are submitted that these are in Junctions 9 format
- Arrange traffic survey for the above two junctions
- Discuss the Jn10 improvement works with SCC – particularly the ped/ cycle connections into Tamworth
- There were no extant planning permission which would affect the traffic flows at the Pennine Way roundabouts

Dr Nick Bunn **BSc(Hons) PhD MSc MCIHT CMILT**
Director
Pronouns: he, him, his

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From: Bunn, Nick
Sent: 09 September 2022 12:53
To: Mudhar, Amrit (E,I&S) <amrit.mudhar1@staffordshire.gov.uk>; Evans, Mark (E,I&S) <mark.evans@staffordshire.gov.uk>
Cc: dwh@hodgettsestates.co.uk
Subject: Land NE of M42

Hi Amrit and Mark

Thanks for meeting with me today. Brief notes below – do let me know if I have missed anything
As agreed we will.

- Prepare an assignment for the Dev Gen trips into Tamworth. At the meeting we did not expect the impacts elsewhere in Tamworth to require investigation – subject to the assignment process. Once done we'll forward to you for agreement.
- Assess the impact at the Pennine Way N and S roundabouts. Amrit requested that id model files are submitted that these are in Jnctions 9 format
- Arrange traffic survey for the above two junctions
- Discuss the Jn10 improvement works with SCC – particularly the ped/ cycle connections into Tamworth

We will endeavour to keep you in the loop as things develop or if there are further site visits.

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APPENDIX D – CENSUS 2011 JOURNEY TO WORK DATA

Table 1 - Census 2011 Journey to Work (North Warwickshire MSOA 002)

		Route							
Origin	Car Drivers	**A**	**B**	**C**	**D**	**E**	**F**		
E02006217 : Tamworth 001	91	68.25	22.75						
E02006218 : Tamworth 002	90	45		90					
E02006219 : Tamworth 003	122		91.5	30.5					
E02006220 : Tamworth 004	107		53.5	53.5					
E02006221 : Tamworth 005	108			54	54				
E02006222 : Tamworth 006	122			48.8		73.2			
E02006223 : Tamworth 007	122		61	61					
E02006224 : Tamworth 008	172		137.6		34.4				
E02006225 : Tamworth 009	133				133				
E02006226 : Tamworth 010	172				86				50% via Trinity Way
E02006146 : Lichfield 001	10						10		
E02006147 : Lichfield 002	15						15		
E02006148 : Lichfield 003	8						8		
E02006149 : Lichfield 004	13						13		
E02006150 : Lichfield 005	19	19							
E02006151 : Lichfield 006	19						19		
E02006152 : Lichfield 007	15						15		
E02006153 : Lichfield 008	30	30							
E02006154 : Lichfield 009	14						14		
E02006155 : Lichfield 010	8						8		
E02006156 : Lichfield 011	5						5		
E02006157 : Lichfield 012	58		11.6				46.4		
E02001827 : Birmingham 001	3						3		
E02001828 : Birmingham 002	9						9		
E02001829 : Birmingham 003	12						12		
E02001830 : Birmingham 004	3						3		
E02001831 : Birmingham 005	15				5		5		33% via M42
E02001832 : Birmingham 006	7						3.5		50% via M42
E02006118 : Cannock Chase 001	4						4		
E02006119 : Cannock Chase 002	4						4		
E02006120 : Cannock Chase 003	11						11		
E02006121 : Cannock Chase 004	4						4		
E02006122 : Cannock Chase 005	4						4		
E02006123 : Cannock Chase 006	6						6		
E02006124 : Cannock Chase 007	5						5		
E02006125 : Cannock Chase 008	5						5		
E02006126 : Cannock Chase 009	11						11		
E02006127 : Cannock Chase 010	5						5		
E02006128 : Cannock Chase 011	8						8		
E02006129 : Cannock Chase 012	2						2		
E02006130 : Cannock Chase 013	7						7		
E02002110 : Walsall 001	9						9		
E02002111 : Walsall 002	9						9		
E02002112 : Walsall 003	3						3		
E02002113 : Walsall 004	5						5		
E02002116 : Walsall 007	5						5		
E02002119 : Walsall 010	10						10		
	1619	162.25	377.95	337.8	312.4	73.2	305.9	**1570**	revised total (exludes traffic not on SCC network)
Perecentages of development traffic		**10.3%**	**24.1%**	**21.5%**	**19.9%**	**4.7%**	**19.5%**		
		A	**B**	**C**	**D**	**E**	**F**		

APPENDIX E – JUNCTIONS 9 OUTPUT FILES

Junctions 9

ARCADY 9 - Roundabout Module

Filename: m42 pennine way.j9
Path: \\lds-dc-vm-101\Data\Projects\784-B033920 Land NE of M42 Jn10\50 Project Input\52 Generated Data\Traffic Models\South Pennine Way Roundabouts
Report generation date: 23/11/2022 10:28:09

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	[Lane Simulation] - 2022									
Junction 1 - Arm 1	D1	1.0	3.63		A	D2	1.4	4.70		A
Junction 1 - Arm 2		2.4	9.22		A		1.2	6.21		A
Junction 1 - Arm 3		0.2	4.33		A		0.5	4.39		A
Junction 2 - Arm 1		1.3	7.40		A		1.5	9.41		A
Junction 2 - Arm 2		0.9	6.10		A		0.7	5.21		A
Junction 2 - Arm 3		1.9	8.51		A		2.1	9.41		A
Junction 2 - Arm 4		0.2	5.56		A		0.7	6.29		A
	[Lane Simulation] - 2031 Reference Case No Dev									
Junction 1 - Arm 1	D3	1.4	4.24		A	D4	5.9	12.94		B
Junction 1 - Arm 2		6.9	22.55		C		2.3	8.68		A
Junction 1 - Arm 3		0.1	3.80		A		0.4	4.38		A
Junction 2 - Arm 1		4.0	16.53		C		11.7	52.26		F
Junction 2 - Arm 2		0.5	5.15		A		0.5	5.06		A
Junction 2 - Arm 3		2.3	9.28		A		7.5	23.95		C
Junction 2 - Arm 4		0.2	5.59		A		0.7	8.08		A
	[Lane Simulation] - 2031 Reference Case With Dev									
Junction 1 - Arm 1	D5	1.7	4.42		A	D6	6.4	13.65		B
Junction 1 - Arm 2		10.4	32.23		D		2.4	9.48		A
Junction 1 - Arm 3		0.1	3.81		A		0.5	4.33		A
Junction 2 - Arm 1		5.2	20.07		C		13.8	62.72		F
Junction 2 - Arm 2		0.6	4.93		A		0.6	5.02		A
Junction 2 - Arm 3		2.4	8.93		A		9.1	27.59		D
Junction 2 - Arm 4		0.3	5.82		A		0.8	8.47		A
	[Lane Simulation] - 2031 Local Plan No Dev									
Junction 1 - Arm 1	D7	1.4	4.31		A	D8	5.5	13.46		B
Junction 1 - Arm 2		9.5	29.18		D		2.8	10.40		B
Junction 1 - Arm 3		0.1	3.81		A		0.4	4.42		A
Junction 2 - Arm 1		3.8	16.41		C		10.3	51.25		F
Junction 2 - Arm 2		0.5	5.12		A		0.5	5.10		A
Junction 2 - Arm 3		2.0	8.99		A		7.6	24.77		C
Junction 2 - Arm 4		0.2	5.59		A		0.7	7.89		A
	[Lane Simulation] - 2031 Local Plan With Dev									
Junction 1 - Arm 1	D9	1.5	4.41		A	D10	5.5	11.11		B
Junction 1 - Arm 2		14.4	41.89		E		2.8	10.92		B
Junction 1 - Arm 3		0.2	3.87		A		0.2	3.78		A
Junction 2 - Arm 1		4.6	18.64		C		14.1	60.03		F
Junction 2 - Arm 2		0.5	5.10		A		0.5	5.00		A
Junction 2 - Arm 3		2.3	9.49		A		7.8	22.80		C
Junction 2 - Arm 4		0.2	5.76		A		0.7	8.19		A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Arm and junction delays are averages for all movements, including movements with zero delay.

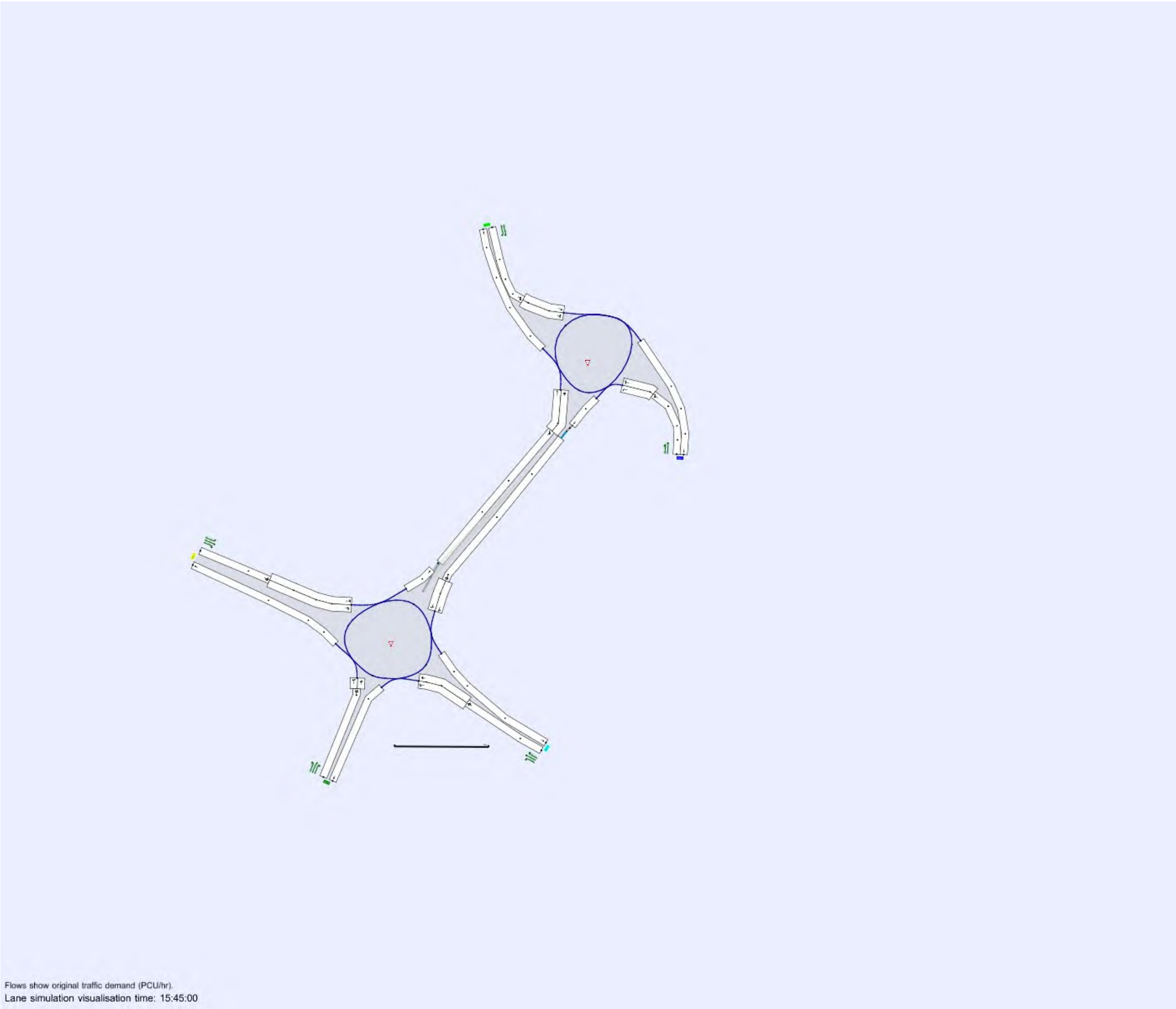
File summary

File Description

Title	
Location	
Site number	
Date	28/10/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	TT\JACK.HARDING
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Criteria type	Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Average animation capture interval (s)	Use quick response	Do flow sampling	Suppress automatic lane creation	Last run random seed	Last run number of trials	Last run time taken (s)
Delay	1.00	100000	100000	1	3	1	60	✓			1	210	29.30

Analysis Set Details

ID	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	✓	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2031 Reference Case With Dev	PM	ONE HOUR	15:45	17:15	15	✓

2031 Reference Case With Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Geometry	Junction 2 - Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Junction 2 - Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	11.25	B
2	untitled	Standard Roundabout		1, 2, 3, 4	32.81	D

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Junction	Arm	Name	Description
1	1	untitled	
	2	untitled	
	3	untitled	
2	1	untitled	
	2	untitled	
	3	untitled	
	4	untitled	

Roundabout Geometry

Junction	Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	1	4.82	7.69	25.8	42.2	53.0	15.5	
	2	3.90	7.90	28.9	44.5	53.0	25.0	
	3	4.68	9.04	20.1	25.1	53.0	20.5	
2	1	4.22	7.60	44.4	27.4	51.5	7.0	
	2	5.08	7.83	5.0	38.7	51.5	17.5	
	3	4.34	6.49	31.0	30.9	51.5	22.5	
	4	6.41	8.13	6.4	20.1	51.5	16.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Junction	Arm	Final slope	Final intercept (PCU/hr)
1	1	0.720	2261
	2	0.683	2111
	3	0.716	2292
2	1	0.740	2298
	2	0.670	1963
	3	0.657	1928
	4	0.734	2331

The slope and intercept shown above include any corrections and adjustments.

Arm Capacity Adjustments

Junction	Arm	Type	Reason	Direct capacity adjustment (PCU/hr)
1	1	Direct	Queue Observations	475

Lane Simulation: Arm options

Junction	Arm	Lane capacity source	Traffic considering secondary lanes (%)
1	1	Evenly split	10.00
	2	Evenly split	10.00
	3	Evenly split	10.00
2	1	Evenly split	10.00
	2	Evenly split	10.00
	3	Evenly split	10.00
	4	Evenly split	10.00

Lanes

Junction	Arm	Side	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Has bottleneck	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)	Signalised
1	1	Entry	1	1	2	✓	4.00		0	99999	
				2	1, 3	✓	4.00		0	99999	
			2	1	(1, 2, 3)	✓	16.00				
		Exit	1	1		✓	4.00				
	2	Entry	1	1	3	✓	4.00		0	99999	
				2	1, 2	✓	4.00		0	99999	
			2	1	(1, 2, 3)		Infinity				
		Exit	1	1			Infinity				
	3	Entry	1	1	1	✓	3.00		0	99999	
				2	2, 3	✓	3.00		0	99999	
			2	1	(1, 2, 3)		Infinity				
		Exit	1	1			Infinity				
2	1	Entry	1	1	2, 3	✓	8.00		0	99999	
				2	1, 4	✓	8.00		0	99999	
			2	1	(1, 2, 3, 4)		Infinity				
		Exit	1	1			Infinity				
	2	Entry	1	1	3, 4	✓	2.00		0	99999	
				2	1, 2	✓	3.00		0	99999	
			2	1	(1, 2, 3, 4)	✓	17.00				
		Exit	1	1		✓	3.00				
	3	Entry	1	1	1, 4	✓	5.00		0	99999	
				2	2, 3	✓	5.00		0	99999	
			2	1	(1, 2, 3, 4)		Infinity				
		Exit	1	1			Infinity				
	4	Entry	1	1	1, 2	✓	1.00		0	99999	
				2	3, 4	✓	1.00		0	99999	
			2	1	(1, 2, 3, 4)		Infinity				
		Exit	1	1			Infinity				

Entry Lane slope and intercept

Junction	Arm	Side	Lane level	Lane	Final slope	Final intercept (PCU/hr)
1	1	Entry	1	1	0.360	1131
				2	0.360	1131
	2	Entry	1	1	0.342	1056
				2	0.342	1056
	3	Entry	1	1	0.358	1146
				2	0.358	1146
2	1	Entry	1	1	0.370	1149
				2	0.370	1149
	2	Entry	1	1	0.335	981
				2	0.335	981
	3	Entry	1	1	0.328	964
				2	0.328	964
	4	Entry	1	1	0.367	1166
				2	0.367	1166

Summary of Entry Lane allowed movements

Junction	Arm	Lane Level	Lane	Destination arm		
				1	2	3
1	1	1	1		✓	
			2	✓		✓
		2	1	✓	✓	✓
	2	1	1			✓
			2	✓	✓	
		2	1	✓	✓	✓
	3	1	1	✓		
			2		✓	✓
		2	1	✓	✓	✓

Summary of Entry Lane allowed movements

Junction	Arm	Lane Level	Lane	Destination arm			
				1	2	3	4
2	1	1	1		✓	✓	
			2	✓			✓
		2	1	✓	✓	✓	✓
	2	1	1			✓	✓
			2	✓	✓		
		2	1	✓	✓	✓	✓
	3	1	1	✓			✓
			2		✓	✓	
		2	1	✓	✓	✓	✓
	4	1	1	✓	✓		
			2			✓	✓
		2	1	✓	✓	✓	✓

Traffic Demand

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	1	2	2	Simple (vertical queueing)	Normal	0	100.00	
2	2	1	1	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1	1	✓				
	2		ONE HOUR	✓	781	100.000
	3		ONE HOUR	✓	310	100.000
2	1		ONE HOUR	✓	698	100.000
	2	✓				
	3		ONE HOUR	✓	1021	100.000
	4		ONE HOUR	✓	252	100.000

Origin-Destination Data

Junction 1

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	1038	268
	2	244	0	537
	3	96	214	0

Proportions

		To		
		1	2	3
From	1	0.00	0.79	0.21
	2	0.31	0.00	0.69
	3	0.31	0.69	0.00

Junction 2

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	647	38	13
	2	240	0	100	23
	3	330	660	0	31
	4	31	167	54	0

Proportions

		To			
		1	2	3	4
From	1	0.00	0.93	0.05	0.02
	2	0.66	0.00	0.28	0.06
	3	0.32	0.65	0.00	0.03
	4	0.12	0.66	0.21	0.00

Vehicle Mix

Junction 1

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	2	4
	2	1	0	2
	3	4	1	0

Average PCU Per Veh

		To		
		1	2	3
From	1	1.000	1.020	1.040
	2	1.010	1.000	1.020
	3	1.040	1.010	1.000

Junction 2

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	8
	2	0	0	1	13
	3	2	3	0	19
	4	0	7	4	0

Average PCU Per Veh

		To			
		1	2	3	4
From	1	1.000	1.000	1.000	1.080
	2	1.000	1.000	1.010	1.130
	3	1.020	1.030	1.000	1.190
	4	1.000	1.070	1.040	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Junction	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
15:45-16:00	1	1	983	983
		2	588	588
		3	233	233
	2	1	525	525
		2	273	273
		3	769	769
		4	190	190
16:00-16:15	1	1	1174	1174
		2	702	702
		3	279	279
	2	1	627	627
		2	326	326
		3	918	918
		4	227	227
16:15-16:30	1	1	1438	1438
		2	860	860
		3	341	341
	2	1	769	769
		2	400	400
		3	1124	1124
		4	277	277
16:30-16:45	1	1	1438	1438
		2	860	860
		3	341	341
	2	1	769	769
		2	400	400
		3	1124	1124
		4	277	277
16:45-17:00	1	1	1174	1174
		2	702	702
		3	279	279
	2	1	627	627
		2	326	326
		3	918	918
		4	227	227
17:00-17:15	1	1	983	983
		2	588	588
		3	233	233
	2	1	525	525
		2	273	273
		3	769	769
		4	190	190

Results

Results Summary for whole modelled period

Junction	Arm	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	1	13.65	6.4	B	1353	2030
	2	9.48	2.4	A	714	1071
	3	4.33	0.5	A	285	428
2	1	62.72	13.8	F	640	960
	2	5.02	0.6	A	308	462
	3	27.59	9.1	D	939	1408
	4	8.47	0.8	A	233	349

Main Results for each time segment

15:45 - 16:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	1115	279	156	1120	1102	258	0.0	1.5	5.142	A
	2	597	149	227	598	586	1049	0.0	0.9	5.849	A
	3	229	57	185	228	233	639	0.0	0.3	3.901	A
2	1	529	132	663	530	526	441	0.0	1.2	9.155	A
	2	257	64	79	257	255	1115	0.0	0.3	4.472	A
	3	770	193	196	767	764	140	0.0	1.9	8.190	A
	4	193	48	913	192	192	51	0.0	0.3	5.646	A

16:00 - 16:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	1328	332	196	1320	1303	297	1.5	2.8	6.972	A
	2	692	173	267	696	698	1248	0.9	1.2	6.950	A
	3	283	71	212	281	280	751	0.3	0.3	4.143	A
2	1	618	154	799	620	618	521	1.2	2.6	14.007	B
	2	295	74	95	294	301	1324	0.3	0.4	4.674	A
	3	918	230	227	920	907	162	1.9	3.0	11.185	B
	4	229	57	1090	229	224	57	0.3	0.4	6.129	A

16:15 - 16:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	1599	400	232	1590	1557	373	2.8	6.4	11.727	B
	2	842	211	325	841	847	1497	1.2	2.2	8.970	A
	3	341	85	263	342	338	903	0.3	0.4	4.328	A
2	1	773	193	963	747	727	636	2.6	11.5	39.340	E
	2	370	93	115	369	368	1595	0.4	0.5	4.944	A
	3	1130	282	283	1117	1095	201	3.0	8.4	21.054	C
	4	275	69	1325	274	277	75	0.4	0.8	8.192	A

16:30 - 16:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	1615	404	238	1613	1614	370	6.4	6.2	13.647	B
	2	846	211	336	845	852	1516	2.2	2.4	9.481	A
	3	344	86	265	343	338	916	0.4	0.5	4.298	A
2	1	764	191	964	761	755	636	11.5	13.8	62.719	F
	2	367	92	115	365	368	1610	0.5	0.6	5.016	A
	3	1128	282	276	1119	1125	204	8.4	9.1	27.588	D
	4	275	69	1323	277	276	72	0.8	0.6	8.467	A

16:45 - 17:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	1351	338	192	1353	1403	307	6.2	2.9	8.513	A
	2	711	178	280	708	707	1265	2.4	1.6	7.216	A
	3	279	70	218	281	280	770	0.5	0.3	4.139	A
2	1	628	157	803	642	671	527	13.8	3.1	32.388	D
	2	304	76	100	303	304	1346	0.6	0.4	4.753	A
	3	921	230	232	926	945	170	9.1	2.7	13.866	B
	4	233	58	1098	233	229	61	0.6	0.4	6.568	A

17:00 - 17:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Average throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	1112	278	161	1113	1129	258	2.9	1.7	5.304	A
	2	597	149	227	597	592	1047	1.6	1.0	6.136	A
	3	237	59	184	235	234	640	0.3	0.3	3.890	A
2	1	525	131	666	523	533	433	3.1	1.4	9.897	A
	2	257	64	80	256	258	1109	0.4	0.4	4.491	A
	3	765	191	192	764	774	144	2.7	2.1	8.646	A
	4	191	48	908	191	190	48	0.4	0.3	5.708	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

15:45 - 16:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	2	888	1550	0.573	893	876	0.0	1.1	4.911	A
				2	1, 3	227	1550	0.147	227	226	0.0	0.2	2.861	A
			2	1	(1, 2, 3)	1115			1115	1107	0.0	0.2	0.640	A
		Exit	1	1		258			258	258	0.0	0.0	0.000	A
	2	Entry	1	1	3	413	978	0.422	412	401	0.0	0.8	6.117	A
				2	1, 2	185	978	0.189	185	184	0.0	0.2	4.561	A
			2	1	(1, 2, 3)	597			598	589	0.0	0.0	0.223	A
		Exit	1	1		1049			1049	1036	0.0	0.0	0.000	A
	3	Entry	1	1	1	73	1080	0.067	72	73	0.0	0.1	3.741	A
				2	2, 3	156	1080	0.145	156	159	0.0	0.2	3.945	A
			2	1	(1, 2, 3)	229			229	234	0.0	0.0	0.019	A
		Exit	1	1		639			639	627	0.0	0.0	0.000	A
2	1	Entry	1	1	2, 3	518	903	0.573	519	516	0.0	1.2	9.139	A
				2	1, 4	12	903	0.013	12	10	0.0	0.0	4.100	A
			2	1	(1, 2, 3, 4)	529			530	531	0.0	0.0	0.107	A
		Exit	1	1		441			441	442	0.0	0.0	0.000	A
	2	Entry	1	1	3, 4	89	955	0.094	90	86	0.0	0.1	4.186	A
				2	1, 2	167	955	0.175	167	168	0.0	0.2	4.546	A
			2	1	(1, 2, 3, 4)	257			257	256	0.0	0.0	0.046	A
		Exit	1	1		1115			1115	1106	0.0	0.0	0.000	A
	3	Entry	1	1	1, 4	272	900	0.303	271	273	0.0	0.5	6.072	A
				2	2, 3	498	900	0.554	496	491	0.0	1.2	8.560	A
			2	1	(1, 2, 3, 4)	770			771	771	0.0	0.1	0.513	A
		Exit	1	1		140			140	138	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2	152	831	0.183	151	152	0.0	0.2	4.661	A
				2	3, 4	41	831	0.049	40	40	0.0	0.0	4.593	A
			2	1	(1, 2, 3, 4)	193			192	193	0.0	0.1	1.002	A
		Exit	1	1		51			51	50	0.0	0.0	0.000	A

16:00 - 16:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	2	1057	1535	0.689	1052	1038	1.1	1.9	5.725	A
				2	1, 3	268	1535	0.174	267	264	0.2	0.3	2.979	A
			2	1	(1, 2, 3)	1328			1325	1306	0.2	0.6	1.792	A
		Exit	1	1		297			297	304	0.0	0.0	0.000	A
	2	Entry	1	1	3	482	964	0.500	484	482	0.8	0.9	7.118	A
				2	1, 2	211	964	0.219	212	216	0.2	0.3	4.876	A
			2	1	(1, 2, 3)	692			693	699	0.0	0.0	0.529	A
		Exit	1	1		1248			1248	1231	0.0	0.0	0.000	A
	3	Entry	1	1	1	86	1070	0.081	86	88	0.1	0.1	3.816	A
				2	2, 3	196	1070	0.184	196	193	0.2	0.2	4.233	A
			2	1	(1, 2, 3)	283			283	280	0.0	0.0	0.037	A
		Exit	1	1		751			751	747	0.0	0.0	0.000	A
2	1	Entry	1	1	2, 3	607	853	0.711	609	606	1.2	2.3	13.322	B
				2	1, 4	11	853	0.013	11	12	0.0	0.0	4.367	A
			2	1	(1, 2, 3, 4)	618			618	622	0.0	0.2	0.805	A
		Exit	1	1		521			521	523	0.0	0.0	0.000	A
	2	Entry	1	1	3, 4	97	950	0.102	96	100	0.1	0.2	4.331	A
				2	1, 2	198	950	0.208	198	201	0.2	0.2	4.725	A
			2	1	(1, 2, 3, 4)	295			295	301	0.0	0.0	0.077	A
		Exit	1	1		1324			1324	1304	0.0	0.0	0.005	A
	3	Entry	1	1	1, 4	322	889	0.361	322	322	0.5	0.6	6.922	A
				2	2, 3	598	889	0.673	598	584	1.2	1.9	10.721	B
			2	1	(1, 2, 3, 4)	918			920	910	0.1	0.5	1.798	A
		Exit	1	1		162			162	164	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2	180	766	0.235	179	176	0.2	0.3	4.821	A
				2	3, 4	50	766	0.065	50	48	0.0	0.1	4.787	A
			2	1	(1, 2, 3, 4)	229			230	224	0.1	0.1	1.316	A
		Exit	1	1		57			57	58	0.0	0.0	0.000	A

16:15 - 16:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	2	1267	1522	0.832	1265	1237	1.9	2.7	7.092	A
				2	1, 3	325	1522	0.213	325	320	0.3	0.3	3.209	A
			2	1	(1, 2, 3)	1599			1591	1560	0.6	3.4	5.411	A
		Exit	1	1		373			373	371	0.0	0.0	0.000	A
	2	Entry	1	1	3	577	945	0.611	578	583	0.9	1.3	8.430	A
				2	1, 2	264	945	0.279	263	265	0.3	0.5	5.349	A
			2	1	(1, 2, 3)	842			841	850	0.0	0.4	1.502	A
		Exit	1	1		1497			1497	1468	0.0	0.0	0.000	A
	3	Entry	1	1	1	109	1052	0.104	110	107	0.1	0.1	4.041	A
				2	2, 3	232	1052	0.220	232	232	0.2	0.3	4.368	A
			2	1	(1, 2, 3)	341			341	338	0.0	0.0	0.060	A
		Exit	1	1		903			903	903	0.0	0.0	0.000	A
2	1	Entry	1	1	2, 3	739	793	0.932	732	714	2.3	6.0	24.842	C
				2	1, 4	15	793	0.019	15	14	0.0	0.0	4.930	A
			2	1	(1, 2, 3, 4)	773			754	742	0.2	5.5	14.522	B
		Exit	1	1		636			636	629	0.0	0.0	0.000	A
	2	Entry	1	1	3, 4	128	943	0.136	127	126	0.2	0.2	4.355	A
				2	1, 2	242	943	0.257	242	242	0.2	0.3	5.048	A
			2	1	(1, 2, 3, 4)	370			370	369	0.0	0.0	0.127	A
		Exit	1	1		1595			1595	1568	0.0	0.0	0.081	A
	3	Entry	1	1	1, 4	394	871	0.452	393	386	0.6	1.0	8.105	A
				2	2, 3	724	871	0.831	724	710	1.9	3.0	14.083	B
			2	1	(1, 2, 3, 4)	1130			1117	1101	0.5	4.5	9.013	A
		Exit	1	1		201			201	200	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2	214	679	0.315	214	219	0.3	0.4	5.498	A
				2	3, 4	59	679	0.087	59	59	0.1	0.1	5.457	A
			2	1	(1, 2, 3, 4)	275			273	278	0.1	0.3	2.699	A
		Exit	1	1		75			75	71	0.0	0.0	0.000	A

16:30 - 16:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	2	1277	1520	0.840	1278	1280	2.7	2.7	7.403	A
				2	1, 3	337	1520	0.222	336	334	0.3	0.4	3.221	A
			2	1	(1, 2, 3)	1615			1614	1615	3.4	3.1	7.096	A
		Exit	1	1		370			370	371	0.0	0.0	0.000	A
	2	Entry	1	1	3	580	941	0.616	580	586	1.3	1.4	8.659	A
				2	1, 2	265	941	0.281	265	267	0.5	0.5	5.510	A
			2	1	(1, 2, 3)	846			844	853	0.4	0.5	1.806	A
		Exit	1	1		1516			1516	1514	0.0	0.0	0.000	A
	3	Entry	1	1	1	105	1051	0.100	105	104	0.1	0.1	3.905	A
				2	2, 3	238	1051	0.227	238	234	0.3	0.3	4.380	A
			2	1	(1, 2, 3)	344			344	338	0.0	0.0	0.060	A
		Exit	1	1		916			916	920	0.0	0.0	0.000	A
2	1	Entry	1	1	2, 3	747	792	0.943	746	741	6.0	6.2	29.920	D
				2	1, 4	14	792	0.018	15	14	0.0	0.0	5.066	A
			2	1	(1, 2, 3, 4)	764			761	756	5.5	7.6	33.179	D
		Exit	1	1		636			636	638	0.0	0.0	0.000	A
	2	Entry	1	1	3, 4	128	943	0.136	127	127	0.2	0.2	4.507	A
				2	1, 2	238	943	0.253	237	240	0.3	0.4	5.026	A
			2	1	(1, 2, 3, 4)	367			366	368	0.0	0.0	0.165	A
		Exit	1	1		1610			1610	1607	0.0	0.1	0.127	A
	3	Entry	1	1	1, 4	402	874	0.460	400	399	1.0	0.9	8.397	A
				2	2, 3	719	874	0.823	719	726	3.0	3.1	15.126	C
			2	1	(1, 2, 3, 4)	1128			1121	1125	4.5	5.1	14.843	B
		Exit	1	1		204			204	207	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2	216	680	0.318	217	213	0.4	0.3	5.767	A
				2	3, 4	61	680	0.089	61	62	0.1	0.1	5.602	A
			2	1	(1, 2, 3, 4)	275			277	276	0.3	0.2	2.740	A
		Exit	1	1		72			72	72	0.0	0.0	0.000	A

16:45 - 17:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	2	1071	1536	0.697	1073	1114	2.7	1.7	6.200	A
				2	1, 3	281	1536	0.183	280	288	0.4	0.3	3.037	A
			2	1	(1, 2, 3)	1351			1352	1398	3.1	0.9	2.970	A
		Exit	1	1		307			307	306	0.0	0.0	0.000	A
	2	Entry	1	1	3	492	960	0.512	490	489	1.4	1.1	7.283	A
				2	1, 2	219	960	0.228	218	218	0.5	0.3	4.910	A
			2	1	(1, 2, 3)	711			711	706	0.5	0.2	0.682	A
		Exit	1	1		1265			1265	1307	0.0	0.0	0.000	A
	3	Entry	1	1	1	88	1068	0.082	88	88	0.1	0.1	3.850	A
				2	2, 3	192	1068	0.179	192	193	0.3	0.2	4.238	A
			2	1	(1, 2, 3)	279			280	280	0.0	0.0	0.023	A
		Exit	1	1		770			770	777	0.0	0.0	0.000	A
2	1	Entry	1	1	2, 3	627	852	0.737	631	659	6.2	2.6	19.440	C
				2	1, 4	12	852	0.014	12	12	0.0	0.0	4.576	A
			2	1	(1, 2, 3, 4)	628			639	657	7.6	0.5	13.932	B
		Exit	1	1		527			527	532	0.0	0.0	0.000	A
	2	Entry	1	1	3, 4	102	948	0.108	101	103	0.2	0.1	4.336	A
				2	1, 2	201	948	0.212	201	201	0.4	0.3	4.838	A
			2	1	(1, 2, 3, 4)	304			303	304	0.0	0.0	0.082	A
		Exit	1	1		1346			1346	1385	0.1	0.0	0.027	A
	3	Entry	1	1	1, 4	326	888	0.367	327	331	0.9	0.5	7.044	A
				2	2, 3	598	888	0.674	599	614	3.1	1.8	11.529	B
			2	1	(1, 2, 3, 4)	921			924	938	5.1	0.4	4.025	A
		Exit	1	1		170			170	171	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2	180	763	0.236	180	178	0.3	0.3	5.039	A
				2	3, 4	53	763	0.069	53	51	0.1	0.1	5.084	A
			2	1	(1, 2, 3, 4)	233			233	228	0.2	0.1	1.516	A
		Exit	1	1		61			61	61	0.0	0.0	0.000	A

17:00 - 17:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Average throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	2	884	1548	0.571	885	899	1.7	1.2	4.957	A
				2	1, 3	227	1548	0.147	227	230	0.3	0.2	2.855	A
			2	1	(1, 2, 3)	1112			1111	1126	0.9	0.3	0.782	A
		Exit	1	1		258			258	260	0.0	0.0	0.000	A
	2	Entry	1	1	3	414	978	0.423	413	408	1.1	0.7	6.418	A
				2	1, 2	183	978	0.187	184	185	0.3	0.2	4.646	A
			2	1	(1, 2, 3)	597			597	590	0.2	0.0	0.289	A
		Exit	1	1		1047			1047	1058	0.0	0.0	0.000	A
	3	Entry	1	1	1	75	1080	0.069	74	75	0.1	0.1	3.686	A
				2	2, 3	162	1080	0.150	161	159	0.2	0.2	3.959	A
			2	1	(1, 2, 3)	237			236	234	0.0	0.0	0.017	A
		Exit	1	1		640			640	637	0.0	0.0	0.000	A
2	1	Entry	1	1	2, 3	516	902	0.571	513	523	2.6	1.4	9.624	A
				2	1, 4	10	902	0.011	10	9	0.0	0.0	4.547	A
			2	1	(1, 2, 3, 4)	525			526	528	0.5	0.0	0.443	A
		Exit	1	1		433			433	443	0.0	0.0	0.000	A
	2	Entry	1	1	3, 4	90	955	0.095	90	87	0.1	0.1	4.151	A
				2	1, 2	166	955	0.174	166	171	0.3	0.2	4.563	A
			2	1	(1, 2, 3, 4)	257			257	258	0.0	0.0	0.065	A
		Exit	1	1		1109			1109	1120	0.0	0.0	0.000	A
	3	Entry	1	1	1, 4	268	901	0.297	267	273	0.5	0.5	5.875	A
				2	2, 3	498	901	0.552	498	501	1.8	1.4	8.956	A
			2	1	(1, 2, 3, 4)	765			765	772	0.4	0.2	0.798	A
		Exit	1	1		144			144	141	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2	151	832	0.181	151	148	0.3	0.2	4.745	A
				2	3, 4	40	832	0.048	40	42	0.1	0.0	4.619	A
			2	1	(1, 2, 3, 4)	191			191	189	0.1	0.1	0.995	A
		Exit	1	1		48			48	50	0.0	0.0	0.000	A

APPENDIX E WCHAR

DRUMMOND BLACK CONSULTING LTD

Tetra Tech

Proposed Employment Land North East of J10 M42, North Warwickshire

Walking, Cycling & Horse-Riding Assessment

Report No. D000157 – WCHAR

4 Kempston Place
South Queensferry
Edinburgh,
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Date: 6th October 2022

DRUMMOND BLACK CONSULTING LTD

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3	25 July 2022	Final Report	RP
4	6^{th} October 2022	Revised Final Report	RP

Contents

Appendices

1 Scheme Description & Background

1.1 Drummond Black Consulting have been commissioned by Tetra Tech to undertake the Walking, Cycling and Horse-Riding Assessment for up to 100,000 sqm of proposed employment uses on land to the north east of M42 Junction 10.

1.2 The report is prepared in accordance with Design Manual for Roads and Bridges (DMRB) *GG142 Walking, Cycling and Horse-Riding Assessment and Review* (WCHAR). A brief was supplied with detailed information including NMU traffic count information and the scope of the project was discussed over online calls with both the design team and Warwickshire County Council (WCC). This has been assessed as a large scheme. National Highways (NH) were contacted, however no comments were received.

1.3 This report assesses the existing facilities for pedestrians, cyclists and equestrian users in the local area, provides background information on the users and identifies opportunities for improvements for the users. The findings and opportunities identified in this report are not solely intended for the developer to address, but to inform discussion with the relevant authorities to enable co-ordination with the development of external schemes to achieve the objectives. A number of these are outlined in the Warwickshire Local Cycling and Walking Infrastructure Plan described in Section 2 (Table 2.1) of this report.

1.4 A site visit was carried out by the lead assessor on Friday 27th May 2022 between 9am and 2pm where the full study area was examined. The weather was clear and sunny. Traffic flow was busy and a number of pedestrians and cyclists were observed.

Background

1.5 The proposed development is for up to 100,000 sqm of employment uses on land to the north east of M42 Junction 10. The proposals also include the removal of existing parking laybys at the A5 and replacing them with a new facility for up to 150 vehicles within the site. The final details of the internal layout, including access junctions and parking layouts, will be addressed at a later date so this assessment seeks to input into this creation of the design.

1.6 The proposed development would be served by a new signal controlled all-movements access junction at the A5. The proposed layout has been designed in accordance with published guidance from National Highways (formerly Highways England), acting as the Highway Authority responsible for the A5 carriageway.

1.7 The site is currently served by a reasonable level of infrastructure to accommodate predicted journeys by walking, cycling and public transport modes. The immediate surrounding area accommodates a substantial amount of employment development, with potentially up to 10,000 people working each day. The proposed development would deliver a range of improvements that should ensure substantial improvements in accessibility, particularly for walking and cycling journeys, that could benefit all users.

1.8 These improvements include upgrading the existing east and westbound bus stop facilitates at the A5, provision of signal controlled crossing facilities within the access as an alternative to the current priority controlled crossing on the A5, upgrading of existing footpaths within the site and adjacent land to provide much improved pedestrian and cyclist links that avoid the M42 Junction 10 and A5 corridor, and finally the delivery of a continuous shared footway/cycleway link that extends throughout the scheme connecting the A5 to Birchmoor and a series of designated route options for pedestrians and cyclists. Access by public transport is also achievable through local bus routes and two rail stations at Polesworth and Wilnecote.

1.9 By providing these infrastructure improvements, the proposed development also offers substantially increased access to and from Local Plan development sites in the area (sites H4 Land east of Polesworth & Dordon, H5 Land to the west of Robey's Lane adjacent to Tamworth and Tamworth Golf Course Sustainable Urban Extension) that intend to deliver over 4,000 dwellings between them. Without the link through the site, residents at each location would likely be required to travel via the M42 Junction 10 and/or the A5 corridor, which could present a significant barrier to sustainable travel options.

1.10 This WCHAR assessment report is prepared as part of the preliminary design phase. The WCHAR review report will be prepared at the end of the preliminary design before construction commences.

1.11 The existing layout and facilities in the area are illustrated in Figure 1 and described below.

1.12 A footway extends along the southern edge of the A5 past the site, measuring approximately 1.8 metres wide. There is a section on the southern side between "The Cat Cottage" and the westbound layby that narrows to less than 1 metre as a result of poor maintenance. Along the northern edge of the carriageway, a 2 metres wide shared footway / cycleway exists, however, there are several points, particularly to the east, where width is constrained by street furniture and overgrown vegetation. The northern path was frequently used by pedestrians and cyclists, whilst the southern path was used less frequently. These connect to the M42/A5 roundabout where all arms include dropped kerbs and tactile paving crossings, although crossings are uncontrolled. There are crossing facilities across the A5 to reach destinations to the south via either signalised crossings at Birch Coppice and Core 42 Business Park or via the overbridges further to the east at Dordon. The path link through to Browns Lane in Dordon is currently signed as “No Cycling”. The streets in Dordon are low speed and traffic calmed. There is scope for improvement along this route with basic improvements in maintenance of overgrown vegetation. To the east, this will provide a link from the site to Dordon and onward to Grendon.

1.13 The residential areas of Birchmoor and Polesworth are within the catchment area of the site and include Polesworth Sports Centre and School. It is currently possible to walk through the site on a bridleway to access Birchmoor and onward destinations to the northwest including good standard cycle routes into Tamworth. Additional onward connections are available via the Coventry Canal off the B5000.

1.14 As mentioned above, there are good facilities to connect to Tamworth to the northwest with an off road path network to the west of Green Lane in Birchmoor. Also to the west of the M42, utilising the footway at the southern edge of the roundabout and then the A5, pedestrians can access the Centurion Business Park and its units via Centurion Way (this includes a Premier Inn Hotel, restaurant/pub, and various employment units (offices and industrial)). The adjacent residential area further west via Watling Street is also within accessible distance. Furthermore, using the footway at the northern edge of the roundabout and then Green Lane (south), pedestrians can access the Relay Park (including various offices and industrial units) and Tamworth Services (this includes M&S Simply Food, Costa Coffee, Burger King and Esso).

1.15 To the south, while there is a footway only provide on the A5, this is used by cyclists and connects to facilities on Trinity Road that provide connections to the southeast of Tamworth and Hockley via Overwoods Road. While the path on the A5 is not signed as a shared facility, it is signed as such from the M42, south on Trinity Road. An alternative public footpath exists through the site of Tamworth Logistics Park (East).

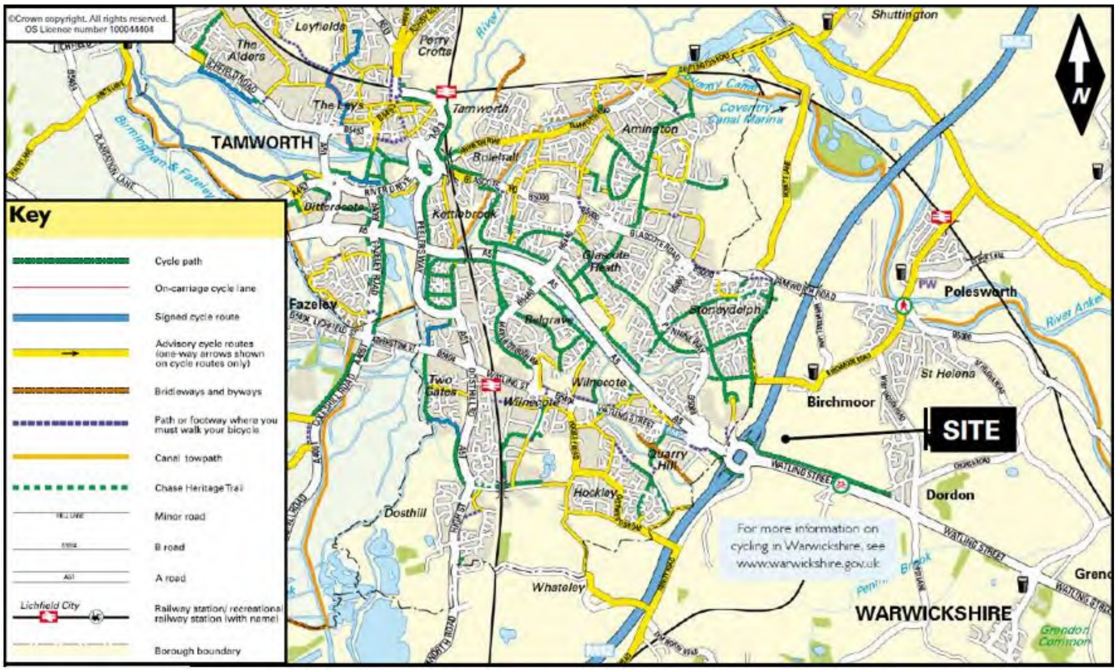


Figure 1 – Existing Cycle Facilities

1.16 Survey information for non-motorised users has been provided for the following locations:

- M42 J10 (Sept 2021 & June 2022)
- A5 Watling Street (Sept 2021 & June 2022)
- Green Lane (West) (June 2022)
- Green Lane/ Cockspur Street (June 2022)
- Path Interchange north of Tamworth Services (June 2022)

1.17 Initial survey data was provided from the Transport Assessment with additional targeted surveys carried out in June 2022. The summary below is from the most recent data.

1.18 On the A5 path passing the site, there were 11 pedestrians (2-way) over 12 hours on the north side and 13 on the south side. During this period there were 38 cyclists on the north side and 51 cyclists on the south side. The Green Lane route through Birchmoor over the M42 was a popular route for pedestrians and cycles as there was 290 (2-way) pedestrians over 12 hours and 71 cyclists.

1.19 On M42 J10, there were 11 pedestrians & 38 cyclists around the north side (Same as A5 passing site above) with 10 pedestrians/ 54 cyclists around the south.

1.20 Pedestrian flows would be considered generally low at all count locations. Full count data is included in Appendix B.

1.21 Information provided by the British Horse Society shows that there are 584 horse registrations in the B78 postcode area, although no horse riding was noted during the site visit or is present in the areas surveyed. Bridleway AE45/1 runs along the eastern site boundary in a north / south direction.

Proposed Access Arrangements

1.22 The proposed internal pedestrian and cycle connections and their links to the external network are shown on the initial site layout drawing in Appendix A.

1.23 Active travel proposals are to include the following:

- 3 metres wide dual use footway/cycleway to either side of the site road and access junction;
- 3 metres wide dual use footpath / cycle path linking north from the site road to Birchmoor;
- 3 metres wide footpath / cycleway linking east from the site road to the nexus of Public Bridleway AE45 and Public Footpath AE46 (Shown on Figure 23 in the Transport Assessment);
- A network and new and improved Public Footpaths, footpaths and cycleways crossing the broader area to promote sustainable modes of travel/commuting and local community health and fitness, particularly enhancing east-west routes. This will include tarmac footpaths and cycleways and appropriate surfaces for bridleways, all of which would be compliant with the Equalities Act 2010 providing “access for all”;
- New off line cycleway connecting east from M42 J10 to Dordon;
- An on-site bus stop for A5 east & westbound buses supported by Stagecoach and WCC;
- New enhanced fully signal controlled pedestrian crossing for the A5, compared to the existing junction staggered pedestrian crossing that passes through the central reserve;
- Cycle parking provided to all units at in excess of the North Warwickshire standards; incorporating a range of parking facilities to include indoor/outdoor parking, secure parking and covered parking, all located at or close to pedestrian entrances;
- Showers and changing facilities provided to all units;
- Communal cycle parking, showers and changing facilities for site occupiers located at the ancillary Hub Office; and
- Site wide Travel Plan to be applicable to all future occupiers.

1.24 For vehicular access, the development would be served by a single signal-controlled access junction at the northern edge of the A5 carriageway. The proposed site access layout is shown in Drawing Number F19123/07 in Appendix A. The proposed layout has been prepared in accordance with the requirements of CD123 'Geometric design of at-grade priority and signal-controlled junctions'.

1.25 In addition to the site access, off site improvements are also proposed, including:

- Signal controlled crossings within the proposed site access helping to reduce usage of the existing priority-controlled facility nearby;
- Provision of an internal pedestrian and cycle link connecting the A5 to Birchmoor, thus offering a higher quality route for pedestrians and cyclists travelling between the A5 and areas to the north and west (particularly within Tamworth);
- Reduction in overall vehicle speeds due to the proximity of an additional signal controlled junction, thereby improving the overall environment for pedestrians and cyclists using the A5 corridor;
- The proposed scheme will increase the separation between pedestrians/cyclists and A5 to standard verge; and
- Removal of existing parking laybys that do not meet current design requirements, in favour of a high-quality lorry parking facility for up to 150 vehicles, to include supporting facilities for drivers.

Scheme Objectives

1.26 No specific objectives have been specified as part of the brief for this assessment, however it is stated that one of the aims of the proposals is to ensure the proposed development is accessible by all modes of transport.

Study Area

1.27 The extent of the study area considered within this WCHAR assessment report has been established by the Lead Assessor following consultation with the cycling officer at WCC, illustrated in Figure 2. The Transport Assessment predicts that 80% of traffic will come from the west from the M42, however non-motorised user traffic would be expected to be more evenly spread from the residential areas surrounding the site. The assessment area broadly comprises of connections to the following:

- Dordon;
- Grendon;
- Polesworth;
- Wilnecote; and
- Tamworth.

Figure 2 – Study Area

2 Walking, Cycling & Horse-Riding Assessment

2.1 This chapter summarises the findings of the assessment as set out in Section 4 of GG 142. The findings under each topic area are summarised under each heading and any potential opportunities for improvements are identified in Chapter 3 of this report.

Assessment of Walking, Cycling & Horse-Riding Policies and Strategies

2.2 To prepare this WCHAR assessment report, the following local and national policy/advice notes have been considered. A policy review was carried out as part of the Transport Assessment and the relevant information from this has been extracted and summarised below. In addition to this, following discussions with the relevant local authorities, additional policy and strategic documents, including the Warwickshire Local Cycling and Walking Infrastructure Plan were provided for review that include potential schemes.

National Planning Policy Framework (NPPF)

2.3 The NPFF is the overarching Government guidance on planning with the latest version released in July 2021. In respect of planning obligations, Paragraph 57 states how contributions must only be sought where they meet all the following tests:

“a) necessary to make the development acceptable in planning terms;
b) directly related to the development; and
c) fairly and reasonably related in scale and kind to the development.”

2.4 The NPPF places heavy emphasis on the importance of sustainability, where Paragraph 105 sets out that:

‘The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making’.

2.5 Paragraph 110 goes on to set out key criteria that development sites should establish. It states:

“In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:

a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;
b) safe and suitable access to the site can be achieved for all users;
c) the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code;
and
d) 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."

2.6 Paragraph 112 of the NPPF goes on to set out a list of preferred criteria for applications for development. It recommends that priority is given to pedestrian and cycle movements and minimising the scope for conflict with vehicles.

DfT Circular 02/2013: The Strategic Road Network and the delivery of sustainable development (10 September 2013)

2.7 In addressing the assessment of development impact, Paragraph 26 advises how the "Highways Agency expects the promoters of development to put forward initiatives that manage down the traffic impact of proposals to support the promotion of sustainable transport and the development of accessible sites. This is particularly necessary where the potential impact is on sections of the strategic road network that could experience capacity problems in the short or medium term".

North Warwickshire Borough Council Local Plan (Adopted September 2021)

2.8 Chapter 5 of the North Warwickshire Borough Council Local Plan (NWBCLP) sets out the following objectives for the Local Plan:

1. To secure a sustainable pattern of development reflecting the rural character of the Borough
2. To provide for the housing needs of the Borough
3. To develop and grow the local economy for the benefit of local residents
4. To maintain and improve the vitality of the Market Towns
5. To promote rural diversification
6. To deliver high quality developments based on sustainable and inclusive designs
7. To protect and enhance the quality of the natural environment and conserve and enhance the historic environment across the Borough

8. To establish and maintain a network of accessible good quality Green Infrastructure, open spaces, sports and recreational facilities
9. To ensure the satisfactory provision of social and cultural facilities

2.9 The document also notes Walking and Cycling (LP27) on the development of a walking and cycling strategy - "All developments should consider what improvements can be made to encourage safe and fully accessible walking and cycling".

2.10 The plan identifies two major housing sites in the area (sites H4 Land east of Polesworth & Dordon and H5 Land to the west of Robey's Lane adjacent to Tamworth) that intend to deliver almost 3,000 homes that will be within the cycling catchment of this site, as well as several smaller housing sites.

Warwickshire Local Cycling and Walking Infrastructure Plan (LCWIP)

2.11 The Warwickshire LCWIP contains a number of proposed cycle schemes (NW10) to the east of the site in Polesworth and Dordon including:

Table 2.1 – Proposed cycle schemes in Polesworth and Dordon

Ref	Potential Schemes	Type
P01	Alvecote development	New footway/ cycle track adjacent to road
P02	Polesworth and Dordon north-south links	On-carriageway cycle route
P03	Bridleway and Green Lane (A5 Birch Coppice - Birchmoor - Stonydelph)	Cycle track/ path on open space and on-carriageway route
P04	Polesworth developments	New footway/ cycle track adjacent to road and cycle track/path
P05	St Helena Road/ Dordon Hall Lane (Polesworth - Grendon)	On-carriageway cycle route
P06	Church Road/ Dunns Lane, Dordon	On-carriageway cycle route
P07	Path (A5 Birch Coppice junction - Browns Lane)	Cycle track/ path on open space
P08	A5 Watling Street (M42 Junction 10)	Widened/ upgraded footway adjacent to road and crossing
P09	Path (A5 Watling Street - Tamworth Logistics Park)	Cycle track/ path on open space
P10	A5 Watling Street (Birch Coppice - Dordon - Grendon)	Widened/ upgraded footway adjacent to road and on-carriageway cycle route
P11	A5 Watling Street (Grendon to Holly Lane)	Widened/ upgraded footway adjacent to road

DMRB – CD 143 Designing for Walking, Cycling and Horse-Riding

- CD 143 should be used for the design of walking, cycling and horse-riding routes on and/or adjacent to the motorway and all-purpose trunk road network.
- Walking, cycling and horse-riding routes shall be free from unnecessary diversions, frequent obstacles and fragmented facilities
- The core design principles for walking, cycling and horse-riding are:
    - Coherence: Link trip origins and destinations, including public transport access points. Routes are continuous and easy to navigate.
    - Directness: Serve all the main destinations and seek to offer an advantage in terms of distance and journey time.
    - Comfort: Infrastructure meets design standards and caters for all types of user, including children and disabled persons.
    - Attractiveness: Aesthetics, noise reduction and integration with surrounding areas are important.
    - Safety: Dedicated networks and facilities not only improve pedestrian, cyclist and equestrian safety, but also their feeling of how safe the environment is. This includes access to adjacent areas, sightlines, fencing, lighting, landscaping and surveillance. It also includes avoiding opportunities for assailants to conceal themselves.

Collision Data

2.12 A collision review was carried out as part of the Transport Assessment covering the M42 Junction, Dordon Roundabout, Long Street and Gypsy Lane. The study period covered the five years to 2020.

2.13 A total of 50 collisions were recorded during the study period, where none were classified as 'fatal', 10 were classified as 'serious', and the remaining 40 collisions all classified as 'slight'. Throughout the study area a total of 6 collisions involved cyclists, two involved pedestrians, and the remaining 42 incidents involved vehicles only. The collisions can be broken down by the following years:

- 2016 - 13 collisions (26%)
- 2017 - 12 collisions (24%)
- 2018 - 9 collisions (18%)

- 2019 - 9 collisions (18%)
- 2020 - 7 collisions (14%)

2.14 Full details of the assessment are included in the Transport Assessment.

2.15 For this assessment WCC have provided collision data for the same time period for the whole area isolating collisions involving pedestrians and cyclists. This plan is included in Appendix C. Specific collisions from this are detailed in Table 2.2 below.

Table 2.2 – Specific Pedestrian and Cycle Collisions

Ref/ Mode	Day/Date	Time	Road Surface/ Weather	Severity	Description
831674 Cycle	06.02.19	1750	Dry	Slight	Vehicle 2 (pedal cycle), travelling on A5 towards Junction 10 M42S, has been struck before the slip road by vehicle 1 (goods<3.5t)
815904 Cycle	06.02.19	1800	Wet/Fine	Slight	Vehicle 2 (pedal cycle) was cycling round the roundabout when vehicle 1 (goods vehicle) cut him up.
151799 Cycle	10.01.17	0625	Wet/Fine	Serious	Vehicle 2 (pedal cycle) entering the island on junction 10, M42S was cut up by vehicle 1 (goods >7.5t) moving from the inside lane to the middle lane causing a collision and the rider to come off his bike.
274607 Cycle	01.03.18	0549	Frost/ Fog	Slight	Vehicle 2 (pedal cycle) has crossed the road in front of vehicle 1 (car) who was travelling along the A5 through a green light, causing them to collide.
929343 Pedestrian	06.02.20	1730	Dry/ Fine	Serious	Casualty 1 ran out into the carriageway of Watling Street (A5) and was hit by vehicle 1 (car) travelling at low speed in slow moving traffic.
979503 Pedestrian	31.07.20	1644	Dry/ fine	Serious	Pedestrian walking across A5 while looking down at their mobile phone was hit by vehicle 1 (motorcycle).
345459 Cycle	22.10.18	1448	Dry/ Fine	Slight	Vehicle 1 (car) turned right at island into Roman Way when vehicle 2 (bicycle), who at own admittance was on his phone, cycled into path of vehicle 1 and was hit on the back wheel.
181855 Cycle	11.05.17	1027	Dry/ Fine	Slight	Vehicle 1 (goods vehicle)travelling up Long Street and turning right into Church Road collided with vehicle 2 (bicycle) travelling down Long Street going past junction of Church Road.

2.16 The above collision summary and the analysis carried out as part of the Transport Assessment shows three cycle collisions at J10 of the M42. Two slight injury collisions to the south and a serious collision to the north. Two cycle collisions were recorded on Long Street and 1 on the A5 at Danny Morson Way. Two serious pedestrian collisions occurred on the A5 between Danny Morson Way and Long Street.

Public Transport Services and Interchange Information

2.17 Following a review of the existing public transport services available within the study area, the following bus services are accessible from the site.

2.18 The site is served by bus routes at the A5 and then at Birchmoor Road, which are each within 400 metres of the site boundary, providing access to a number of locations such as Atherstone, Grendon, Dordon, Polesworth, Amington, Austrey and Tamworth. Routes 766, 767, 785 and 786 operate a combined frequency of one service every hour in each direction, Monday to Saturday, with one bus every 2 hours on Sundays.

2.19 The closest bus stop is located at the northern edge of the A5, approximately 150 metres to the east of the existing access. This comprises a bus pull in layby with no flag and pole arrangement serving eastbound services for Routes 766 and 767. To access westbound services, the closest bus stop is located within the Birch Coppice Business Park, approximately 870 metres to the southeast of the existing site access. Further bus stops are located on Birchmoor Road, approximately 350 metres north of the site which comprise a flag and pole type arrangement for services in both direction for Routes 785 and 786. These services can be accessed from the north of the site via Cockspur Street and the existing bridleway.

2.20 The bus timings for each route indicates that an employee living in Polesworth (or arriving by train) could catch a bus at 0802 hours and arrive at the Birchmoor Road stop for around 0816 hours, meaning a journey time of circa 15 minutes that could connect with the conventional 0900 hours start time. Similarly, employees heading to Tamworth, either to home or the Train Station, could catch a bus at 1750 hours, which should then arrive at Tamworth Rail Station for around 1827. The current journey times provided by each of the route options are such that future employees at the site should be able to travel to work from each of the key local areas set out above.

Table 2.3 – Bus Routes

Service	Route Description
766/767 (Stagecoach)	Atherstone - Grendon - Dordon – Tamworth Tamworth - Dordon - Grendon - Atherstone
785/ 786 Stagecoach	Tamworth - Amington - Polesworth - Dordon - Amington - Tamworth
785/786 (Arriva)	Tamworth - Amington - Polesworth - Dordon - Amington - Tamworth

2.21 The site is served locally by three train stations at Polesworth, Wilnecote, and Tamworth, which each operate separate lines to different destinations. Polesworth Station is located approximately 2.8 kilometres to the north and accommodates the London Northwestern and Avanti West Coast lines, which serve Lichfield Trent Valley, Tamworth, Nuneaton, Stoke on Trent and Rugby. However, there appear to be accessibility issues at this station and severely restricted services are currently being run through this point. Access to Birmingham can be achieved via connections at Tamworth and the Cross Country line. Tamworth Station is approximately 7 kilometres northwest of the proposed site access, whilst Wilnecote Train Station is approximately 5 kilometres to the west.

2.22 Tamworth and Wilnecote Train Stations should be within a comfortable cycle ride or drop off as part of a shared journey. Each station operates regular services to key surrounding towns that could fit with conventional working times for employees at the site or visitors.

Key Trip Generators and Local Amenities

2.23 Within the extents of the study area under consideration, there are a number of key trip generators and local amenities, which have been identified during the preparation of this walking, cycling and horse-riding assessment. As this is an employment site, the main trips will originate from residential areas. This mainly covers Tamworth to the west and Polesworth to the north with many smaller residential areas to the south and east, including Dordon, Grendon and Hockley. This assessment will focus on connectivity to these main areas.

2.24 The proposed site layout includes access for non-motorised users to the north and east of the site as well as from the main access on the A5 with dedicated connecting facilities alongside the spine road. The existing bridleway will be diverted along the eastern boundary of the site.

Site Visit

2.25 A site visit was carried out on 27th May 2022 where the full study area was visited either on foot or by cycle to assess the connections from these access points to the local residential areas. The findings from the site visit are summarised below.

2.26 The findings are separated into the various route connections from the proposed development site based on the direction from the site, including:

- Connections to Tamworth (North & West);
- Connections to Polesworth (North and East);
- Connections Dordon & Grendon (East);
- Connections to Hockley & Wood End (South & West); and
- General Area Wide Findings;

2.27 ***Section 1 (Tamworth)***

2.28 User travelling to and from Tamworth from the site will have the option of travelling to the north to Birchmoor and across the M42 overbridge to Green Lane, and then via an existing network of paths to reach their onward destinations. Alternatively, from the south of the site, users will pass through the main access, then head west on the A5 via a shared footway cycleway and across M42 J10 gyratory.

2.29 Finding 1: Green Lane Connection

Users travelling to Tamworth from the north of the site via Birchmoor would use/ exit via Cockspur Street and then cross the M42 on the Green Lane overbridge. While this is a relatively low traffic route, there are a number of obstacles to active travel. Pavement parking is an issue on Cockspur Street and parked vehicles on the north side of Green Lane enforce a one-way priority system that could be discouraging for cyclists using the carriageway. The footpath on the south side of green lane is relatively wide and could have potential for improvement.

Figure 3 – Green Lane Connection

2.30 Finding 2: A5 Path width and maintenance (South)

All along the A5 in the vicinity of the site and around the M42 junction, vegetation is poorly maintained and reduces the effective width of the footpaths and shared footway/ cycleways. With the proposed development and an expected increase in walking and cycling trips, this could discourage these trips and also create a number of hazards.

Figure 4 – A5 Paths (Southern side)

2.31 Finding 3: M42 J10 uncontrolled crossings

While the M42 junction is signalised, the pedestrian crossings are not included in the signal staging and operate as uncontrolled crossings. While users are able to judge crossing on the traffic signals when red, vulnerable users would be discouraged from using this as a route. A particular area where all users would have difficulty would be at the northbound off-slip where they are required to cross 5 lanes on an uncontrolled crossing.

Figure 5 – Uncontrolled crossings

2.32 Finding 4: Missing link to Centurion Park

Cyclists traveling from the site to the west towards Centurion Park reach a point on the A5 to the west of the M42 where the cycle facility ends on the diverge for Pennine Way/ Quarry Hill roundabout. Here they are instructed to dismount (or ride on the carriageway). The facility to the east is currently footway only but could potentially be upgraded.

Figure 6 – A5 Missing link

2.33 Finding 5: Link through Tamworth Services

If users were to choose to travel west around the north side of the M42 junction, there is a gap in provision of suitable connecting facilities on Green Lane – Relay Drive to link them to the path network to the north. The paths are footway only and do not offer a suitable facility for cyclists. The paths are also currently overgrown with reduced width. The path network access is to the north of Relay Drive with an additional access leading up to Green Lane to the east of the services. It appears as if there would be potential to provide improved links to the path network for onward journeys.

Figure 7 – Relay Drive/ Tamworth Services

2.34 ***Section 2 (Polesworth)***

2.35 Polesworth is a residential area to the north east of the site with a number of schools and a rail station. It is likely that residents in the area would walk or cycle to the site either via Birchmoor Road and Cockspur Street. With the train station to the north and the Coventry Canal, there is potential for onward cycle trips.

2.36 Finding 6: Birchmoor Road (inc. Bus Stops)

While Birchmoor Road has a footway on the south side and lighting, the road is rural in nature and straight which could encourage high speeds. If this link was to be used as a connection for cycles to and from the site, it could benefit from some form of traffic calming.

Figure 8 – Birchmoor Road

2.37 ***Section 3 (Dordon & Grendon)***

2.38 To the east of the site are the residential areas of Dordon and Grendon. The main routes to these areas will be via existing provision on the A5, although there is potential for quieter routes through the site to Dordon. The industrial areas at Birch Coppice are also accessible to the south of the A5.

2.39 Finding 7: Tie-in at Barn Close

There is potential to connect into the west of Dordon at Barn Close, where users could avoid the A5 with a quieter more direct route from the site.

Figure 9 – Barn Close *(Image from Google)*

2.40 Finding 8: Browns Lane Link

There is an existing link from the A5 to the west side of Dordon at Browns Lane, however this is currently signed with “No Cycling” signs. It is expected that this is as result of a narrow pinch point at the eastern end of the lane. There is potential for this link to be upgraded to include cyclists.

Figure 10 – Browns Lane Link

2.41 Finding 9: Pinch Point at Birch Coppice junction

At the traffic signals for the Birch Coppice junction to the east the path narrows considerably and could result in conflicts between pedestrians and cyclists.

Figure 9 – Pinch Point

2.42 Finding 10: A5 East of Quarry Close

For travel further east to Grendon, there is a gap in cycle provision ends (Quarry Close) and only footway provision continues further east. There is potential to improve this and provide for cycles further east. Where there are constraints, localised signing could be used to warn of any hazards.

Figure 10 – End of Cycle Facility

2.43 ***Section 4 (Hockley & Wood End)***

2.44 The main trip attractor to the southwest is the residential area at Hockley with onward destinations to the south of Tamworth. There is a good facility for cycles and pedestrians on Trinity Road and there are paths connecting through Tamworth Logistics Park.

2.45 Finding 11: Missing Link – Trinity Road (North)

While there is a cycle facility on Trinity Road, this does not extend all the way to the M42 junction. The section between the logistics park and the M42 is footway only and is also narrow and overgrown. There are alternative footpath links through the logistics park, although these are not signed and cyclists are prohibited.

Figure 11 – End of Cycle Facility

2.46 Finding 12: Overwoods Road

When cyclists leave the Trinity Road facility and continue west on Overwoods Road, they would be required to ride on road. The road is straight and rural in nature and with potential high vehicle speeds could be discouraging.

Figure 12 – Overwoods Road

2.47 ***Section 5 (General Area Findings)***

2.48 While the area generally has good provision of facilities for non-motorised users, there are a number of issues common across the area that could serve to discourage walking and cycling as a mode choice.

2.49 Finding 13: Maintenance

Area wide, vegetation in particular was overgrown reducing effective widths of path and making access difficult for certain user groups. With adequate maintenance, much of the paths could be significantly widened.

Figure 13 – Maintenance Issues

2.50 Finding 14: Pavement Parking

As also mentioned for the area to the north of the site, general observations throughout the area note that pavement parking is common practice and can be a barrier to walking, especially for those with visual and mobility impairments.

Figure 14 – Pavement Parking

2.51 Finding 15: Lack of tactile paving provision

While tactile paving is provided at some crossing points, particularly on the A5 and M42, there were many crossings noted throughout the area with no formal provision to assist visually impaired users.

Figure 15 – Absence of tactile paving

Consultation with Key Stakeholders

2.52 As the proposals are at a very preliminary stage, it is expected that consultation at this stage would offer little benefit to this assessment. Following discussion with WCC it was agreed that consultation as part of this WCHAR would concentrate on a few key stakeholder groups, including:

- National Highways
- Staffordshire Cycling Officers
- Warwickshire Cycling Officer
- Warwickshire Rights of Way Officer
- Dordon Parish Council
- Local Cycle Forum/ Tamworth Cycle Club
- British Horse Society

2.53 Contact was made with the above, although comments and responses were not received from all groups. Where relevant comments were made, these have been included in the report. If further comments are received after the submission of this report, the report will be updated accordingly.

2.54 Further consultation will be carried out as the scheme proposals develop. This may be carried out as part of a wider consultation on the full proposals as part of the planning process and incorporated in a later review of this assessment.

3 User Opportunities

3.1 The opportunities highlighted below are considered to be relevant to the introduction of a highway improvement scheme and should be considered by the wider design team throughout the progression of the scheme design in addition to any further opportunities that may arise through the ongoing development of the design phase(s). A number of the opportunities identified would not be within full control of the developer and should be discussed further with the relevant roads authorities.

General

3.2 Opportunity 1: Maintenance of existing paths.

With many of the main road paths overgrown with vegetation, the effective width of the paths is significantly reduced. By cutting back the vegetation on these paths and ensuring they are regularly maintained and swept, this can open up more useable and attractive routes for users at a relatively low cost. Where new facilities are created as part of this development, landscaping should be used that requires minimal maintenance. It is understood that much of the maintenance is out-with the control of the developer. Off site maintenance should be discussed with the relevant highway authorities and a maintenance plan put in place.

3.3 Opportunity 2: Parking Restrictions and Enforcement

While it is understood that national government is looking into options for eradicating pavement parking, in the short term, legislation is not expected to be put in place. As noted from the site visit, there is a common issue of parking on pavements in the local area. This can restrict access to some users, particularly those with visual and mobility impairments. As part of the development proposals there are opportunities to provide measure on key routes to reduce pavement parking and ensure unobstructed footways and cycleways. The areas that require specific attention in relation to the development are the connections through Birchmoor and Polesworth and Dordon.

3.4 Opportunity 3: Route signing

It would not be considered feasible for the developer to improve all facilities in the neighbouring areas to ensure accessibility to the site. If a route signing strategy was developed, this would allow the improvements to be focused on main routes. It is recommended that signing of the key routes identified in Section 2 is provided.

3.5 Opportunity 4: Signalising M42 Ped Phases

The current uncontrolled crossings on M42 J10 are a deterrent for these routes being used by non-motorised users. There is an opportunity to provide signalised crossing facilities throughout this junction.

Strategic Opportunities

3.6 Opportunity 5: Green Lane

The proposals outlined in the Transport Assessment include the provision of a 3m wide shared path to connect to Birchmoor. The current provision on Green Lane and over the M42 only has footway provision and requires cyclists to ride on the road. With the parked vehicles this could be discouraging for cyclists, particularly when faced with oncoming traffic. The footway on the south side is relatively wide and may have potential to be upgraded to a shared cycle facility. Alternatively, signing and on road markings could provide a safer facility for cyclists to reach the path network to the west over the M42.

3.7 Opportunity 6: Tamworth Services link

As well as Green Lane, mentioned above, an alternative route to the west for Tamworth would be for users to use the A5 and M42 junction, however there is a gap in provision between the M42 junction and the start of the path network to the north and west of Tamworth Services. There is an opportunity to provide a formal signed route to connect the M42 junction to the path network.

Pedestrian Specific Opportunities

3.8 Opportunity 7: Links to Dordon and Polesworth

Proposals for links to Dordon and Polesworth are mentioned both in the Transport Assessment and as part of LCWIP. There is an opportunity to provide good standard surfaced and lit paths to connect through to Dordon and Polesworth that can be used all year round.

Cycling Specific Opportunities

3.9 Opportunity 8: Trinity Road

With the gap in cycleway provision to the southeast of M42 J10, cyclists choosing this route would be required to cycle on road in an unfriendly environment with heavy traffic. There is an opportunity to upgrade this path to allow shared pedestrian / cycle use.

3.10 Opportunity 9: Overwoods Road

Cyclists travelling to the southwest would be required to ride on the road on Overwoods Road in a potentially hazardous environment. There is an opportunity to improve provision on this section either with road narrowing/ traffic calming and a shared facility.

3.11 Opportunity 10: Birchmoor Road

Cyclists travelling to the north and east could choose to go through Birchmoor and along Birchmoor Road. On this section, cyclists would be required to ride on the road in a potentially hazardous environment. There is an opportunity to improve provision on this section either with road narrowing/ traffic calming and a shared facility.

3.12 Opportunity 11: Signing of route to Canal and Train Station

Linked to opportunity 10, providing a signed route to the key destinations of the train station and the canal could allow focused route improvements either on Birchmoor Road (above) or on a route through Polesworth.

3.13 Opportunity 12: Browns Lane Link

The current provision on this link prevents use by cycles, either requiring them to dismount and walk through or ride on a longer route. There is an opportunity with maintenance and minor widening to upgrade this link to allow use by cyclists.

3.14 Opportunity 13: A5 Cycle provision

A number of gaps in cycle provision on the A5 have been identified where the shared facilities end and continue as footways. This included the links to Grendon to the east, Centurion Park to the west and potential areas of conflict, such as on the north side of the Birch Coppice access junction. Southern sections of the A5 are also for pedestrian use only. These areas have been identified as potential improvements in the LCWIP document for upgrade to cycle standard facilities.

Equestrian Specific Opportunities

3.15 Opportunity 14: Bridleway Diversion – It is understood that the current bridleway that is being diverted is currently considered a cul-de-sac route by the BHS with the A5 acting as a barrier to onward travel. With the introduction of the signalised crossing facilities this BHS felt that it could open up further routes and connections to the south and suggested that the opportunity may exist at this stage is to ensure that the crossing facilities being provided as part of the access junction could be of a standard that would allow a future upgrade for equestrians. From an examination of the available routes it was thought that possibilities for future extension of equestrian routes south of the A5 would be very unlikely and to allow for future upgrading now at the developer's expense would not be reasonable.

4 Walking, Cycling & Horse-Riding Assessment Team Statement

As Lead Assessor, I confirm that this Walking, Cycling & Horse-Riding Assessment Report has been compiled in accordance with DMRB GG 142 and thus contains the appropriate information for the wider design team. The Walking, Cycling & Horse-Riding Assessment was undertaken by the following Assessment and Review Team:

Walking, Cycling & Horse-Riding Lead Assessor

Richard Pearson BSc (Hons) CMILT MCIHT MSoRSA

Director, Drummond Black Consulting Ltd.

Signed:

R Pearson

Date: 6th October 2022

Drummond Black Consulting Ltd
4 Kempston Place
South Queensferry
EH30 9QW

Tel: +44(0) 7866 851654

As design team leader I confirm that the assessment has been undertaken at the appropriate stage of scheme development and that the wider design team has been involved in the process.

I confirm that in my professional opinion the appointed Lead Assessor has the appropriate experience for the role making reference to the expected competencies contained in GG 142.

Design Team Leader

Nick Bunn

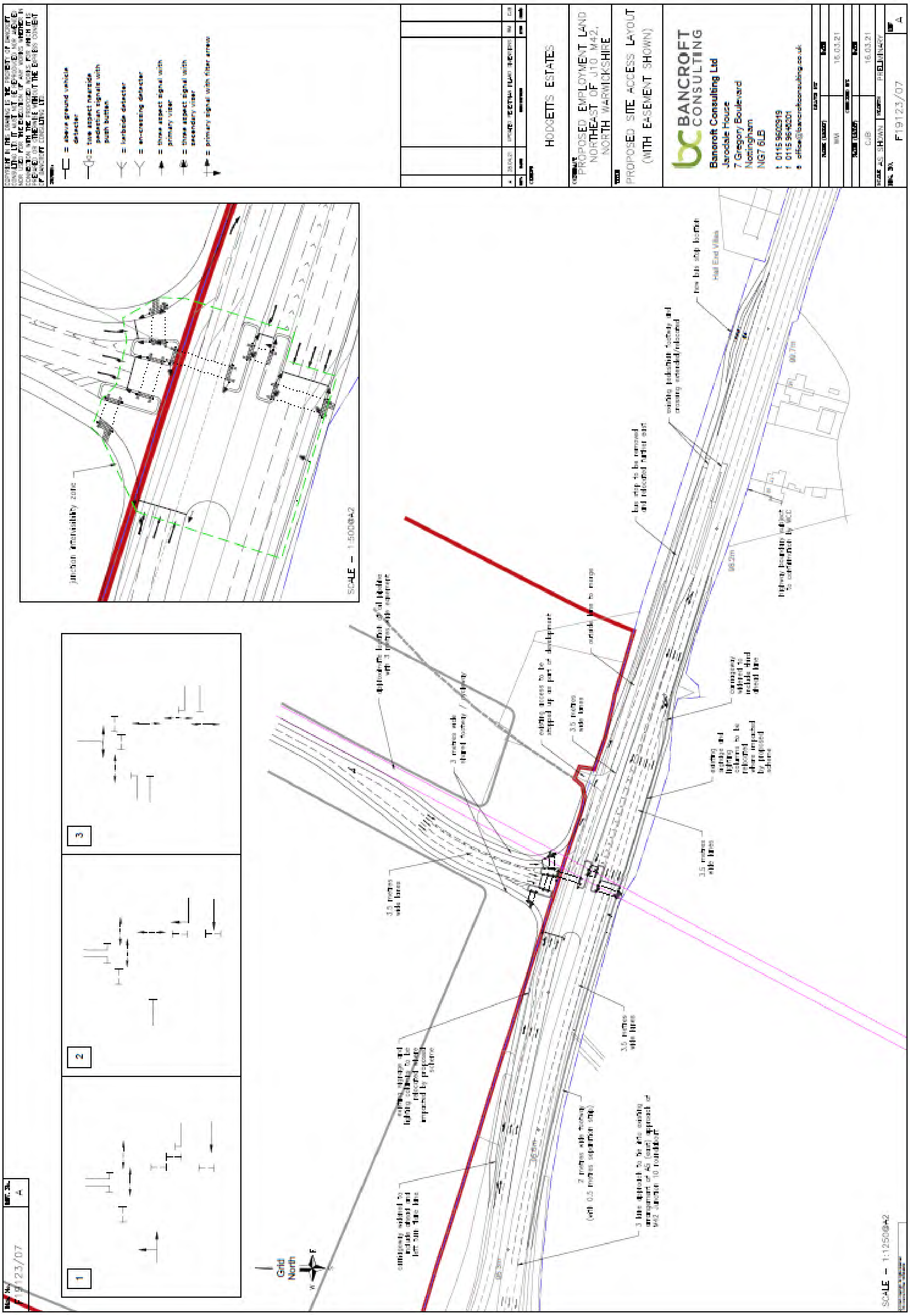
Tetra Tech

Signed: N. Bunn

Date: 6th October 2022

Appendix A – Preliminary Design Layouts


HE 635 SQFT
HE 330 SQFT


HODGETTS ESTATES
PROPOSED EMPLOYMENT LAND
NORTHEAST OF J10 M42,
NORTH WARWICKSHIRE
PROPOSED SITE ACCESS LAYOUT
(WITH EASEMENT SHOWN)
BANCROFT
CONSULTING
Bancroft Consulting Ltd
Jarodale House
7 Gregory Boulevard
Nottingham
NG7 6LB
F19123/07
SCALE – 1:500@A2
SCALE – 1:1250@A2
Grid North

Appendix B – NMU Count Data

Sites: M42 Junction 10, Green Lane & Cockspur Street

Location: Birchmoor, Tamworth B78 1AN

Date: Wednesday 8th June 2022

Time: 07:00-19:00

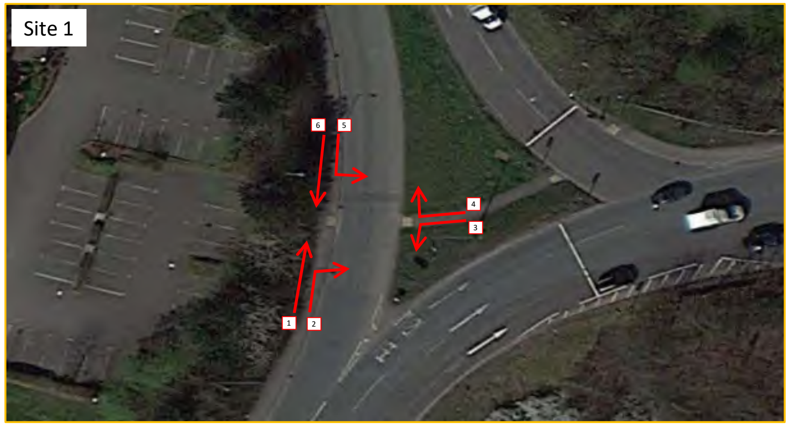
CHARGE SURVEYS

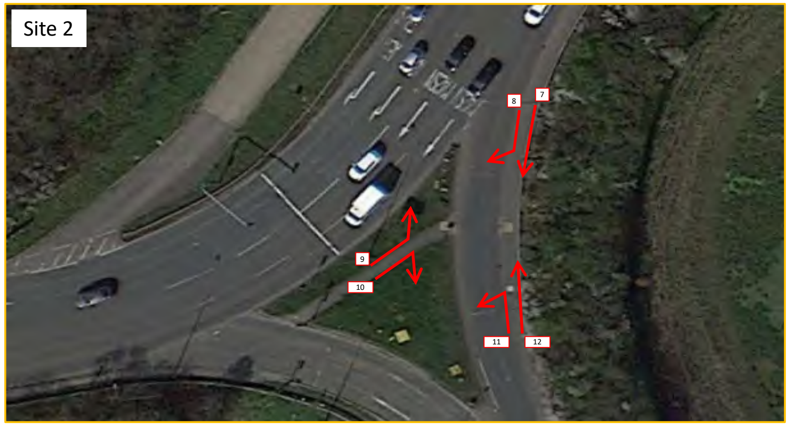
Sites: M42 Junction 10, Green Lane & Cockspur Street

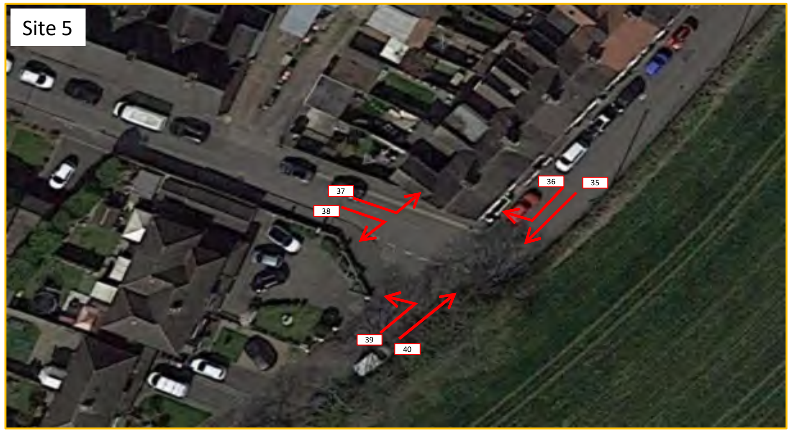
Location: Birchmoor, Tamworth B78 1AN

Date: Wednesday 8th June 2022

Time: 07:00-19:00







CHARGE SURVEYS

Site: 1 - M42 Junction 10 (North)

Location: Birchmoor, Tamworth B78 1AN

Date: Wednesday 8th June 2022

Time: 07:00-19:00

Site 1 - M42 Junction 10 North - 07:00-19:00 - 15 Minute Intervals

MOVEMENT 1 — FROM GREEN LANE FOOTPATH (SOUTH) TRAVELLING NORTHBOUND TO GREEN LANE FOOTPATH (NORTH)

	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0715	0	0	0	0	0	0	0
0715-0730	0	0	0	0	0	0	0
0730-0745	0	0	0	0	0	0	0
0745-0800	0	0	0	0	0	0	0
0800-0815	0	0	0	0	0	0	0
0815-0830	0	0	0	0	0	0	0
0830-0845	0	0	0	0	0	0	0
0845-0900	0	0	0	0	0	0	0
0900-0915	0	0	0	0	0	0	0
0915-0930	0	0	0	0	0	0	0
0930-0945	0	0	0	0	0	0	0
0945-1000	0	0	0	0	0	0	0
1000-1015	0	0	0	0	0	0	0
1015-1030	0	0	0	0	0	0	0
1030-1045	0	0	0	0	0	0	0
1045-1100	0	0	0	0	0	0	0
1100-1115	0	0	0	0	0	0	0
1115-1130	0	0	0	0	0	0	0
1130-1145	0	0	0	0	0	0	0
1145-1200	0	0	0	0	0	0	0
1200-1215	1	0	0	0	0	0	1
1215-1230	0	0	0	0	0	0	0
1230-1245	0	0	0	0	0	0	0
1245-1300	0	0	0	0	0	0	0
1300-1315	0	0	0	0	0	0	0
1315-1330	2	0	0	0	0	0	2
1330-1345	0	0	0	0	0	0	0
1345-1400	0	0	0	0	0	0	0
1400-1415	0	0	0	0	0	0	0
1415-1430	0	1	0	0	0	0	1
1430-1445	0	0	0	0	0	0	0
1445-1500	0	0	0	0	0	0	0
1500-1515	0	0	0	0	0	0	0
1515-1530	0	0	0	0	0	0	0
1530-1545	0	0	0	0	0	0	0
1545-1600	0	0	0	0	0	0	0
1600-1615	0	0	0	0	0	0	0
1615-1630	0	0	0	0	0	0	0
1630-1645	0	0	0	0	0	0	0
1645-1700	0	0	0	0	0	0	0
1700-1715	0	1	0	0	0	0	1
1715-1730	0	0	0	0	0	0	0
1730-1745	0	0	0	0	0	0	0
1745-1800	0	0	0	0	0	0	0
1800-1815	0	0	0	0	0	0	0
1815-1830	0	0	0	0	0	0	0
1830-1845	0	0	0	0	0	0	0
1845-1900	0	0	0	0	0	0	0
0700-1900	**3**	**2**	**0**	**0**	**0**	**0**	**5**

MOVEMENT 2 — FROM GREEN LANE FOOTPATH (SOUTH) RIGHT TURN TO ISLAND FOOTPATH

	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0715	0	0	0	0	0	0	0
0715-0730	0	0	0	0	0	0	0
0730-0745	0	1	0	0	0	0	1
0745-0800	0	0	0	0	0	0	0
0800-0815	0	0	0	0	0	0	0
0815-0830	0	0	0	0	0	0	0
0830-0845	1	0	1	0	0	0	2
0845-0900	1	0	0	0	0	0	1
0900-0915	1	0	0	0	0	0	1
0915-0930	0	0	0	0	0	0	0
0930-0945	0	0	0	0	0	0	0
0945-1000	0	0	0	0	0	0	0
1000-1015	0	0	0	0	0	0	0
1015-1030	0	0	0	0	0	0	0
1030-1045	0	1	0	0	0	0	1
1045-1100	0	1	0	0	0	0	1
1100-1115	0	1	0	0	0	0	1
1115-1130	0	0	0	0	0	0	0
1130-1145	0	0	0	0	0	0	0
1145-1200	0	0	0	0	0	0	0
1200-1215	0	0	0	0	0	0	0
1215-1230	0	0	0	0	0	0	0
1230-1245	0	0	0	0	0	0	0
1245-1300	0	0	0	0	0	0	0
1300-1315	0	0	0	0	0	0	0
1315-1330	0	0	0	0	0	0	0
1330-1345	0	0	1	0	0	0	1
1345-1400	0	1	0	0	0	0	1
1400-1415	0	0	0	0	0	0	0
1415-1430	0	0	0	0	0	0	0
1430-1445	0	0	0	0	0	0	0
1445-1500	0	0	0	0	0	0	0
1500-1515	0	0	0	0	0	0	0
1515-1530	0	0	0	0	0	0	0
1530-1545	0	1	0	0	0	0	1
1545-1600	0	0	0	0	0	0	0
1600-1615	0	0	0	0	0	0	0
1615-1630	0	0	0	0	0	0	0
1630-1645	0	1	0	0	0	0	1
1645-1700	0	0	0	0	0	0	0
1700-1715	0	1	0	0	0	0	1
1715-1730	0	1	0	0	0	0	1
1730-1745	0	0	0	0	0	0	0
1745-1800	0	0	0	0	0	0	0
1800-1815	0	1	0	0	0	0	1
1815-1830	0	1	0	0	0	0	1
1830-1845	0	1	0	0	0	0	1
1845-1900	0	0	0	0	0	0	0
0700-1900	**3**	**12**	**2**	**0**	**0**	**0**	**17**

MOVEMENT 3 — FROM ISLAND FOOTPATH LEFT TURN TO GREEN LANE FOOTPATH (SOUTH)

	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0715	0	0	0	0	0	0	0
0715-0730	0	0	0	0	0	0	0
0730-0745	0	1	0	0	0	0	1
0745-0800	0	0	0	0	0	0	0
0800-0815	0	0	0	0	0	0	0
0815-0830	0	0	0	0	0	0	0
0830-0845	0	0	0	0	0	0	0
0845-0900	0	0	0	0	0	0	0
0900-0915	0	0	0	0	0	0	0
0915-0930	0	0	0	0	0	0	0
0930-0945	0	0	0	0	0	0	0
0945-1000	0	0	0	0	0	0	0
1000-1015	0	0	0	0	0	0	0
1015-1030	0	0	0	0	0	0	0
1030-1045	0	0	0	0	0	0	0
1045-1100	0	0	0	0	0	0	0
1100-1115	0	0	0	0	0	0	0
1115-1130	0	0	0	0	0	0	0
1130-1145	0	0	0	0	0	0	0
1145-1200	0	0	0	0	0	0	0
1200-1215	0	1	0	0	0	0	1
1215-1230	0	0	0	0	0	0	0
1230-1245	1	0	0	0	0	0	1
1245-1300	0	0	0	0	0	0	0
1300-1315	0	0	0	0	0	0	0
1315-1330	0	1	0	0	0	0	1
1330-1345	0	0	0	0	0	0	0
1345-1400	0	0	0	0	0	0	0
1400-1415	0	0	0	0	0	0	0
1415-1430	0	0	0	0	0	0	0
1430-1445	0	0	0	0	0	0	0
1445-1500	0	0	0	0	0	0	0
1500-1515	0	0	0	0	0	0	0
1515-1530	0	0	0	0	0	0	0
1530-1545	0	0	0	0	0	0	0
1545-1600	0	0	0	0	0	0	0
1600-1615	0	0	0	0	0	0	0
1615-1630	0	0	0	0	0	0	0
1630-1645	0	0	0	0	0	0	0
1645-1700	0	0	0	0	0	0	0
1700-1715	0	0	0	0	0	0	0
1715-1730	0	0	0	0	0	0	0
1730-1745	0	2	0	0	0	0	2
1745-1800	0	0	0	0	0	0	0
1800-1815	1	0	1	0	0	0	2
1815-1830	1	0	0	0	0	0	1
1830-1845	1	0	0	0	0	0	1
1845-1900	0	0	0	0	0	0	0
0700-1900	**4**	**5**	**1**	**0**	**0**	**0**	**10**

MOVEMENT 4 — FROM ISLAND FOOTPATH RIGHT TURN TO GREEN LANE FOOTPATH (NORTH)

	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0715	0	0	0	0	0	0	0
0715-0730	0	0	0	0	0	0	0
0730-0745	0	0	0	0	0	0	0
0745-0800	0	0	0	0	0	0	0
0800-0815	0	0	0	0	0	0	0
0815-0830	0	0	0	0	0	0	0
0830-0845	0	0	0	0	0	0	0
0845-0900	0	0	0	0	0	0	0
0900-0915	1	0	0	0	0	0	1
0915-0930	0	0	0	0	0	0	0
0930-0945	0	0	0	0	0	0	0
0945-1000	0	0	0	0	0	0	0
1000-1015	0	1	0	0	0	0	1
1015-1030	0	1	0	0	0	0	1
1030-1045	0	0	0	0	0	0	0
1045-1100	0	0	0	0	0	0	0
1100-1115	0	0	0	0	0	0	0
1115-1130	0	0	0	0	0	0	0
1130-1145	0	0	0	0	0	0	0
1145-1200	0	0	0	0	0	0	0
1200-1215	0	0	0	0	0	0	0
1215-1230	0	1	0	0	0	0	1
1230-1245	0	0	0	0	0	0	0
1245-1300	0	0	0	0	0	0	0
1300-1315	0	0	0	0	0	0	0
1315-1330	0	0	0	0	0	0	0
1330-1345	0	1	0	0	0	0	1
1345-1400	0	0	0	0	0	0	0
1400-1415	0	1	0	0	0	0	1
1415-1430	0	1	0	0	0	0	1
1430-1445	0	1	0	0	0	0	1
1445-1500	0	0	0	0	0	0	0
1500-1515	0	0	0	0	0	0	0
1515-1530	0	1	0	0	0	0	1
1530-1545	0	0	0	0	0	0	0
1545-1600	0	0	0	0	0	0	0
1600-1615	0	0	0	0	0	0	0
1615-1630	1	0	0	0	0	0	1
1630-1645	0	0	0	0	0	0	0
1645-1700	0	1	0	0	0	0	1
1700-1715	0	1	0	0	0	0	1
1715-1730	0	0	0	0	0	0	0
1730-1745	0	1	0	0	0	0	1
1745-1800	0	0	0	0	0	0	0
1800-1815	0	2	0	0	0	0	2
1815-1830	0	1	0	0	0	0	1
1830-1845	0	0	0	0	0	0	0
1845-1900	0	0	0	0	0	0	0
0700-1900	**2**	**14**	**0**	**0**	**0**	**0**	**16**

MOVEMENT 5 — FROM GREEN LANE FOOTPATH (NORTH) LEFT TURN TO ISLAND FOOTPATH

	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0715	0	0	0	0	0	0	0
0715-0730	0	0	0	0	0	0	0
0730-0745	0	0	0	0	0	0	0
0745-0800	0	1	0	0	0	0	1
0800-0815	0	0	0	0	0	0	0
0815-0830	0	0	0	0	0	0	0
0830-0845	0	0	0	0	0	0	0
0845-0900	0	0	0	0	0	0	0
0900-0915	0	0	0	0	0	0	0
0915-0930	0	0	0	0	0	0	0
0930-0945	0	0	0	0	0	0	0
0945-1000	0	0	0	0	0	0	0
1000-1015	0	0	0	0	0	0	0
1015-1030	0	0	0	0	0	0	0
1030-1045	0	0	0	0	0	0	0
1045-1100	0	0	0	0	0	0	0
1100-1115	0	0	0	0	0	0	0
1115-1130	0	0	0	0	0	0	0
1130-1145	0	0	0	0	0	0	0
1145-1200	1	0	0	0	0	0	1
1200-1215	0	0	0	0	0	0	0
1215-1230	0	0	0	0	0	0	0
1230-1245	0	0	0	0	0	0	0
1245-1300	0	1	0	0	0	0	1
1300-1315	0	0	0	0	0	0	0
1315-1330	0	1	0	0	0	0	1
1330-1345	0	0	0	0	0	0	0
1345-1400	0	0	0	0	0	0	0
1400-1415	0	1	0	0	0	0	1
1415-1430	0	1	0	0	0	0	1
1430-1445	0	0	0	0	0	0	0
1445-1500	0	0	0	0	0	0	0
1500-1515	0	0	0	0	0	0	0
1515-1530	0	0	0	0	0	0	0
1530-1545	0	0	0	0	0	0	0
1545-1600	0	0	0	0	0	0	0
1600-1615	0	0	0	0	0	0	0
1615-1630	0	0	0	0	0	0	0
1630-1645	0	0	0	0	0	0	0
1645-1700	0	0	0	0	0	0	0
1700-1715	0	0	0	0	0	0	0
1715-1730	0	0	0	0	0	0	0
1730-1745	1	1	0	0	0	0	2
1745-1800	0	0	0	0	0	0	0
1800-1815	0	1	0	0	0	0	1
1815-1830	0	0	0	0	0	0	0
1830-1845	0	0	0	0	0	0	0
1845-1900	0	0	0	0	0	0	0
0700-1900	**2**	**7**	**0**	**0**	**0**	**0**	**9**

MOVEMENT 6 — FROM GREEN LANE FOOTPATH (NORTH) TRAVELLING SOUTHBOUND TO GREEN LANE FOOTPATH (SOUTH)

	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0715	0	0	0	0	0	0	0
0715-0730	0	0	0	0	0	0	0
0730-0745	0	0	0	0	0	0	0
0745-0800	0	0	0	0	0	0	0
0800-0815	0	0	0	0	0	0	0
0815-0830	0	0	0	0	0	0	0
0830-0845	0	0	0	0	0	0	0
0845-0900	0	0	0	0	0	0	0
0900-0915	0	0	0	0	0	0	0
0915-0930	0	0	0	0	0	0	0
0930-0945	0	0	0	0	0	0	0
0945-1000	0	0	0	0	0	0	0
1000-1015	0	0	0	0	0	0	0
1015-1030	0	0	0	0	0	0	0
1030-1045	0	0	0	0	0	0	0
1045-1100	0	0	0	0	0	0	0
1100-1115	0	0	0	0	0	0	0
1115-1130	0	0	0	0	0	0	0
1130-1145	0	0	0	0	0	0	0
1145-1200	0	0	0	0	0	0	0
1200-1215	0	0	0	0	0	0	0
1215-1230	0	0	0	0	0	0	0
1230-1245	0	0	0	0	0	0	0
1245-1300	2	0	0	0	0	0	2
1300-1315	0	0	0	0	0	0	0
1315-1330	0	0	0	0	0	0	0
1330-1345	0	0	0	0	0	0	0
1345-1400	0	0	0	0	0	0	0
1400-1415	0	0	0	0	0	0	0
1415-1430	0	0	0	0	0	0	0
1430-1445	0	0	0	0	0	0	0
1445-1500	0	0	0	0	0	0	0
1500-1515	0	0	0	0	0	0	0
1515-1530	0	0	0	0	0	0	0
1530-1545	0	0	0	0	0	0	0
1545-1600	0	0	0	0	0	0	0
1600-1615	0	0	0	0	0	0	0
1615-1630	0	0	0	0	0	0	0
1630-1645	0	0	0	0	0	0	0
1645-1700	0	0	0	0	0	0	0
1700-1715	0	0	0	0	0	0	0
1715-1730	0	0	0	0	0	0	0
1730-1745	0	0	0	0	0	0	0
1745-1800	0	0	0	0	0	0	0
1800-1815	0	0	0	0	0	0	0
1815-1830	0	0	0	0	0	0	0
1830-1845	0	0	0	0	0	0	0
1845-1900	0	0	0	0	0	0	0
0700-1900	**2**	**0**	**0**	**0**	**0**	**0**	**2**

CHARGE SURVEYS

Site: 1 - M42 Junction 10 (North)

Location: Birchmoor, Tamworth B78 1AN

Date: Wednesday 8th June 2022

Time: 07:00-19:00

Site 1 - M42 Junction 10 North - 07:00-19:00 - Hourly Totals

	MOVEMENT 1: FROM GREEN LANE FOOTPATH (SOUTH) TRAVELLING NORTHBOUND TO GREEN LANE FOOTPATH (NORTH)							MOVEMENT 2: FROM GREEN LANE FOOTPATH (SOUTH) RIGHT TURN TO ISLAND FOOTPATH							MOVEMENT 3: FROM ISLAND FOOTPATH LEFT TURN TO GREEN LANE FOOTPATH (SOUTH)							MOVEMENT 4: FROM ISLAND FOOTPATH RIGHT TURN TO GREEN LANE FOOTPATH (NORTH)							MOVEMENT 5: FROM GREEN LANE FOOTPATH (NORTH) LEFT TURN TO ISLAND FOOTPATH							MOVEMENT 6: FROM GREEN LANE FOOTPATH (NORTH) TRAVELLING SOUTHBOUND TO GREEN LANE FOOTPATH (SOUTH)						
	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0800	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
0715-0815	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
0730-0830	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
0745-0845	0	0	0	0	0	0	**0**	1	0	1	0	0	0	**2**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
0800-0900	0	0	0	0	0	0	**0**	2	0	1	0	0	0	**3**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0815-0915	0	0	0	0	0	0	**0**	3	0	1	0	0	0	**4**	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0830-0930	0	0	0	0	0	0	**0**	3	0	1	0	0	0	**4**	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0845-0945	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0900-1000	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0915-1015	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0930-1030	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	2	0	0	0	0	**2**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0945-1045	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	2	0	0	0	0	**2**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1000-1100	0	0	0	0	0	0	**0**	0	2	0	0	0	0	**2**	0	0	0	0	0	0	**0**	0	2	0	0	0	0	**2**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1015-1115	0	0	0	0	0	0	**0**	0	3	0	0	0	0	**3**	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1030-1130	0	0	0	0	0	0	**0**	0	3	0	0	0	0	**3**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1045-1145	0	0	0	0	0	0	**0**	0	2	0	0	0	0	**2**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1100-1200	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1115-1215	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1130-1230	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	1	0	0	0	0	**1**	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1145-1245	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**	1	1	0	0	0	0	**2**	0	1	0	0	0	0	**1**	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1200-1300	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**	1	1	0	0	0	0	**2**	0	1	0	0	0	0	**1**	0	1	0	0	0	0	**1**	2	0	0	0	0	0	**2**
1215-1315	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	0	1	0	0	0	0	**1**	0	1	0	0	0	0	**1**	2	0	0	0	0	0	**2**
1230-1330	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**	1	1	0	0	0	0	**2**	0	0	0	0	0	0	**0**	0	2	0	0	0	0	**2**	2	0	0	0	0	0	**2**
1245-1345	2	0	0	0	0	0	**2**	0	0	1	0	0	0	**1**	0	1	0	0	0	0	**1**	0	1	0	0	0	0	**1**	0	2	0	0	0	0	**2**	2	0	0	0	0	0	**2**
1300-1400	2	0	0	0	0	0	**2**	0	1	1	0	0	0	**2**	0	1	0	0	0	0	**1**	0	1	0	0	0	0	**1**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1315-1415	2	0	0	0	0	0	**2**	0	1	1	0	0	0	**2**	0	1	0	0	0	0	**1**	0	2	0	0	0	0	**2**	0	2	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1330-1430	0	1	0	0	0	0	**1**	0	1	1	0	0	0	**2**	0	0	0	0	0	0	**0**	0	3	0	0	0	0	**3**	0	2	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1345-1445	0	1	0	0	0	0	**1**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	3	0	0	0	0	**3**	0	2	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1400-1500	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	3	0	0	0	0	**3**	0	2	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1415-1515	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	2	0	0	0	0	**2**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1430-1530	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	2	0	0	0	0	**2**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1445-1545	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1500-1600	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1515-1615	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1530-1630	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1545-1645	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1600-1700	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	1	1	0	0	0	0	**2**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1615-1715	0	1	0	0	0	0	**1**	0	2	0	0	0	0	**2**	0	0	0	0	0	0	**0**	1	2	0	0	0	0	**3**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1630-1730	0	1	0	0	0	0	**1**	0	3	0	0	0	0	**3**	0	0	0	0	0	0	**0**	0	2	0	0	0	0	**2**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1645-1745	0	1	0	0	0	0	**1**	0	2	0	0	0	0	**2**	0	2	0	0	0	0	**2**	0	3	0	0	0	0	**3**	1	1	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1700-1800	0	1	0	0	0	0	**1**	0	2	0	0	0	0	**2**	0	2	0	0	0	0	**2**	0	2	0	0	0	0	**2**	1	1	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1715-1815	0	0	0	0	0	0	**0**	0	2	0	0	0	0	**2**	1	2	1	0	0	0	**4**	0	3	0	0	0	0	**3**	1	2	0	0	0	0	**3**	0	0	0	0	0	0	**0**
1730-1830	0	0	0	0	0	0	**0**	0	2	0	0	0	0	**2**	2	2	1	0	0	0	**5**	0	4	0	0	0	0	**4**	1	2	0	0	0	0	**3**	0	0	0	0	0	0	**0**
1745-1845	0	0	0	0	0	0	**0**	0	3	0	0	0	0	**3**	3	0	1	0	0	0	**4**	0	3	0	0	0	0	**3**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1800-1900	0	0	0	0	0	0	**0**	0	3	0	0	0	0	**3**	3	0	1	0	0	0	**4**	0	3	0	0	0	0	**3**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
	HOURLY TOTALS							HOURLY TOTALS							HOURLY TOTALS							HOURLY TOTALS							HOURLY TOTALS							HOURLY TOTALS						

![CHARGE SURVEYS]

Site: 2 - M42 Junction 10 (South)

Location: Birchmoor, Tamworth B78 1AN

Date: Wednesday 8th June 2022

Time: 07:00-19:00

Site 2 - M42 Junction 10 South - 07:00-19:00 - 15 Minute Intervals

	MOVEMENT 7							MOVEMENT 8							MOVEMENT 9						
	FROM UNNAMED ROAD FOOTPATH (NORTH) TRAVELLING SOUTBOUND TO UNNAMED ROAD FOOTPATH (SOUTH)							FROM UNNAMED ROAD FOOTPATH (NORTH) RIGHT TURN TO ISLAND FOOTPATH							FROM ISLAND FOOTPATH LEFT TURN TO UNNAMED ROAD FOOTPATH (NORTH)						
	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0715	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**	0	1	0	0	0	0	**1**
0715-0730	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	2	0	0	0	0	**2**
0730-0745	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	2	0	0	0	0	**2**
0745-0800	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0800-0815	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	2	0	0	0	0	**2**
0815-0830	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	1	1	0	0	0	**2**
0830-0845	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0845-0900	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0900-0915	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**
0915-0930	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
0930-0945	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0945-1000	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1000-1015	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1015-1030	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1030-1045	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1045-1100	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1100-1115	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1115-1130	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1130-1145	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1145-1200	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1200-1215	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1215-1230	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1230-1245	0	0	0	0	0	0	**0**	0	2	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1245-1300	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1300-1315	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1315-1330	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	1	0	0	0	0	0	**1**
1330-1345	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1345-1400	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1400-1415	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1415-1430	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**
1430-1445	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	2	1	0	0	0	**3**
1445-1500	2	0	0	0	0	0	**2**	0	4	0	0	0	0	**4**	0	1	0	0	0	0	**1**
1500-1515	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1515-1530	0	0	0	0	0	0	**0**	0	2	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1530-1545	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1545-1600	0	0	0	0	0	0	**0**	1	3	0	0	0	0	**4**	0	0	0	0	0	0	**0**
1600-1615	0	0	0	0	0	0	**0**	0	2	0	0	0	0	**2**	0	1	0	0	0	0	**1**
1615-1630	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1630-1645	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1645-1700	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1700-1715	0	0	0	0	0	0	**0**	0	2	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1715-1730	0	0	0	0	0	0	**0**	1	1	0	0	0	0	**2**	0	3	0	0	0	0	**3**
1730-1745	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	2	0	0	0	0	**2**
1745-1800	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1800-1815	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	3	0	0	0	0	**3**
1815-1830	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1830-1845	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	1	0	0	0	0	**1**
1845-1900	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
0700-1900	**3**	**0**	**0**	**0**	**0**	**0**	**3**	**6**	**27**	**0**	**0**	**0**	**0**	**33**	**3**	**23**	**2**	**0**	**0**	**0**	**28**

	MOVEMENT 10							MOVEMENT 11							MOVEMENT 12						
	FROM ISLAND FOOTPATH RIGHT TURN TO UNNAMED ROAD FOOTPATH (SOUTH)							FROM UNNAMED ROAD FOOTPATH (SOUTH) LEFT TURN TO ISLAND FOOTPATH							FROM UNNAMED ROAD FOOTPATH (SOUTH) TRAVELLING NORTHBOUND TO UNNAMED ROAD FOOTPATH (NORTH)						
	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0715	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0715-0730	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0730-0745	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0745-0800	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0800-0815	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0815-0830	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0830-0845	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0845-0900	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0900-0915	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
0915-0930	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0930-0945	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0945-1000	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1000-1015	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1015-1030	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**
1030-1045	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1045-1100	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1100-1115	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1115-1130	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1130-1145	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1145-1200	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1200-1215	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1215-1230	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1230-1245	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1245-1300	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1300-1315	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1315-1330	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1330-1345	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1345-1400	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1400-1415	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1415-1430	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1430-1445	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1445-1500	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1500-1515	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1515-1530	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1530-1545	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1545-1600	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1600-1615	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1615-1630	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1630-1645	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1645-1700	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1700-1715	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1715-1730	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1730-1745	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1745-1800	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1800-1815	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1815-1830	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1830-1845	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1845-1900	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0700-1900	**1**	**4**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**2**

Site: 2 - M42 Junction 10 (South)

Location: Birchmoor, Tamworth B78 1AN

Date: Wednesday 8th June 2022

Time: 07:00-19:00

Site 2 - M42 Junction 10 South - 07:00-19:00 - Hourly Totals

MOVEMENT 7 – FROM UNNAMED ROAD FOOTPATH (NORTH) TRAVELLING SOUTBOUND TO UNNAMED ROAD FOOTPATH (SOUTH) – HOURLY TOTALS

	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0800	1	0	0	0	0	0	**1**
0715-0815	0	0	0	0	0	0	**0**
0730-0830	0	0	0	0	0	0	**0**
0745-0845	0	0	0	0	0	0	**0**
0800-0900	0	0	0	0	0	0	**0**
0815-0915	0	0	0	0	0	0	**0**
0830-0930	0	0	0	0	0	0	**0**
0845-0945	0	0	0	0	0	0	**0**
0900-1000	0	0	0	0	0	0	**0**
0915-1015	0	0	0	0	0	0	**0**
0930-1030	0	0	0	0	0	0	**0**
0945-1045	0	0	0	0	0	0	**0**
1000-1100	0	0	0	0	0	0	**0**
1015-1115	0	0	0	0	0	0	**0**
1030-1130	0	0	0	0	0	0	**0**
1045-1145	0	0	0	0	0	0	**0**
1100-1200	0	0	0	0	0	0	**0**
1115-1215	0	0	0	0	0	0	**0**
1130-1230	0	0	0	0	0	0	**0**
1145-1245	0	0	0	0	0	0	**0**
1200-1300	0	0	0	0	0	0	**0**
1215-1315	0	0	0	0	0	0	**0**
1230-1330	0	0	0	0	0	0	**0**
1245-1345	0	0	0	0	0	0	**0**
1300-1400	0	0	0	0	0	0	**0**
1315-1415	0	0	0	0	0	0	**0**
1330-1430	0	0	0	0	0	0	**0**
1345-1445	0	0	0	0	0	0	**0**
1400-1500	2	0	0	0	0	0	**2**
1415-1515	2	0	0	0	0	0	**2**
1430-1530	2	0	0	0	0	0	**2**
1445-1545	2	0	0	0	0	0	**2**
1500-1600	0	0	0	0	0	0	**0**
1515-1615	0	0	0	0	0	0	**0**
1530-1630	0	0	0	0	0	0	**0**
1545-1645	0	0	0	0	0	0	**0**
1600-1700	0	0	0	0	0	0	**0**
1615-1715	0	0	0	0	0	0	**0**
1630-1730	0	0	0	0	0	0	**0**
1645-1745	0	0	0	0	0	0	**0**
1700-1800	0	0	0	0	0	0	**0**
1715-1815	0	0	0	0	0	0	**0**
1730-1830	0	0	0	0	0	0	**0**
1745-1845	0	0	0	0	0	0	**0**
1800-1900	0	0	0	0	0	0	**0**

MOVEMENT 8 – FROM UNNAMED ROAD FOOTPATH (NORTH) RIGHT TURN TO ISLAND FOOTPATH – HOURLY TOTALS

	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0800	1	0	0	0	0	0	**1**
0715-0815	0	0	0	0	0	0	**0**
0730-0830	0	0	0	0	0	0	**0**
0745-0845	0	0	0	0	0	0	**0**
0800-0900	0	0	0	0	0	0	**0**
0815-0915	0	0	0	0	0	0	**0**
0830-0930	1	0	0	0	0	0	**1**
0845-0945	1	0	0	0	0	0	**1**
0900-1000	1	0	0	0	0	0	**1**
0915-1015	1	0	0	0	0	0	**1**
0930-1030	0	0	0	0	0	0	**0**
0945-1045	1	0	0	0	0	0	**1**
1000-1100	1	1	0	0	0	0	**2**
1015-1115	1	1	0	0	0	0	**2**
1030-1130	1	1	0	0	0	0	**2**
1045-1145	0	1	0	0	0	0	**1**
1100-1200	0	0	0	0	0	0	**0**
1115-1215	1	0	0	0	0	0	**1**
1130-1230	1	1	0	0	0	0	**2**
1145-1245	1	3	0	0	0	0	**4**
1200-1300	1	3	0	0	0	0	**4**
1215-1315	0	3	0	0	0	0	**3**
1230-1330	0	3	0	0	0	0	**3**
1245-1345	0	1	0	0	0	0	**1**
1300-1400	0	1	0	0	0	0	**1**
1315-1415	0	1	0	0	0	0	**1**
1330-1430	0	0	0	0	0	0	**0**
1345-1445	0	1	0	0	0	0	**1**
1400-1500	0	5	0	0	0	0	**5**
1415-1515	0	5	0	0	0	0	**5**
1430-1530	0	7	0	0	0	0	**7**
1445-1545	0	7	0	0	0	0	**7**
1500-1600	1	6	0	0	0	0	**7**
1515-1615	1	8	0	0	0	0	**9**
1530-1630	1	6	0	0	0	0	**7**
1545-1645	1	5	0	0	0	0	**6**
1600-1700	0	2	0	0	0	0	**2**
1615-1715	0	2	0	0	0	0	**2**
1630-1730	1	3	0	0	0	0	**4**
1645-1745	1	4	0	0	0	0	**5**
1700-1800	1	5	0	0	0	0	**6**
1715-1815	1	4	0	0	0	0	**5**
1730-1830	0	4	0	0	0	0	**4**
1745-1845	0	4	0	0	0	0	**4**
1800-1900	0	4	0	0	0	0	**4**

MOVEMENT 9 – FROM ISLAND FOOTPATH LEFT TURN TO UNNAMED ROAD FOOTPATH (NORTH) – HOURLY TOTALS

	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0800	0	5	0	0	0	0	**5**
0715-0815	0	6	0	0	0	0	**6**
0730-0830	0	5	1	0	0	0	**6**
0745-0845	0	3	1	0	0	0	**4**
0800-0900	0	3	1	0	0	0	**4**
0815-0915	0	2	1	0	0	0	**3**
0830-0930	0	1	0	0	0	0	**1**
0845-0945	0	1	0	0	0	0	**1**
0900-1000	0	1	0	0	0	0	**1**
0915-1015	0	0	0	0	0	0	**0**
0930-1030	0	0	0	0	0	0	**0**
0945-1045	0	0	0	0	0	0	**0**
1000-1100	0	0	0	0	0	0	**0**
1015-1115	0	0	0	0	0	0	**0**
1030-1130	0	0	0	0	0	0	**0**
1045-1145	0	0	0	0	0	0	**0**
1100-1200	0	0	0	0	0	0	**0**
1115-1215	0	0	0	0	0	0	**0**
1130-1230	0	0	0	0	0	0	**0**
1145-1245	0	0	0	0	0	0	**0**
1200-1300	0	0	0	0	0	0	**0**
1215-1315	0	0	0	0	0	0	**0**
1230-1330	1	0	0	0	0	0	**1**
1245-1345	1	0	0	0	0	0	**1**
1300-1400	1	0	0	0	0	0	**1**
1315-1415	1	0	0	0	0	0	**1**
1330-1430	0	1	0	0	0	0	**1**
1345-1445	0	3	1	0	0	0	**4**
1400-1500	0	4	1	0	0	0	**5**
1415-1515	0	4	1	0	0	0	**5**
1430-1530	0	3	1	0	0	0	**4**
1445-1545	0	1	0	0	0	0	**1**
1500-1600	0	0	0	0	0	0	**0**
1515-1615	0	1	0	0	0	0	**1**
1530-1630	0	1	0	0	0	0	**1**
1545-1645	1	1	0	0	0	0	**2**
1600-1700	2	1	0	0	0	0	**3**
1615-1715	2	0	0	0	0	0	**2**
1630-1730	2	3	0	0	0	0	**5**
1645-1745	1	5	0	0	0	0	**6**
1700-1800	0	5	0	0	0	0	**5**
1715-1815	0	8	0	0	0	0	**8**
1730-1830	0	5	0	0	0	0	**5**
1745-1845	0	4	0	0	0	0	**4**
1800-1900	0	4	0	0	0	0	**4**

MOVEMENT 10 – FROM ISLAND FOOTPATH RIGHT TURN TO UNNAMED ROAD FOOTPATH (SOUTH) – HOURLY TOTALS

	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0800	0	0	0	0	0	0	**0**
0715-0815	0	0	0	0	0	0	**0**
0730-0830	0	0	0	0	0	0	**0**
0745-0845	0	0	0	0	0	0	**0**
0800-0900	0	0	0	0	0	0	**0**
0815-0915	0	0	0	0	0	0	**0**
0830-0930	0	0	0	0	0	0	**0**
0845-0945	0	0	0	0	0	0	**0**
0900-1000	0	0	0	0	0	0	**0**
0915-1015	0	0	0	0	0	0	**0**
0930-1030	1	0	0	0	0	0	**1**
0945-1045	1	0	0	0	0	0	**1**
1000-1100	1	1	0	0	0	0	**2**
1015-1115	1	2	0	0	0	0	**3**
1030-1130	0	2	0	0	0	0	**2**
1045-1145	0	2	0	0	0	0	**2**
1100-1200	0	1	0	0	0	0	**1**
1115-1215	0	0	0	0	0	0	**0**
1130-1230	0	0	0	0	0	0	**0**
1145-1245	0	0	0	0	0	0	**0**
1200-1300	0	0	0	0	0	0	**0**
1215-1315	0	0	0	0	0	0	**0**
1230-1330	0	0	0	0	0	0	**0**
1245-1345	0	0	0	0	0	0	**0**
1300-1400	0	0	0	0	0	0	**0**
1315-1415	0	0	0	0	0	0	**0**
1330-1430	0	1	0	0	0	0	**1**
1345-1445	0	1	0	0	0	0	**1**
1400-1500	0	1	0	0	0	0	**1**
1415-1515	0	1	0	0	0	0	**1**
1430-1530	0	0	0	0	0	0	**0**
1445-1545	0	0	0	0	0	0	**0**
1500-1600	0	0	0	0	0	0	**0**
1515-1615	0	0	0	0	0	0	**0**
1530-1630	0	0	0	0	0	0	**0**
1545-1645	0	0	0	0	0	0	**0**
1600-1700	0	0	0	0	0	0	**0**
1615-1715	0	1	0	0	0	0	**1**
1630-1730	0	1	0	0	0	0	**1**
1645-1745	0	1	0	0	0	0	**1**
1700-1800	0	1	0	0	0	0	**1**
1715-1815	0	0	0	0	0	0	**0**
1730-1830	0	0	0	0	0	0	**0**
1745-1845	0	0	0	0	0	0	**0**
1800-1900	0	0	0	0	0	0	**0**

MOVEMENT 11 – FROM UNNAMED ROAD FOOTPATH (SOUTH) LEFT TURN TO ISLAND FOOTPATH – HOURLY TOTALS

	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0800	0	0	0	0	0	0	**0**
0715-0815	0	0	0	0	0	0	**0**
0730-0830	0	0	0	0	0	0	**0**
0745-0845	0	0	0	0	0	0	**0**
0800-0900	0	0	0	0	0	0	**0**
0815-0915	0	0	0	0	0	0	**0**
0830-0930	0	0	0	0	0	0	**0**
0845-0945	0	0	0	0	0	0	**0**
0900-1000	0	0	0	0	0	0	**0**
0915-1015	0	0	0	0	0	0	**0**
0930-1030	0	0	0	0	0	0	**0**
0945-1045	0	0	0	0	0	0	**0**
1000-1100	0	0	0	0	0	0	**0**
1015-1115	0	0	0	0	0	0	**0**
1030-1130	0	0	0	0	0	0	**0**
1045-1145	0	0	0	0	0	0	**0**
1100-1200	0	0	0	0	0	0	**0**
1115-1215	0	0	0	0	0	0	**0**
1130-1230	0	0	0	0	0	0	**0**
1145-1245	0	0	0	0	0	0	**0**
1200-1300	0	0	0	0	0	0	**0**
1215-1315	0	0	0	0	0	0	**0**
1230-1330	0	0	0	0	0	0	**0**
1245-1345	0	0	0	0	0	0	**0**
1300-1400	0	0	0	0	0	0	**0**
1315-1415	0	0	0	0	0	0	**0**
1330-1430	0	0	0	0	0	0	**0**
1345-1445	0	0	0	0	0	0	**0**
1400-1500	0	0	0	0	0	0	**0**
1415-1515	0	0	0	0	0	0	**0**
1430-1530	0	0	0	0	0	0	**0**
1445-1545	0	0	0	0	0	0	**0**
1500-1600	0	0	0	0	0	0	**0**
1515-1615	0	0	0	0	0	0	**0**
1530-1630	0	0	0	0	0	0	**0**
1545-1645	0	0	0	0	0	0	**0**
1600-1700	0	0	0	0	0	0	**0**
1615-1715	0	0	0	0	0	0	**0**
1630-1730	0	0	0	0	0	0	**0**
1645-1745	0	0	0	0	0	0	**0**
1700-1800	0	0	0	0	0	0	**0**
1715-1815	0	0	0	0	0	0	**0**
1730-1830	0	0	0	0	0	0	**0**
1745-1845	0	0	0	0	0	0	**0**
1800-1900	0	0	0	0	0	0	**0**

MOVEMENT 12 – FROM UNNAMED ROAD FOOTPATH (SOUTH) TRAVELLING NORTHBOUND TO UNNAMED ROAD FOOTPATH (NORTH) – HOURLY TOTALS

	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0800	0	0	0	0	0	0	**0**
0715-0815	0	0	0	0	0	0	**0**
0730-0830	0	0	0	0	0	0	**0**
0745-0845	0	0	0	0	0	0	**0**
0800-0900	0	0	0	0	0	0	**0**
0815-0915	1	0	0	0	0	0	**1**
0830-0930	1	0	0	0	0	0	**1**
0845-0945	1	0	0	0	0	0	**1**
0900-1000	1	0	0	0	0	0	**1**
0915-1015	0	0	0	0	0	0	**0**
0930-1030	0	1	0	0	0	0	**1**
0945-1045	0	1	0	0	0	0	**1**
1000-1100	0	1	0	0	0	0	**1**
1015-1115	0	1	0	0	0	0	**1**
1030-1130	0	0	0	0	0	0	**0**
1045-1145	0	0	0	0	0	0	**0**
1100-1200	0	0	0	0	0	0	**0**
1115-1215	0	0	0	0	0	0	**0**
1130-1230	0	0	0	0	0	0	**0**
1145-1245	0	0	0	0	0	0	**0**
1200-1300	0	0	0	0	0	0	**0**
1215-1315	0	0	0	0	0	0	**0**
1230-1330	0	0	0	0	0	0	**0**
1245-1345	0	0	0	0	0	0	**0**
1300-1400	0	0	0	0	0	0	**0**
1315-1415	0	0	0	0	0	0	**0**
1330-1430	0	0	0	0	0	0	**0**
1345-1445	0	0	0	0	0	0	**0**
1400-1500	0	0	0	0	0	0	**0**
1415-1515	0	0	0	0	0	0	**0**
1430-1530	0	0	0	0	0	0	**0**
1445-1545	0	0	0	0	0	0	**0**
1500-1600	0	0	0	0	0	0	**0**
1515-1615	0	0	0	0	0	0	**0**
1530-1630	0	0	0	0	0	0	**0**
1545-1645	0	0	0	0	0	0	**0**
1600-1700	0	0	0	0	0	0	**0**
1615-1715	0	0	0	0	0	0	**0**
1630-1730	0	0	0	0	0	0	**0**
1645-1745	0	0	0	0	0	0	**0**
1700-1800	0	0	0	0	0	0	**0**
1715-1815	0	0	0	0	0	0	**0**
1730-1830	0	0	0	0	0	0	**0**
1745-1845	0	0	0	0	0	0	**0**
1800-1900	0	0	0	0	0	0	**0**

CHARGE SURVEYS

Site: 3 - Footpath Crossroads off Wensleydale

Location: Birchmoor, Tamworth B78 1AN

Date: Wednesday 8th June 2022

Time: 07:00-19:00

Site 3 - Footpath Crossroads off Wensleydale - 07:00-19:00 - 15 Minute Intervals

	MOVEMENT 13 FROM FOOTPATH (WEST) LEFT TURN TO FOOTPATH (NORTH)							MOVEMENT 14 FROM FOOTPATH (WEST) STRAIGHT AHEAD TO FOOTPATH (EAST)							MOVEMENT 15 FROM FOOTPATH (WEST) RIGHT TURN TO FOOTPATH (SOUTH)						
	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0715	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
0715-0730	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0730-0745	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
0745-0800	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
0800-0815	0	0	0	0	0	0	**0**	1	2	0	0	0	0	**3**	0	0	0	0	0	0	**0**
0815-0830	0	0	0	0	0	0	**0**	3	0	0	0	0	0	**3**	0	0	0	0	0	0	**0**
0830-0845	1	0	0	0	0	0	**1**	3	0	0	0	0	0	**3**	1	0	0	0	0	0	**1**
0845-0900	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
0900-0915	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	1	0	0	0	1	0	**2**
0915-0930	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
0930-0945	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**	0	1	0	0	0	0	**1**
0945-1000	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1000-1015	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1015-1030	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1030-1045	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1045-1100	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1100-1115	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1115-1130	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1130-1145	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1145-1200	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1200-1215	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1215-1230	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1230-1245	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1245-1300	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1300-1315	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1315-1330	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1330-1345	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**	5	1	0	0	0	0	**6**
1345-1400	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
1400-1415	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1415-1430	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1430-1445	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1445-1500	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1500-1515	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**	2	1	0	0	0	0	**3**
1515-1530	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	2	0	0	0	0	0	**2**
1530-1545	0	0	0	0	0	0	**0**	0	2	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1545-1600	0	0	0	0	0	0	**0**	1	1	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1600-1615	2	0	0	0	0	0	**2**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1615-1630	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1630-1645	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1645-1700	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1700-1715	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1715-1730	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1730-1745	0	0	0	0	0	0	**0**	4	3	0	0	0	0	**7**	0	0	0	0	0	0	**0**
1745-1800	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	1	1	0	0	0	0	**2**
1800-1815	2	0	0	0	0	0	**2**	3	0	0	0	0	0	**3**	0	0	0	0	0	0	**0**
1815-1830	0	0	0	0	0	0	**0**	4	0	0	0	0	0	**4**	1	0	0	0	0	0	**1**
1830-1845	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1845-1900	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
0700-1900	**6**	**1**	**0**	**0**	**0**	**0**	**7**	**38**	**11**	**0**	**0**	**0**	**0**	**49**	**19**	**4**	**0**	**0**	**1**	**0**	**24**

	MOVEMENT 16 FROM FOOTPATH (SOUTH) LEFT TURN TO FOOTPATH (WEST)							MOVEMENT 17 FROM FOOTPATH (SOUTH) STRAIGHT AHEAD TO FOOTPATH (NORTH)							MOVEMENT 18 FROM FOOTPATH (SOUTH) RIGHT TURN TO FOOTPATH (EAST)						
	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0715	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0715-0730	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
0730-0745	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0745-0800	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0800-0815	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0815-0830	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0830-0845	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0845-0900	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
0900-0915	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
0915-0930	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
0930-0945	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0945-1000	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1000-1015	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1015-1030	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**
1030-1045	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1045-1100	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1100-1115	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1115-1130	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1130-1145	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
1145-1200	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1200-1215	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1215-1230	1	0	0	0	0	0	**1**	1	1	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1230-1245	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1245-1300	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1300-1315	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**	5	0	0	0	0	0	**5**
1315-1330	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	2	0	0	0	0	0	**2**
1330-1345	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	2	0	0	0	0	0	**2**
1345-1400	1	1	0	0	0	0	**2**	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1400-1415	0	2	0	0	0	0	**2**	4	8	0	0	0	0	**12**	1	0	0	0	0	0	**1**
1415-1430	0	0	0	0	0	0	**0**	2	2	0	0	0	0	**4**	0	0	0	0	0	0	**0**
1430-1445	0	0	0	0	0	0	**0**	1	1	0	0	0	0	**2**	1	0	0	0	0	0	**1**
1445-1500	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**
1500-1515	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1515-1530	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1530-1545	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1545-1600	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1600-1615	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1615-1630	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1630-1645	0	0	0	0	0	0	**0**	4	0	0	0	0	0	**4**	0	0	0	0	0	0	**0**
1645-1700	2	0	0	0	0	0	**2**	1	1	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1700-1715	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**	1	1	0	0	0	0	**2**
1715-1730	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
1730-1745	1	0	0	0	0	0	**1**	2	1	0	0	0	0	**3**	1	0	0	0	0	0	**1**
1745-1800	0	0	0	0	0	0	**0**	1	1	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1800-1815	0	0	0	0	0	0	**0**	0	3	0	0	0	0	**3**	1	0	0	0	0	0	**1**
1815-1830	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1830-1845	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	3	0	0	0	0	0	**3**
1845-1900	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0700-1900	**11**	**5**	**0**	**0**	**0**	**0**	**16**	**23**	**21**	**0**	**0**	**0**	**0**	**44**	**24**	**3**	**0**	**0**	**0**	**0**	**27**

Site: 3 - Footpath Crossroads off Wensleydale

Location: Birchmoor, Tamworth B78 1AN

Date: Wednesday 8th June 2022

Time: 07:00-19:00

Site 3 - Footpath Crossroads off Wensleydale - 07:00-19:00 - Hourly Totals

	MOVEMENT 13							MOVEMENT 14						
	FROM FOOTPATH (WEST) LEFT TURN TO FOOTPATH (NORTH)							FROM FOOTPATH (WEST) STRAIGHT AHEAD TO FOOTPATH (EAST)						
	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0800	0	0	0	0	0	0	**0**	5	0	0	0	0	0	**5**
0715-0815	0	0	0	0	0	0	**0**	5	2	0	0	0	0	**7**
0730-0830	0	0	0	0	0	0	**0**	8	2	0	0	0	0	**10**
0745-0845	1	0	0	0	0	0	**1**	9	2	0	0	0	0	**11**
0800-0900	1	0	0	0	0	0	**1**	8	2	0	0	0	0	**10**
0815-0915	1	0	0	0	0	0	**1**	7	1	0	0	0	0	**8**
0830-0930	1	0	0	0	0	0	**1**	5	1	0	0	0	0	**6**
0845-0945	1	0	0	0	0	0	**1**	3	1	0	0	0	0	**4**
0900-1000	1	0	0	0	0	0	**1**	4	1	0	0	0	0	**5**
0915-1015	1	0	0	0	0	0	**1**	4	0	0	0	0	0	**4**
0930-1030	1	0	0	0	0	0	**1**	3	0	0	0	0	0	**3**
0945-1045	0	0	0	0	0	0	**0**	3	0	0	0	0	0	**3**
1000-1100	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1015-1115	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**
1030-1130	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**
1045-1145	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1100-1200	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1115-1215	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1130-1230	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1145-1245	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1200-1300	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1215-1315	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1230-1330	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1245-1345	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**
1300-1400	0	0	0	0	0	0	**0**	3	0	0	0	0	0	**3**
1315-1415	0	0	0	0	0	0	**0**	3	0	0	0	0	0	**3**
1330-1430	0	0	0	0	0	0	**0**	3	0	0	0	0	0	**3**
1345-1445	0	0	0	0	0	0	**0**	1	1	0	0	0	0	**2**
1400-1500	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**
1415-1515	0	0	0	0	0	0	**0**	2	1	0	0	0	0	**3**
1430-1530	0	0	0	0	0	0	**0**	3	1	0	0	0	0	**4**
1445-1545	0	0	0	0	0	0	**0**	3	2	0	0	0	0	**5**
1500-1600	0	0	0	0	0	0	**0**	4	3	0	0	0	0	**7**
1515-1615	2	0	0	0	0	0	**2**	2	4	0	0	0	0	**6**
1530-1630	2	1	0	0	0	0	**3**	1	4	0	0	0	0	**5**
1545-1645	2	1	0	0	0	0	**3**	2	2	0	0	0	0	**4**
1600-1700	2	1	0	0	0	0	**3**	1	1	0	0	0	0	**2**
1615-1715	0	1	0	0	0	0	**1**	1	0	0	0	0	0	**1**
1630-1730	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1645-1745	0	0	0	0	0	0	**0**	4	3	0	0	0	0	**7**
1700-1800	0	0	0	0	0	0	**0**	4	3	0	0	0	0	**7**
1715-1815	2	0	0	0	0	0	**2**	7	3	0	0	0	0	**10**
1730-1830	2	0	0	0	0	0	**2**	11	3	0	0	0	0	**14**
1745-1845	2	0	0	0	0	0	**2**	7	0	0	0	0	0	**7**
1800-1900	2	0	0	0	0	0	**2**	7	0	0	0	0	0	**7**
	HOURLY TOTALS							HOURLY TOTALS						

	MOVEMENT 15							MOVEMENT 16						
	FROM FOOTPATH (WEST) RIGHT TURN TO FOOTPATH (SOUTH)							FROM FOOTPATH (SOUTH) LEFT TURN TO FOOTPATH (WEST)						
	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0800	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
0715-0815	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
0730-0830	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
0745-0845	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
0800-0900	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
0815-0915	2	0	0	0	1	0	**3**	0	0	0	0	0	0	**0**
0830-0930	2	0	0	0	1	0	**3**	0	0	0	0	0	0	**0**
0845-0945	1	1	0	0	1	0	**3**	0	1	0	0	0	0	**1**
0900-1000	1	1	0	0	1	0	**3**	0	1	0	0	0	0	**1**
0915-1015	0	1	0	0	0	0	**1**	0	2	0	0	0	0	**2**
0930-1030	0	1	0	0	0	0	**1**	1	2	0	0	0	0	**3**
0945-1045	0	0	0	0	0	0	**0**	1	1	0	0	0	0	**2**
1000-1100	0	0	0	0	0	0	**0**	1	1	0	0	0	0	**2**
1015-1115	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**
1030-1130	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
1045-1145	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
1100-1200	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
1115-1215	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1130-1230	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1145-1245	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1200-1300	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1215-1315	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**
1230-1330	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
1245-1345	6	1	0	0	0	0	**7**	1	0	0	0	0	0	**1**
1300-1400	7	1	0	0	0	0	**8**	2	1	0	0	0	0	**3**
1315-1415	7	1	0	0	0	0	**8**	1	3	0	0	0	0	**4**
1330-1430	6	1	0	0	0	0	**7**	1	3	0	0	0	0	**4**
1345-1445	1	0	0	0	0	0	**1**	1	3	0	0	0	0	**4**
1400-1500	0	0	0	0	0	0	**0**	0	2	0	0	0	0	**2**
1415-1515	2	1	0	0	0	0	**3**	1	0	0	0	0	0	**1**
1430-1530	4	1	0	0	0	0	**5**	1	0	0	0	0	0	**1**
1445-1545	4	1	0	0	0	0	**5**	1	0	0	0	0	0	**1**
1500-1600	4	1	0	0	0	0	**5**	1	0	0	0	0	0	**1**
1515-1615	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1530-1630	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1545-1645	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1600-1700	1	0	0	0	0	0	**1**	2	0	0	0	0	0	**2**
1615-1715	1	0	0	0	0	0	**1**	3	0	0	0	0	0	**3**
1630-1730	2	0	0	0	0	0	**2**	3	0	0	0	0	0	**3**
1645-1745	2	0	0	0	0	0	**2**	4	0	0	0	0	0	**4**
1700-1800	2	1	0	0	0	0	**3**	2	0	0	0	0	0	**2**
1715-1815	2	1	0	0	0	0	**3**	1	0	0	0	0	0	**1**
1730-1830	2	1	0	0	0	0	**3**	1	0	0	0	0	0	**1**
1745-1845	2	1	0	0	0	0	**3**	0	0	0	0	0	0	**0**
1800-1900	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
	HOURLY TOTALS							HOURLY TOTALS						

	MOVEMENT 17							MOVEMENT 18						
	FROM FOOTPATH (SOUTH) STRAIGHT AHEAD TO FOOTPATH (NORTH)							FROM FOOTPATH (SOUTH) RIGHT TURN TO FOOTPATH (EAST)						
	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0800	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
0715-0815	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
0730-0830	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0745-0845	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0800-0900	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
0815-0915	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**
0830-0930	1	0	0	0	0	0	**1**	2	0	0	0	0	0	**2**
0845-0945	1	0	0	0	0	0	**1**	2	0	0	0	0	0	**2**
0900-1000	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
0915-1015	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
0930-1030	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**
0945-1045	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**
1000-1100	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**
1015-1115	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**
1030-1130	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1045-1145	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
1100-1200	3	0	0	0	0	0	**3**	1	0	0	0	0	0	**1**
1115-1215	3	0	0	0	0	0	**3**	1	0	0	0	0	0	**1**
1130-1230	4	1	0	0	0	0	**5**	1	0	0	0	0	0	**1**
1145-1245	3	1	0	0	0	0	**4**	0	0	0	0	0	0	**0**
1200-1300	1	1	0	0	0	0	**2**	1	0	0	0	0	0	**1**
1215-1315	1	1	0	0	0	0	**2**	6	0	0	0	0	0	**6**
1230-1330	1	0	0	0	0	0	**1**	8	0	0	0	0	0	**8**
1245-1345	1	1	0	0	0	0	**2**	10	0	0	0	0	0	**10**
1300-1400	1	1	0	0	0	0	**2**	10	0	0	0	0	0	**10**
1315-1415	5	9	0	0	0	0	**14**	6	0	0	0	0	0	**6**
1330-1430	6	11	0	0	0	0	**17**	4	0	0	0	0	0	**4**
1345-1445	7	11	0	0	0	0	**18**	3	0	0	0	0	0	**3**
1400-1500	7	11	0	0	0	0	**18**	2	1	0	0	0	0	**3**
1415-1515	4	3	0	0	0	0	**7**	1	1	0	0	0	0	**2**
1430-1530	2	2	0	0	0	0	**4**	1	1	0	0	0	0	**2**
1445-1545	1	1	0	0	0	0	**2**	0	1	0	0	0	0	**1**
1500-1600	1	1	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1515-1615	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1530-1630	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1545-1645	4	0	0	0	0	0	**4**	0	0	0	0	0	0	**0**
1600-1700	5	1	0	0	0	0	**6**	0	0	0	0	0	0	**0**
1615-1715	5	1	0	0	0	0	**6**	1	1	0	0	0	0	**2**
1630-1730	6	1	0	0	0	0	**7**	2	1	0	0	0	0	**3**
1645-1745	4	2	0	0	0	0	**6**	3	1	0	0	0	0	**4**
1700-1800	4	2	0	0	0	0	**6**	3	1	0	0	0	0	**4**
1715-1815	4	5	0	0	0	0	**9**	3	0	0	0	0	0	**3**
1730-1830	3	6	0	0	0	0	**9**	2	0	0	0	0	0	**2**
1745-1845	1	5	0	0	0	0	**6**	4	0	0	0	0	0	**4**
1800-1900	0	4	0	0	0	0	**4**	4	0	0	0	0	0	**4**
	HOURLY TOTALS							HOURLY TOTALS						

CHARGE SURVEYS

Site: 3 - Footpath Crossroads off Wensleydale

Location: Birchmoor, Tamworth B78 1AN

Date: Wednesday 8th June 2022

Time: 07:00-19:00

Site 3 - Footpath Crossroads off Wensleydale - 07:00-19:00 - 15 Minute Intervals

	MOVEMENT 19							MOVEMENT 20						
	FROM FOOTPATH (EAST) LEFT TURN TO FOOTPATH (SOUTH)							FROM FOOTPATH (EAST) STRAIGHT AHEAD TO FOOTPATH (WEST)						
	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0715	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
0715-0730	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
0730-0745	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**
0745-0800	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
0800-0815	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
0815-0830	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
0830-0845	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
0845-0900	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0900-0915	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0915-0930	2	0	0	0	0	0	**2**	1	0	0	0	0	0	**1**
0930-0945	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0945-1000	0	0	0	0	0	0	**0**	2	0	0	0	1	0	**3**
1000-1015	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1015-1030	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1030-1045	0	0	0	0	0	0	**0**	3	0	0	0	1	0	**4**
1045-1100	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1100-1115	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1115-1130	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1130-1145	0	0	0	0	0	0	**0**	2	1	0	0	0	0	**3**
1145-1200	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1200-1215	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1215-1230	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1230-1245	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1245-1300	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1300-1315	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
1315-1330	2	1	0	0	0	0	**3**	0	0	0	0	0	0	**0**
1330-1345	3	0	0	0	0	0	**3**	1	0	0	0	0	0	**1**
1345-1400	3	0	0	0	0	0	**3**	0	0	0	0	0	0	**0**
1400-1415	1	0	0	0	0	0	**1**	4	1	0	0	0	0	**5**
1415-1430	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1430-1445	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1445-1500	1	0	0	0	0	0	**1**	0	1	0	0	0	0	**1**
1500-1515	0	0	0	0	0	0	**0**	8	2	0	0	0	0	**10**
1515-1530	1	0	0	0	0	0	**1**	2	0	0	0	1	0	**3**
1530-1545	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**
1545-1600	0	0	0	0	0	0	**0**	0	0	1	0	0	0	**1**
1600-1615	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1615-1630	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1630-1645	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1645-1700	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1700-1715	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1715-1730	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1730-1745	0	0	0	0	0	0	**0**	5	0	0	0	0	0	**5**
1745-1800	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1800-1815	0	0	0	0	0	0	**0**	3	0	0	0	0	0	**3**
1815-1830	1	0	0	0	0	0	**1**	4	0	0	0	0	0	**4**
1830-1845	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1845-1900	0	0	0	0	0	0	**0**	4	0	0	0	0	0	**4**
0700-1900	**20**	**2**	**0**	**0**	**0**	**0**	**22**	**53**	**6**	**1**	**0**	**3**	**0**	**63**

	MOVEMENT 21							MOVEMENT 22						
	FROM FOOTPATH (EAST) RIGHT TURN TO FOOTPATH (NORTH)							FROM FOOTPATH (NORTH) LEFT TURN TO FOOTPATH (EAST)						
	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0715	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0715-0730	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
0730-0745	1	0	0	0	0	0	**1**	1	2	0	0	0	0	**3**
0745-0800	2	0	0	0	0	0	**2**	5	0	0	0	0	0	**5**
0800-0815	2	0	0	0	0	0	**2**	1	0	0	0	0	0	**1**
0815-0830	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
0830-0845	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0845-0900	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
0900-0915	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
0915-0930	1	0	0	0	0	0	**1**	2	0	0	0	0	0	**2**
0930-0945	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
0945-1000	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1000-1015	0	0	0	0	0	0	**0**	1	0	0	1	0	0	**2**
1015-1030	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1030-1045	1	1	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1045-1100	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1100-1115	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1115-1130	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1130-1145	5	0	0	0	0	0	**5**	1	0	0	0	0	0	**1**
1145-1200	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1200-1215	0	0	0	2	0	0	**2**	0	0	0	0	0	0	**0**
1215-1230	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1230-1245	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1245-1300	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1300-1315	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1315-1330	1	0	0	0	0	0	**1**	1	1	0	0	0	0	**2**
1330-1345	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1345-1400	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1400-1415	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1415-1430	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1430-1445	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1445-1500	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1500-1515	5	0	0	0	0	0	**5**	0	1	0	0	0	0	**1**
1515-1530	2	1	0	0	0	0	**3**	0	1	0	0	0	0	**1**
1530-1545	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1545-1600	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1600-1615	0	0	0	0	0	0	**0**	3	0	0	0	0	0	**3**
1615-1630	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1630-1645	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1645-1700	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1700-1715	3	0	0	0	0	0	**3**	0	0	0	0	0	0	**0**
1715-1730	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**
1730-1745	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1745-1800	0	0	0	0	0	0	**0**	1	1	0	0	0	0	**2**
1800-1815	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1815-1830	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1830-1845	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1845-1900	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
0700-1900	**32**	**4**	**0**	**2**	**0**	**0**	**38**	**26**	**6**	**0**	**1**	**0**	**0**	**33**

	MOVEMENT 23							MOVEMENT 24						
	FROM FOOTPATH (NORTH) STRAIGHT AHEAD TO FOOTPATH (SOUTH)							FROM FOOTPATH (NORTH) RIGHT TURN TO FOOTPATH (WEST)						
	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0715	1	1	0	0	0	0	**2**	0	0	0	0	0	0	**0**
0715-0730	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0730-0745	1	2	0	0	0	0	**3**	0	0	0	0	0	0	**0**
0745-0800	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
0800-0815	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
0815-0830	1	1	0	0	0	0	**2**	0	0	0	0	0	0	**0**
0830-0845	1	1	0	0	0	0	**2**	0	0	0	0	0	0	**0**
0845-0900	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0900-0915	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
0915-0930	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
0930-0945	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
0945-1000	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1000-1015	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1015-1030	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1030-1045	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1045-1100	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1100-1115	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1115-1130	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1130-1145	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1145-1200	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1200-1215	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1215-1230	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1230-1245	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1245-1300	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1300-1315	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1315-1330	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1330-1345	3	1	0	0	0	0	**4**	0	0	0	0	0	0	**0**
1345-1400	1	1	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1400-1415	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1415-1430	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1430-1445	0	0	1	0	0	0	**1**	0	0	0	0	0	0	**0**
1445-1500	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1500-1515	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**
1515-1530	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1530-1545	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1545-1600	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1600-1615	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1615-1630	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1630-1645	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1645-1700	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1700-1715	2	1	0	0	0	0	**3**	0	0	0	0	0	0	**0**
1715-1730	2	0	2	0	0	0	**4**	0	0	0	0	0	0	**0**
1730-1745	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1745-1800	0	1	1	0	0	0	**2**	0	0	0	0	0	0	**0**
1800-1815	0	3	0	0	0	0	**3**	0	0	0	0	0	0	**0**
1815-1830	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1830-1845	4	0	0	0	0	0	**4**	0	0	0	0	0	0	**0**
1845-1900	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0700-1900	**32**	**18**	**4**	**0**	**0**	**0**	**54**	**0**	**1**	**0**	**0**	**0**	**0**	**1**

CHARGE SURVEYS

Site: 3 - Footpath Crossroads off Wensleydale

Location: Birchmoor, Tamworth B78 1AN

Date: Wednesday 8th June 2022

Time: 07:00-19:00

Site 3 - Footpath Crossroads off Wensleydale - 07:00-19:00 - Hourly Totals

	MOVEMENT 19							MOVEMENT 20							MOVEMENT 21						
	FROM FOOTPATH (EAST) LEFT TURN TO FOOTPATH (SOUTH)							FROM FOOTPATH (EAST) STRAIGHT AHEAD TO FOOTPATH (WEST)							FROM FOOTPATH (EAST) RIGHT TURN TO FOOTPATH (NORTH)						
	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0800	1	0	0	0	0	0	**1**	2	1	0	0	0	0	**3**	3	0	0	0	0	0	**3**
0715-0815	1	0	0	0	0	0	**1**	2	1	0	0	0	0	**3**	5	0	0	0	0	0	**5**
0730-0830	1	0	0	0	0	0	**1**	3	1	0	0	0	0	**4**	5	0	0	0	0	0	**5**
0745-0845	2	0	0	0	0	0	**2**	4	0	0	0	0	0	**4**	4	0	0	0	0	0	**4**
0800-0900	2	0	0	0	0	0	**2**	3	0	0	0	0	0	**3**	3	0	0	0	0	0	**3**
0815-0915	2	0	0	0	0	0	**2**	2	0	0	0	0	0	**2**	2	0	0	0	0	0	**2**
0830-0930	3	0	0	0	0	0	**3**	2	0	0	0	0	0	**2**	3	0	0	0	0	0	**3**
0845-0945	2	0	0	0	0	0	**2**	1	0	0	0	0	0	**1**	5	0	0	0	0	0	**5**
0900-1000	2	0	0	0	0	0	**2**	3	0	0	0	1	0	**4**	4	0	0	0	0	0	**4**
0915-1015	2	0	0	0	0	0	**2**	3	0	0	0	1	0	**4**	3	0	0	0	0	0	**3**
0930-1030	0	0	0	0	0	0	**0**	3	0	0	0	1	0	**4**	2	0	0	0	0	0	**2**
0945-1045	0	0	0	0	0	0	**0**	6	0	0	0	2	0	**8**	1	1	0	0	0	0	**2**
1000-1100	0	0	0	0	0	0	**0**	5	0	0	0	1	0	**6**	1	2	0	0	0	0	**3**
1015-1115	0	0	0	0	0	0	**0**	6	0	0	0	1	0	**7**	1	2	0	0	0	0	**3**
1030-1130	0	0	0	0	0	0	**0**	5	0	0	0	1	0	**6**	1	3	0	0	0	0	**4**
1045-1145	0	0	0	0	0	0	**0**	4	1	0	0	0	0	**5**	5	2	0	0	0	0	**7**
1100-1200	0	0	0	0	0	0	**0**	4	1	0	0	0	0	**5**	5	1	0	0	0	0	**6**
1115-1215	0	0	0	0	0	0	**0**	3	1	0	0	0	0	**4**	5	1	0	2	0	0	**8**
1130-1230	2	0	0	0	0	0	**2**	3	1	0	0	0	0	**4**	5	0	0	2	0	0	**7**
1145-1245	2	0	0	0	0	0	**2**	1	0	0	0	0	0	**1**	0	0	0	2	0	0	**2**
1200-1300	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**	2	0	0	2	0	0	**4**
1215-1315	3	0	0	0	0	0	**3**	1	0	0	0	0	0	**1**	2	0	0	0	0	0	**2**
1230-1330	3	1	0	0	0	0	**4**	1	0	0	0	0	0	**1**	3	0	0	0	0	0	**3**
1245-1345	6	1	0	0	0	0	**7**	2	0	0	0	0	0	**2**	3	0	0	0	0	0	**3**
1300-1400	9	1	0	0	0	0	**10**	2	0	0	0	0	0	**2**	1	0	0	0	0	0	**1**
1315-1415	9	1	0	0	0	0	**10**	5	1	0	0	0	0	**6**	1	0	0	0	0	0	**1**
1330-1430	7	1	0	0	0	0	**8**	5	1	0	0	0	0	**6**	0	0	0	0	0	0	**0**
1345-1445	4	1	0	0	0	0	**5**	4	1	0	0	0	0	**5**	0	0	0	0	0	0	**0**
1400-1500	2	1	0	0	0	0	**3**	4	2	0	0	0	0	**6**	2	0	0	0	0	0	**2**
1415-1515	1	1	0	0	0	0	**2**	8	3	0	0	0	0	**11**	7	0	0	0	0	0	**7**
1430-1530	2	0	0	0	0	0	**2**	10	3	0	0	1	0	**14**	9	1	0	0	0	0	**10**
1445-1545	2	0	0	0	0	0	**2**	12	3	0	0	1	0	**16**	9	1	0	0	0	0	**10**
1500-1600	1	0	0	0	0	0	**1**	12	2	1	0	1	0	**16**	7	1	0	0	0	0	**8**
1515-1615	1	0	0	0	0	0	**1**	5	0	1	0	1	0	**7**	2	1	0	0	0	0	**3**
1530-1630	0	0	0	0	0	0	**0**	3	0	1	0	0	0	**4**	0	0	0	0	0	0	**0**
1545-1645	0	0	0	0	0	0	**0**	1	0	1	0	0	0	**2**	0	0	0	0	0	0	**0**
1600-1700	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1615-1715	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	3	0	0	0	0	0	**3**
1630-1730	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	3	0	0	0	0	0	**3**
1645-1745	0	0	0	0	0	0	**0**	6	0	0	0	0	0	**6**	4	0	0	0	0	0	**4**
1700-1800	0	0	0	0	0	0	**0**	5	0	0	0	0	0	**5**	4	0	0	0	0	0	**4**
1715-1815	0	0	0	0	0	0	**0**	8	0	0	0	0	0	**8**	1	0	0	0	0	0	**1**
1730-1830	1	0	0	0	0	0	**1**	12	0	0	0	0	0	**12**	1	0	0	0	0	0	**1**
1745-1845	1	0	0	0	0	0	**1**	7	0	0	0	0	0	**7**	0	0	0	0	0	0	**0**
1800-1900	1	0	0	0	0	0	**1**	11	0	0	0	0	0	**11**	0	0	0	0	0	0	**0**
	HOURLY TOTALS							HOURLY TOTALS							HOURLY TOTALS						

	MOVEMENT 22							MOVEMENT 23							MOVEMENT 24						
	FROM FOOTPATH (NORTH) LEFT TURN TO FOOTPATH (EAST)							FROM FOOTPATH (NORTH) STRAIGHT AHEAD TO FOOTPATH (SOUTH)							FROM FOOTPATH (NORTH) RIGHT TURN TO FOOTPATH (WEST)						
	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0800	7	2	0	0	0	0	**9**	2	4	0	0	0	0	**6**	0	0	0	0	0	0	**0**
0715-0815	8	2	0	0	0	0	**10**	1	4	0	0	0	0	**5**	0	0	0	0	0	0	**0**
0730-0830	8	2	0	0	0	0	**10**	2	5	0	0	0	0	**7**	0	0	0	0	0	0	**0**
0745-0845	7	0	0	0	0	0	**7**	2	4	0	0	0	0	**6**	0	0	0	0	0	0	**0**
0800-0900	2	0	0	0	0	0	**2**	2	3	0	0	0	0	**5**	0	0	0	0	0	0	**0**
0815-0915	2	0	0	0	0	0	**2**	3	2	0	0	0	0	**5**	0	0	0	0	0	0	**0**
0830-0930	3	0	0	0	0	0	**3**	3	1	0	0	0	0	**4**	0	0	0	0	0	0	**0**
0845-0945	3	0	0	0	0	0	**3**	4	0	0	0	0	0	**4**	0	0	0	0	0	0	**0**
0900-1000	4	0	0	0	0	0	**4**	4	0	0	0	0	0	**4**	0	0	0	0	0	0	**0**
0915-1015	4	0	0	1	0	0	**5**	3	0	0	0	0	0	**3**	0	0	0	0	0	0	**0**
0930-1030	3	0	0	1	0	0	**4**	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
0945-1045	3	0	0	1	0	0	**4**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1000-1100	2	0	0	1	0	0	**3**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1015-1115	2	0	0	0	0	0	**2**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1030-1130	1	0	0	0	0	0	**1**	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1045-1145	2	0	0	0	0	0	**2**	2	1	0	0	0	0	**3**	0	0	0	0	0	0	**0**
1100-1200	2	0	0	0	0	0	**2**	2	1	0	0	0	0	**3**	0	0	0	0	0	0	**0**
1115-1215	1	0	0	0	0	0	**1**	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1130-1230	1	0	0	0	0	0	**1**	4	0	0	0	0	0	**4**	0	0	0	0	0	0	**0**
1145-1245	1	0	0	0	0	0	**1**	2	1	0	0	0	0	**3**	0	0	0	0	0	0	**0**
1200-1300	1	0	0	0	0	0	**1**	3	1	0	0	0	0	**4**	0	0	0	0	0	0	**0**
1215-1315	1	0	0	0	0	0	**1**	4	1	0	0	0	0	**5**	0	0	0	0	0	0	**0**
1230-1330	2	1	0	0	0	0	**3**	3	1	0	0	0	0	**4**	0	0	0	0	0	0	**0**
1245-1345	1	1	0	0	0	0	**2**	6	1	0	0	0	0	**7**	0	0	0	0	0	0	**0**
1300-1400	1	1	0	0	0	0	**2**	6	2	0	0	0	0	**8**	0	0	0	0	0	0	**0**
1315-1415	1	1	0	0	0	0	**2**	5	3	0	0	0	0	**8**	0	0	0	0	0	0	**0**
1330-1430	0	0	0	0	0	0	**0**	6	3	0	0	0	0	**9**	0	0	0	0	0	0	**0**
1345-1445	0	0	0	0	0	0	**0**	3	2	1	0	0	0	**6**	0	0	0	0	0	0	**0**
1400-1500	0	0	0	0	0	0	**0**	2	1	1	0	0	0	**4**	0	0	0	0	0	0	**0**
1415-1515	0	1	0	0	0	0	**1**	2	0	1	0	0	0	**3**	0	1	0	0	0	0	**1**
1430-1530	0	2	0	0	0	0	**2**	0	0	1	0	0	0	**1**	0	1	0	0	0	0	**1**
1445-1545	0	2	0	0	0	0	**2**	1	0	0	0	0	0	**1**	0	1	0	0	0	0	**1**
1500-1600	0	2	0	0	0	0	**2**	1	0	0	0	0	0	**1**	0	1	0	0	0	0	**1**
1515-1615	3	1	0	0	0	0	**4**	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1530-1630	3	0	0	0	0	0	**3**	3	0	0	0	0	0	**3**	0	0	0	0	0	0	**0**
1545-1645	3	0	0	0	0	0	**3**	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1600-1700	3	0	0	0	0	0	**3**	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1615-1715	0	0	0	0	0	0	**0**	4	1	0	0	0	0	**5**	0	0	0	0	0	0	**0**
1630-1730	2	0	0	0	0	0	**2**	4	1	2	0	0	0	**7**	0	0	0	0	0	0	**0**
1645-1745	2	0	0	0	0	0	**2**	4	2	2	0	0	0	**8**	0	0	0	0	0	0	**0**
1700-1800	3	1	0	0	0	0	**4**	4	3	3	0	0	0	**10**	0	0	0	0	0	0	**0**
1715-1815	3	1	0	0	0	0	**4**	2	5	3	0	0	0	**10**	0	0	0	0	0	0	**0**
1730-1830	1	1	0	0	0	0	**2**	0	5	1	0	0	0	**6**	0	0	0	0	0	0	**0**
1745-1845	1	1	0	0	0	0	**2**	4	4	1	0	0	0	**9**	0	0	0	0	0	0	**0**
1800-1900	1	0	0	0	0	0	**1**	4	3	0	0	0	0	**7**	0	0	0	0	0	0	**0**
	HOURLY TOTALS							HOURLY TOTALS							HOURLY TOTALS						

CHARGE SURVEYS

Site: 4 - Footpaths & Green Lane

Location: Birchmoor, Tamworth B78 1AN

Date: Wednesday 8th June 2022

Time: 07:00-19:00

Site 4 - Footpaths & Green Lane - 07:00-19:00 - 15 Minute Intervals

	MOVEMENT 25							MOVEMENT 26						
	USER TRAVELLING NORTH-EASTBOUND ON FOOTPATH							USER TRAVELLING SOUTH-WESTBOUND ON FOOTPATH						
	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0715	2	1	0	0	0	0	**3**	1	0	0	0	0	0	**1**
0715-0730	1	0	0	0	0	0	**1**	3	0	0	0	0	0	**3**
0730-0745	4	2	0	0	0	0	**6**	7	2	0	0	0	0	**9**
0745-0800	10	2	0	0	0	0	**12**	3	0	0	0	0	0	**3**
0800-0815	9	3	0	0	0	0	**12**	1	2	0	0	0	0	**3**
0815-0830	2	0	1	0	0	0	**3**	3	0	0	0	0	0	**3**
0830-0845	1	1	0	0	0	0	**2**	1	0	0	0	0	0	**1**
0845-0900	3	0	0	0	0	0	**3**	1	1	0	0	0	0	**2**
0900-0915	5	2	0	0	0	0	**7**	6	1	0	0	0	0	**7**
0915-0930	4	0	0	0	0	0	**4**	3	0	0	0	0	0	**3**
0930-0945	2	0	0	0	0	0	**2**	2	0	0	0	1	0	**3**
0945-1000	4	1	0	0	1	0	**6**	3	0	0	0	0	0	**3**
1000-1015	1	0	0	1	0	0	**2**	2	0	0	0	0	0	**2**
1015-1030	0	2	0	0	0	0	**2**	4	0	0	0	1	0	**5**
1030-1045	1	1	0	0	0	0	**2**	3	1	0	0	0	0	**4**
1045-1100	2	0	0	0	0	0	**2**	3	1	0	0	0	0	**4**
1100-1115	3	0	0	0	0	0	**3**	1	0	0	0	0	0	**1**
1115-1130	0	0	0	0	0	0	**0**	11	2	0	0	0	0	**13**
1130-1145	0	1	0	0	0	0	**1**	4	1	0	0	0	0	**5**
1145-1200	1	0	0	0	0	0	**1**	2	0	0	2	0	0	**4**
1200-1215	3	0	0	0	0	0	**3**	2	0	0	0	0	0	**2**
1215-1230	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1230-1245	1	0	0	0	0	0	**1**	1	1	0	0	1	0	**3**
1245-1300	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
1300-1315	1	0	0	0	0	0	**1**	4	0	0	0	0	0	**4**
1315-1330	8	1	0	0	0	0	**9**	1	0	0	0	0	0	**1**
1330-1345	3	0	0	0	0	0	**3**	1	0	0	0	0	0	**1**
1345-1400	3	0	0	0	0	0	**3**	3	1	0	0	0	0	**4**
1400-1415	4	0	0	0	0	0	**4**	10	2	0	0	0	0	**12**
1415-1430	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1430-1445	3	1	0	0	0	0	**4**	1	0	0	0	0	0	**1**
1445-1500	1	1	0	0	0	0	**2**	5	3	1	0	0	0	**9**
1500-1515	1	1	0	0	0	0	**2**	25	2	0	0	1	0	**28**
1515-1530	3	1	0	0	0	0	**4**	6	1	0	0	0	0	**7**
1530-1545	1	2	0	0	0	0	**3**	3	3	0	0	0	0	**6**
1545-1600	2	1	0	0	0	0	**3**	5	0	1	0	0	0	**6**
1600-1615	2	2	0	0	0	0	**4**	1	0	0	0	0	0	**1**
1615-1630	6	0	0	0	0	0	**6**	1	1	0	0	0	0	**2**
1630-1645	4	1	0	0	0	0	**5**	2	0	0	0	0	0	**2**
1645-1700	5	1	0	0	0	0	**6**	2	0	0	0	0	0	**2**
1700-1715	1	1	0	0	0	0	**2**	5	1	0	0	0	0	**6**
1715-1730	4	0	0	0	0	0	**4**	3	0	0	0	0	0	**3**
1730-1745	0	0	0	0	0	0	**0**	6	0	0	0	0	0	**6**
1745-1800	0	3	0	0	0	0	**3**	7	0	0	0	0	0	**7**
1800-1815	4	0	0	0	0	0	**4**	0	0	0	0	0	0	**0**
1815-1830	3	0	0	0	0	0	**3**	3	0	0	0	0	0	**3**
1830-1845	1	0	0	0	0	0	**1**	2	0	0	0	0	0	**2**
1845-1900	1	0	0	0	0	0	**1**	6	0	0	0	0	0	**6**
0700-1900	**123**	**32**	**1**	**1**	**1**	**0**	**158**	**171**	**26**	**2**	**2**	**4**	**0**	**205**

	MOVEMENT 27							MOVEMENT 28						
	USER TRAVELLING NORTH-WESTBOUND ON FOOTPATH							USER TRAVELLING SOUTH-EASTBOUND ON FOOTPATH						
	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0715	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**
0715-0730	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0730-0745	3	0	0	0	0	0	**3**	0	0	0	0	0	0	**0**
0745-0800	0	0	0	0	0	0	**0**	5	1	0	0	0	0	**6**
0800-0815	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
0815-0830	1	0	0	0	0	0	**1**	2	0	0	0	0	0	**2**
0830-0845	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
0845-0900	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
0900-0915	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
0915-0930	3	0	0	0	0	0	**3**	1	0	0	0	0	0	**1**
0930-0945	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0945-1000	0	0	0	0	1	0	**1**	2	0	0	0	0	0	**2**
1000-1015	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1015-1030	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1030-1045	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1045-1100	1	0	0	0	0	0	**1**	2	0	0	0	0	0	**2**
1100-1115	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1115-1130	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1130-1145	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1145-1200	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1200-1215	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
1215-1230	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
1230-1245	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
1245-1300	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1300-1315	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1315-1330	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1330-1345	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1345-1400	2	1	0	0	0	0	**3**	0	0	0	0	0	0	**0**
1400-1415	1	1	0	0	0	0	**2**	1	0	0	0	0	0	**1**
1415-1430	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1430-1445	2	0	0	0	0	0	**2**	2	0	0	0	0	0	**2**
1445-1500	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
1500-1515	8	0	0	0	0	0	**8**	0	0	0	0	0	0	**0**
1515-1530	5	0	0	0	0	0	**5**	1	0	0	0	0	0	**1**
1530-1545	1	2	0	0	0	0	**3**	1	1	0	0	0	0	**2**
1545-1600	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
1600-1615	0	0	0	0	0	0	**0**	1	1	0	0	0	0	**2**
1615-1630	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
1630-1645	2	0	0	0	0	0	**2**	2	0	0	0	0	0	**2**
1645-1700	2	0	0	0	0	0	**2**	3	0	0	0	0	0	**3**
1700-1715	1	1	0	0	0	0	**2**	1	0	0	0	0	0	**1**
1715-1730	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1730-1745	4	0	0	0	0	0	**4**	0	0	0	0	0	0	**0**
1745-1800	1	0	0	0	0	0	**1**	3	0	0	0	0	0	**3**
1800-1815	3	0	0	0	0	0	**3**	0	0	0	0	0	0	**0**
1815-1830	1	0	0	0	0	0	**1**	2	0	0	0	0	0	**2**
1830-1845	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1845-1900	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**
0700-1900	**53**	**5**	**0**	**0**	**1**	**0**	**59**	**46**	**3**	**0**	**0**	**0**	**0**	**49**

	MOVEMENT 29							MOVEMENT 30						
	USER TRAVELLING NORTHBOUND ON GREEN LANE							USER TRAVELLING SOUTHBOUND ON GREEN LANE						
	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0715	2	0	0	0	0	0	**2**	1	0	0	0	0	0	**1**
0715-0730	1	0	0	0	0	0	**1**	2	0	0	0	0	0	**2**
0730-0745	1	0	0	0	0	0	**1**	11	1	0	0	0	0	**12**
0745-0800	3	0	0	0	0	0	**3**	6	5	1	0	0	0	**12**
0800-0815	1	1	0	0	0	0	**2**	0	2	0	0	0	0	**2**
0815-0830	1	0	0	0	0	0	**1**	3	0	0	0	0	0	**3**
0830-0845	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0845-0900	2	0	0	0	0	0	**2**	2	0	0	0	0	0	**2**
0900-0915	4	0	0	0	0	0	**4**	5	0	0	0	0	0	**5**
0915-0930	2	0	0	0	0	0	**2**	4	0	0	0	0	0	**4**
0930-0945	3	0	0	0	0	0	**3**	2	0	0	0	1	0	**3**
0945-1000	2	0	0	0	0	0	**2**	3	0	0	0	0	0	**3**
1000-1015	1	0	0	1	0	0	**2**	0	1	0	0	0	0	**1**
1015-1030	1	0	0	0	0	0	**1**	2	0	0	0	0	0	**2**
1030-1045	1	1	0	0	0	0	**2**	2	1	0	0	0	0	**3**
1045-1100	2	0	0	0	0	0	**2**	3	1	0	0	0	0	**4**
1100-1115	4	1	0	0	0	0	**5**	0	0	0	0	0	0	**0**
1115-1130	4	0	0	0	0	0	**4**	1	0	0	0	0	0	**1**
1130-1145	1	1	0	0	0	0	**2**	2	0	0	0	0	0	**2**
1145-1200	0	0	0	0	0	0	**0**	3	0	0	2	0	0	**5**
1200-1215	1	0	0	0	0	0	**1**	4	0	0	0	0	0	**4**
1215-1230	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1230-1245	3	0	0	0	0	0	**3**	0	1	0	0	0	0	**1**
1245-1300	1	0	0	0	0	0	**1**	3	0	0	0	0	0	**3**
1300-1315	3	0	0	0	0	0	**3**	2	0	0	0	1	0	**3**
1315-1330	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1330-1345	2	0	0	0	0	0	**2**	3	0	0	0	0	0	**3**
1345-1400	6	1	0	0	0	0	**7**	4	0	0	0	0	0	**4**
1400-1415	1	0	0	0	0	0	**1**	4	0	0	0	0	0	**4**
1415-1430	2	1	0	0	0	0	**3**	1	0	0	0	0	0	**1**
1430-1445	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1445-1500	4	2	1	0	0	0	**7**	2	0	0	0	0	0	**2**
1500-1515	24	0	0	0	0	0	**24**	3	0	0	0	1	0	**4**
1515-1530	4	0	0	0	0	0	**4**	0	1	0	0	0	0	**1**
1530-1545	1	1	0	0	0	0	**2**	1	1	0	0	0	0	**2**
1545-1600	2	0	0	0	0	0	**2**	3	0	0	0	0	0	**3**
1600-1615	7	0	0	0	0	0	**7**	0	1	0	0	0	0	**1**
1615-1630	0	1	0	0	0	0	**1**	2	0	0	0	0	0	**2**
1630-1645	4	0	0	0	0	0	**4**	6	0	0	0	0	0	**6**
1645-1700	3	1	0	0	0	0	**4**	3	0	0	0	0	0	**3**
1700-1715	5	4	0	0	0	0	**9**	6	0	0	0	0	0	**6**
1715-1730	8	0	0	0	0	0	**8**	1	0	0	0	0	0	**1**
1730-1745	1	0	0	0	0	0	**1**	5	0	0	0	0	0	**5**
1745-1800	1	2	0	0	0	0	**3**	4	1	1	0	0	0	**6**
1800-1815	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
1815-1830	5	2	0	0	0	0	**7**	3	0	0	0	0	0	**3**
1830-1845	3	0	0	0	0	0	**3**	3	1	0	0	0	0	**4**
1845-1900	0	1	0	0	0	0	**1**	4	6	0	0	0	0	**10**
0700-1900	**133**	**20**	**1**	**1**	**0**	**0**	**155**	**120**	**23**	**2**	**2**	**3**	**0**	**150**

CHARGE SURVEYS

Site: 4 - Footpaths & Green Lane

Location: Birchmoor, Tamworth B78 1AN

Date: Wednesday 8th June 2022

Time: 07:00-19:00

Site 4 - Footpaths & Green Lane - 07:00-19:00 - Hourly Totals

	MOVEMENT 25							MOVEMENT 26						
	USER TRAVELLING NORTH-EASTBOUND ON FOOTPATH							USER TRAVELLING SOUTH-WESTBOUND ON FOOTPATH						
	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0800	17	5	0	0	0	0	**22**	14	2	0	0	0	0	**16**
0715-0815	24	7	0	0	0	0	**31**	14	4	0	0	0	0	**18**
0730-0830	25	7	1	0	0	0	**33**	14	4	0	0	0	0	**18**
0745-0845	22	6	1	0	0	0	**29**	8	2	0	0	0	0	**10**
0800-0900	15	4	1	0	0	0	**20**	6	3	0	0	0	0	**9**
0815-0915	11	3	1	0	0	0	**15**	11	2	0	0	0	0	**13**
0830-0930	13	3	0	0	0	0	**16**	11	2	0	0	0	0	**13**
0845-0945	14	2	0	0	0	0	**16**	12	2	0	0	1	0	**15**
0900-1000	15	3	0	0	1	0	**19**	14	1	0	0	1	0	**16**
0915-1015	11	1	0	1	1	0	**14**	10	0	0	0	1	0	**11**
0930-1030	7	3	0	1	1	0	**12**	11	0	0	0	2	0	**13**
0945-1045	6	4	0	1	1	0	**12**	12	1	0	0	1	0	**14**
1000-1100	4	3	0	1	0	0	**8**	12	2	0	0	1	0	**15**
1015-1115	6	3	0	0	0	0	**9**	11	2	0	0	1	0	**14**
1030-1130	6	1	0	0	0	0	**7**	18	4	0	0	0	0	**22**
1045-1145	5	1	0	0	0	0	**6**	19	4	0	0	0	0	**23**
1100-1200	4	1	0	0	0	0	**5**	18	3	0	2	0	0	**23**
1115-1215	4	1	0	0	0	0	**5**	19	3	0	2	0	0	**24**
1130-1230	6	1	0	0	0	0	**7**	8	1	0	2	0	0	**11**
1145-1245	7	0	0	0	0	0	**7**	5	1	0	2	1	0	**9**
1200-1300	7	0	0	0	0	0	**7**	4	1	0	0	1	0	**6**
1215-1315	5	0	0	0	0	0	**5**	6	1	0	0	1	0	**8**
1230-1330	11	1	0	0	0	0	**12**	7	1	0	0	1	0	**9**
1245-1345	13	1	0	0	0	0	**14**	7	0	0	0	0	0	**7**
1300-1400	15	1	0	0	0	0	**16**	9	1	0	0	0	0	**10**
1315-1415	18	1	0	0	0	0	**19**	15	3	0	0	0	0	**18**
1330-1430	10	0	0	0	0	0	**10**	15	3	0	0	0	0	**18**
1345-1445	10	1	0	0	0	0	**11**	15	3	0	0	0	0	**18**
1400-1500	8	2	0	0	0	0	**10**	17	5	1	0	0	0	**23**
1415-1515	5	3	0	0	0	0	**8**	32	5	1	0	1	0	**39**
1430-1530	8	4	0	0	0	0	**12**	37	6	1	0	1	0	**45**
1445-1545	6	5	0	0	0	0	**11**	39	9	1	0	1	0	**50**
1500-1600	7	5	0	0	0	0	**12**	39	6	1	0	1	0	**47**
1515-1615	8	6	0	0	0	0	**14**	15	4	1	0	0	0	**20**
1530-1630	11	5	0	0	0	0	**16**	10	4	1	0	0	0	**15**
1545-1645	14	4	0	0	0	0	**18**	9	1	1	0	0	0	**11**
1600-1700	17	4	0	0	0	0	**21**	6	1	0	0	0	0	**7**
1615-1715	16	3	0	0	0	0	**19**	10	2	0	0	0	0	**12**
1630-1730	14	3	0	0	0	0	**17**	12	1	0	0	0	0	**13**
1645-1745	10	2	0	0	0	0	**12**	16	1	0	0	0	0	**17**
1700-1800	5	4	0	0	0	0	**9**	21	1	0	0	0	0	**22**
1715-1815	8	3	0	0	0	0	**11**	16	0	0	0	0	0	**16**
1730-1830	7	3	0	0	0	0	**10**	16	0	0	0	0	0	**16**
1745-1845	8	3	0	0	0	0	**11**	12	0	0	0	0	0	**12**
1800-1900	9	0	0	0	0	0	**9**	11	0	0	0	0	0	**11**
	HOURLY TOTALS							HOURLY TOTALS						

	MOVEMENT 27							MOVEMENT 28						
	USER TRAVELLING NORTH-WESTBOUND ON FOOTPATH							USER TRAVELLING SOUTH-EASTBOUND ON FOOTPATH						
	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0800	3	0	0	0	0	0	**3**	7	1	0	0	0	0	**8**
0715-0815	3	0	0	0	0	0	**3**	6	1	0	0	0	0	**7**
0730-0830	4	0	0	0	0	0	**4**	8	1	0	0	0	0	**9**
0745-0845	2	0	0	0	0	0	**2**	8	1	0	0	0	0	**9**
0800-0900	2	0	0	0	0	0	**2**	4	0	0	0	0	0	**4**
0815-0915	3	0	0	0	0	0	**3**	4	0	0	0	0	0	**4**
0830-0930	5	0	0	0	0	0	**5**	3	0	0	0	0	0	**3**
0845-0945	4	0	0	0	0	0	**4**	3	0	0	0	0	0	**3**
0900-1000	4	0	0	0	1	0	**5**	4	0	0	0	0	0	**4**
0915-1015	3	0	0	0	1	0	**4**	3	0	0	0	0	0	**3**
0930-1030	1	0	0	0	1	0	**2**	2	0	0	0	0	0	**2**
0945-1045	1	0	0	0	1	0	**2**	3	0	0	0	0	0	**3**
1000-1100	2	0	0	0	0	0	**2**	3	0	0	0	0	0	**3**
1015-1115	2	0	0	0	0	0	**2**	3	0	0	0	0	0	**3**
1030-1130	3	0	0	0	0	0	**3**	3	0	0	0	0	0	**3**
1045-1145	3	0	0	0	0	0	**3**	2	0	0	0	0	0	**2**
1100-1200	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1115-1215	3	0	0	0	0	0	**3**	1	0	0	0	0	0	**1**
1130-1230	2	0	0	0	0	0	**2**	2	0	0	0	0	0	**2**
1145-1245	3	0	0	0	0	0	**3**	3	0	0	0	0	0	**3**
1200-1300	3	0	0	0	0	0	**3**	3	0	0	0	0	0	**3**
1215-1315	2	0	0	0	0	0	**2**	3	0	0	0	0	0	**3**
1230-1330	1	0	0	0	0	0	**1**	2	0	0	0	0	0	**2**
1245-1345	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**
1300-1400	2	1	0	0	0	0	**3**	2	0	0	0	0	0	**2**
1315-1415	3	2	0	0	0	0	**5**	2	0	0	0	0	0	**2**
1330-1430	3	2	0	0	0	0	**5**	3	0	0	0	0	0	**3**
1345-1445	5	2	0	0	0	0	**7**	4	0	0	0	0	0	**4**
1400-1500	4	1	0	0	0	0	**5**	5	0	0	0	0	0	**5**
1415-1515	11	0	0	0	0	0	**11**	4	0	0	0	0	0	**4**
1430-1530	16	0	0	0	0	0	**16**	4	0	0	0	0	0	**4**
1445-1545	15	2	0	0	0	0	**17**	3	1	0	0	0	0	**4**
1500-1600	15	2	0	0	0	0	**17**	3	1	0	0	0	0	**4**
1515-1615	7	2	0	0	0	0	**9**	4	2	0	0	0	0	**6**
1530-1630	3	2	0	0	0	0	**5**	4	2	0	0	0	0	**6**
1545-1645	4	0	0	0	0	0	**4**	5	1	0	0	0	0	**6**
1600-1700	5	0	0	0	0	0	**5**	7	1	0	0	0	0	**8**
1615-1715	6	1	0	0	0	0	**7**	7	0	0	0	0	0	**7**
1630-1730	6	1	0	0	0	0	**7**	6	0	0	0	0	0	**6**
1645-1745	8	1	0	0	0	0	**9**	4	0	0	0	0	0	**4**
1700-1800	7	1	0	0	0	0	**8**	4	0	0	0	0	0	**4**
1715-1815	9	0	0	0	0	0	**9**	3	0	0	0	0	0	**3**
1730-1830	9	0	0	0	0	0	**9**	5	0	0	0	0	0	**5**
1745-1845	5	0	0	0	0	0	**5**	5	0	0	0	0	0	**5**
1800-1900	4	0	0	0	0	0	**4**	4	0	0	0	0	0	**4**
	HOURLY TOTALS							HOURLY TOTALS						

	MOVEMENT 29							MOVEMENT 30						
	USER TRAVELLING NORTHBOUND ON GREEN LANE							USER TRAVELLING SOUTHBOUND ON GREEN LANE						
	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0800	7	0	0	0	0	0	**7**	20	6	1	0	0	0	**27**
0715-0815	6	1	0	0	0	0	**7**	19	8	1	0	0	0	**28**
0730-0830	6	1	0	0	0	0	**7**	20	8	1	0	0	0	**29**
0745-0845	5	1	0	0	0	0	**6**	9	7	1	0	0	0	**17**
0800-0900	4	1	0	0	0	0	**5**	5	2	0	0	0	0	**7**
0815-0915	7	0	0	0	0	0	**7**	10	0	0	0	0	0	**10**
0830-0930	8	0	0	0	0	0	**8**	11	0	0	0	0	0	**11**
0845-0945	11	0	0	0	0	0	**11**	13	0	0	0	1	0	**14**
0900-1000	11	0	0	0	0	0	**11**	14	0	0	0	1	0	**15**
0915-1015	8	0	0	1	0	0	**9**	9	1	0	0	1	0	**11**
0930-1030	7	0	0	1	0	0	**8**	7	1	0	0	1	0	**9**
0945-1045	5	1	0	1	0	0	**7**	7	2	0	0	0	0	**9**
1000-1100	5	1	0	1	0	0	**7**	7	3	0	0	0	0	**10**
1015-1115	8	2	0	0	0	0	**10**	7	2	0	0	0	0	**9**
1030-1130	11	2	0	0	0	0	**13**	6	2	0	0	0	0	**8**
1045-1145	11	2	0	0	0	0	**13**	6	1	0	0	0	0	**7**
1100-1200	9	2	0	0	0	0	**11**	6	0	0	2	0	0	**8**
1115-1215	6	1	0	0	0	0	**7**	10	0	0	2	0	0	**12**
1130-1230	3	1	0	0	0	0	**4**	9	0	0	2	0	0	**11**
1145-1245	5	0	0	0	0	0	**5**	7	1	0	2	0	0	**10**
1200-1300	6	0	0	0	0	0	**6**	7	1	0	0	0	0	**8**
1215-1315	8	0	0	0	0	0	**8**	5	1	0	0	1	0	**7**
1230-1330	9	0	0	0	0	0	**9**	5	1	0	0	1	0	**7**
1245-1345	8	0	0	0	0	0	**8**	8	0	0	0	1	0	**9**
1300-1400	13	1	0	0	0	0	**14**	9	0	0	0	1	0	**10**
1315-1415	11	1	0	0	0	0	**12**	11	0	0	0	0	0	**11**
1330-1430	11	2	0	0	0	0	**13**	12	0	0	0	0	0	**12**
1345-1445	11	2	0	0	0	0	**13**	9	0	0	0	0	0	**9**
1400-1500	9	3	1	0	0	0	**13**	7	0	0	0	0	0	**7**
1415-1515	32	3	1	0	0	0	**36**	6	0	0	0	1	0	**7**
1430-1530	34	2	1	0	0	0	**37**	5	1	0	0	1	0	**7**
1445-1545	33	3	1	0	0	0	**37**	6	2	0	0	1	0	**9**
1500-1600	31	1	0	0	0	0	**32**	7	2	0	0	1	0	**10**
1515-1615	14	1	0	0	0	0	**15**	4	3	0	0	0	0	**7**
1530-1630	10	2	0	0	0	0	**12**	6	2	0	0	0	0	**8**
1545-1645	13	1	0	0	0	0	**14**	11	1	0	0	0	0	**12**
1600-1700	14	2	0	0	0	0	**16**	11	1	0	0	0	0	**12**
1615-1715	12	6	0	0	0	0	**18**	17	0	0	0	0	0	**17**
1630-1730	20	5	0	0	0	0	**25**	16	0	0	0	0	0	**16**
1645-1745	17	5	0	0	0	0	**22**	15	0	0	0	0	0	**15**
1700-1800	15	6	0	0	0	0	**21**	16	1	1	0	0	0	**18**
1715-1815	11	2	0	0	0	0	**13**	11	1	1	0	0	0	**13**
1730-1830	8	4	0	0	0	0	**12**	13	1	1	0	0	0	**15**
1745-1845	10	4	0	0	0	0	**14**	11	2	1	0	0	0	**14**
1800-1900	9	3	0	0	0	0	**12**	11	7	0	0	0	0	**18**
	HOURLY TOTALS							HOURLY TOTALS						

CHARGE SURVEYS

Site: 4 - Footpaths & Green Lane

Location: Birchmoor, Tamworth B78 1AN

Date: Wednesday 8th June 2022

Time: 07:00-19:00

Site 4 - Footpaths & Green Lane - 07:00-19:00 - 15 Minute Intervals

MOVEMENT 31 – USER TRAVELLING NORTHBOUND ON GREEN LANE FOOTPATH

	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0715	0	0	0	0	0	0	**0**
0715-0730	1	0	0	0	0	0	**1**
0730-0745	5	0	0	0	0	0	**5**
0745-0800	2	0	0	0	0	0	**2**
0800-0815	0	0	0	0	0	0	**0**
0815-0830	0	0	0	0	0	0	**0**
0830-0845	0	0	0	0	0	0	**0**
0845-0900	0	0	0	0	0	0	**0**
0900-0915	0	0	0	0	0	0	**0**
0915-0930	5	0	0	0	0	0	**5**
0930-0945	3	0	0	0	0	0	**3**
0945-1000	1	0	0	0	0	0	**1**
1000-1015	1	0	0	0	0	0	**1**
1015-1030	2	0	0	0	1	0	**3**
1030-1045	3	0	0	0	0	0	**3**
1045-1100	0	0	0	0	0	0	**0**
1100-1115	0	0	0	0	0	0	**0**
1115-1130	0	0	0	0	0	0	**0**
1130-1145	1	0	0	0	0	0	**1**
1145-1200	1	0	0	0	0	0	**1**
1200-1215	2	0	0	0	0	0	**2**
1215-1230	1	0	0	0	0	0	**1**
1230-1245	4	0	0	0	0	0	**4**
1245-1300	1	0	0	0	0	0	**1**
1300-1315	1	0	0	0	0	0	**1**
1315-1330	3	0	0	0	0	0	**3**
1330-1345	1	0	0	0	0	0	**1**
1345-1400	8	0	0	0	0	0	**8**
1400-1415	1	0	0	0	0	0	**1**
1415-1430	2	1	0	0	0	0	**3**
1430-1445	0	0	0	0	0	0	**0**
1445-1500	2	0	0	0	0	0	**2**
1500-1515	2	0	0	0	0	0	**2**
1515-1530	2	0	0	0	0	0	**2**
1530-1545	4	2	0	0	0	0	**6**
1545-1600	0	0	0	0	0	0	**0**
1600-1615	0	0	0	0	0	0	**0**
1615-1630	0	0	0	0	0	0	**0**
1630-1645	2	1	0	0	0	0	**3**
1645-1700	2	0	0	0	0	0	**2**
1700-1715	8	2	0	0	0	0	**10**
1715-1730	5	0	0	0	0	0	**5**
1730-1745	2	0	0	0	0	0	**2**
1745-1800	1	0	0	0	0	0	**1**
1800-1815	1	0	0	0	0	0	**1**
1815-1830	3	0	0	0	0	0	**3**
1830-1845	0	0	0	0	0	0	**0**
1845-1900	0	0	0	0	0	0	**0**
0700-1900	**83**	**6**	**0**	**0**	**1**	**0**	**90**

MOVEMENT 32 – USER TRAVELLING SOUTHBOUND ON GREEN LANE FOOTPATH

	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0715	0	0	0	0	0	0	**0**
0715-0730	3	0	0	0	0	0	**3**
0730-0745	2	1	0	0	0	0	**3**
0745-0800	1	1	0	0	0	0	**2**
0800-0815	1	0	0	0	0	0	**1**
0815-0830	1	0	0	0	0	0	**1**
0830-0845	0	0	0	0	0	0	**0**
0845-0900	2	0	0	0	0	0	**2**
0900-0915	1	0	0	0	0	0	**1**
0915-0930	2	0	0	0	0	0	**2**
0930-0945	2	0	0	0	0	0	**2**
0945-1000	3	0	0	0	0	0	**3**
1000-1015	0	0	0	0	0	0	**0**
1015-1030	0	0	0	0	0	0	**0**
1030-1045	1	0	0	0	0	0	**1**
1045-1100	0	0	0	0	0	0	**0**
1100-1115	0	0	0	0	0	0	**0**
1115-1130	0	0	0	0	0	0	**0**
1130-1145	1	0	0	0	0	0	**1**
1145-1200	2	0	0	0	0	0	**2**
1200-1215	3	0	0	0	0	0	**3**
1215-1230	0	0	0	0	0	0	**0**
1230-1245	0	0	0	0	0	0	**0**
1245-1300	3	0	0	0	0	0	**3**
1300-1315	1	0	0	0	0	0	**1**
1315-1330	9	0	0	0	0	0	**9**
1330-1345	4	0	0	0	0	0	**4**
1345-1400	0	0	0	0	0	0	**0**
1400-1415	4	0	0	0	0	0	**4**
1415-1430	1	0	0	0	0	0	**1**
1430-1445	3	0	0	0	0	0	**3**
1445-1500	1	0	0	0	0	0	**1**
1500-1515	8	0	0	0	0	0	**8**
1515-1530	5	0	0	0	0	0	**5**
1530-1545	0	1	0	0	0	0	**1**
1545-1600	1	0	0	0	0	0	**1**
1600-1615	1	0	0	0	0	0	**1**
1615-1630	6	0	0	0	0	0	**6**
1630-1645	6	0	0	0	0	0	**6**
1645-1700	3	0	0	0	0	0	**3**
1700-1715	7	0	0	0	0	0	**7**
1715-1730	2	0	0	0	0	0	**2**
1730-1745	0	0	0	0	0	0	**0**
1745-1800	0	0	1	0	0	0	**1**
1800-1815	0	0	0	0	0	0	**0**
1815-1830	1	0	0	0	0	0	**1**
1830-1845	0	0	0	0	0	0	**0**
1845-1900	0	6	0	0	0	0	**6**
0700-1900	**91**	**9**	**1**	**0**	**0**	**0**	**101**

MOVEMENT 33 – USER TRAVELLING EASTBOUND ON GREEN LANE

	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0715	0	1	0	0	0	0	**1**
0715-0730	1	0	0	0	0	0	**1**
0730-0745	11	2	0	0	0	0	**13**
0745-0800	16	6	1	0	0	0	**23**
0800-0815	9	3	0	0	0	0	**12**
0815-0830	2	0	1	0	0	0	**3**
0830-0845	0	1	0	0	0	0	**1**
0845-0900	2	0	0	0	0	0	**2**
0900-0915	2	2	0	0	0	0	**4**
0915-0930	8	1	0	0	0	0	**9**
0930-0945	2	0	0	0	0	0	**2**
0945-1000	5	1	0	0	0	0	**6**
1000-1015	1	1	0	0	0	0	**2**
1015-1030	1	2	0	0	0	0	**3**
1030-1045	2	0	0	0	0	0	**2**
1045-1100	1	0	0	0	0	0	**1**
1100-1115	0	0	0	0	0	0	**0**
1115-1130	2	0	0	0	0	0	**2**
1130-1145	1	0	0	0	0	0	**1**
1145-1200	1	0	0	0	0	0	**1**
1200-1215	3	0	0	0	0	0	**3**
1215-1230	1	0	0	0	0	0	**1**
1230-1245	2	0	0	0	0	0	**2**
1245-1300	2	0	0	0	0	0	**2**
1300-1315	1	0	0	0	1	0	**2**
1315-1330	1	1	0	0	0	0	**2**
1330-1345	1	0	0	0	0	0	**1**
1345-1400	6	0	0	0	0	0	**6**
1400-1415	2	0	0	0	0	0	**2**
1415-1430	0	0	0	0	0	0	**0**
1430-1445	0	1	0	0	0	0	**1**
1445-1500	2	1	0	0	0	0	**3**
1500-1515	0	1	0	0	0	0	**1**
1515-1530	1	2	0	0	0	0	**3**
1530-1545	3	3	0	0	0	0	**6**
1545-1600	0	1	0	0	0	0	**1**
1600-1615	0	3	0	0	0	0	**3**
1615-1630	4	0	0	0	0	0	**4**
1630-1645	1	2	0	0	0	0	**3**
1645-1700	4	1	0	0	0	0	**5**
1700-1715	0	0	0	0	0	0	**0**
1715-1730	2	0	0	0	0	0	**2**
1730-1745	2	0	0	0	0	0	**2**
1745-1800	1	2	0	0	0	0	**3**
1800-1815	2	0	0	0	0	0	**2**
1815-1830	2	0	0	0	0	0	**2**
1830-1845	2	1	0	0	0	0	**3**
1845-1900	1	0	0	0	0	0	**1**
0700-1900	**113**	**39**	**2**	**0**	**1**	**0**	**155**

MOVEMENT 34 – USER TRAVELLING WESTBOUND ON GREEN LANE

	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0715	0	0	0	0	0	0	**0**
0715-0730	5	0	0	0	0	0	**5**
0730-0745	2	2	0	0	0	0	**4**
0745-0800	4	0	0	0	0	0	**4**
0800-0815	2	1	0	0	0	0	**3**
0815-0830	0	0	0	0	0	0	**0**
0830-0845	2	0	0	0	0	0	**2**
0845-0900	2	1	0	0	0	0	**3**
0900-0915	3	1	0	0	0	0	**4**
0915-0930	4	0	0	0	0	0	**4**
0930-0945	0	0	0	0	0	0	**0**
0945-1000	5	0	0	0	0	0	**5**
1000-1015	2	0	0	0	0	0	**2**
1015-1030	2	0	0	0	0	0	**2**
1030-1045	0	0	0	0	0	0	**0**
1045-1100	1	0	0	0	0	0	**1**
1100-1115	2	1	0	0	0	0	**3**
1115-1130	13	2	0	0	0	0	**15**
1130-1145	4	1	0	0	0	0	**5**
1145-1200	1	0	0	0	0	0	**1**
1200-1215	1	0	0	0	0	0	**1**
1215-1230	0	0	0	0	0	0	**0**
1230-1245	1	0	0	0	1	0	**2**
1245-1300	2	0	0	0	0	0	**2**
1300-1315	5	0	0	0	0	0	**5**
1315-1330	2	0	0	0	0	0	**2**
1330-1345	1	0	0	0	0	0	**1**
1345-1400	2	2	0	0	0	0	**4**
1400-1415	7	2	0	0	0	0	**9**
1415-1430	0	0	0	0	0	0	**0**
1430-1445	3	0	0	0	0	0	**3**
1445-1500	6	5	2	0	0	0	**13**
1500-1515	53	2	0	0	0	0	**55**
1515-1530	12	1	0	0	0	0	**13**
1530-1545	0	3	0	0	0	0	**3**
1545-1600	3	0	1	0	0	0	**4**
1600-1615	7	0	0	0	0	0	**7**
1615-1630	3	2	0	0	0	0	**5**
1630-1645	2	0	0	0	0	0	**2**
1645-1700	3	1	0	0	0	0	**4**
1700-1715	3	2	0	0	0	0	**5**
1715-1730	2	0	0	0	0	0	**2**
1730-1745	0	0	0	0	0	0	**0**
1745-1800	1	0	0	0	0	0	**1**
1800-1815	0	0	0	0	0	0	**0**
1815-1830	3	2	0	0	0	0	**5**
1830-1845	1	0	0	0	0	0	**1**
1845-1900	0	1	0	0	0	0	**1**
0700-1900	**177**	**32**	**3**	**0**	**1**	**0**	**213**

CHARGE SURVEYS

Site: 4 - Footpaths & Green Lane

Location: Birchmoor, Tamworth B78 1AN

Date: Wednesday 8th June 2022

Time: 07:00-19:00

Site 4 - Footpaths & Green Lane - 07:00-19:00 - Hourly Totals

	MOVEMENT 31							MOVEMENT 32						
	USER TRAVELLING NORTHBOUND ON GREEN LANE FOOTPATH							USER TRAVELLING SOUTHBOUND ON GREEN LANE FOOTPATH						
	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0800	8	0	0	0	0	0	**8**	6	2	0	0	0	0	**8**
0715-0815	8	0	0	0	0	0	**8**	7	2	0	0	0	0	**9**
0730-0830	7	0	0	0	0	0	**7**	5	2	0	0	0	0	**7**
0745-0845	2	0	0	0	0	0	**2**	3	1	0	0	0	0	**4**
0800-0900	0	0	0	0	0	0	**0**	4	0	0	0	0	0	**4**
0815-0915	0	0	0	0	0	0	**0**	4	0	0	0	0	0	**4**
0830-0930	5	0	0	0	0	0	**5**	5	0	0	0	0	0	**5**
0845-0945	8	0	0	0	0	0	**8**	7	0	0	0	0	0	**7**
0900-1000	9	0	0	0	0	0	**9**	8	0	0	0	0	0	**8**
0915-1015	10	0	0	0	0	0	**10**	7	0	0	0	0	0	**7**
0930-1030	7	0	0	0	1	0	**8**	5	0	0	0	0	0	**5**
0945-1045	7	0	0	0	1	0	**8**	4	0	0	0	0	0	**4**
1000-1100	6	0	0	0	1	0	**7**	1	0	0	0	0	0	**1**
1015-1115	5	0	0	0	1	0	**6**	1	0	0	0	0	0	**1**
1030-1130	3	0	0	0	0	0	**3**	1	0	0	0	0	0	**1**
1045-1145	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
1100-1200	2	0	0	0	0	0	**2**	3	0	0	0	0	0	**3**
1115-1215	4	0	0	0	0	0	**4**	6	0	0	0	0	0	**6**
1130-1230	5	0	0	0	0	0	**5**	6	0	0	0	0	0	**6**
1145-1245	8	0	0	0	0	0	**8**	5	0	0	0	0	0	**5**
1200-1300	8	0	0	0	0	0	**8**	6	0	0	0	0	0	**6**
1215-1315	7	0	0	0	0	0	**7**	4	0	0	0	0	0	**4**
1230-1330	9	0	0	0	0	0	**9**	13	0	0	0	0	0	**13**
1245-1345	6	0	0	0	0	0	**6**	17	0	0	0	0	0	**17**
1300-1400	13	0	0	0	0	0	**13**	14	0	0	0	0	0	**14**
1315-1415	13	0	0	0	0	0	**13**	17	0	0	0	0	0	**17**
1330-1430	12	1	0	0	0	0	**13**	9	0	0	0	0	0	**9**
1345-1445	11	1	0	0	0	0	**12**	8	0	0	0	0	0	**8**
1400-1500	5	1	0	0	0	0	**6**	9	0	0	0	0	0	**9**
1415-1515	6	1	0	0	0	0	**7**	13	0	0	0	0	0	**13**
1430-1530	6	0	0	0	0	0	**6**	17	0	0	0	0	0	**17**
1445-1545	10	2	0	0	0	0	**12**	14	1	0	0	0	0	**15**
1500-1600	8	2	0	0	0	0	**10**	14	1	0	0	0	0	**15**
1515-1615	6	2	0	0	0	0	**8**	7	1	0	0	0	0	**8**
1530-1630	4	2	0	0	0	0	**6**	8	1	0	0	0	0	**9**
1545-1645	2	1	0	0	0	0	**3**	14	0	0	0	0	0	**14**
1600-1700	4	1	0	0	0	0	**5**	16	0	0	0	0	0	**16**
1615-1715	12	3	0	0	0	0	**15**	22	0	0	0	0	0	**22**
1630-1730	17	3	0	0	0	0	**20**	18	0	0	0	0	0	**18**
1645-1745	17	2	0	0	0	0	**19**	12	0	0	0	0	0	**12**
1700-1800	16	2	0	0	0	0	**18**	9	0	1	0	0	0	**10**
1715-1815	9	0	0	0	0	0	**9**	2	0	1	0	0	0	**3**
1730-1830	7	0	0	0	0	0	**7**	1	0	1	0	0	0	**2**
1745-1845	5	0	0	0	0	0	**5**	1	0	1	0	0	0	**2**
1800-1900	4	0	0	0	0	0	**4**	1	6	0	0	0	0	**7**
	HOURLY TOTALS							HOURLY TOTALS						

	MOVEMENT 33							MOVEMENT 34						
	USER TRAVELLING EASTBOUND ON GREEN LANE							USER TRAVELLING WESTBOUND ON GREEN LANE						
	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0800	28	9	1	0	0	0	**38**	11	2	0	0	0	0	**13**
0715-0815	37	11	1	0	0	0	**49**	13	3	0	0	0	0	**16**
0730-0830	38	11	2	0	0	0	**51**	8	3	0	0	0	0	**11**
0745-0845	27	10	2	0	0	0	**39**	8	1	0	0	0	0	**9**
0800-0900	13	4	1	0	0	0	**18**	6	2	0	0	0	0	**8**
0815-0915	6	3	1	0	0	0	**10**	7	2	0	0	0	0	**9**
0830-0930	12	4	0	0	0	0	**16**	11	2	0	0	0	0	**13**
0845-0945	14	3	0	0	0	0	**17**	9	2	0	0	0	0	**11**
0900-1000	17	4	0	0	0	0	**21**	12	1	0	0	0	0	**13**
0915-1015	16	3	0	0	0	0	**19**	11	0	0	0	0	0	**11**
0930-1030	9	4	0	0	0	0	**13**	9	0	0	0	0	0	**9**
0945-1045	9	4	0	0	0	0	**13**	9	0	0	0	0	0	**9**
1000-1100	5	3	0	0	0	0	**8**	5	0	0	0	0	0	**5**
1015-1115	4	2	0	0	0	0	**6**	5	1	0	0	0	0	**6**
1030-1130	5	0	0	0	0	0	**5**	16	3	0	0	0	0	**19**
1045-1145	4	0	0	0	0	0	**4**	20	4	0	0	0	0	**24**
1100-1200	4	0	0	0	0	0	**4**	20	4	0	0	0	0	**24**
1115-1215	7	0	0	0	0	0	**7**	19	3	0	0	0	0	**22**
1130-1230	6	0	0	0	0	0	**6**	6	1	0	0	0	0	**7**
1145-1245	7	0	0	0	0	0	**7**	3	0	0	0	1	0	**4**
1200-1300	8	0	0	0	0	0	**8**	4	0	0	0	1	0	**5**
1215-1315	6	0	0	0	1	0	**7**	8	0	0	0	1	0	**9**
1230-1330	6	1	0	0	1	0	**8**	10	0	0	0	1	0	**11**
1245-1345	5	1	0	0	1	0	**7**	10	0	0	0	0	0	**10**
1300-1400	9	1	0	0	1	0	**11**	10	2	0	0	0	0	**12**
1315-1415	10	1	0	0	0	0	**11**	12	4	0	0	0	0	**16**
1330-1430	9	0	0	0	0	0	**9**	10	4	0	0	0	0	**14**
1345-1445	8	1	0	0	0	0	**9**	12	4	0	0	0	0	**16**
1400-1500	4	2	0	0	0	0	**6**	16	7	2	0	0	0	**25**
1415-1515	2	3	0	0	0	0	**5**	62	7	2	0	0	0	**71**
1430-1530	3	5	0	0	0	0	**8**	74	8	2	0	0	0	**84**
1445-1545	6	7	0	0	0	0	**13**	71	11	2	0	0	0	**84**
1500-1600	4	7	0	0	0	0	**11**	68	6	1	0	0	0	**75**
1515-1615	4	9	0	0	0	0	**13**	22	4	1	0	0	0	**27**
1530-1630	7	7	0	0	0	0	**14**	13	5	1	0	0	0	**19**
1545-1645	5	6	0	0	0	0	**11**	15	2	1	0	0	0	**18**
1600-1700	9	6	0	0	0	0	**15**	15	3	0	0	0	0	**18**
1615-1715	9	3	0	0	0	0	**12**	11	5	0	0	0	0	**16**
1630-1730	7	3	0	0	0	0	**10**	10	3	0	0	0	0	**13**
1645-1745	8	1	0	0	0	0	**9**	8	3	0	0	0	0	**11**
1700-1800	5	2	0	0	0	0	**7**	6	2	0	0	0	0	**8**
1715-1815	7	2	0	0	0	0	**9**	3	0	0	0	0	0	**3**
1730-1830	7	2	0	0	0	0	**9**	4	2	0	0	0	0	**6**
1745-1845	7	3	0	0	0	0	**10**	5	2	0	0	0	0	**7**
1800-1900	7	1	0	0	0	0	**8**	4	3	0	0	0	0	**7**
	HOURLY TOTALS							HOURLY TOTALS						

Site: 5 - Cockspur Street / Green Lane

Location: Birchmoor, Tamworth B78 1AN

Date: Wednesday 8th June 2022

Time: 07:00-19:00

Site 5 - Cockspur Street / Green Lane - 07:00-19:00 - 15 Minute Intervals

	MOVEMENT 35 FROM COCKSPUR STREET (NORTHEAST) STRAIGHT AHEAD TO COCKSPUR STREET (SOUTHWEST)							MOVEMENT 36 FROM COCKSPUR STREET (NORTHEAST) RIGHT TURN TO GREEN LANE						
	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0715	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
0715-0730	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**
0730-0745	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**
0745-0800	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
0800-0815	2	0	0	0	0	0	**2**	0	1	0	0	0	0	**1**
0815-0830	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0830-0845	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0845-0900	1	0	0	0	0	0	**1**	2	1	0	0	0	0	**3**
0900-0915	1	0	0	0	0	0	**1**	1	1	0	0	0	0	**2**
0915-0930	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
0930-0945	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
0945-1000	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1000-1015	2	0	0	0	0	0	**2**	0	0	0	0	1	0	**1**
1015-1030	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1030-1045	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1045-1100	0	0	0	0	0	0	**0**	1	1	0	0	0	0	**2**
1100-1115	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1115-1130	0	0	0	0	0	0	**0**	12	1	0	0	0	0	**13**
1130-1145	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**
1145-1200	3	0	0	0	0	0	**3**	1	0	0	0	0	0	**1**
1200-1215	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1215-1230	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1230-1245	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1245-1300	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1300-1315	2	0	0	0	0	0	**2**	3	0	0	0	0	0	**3**
1315-1330	0	1	0	0	0	0	**1**	2	0	0	0	0	0	**2**
1330-1345	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**
1345-1400	1	0	0	0	0	0	**1**	4	1	0	0	0	0	**5**
1400-1415	0	0	0	0	0	0	**0**	5	0	0	0	0	0	**5**
1415-1430	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1430-1445	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1445-1500	3	0	0	0	0	0	**3**	26	4	2	0	0	0	**32**
1500-1515	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1515-1530	4	0	0	0	0	0	**4**	8	1	0	0	0	0	**9**
1530-1545	0	0	0	0	0	0	**0**	1	2	0	0	0	0	**3**
1545-1600	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**
1600-1615	1	0	0	0	0	0	**1**	2	0	0	0	0	0	**2**
1615-1630	0	0	0	0	0	0	**0**	5	1	0	0	0	0	**6**
1630-1645	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**
1645-1700	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1700-1715	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1715-1730	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**
1730-1745	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1745-1800	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1800-1815	1	0	0	0	0	0	**1**	0	1	0	0	0	0	**1**
1815-1830	0	0	0	0	0	0	**0**	3	1	0	0	0	0	**4**
1830-1845	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1845-1900	1	0	0	0	0	0	**1**	0	1	0	0	0	0	**1**
0700-1900	**26**	**2**	**0**	**0**	**0**	**0**	**28**	**90**	**21**	**2**	**0**	**1**	**0**	**114**

	MOVEMENT 37 FROM GREEN LANE LEFT TURN TO COCKSPUR STREET (NORTHEAST)							MOVEMENT 38 FROM GREEN LANE RIGHT TURN TO COCKSPUR STREET (SOUTHWEST)						
	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0715	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**
0715-0730	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**
0730-0745	2	1	0	0	0	0	**3**	0	0	0	0	0	0	**0**
0745-0800	10	3	0	0	0	0	**13**	0	0	0	0	0	0	**0**
0800-0815	5	5	1	0	0	0	**11**	2	0	0	0	0	0	**2**
0815-0830	4	0	1	0	0	0	**5**	0	0	0	0	0	0	**0**
0830-0845	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
0845-0900	0	1	0	0	0	0	**1**	1	0	0	0	0	0	**1**
0900-0915	1	1	0	0	0	0	**2**	0	0	0	0	0	0	**0**
0915-0930	3	0	0	0	0	0	**3**	0	0	0	0	0	0	**0**
0930-0945	3	0	0	0	0	0	**3**	0	0	0	0	0	0	**0**
0945-1000	2	1	0	0	0	0	**3**	0	0	0	0	0	0	**0**
1000-1015	1	1	0	0	0	0	**2**	1	0	0	0	0	0	**1**
1015-1030	2	0	0	0	1	0	**3**	1	0	0	0	0	0	**1**
1030-1045	1	1	0	0	0	0	**2**	0	1	0	0	0	0	**1**
1045-1100	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1100-1115	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1115-1130	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1130-1145	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1145-1200	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1200-1215	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1215-1230	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1230-1245	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1245-1300	3	0	0	0	0	0	**3**	0	0	0	0	0	0	**0**
1300-1315	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1315-1330	2	1	0	0	0	0	**3**	0	0	0	0	0	0	**0**
1330-1345	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1345-1400	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1400-1415	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1415-1430	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1430-1445	2	1	0	0	0	0	**3**	0	0	0	0	0	0	**0**
1445-1500	2	1	0	0	0	0	**3**	1	0	0	0	0	0	**1**
1500-1515	1	0	0	0	0	0	**1**	2	0	0	0	0	0	**2**
1515-1530	0	3	0	0	0	0	**3**	0	0	0	0	0	0	**0**
1530-1545	1	1	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1545-1600	1	1	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1600-1615	0	1	0	0	0	0	**1**	0	2	0	0	0	0	**2**
1615-1630	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
1630-1645	3	0	0	0	0	0	**3**	0	1	0	0	0	0	**1**
1645-1700	2	1	0	0	0	0	**3**	0	0	0	0	0	0	**0**
1700-1715	2	0	0	0	0	0	**2**	1	0	0	0	0	0	**1**
1715-1730	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1730-1745	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1745-1800	1	0	0	0	0	0	**1**	1	1	0	0	0	0	**2**
1800-1815	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1815-1830	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1830-1845	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1845-1900	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**
0700-1900	**70**	**24**	**2**	**0**	**1**	**0**	**97**	**15**	**7**	**0**	**0**	**0**	**0**	**22**

	MOVEMENT 39 FROM COCKSPUR STREET (SOUTHWEST) LEFT TURN TO GREEN LANE							MOVEMENT 40 FROM COCKSPUR STREET (SOUTHWEST) STRAIGHT AHEAD TO COCKSPUR STREET (NORTHEAST)						
	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0715	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**
0715-0730	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
0730-0745	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0745-0800	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
0800-0815	0	0	0	0	0	0	**0**	7	0	0	0	0	0	**7**
0815-0830	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0830-0845	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
0845-0900	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0900-0915	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
0915-0930	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0930-0945	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
0945-1000	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1000-1015	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1015-1030	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1030-1045	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1045-1100	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1100-1115	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
1115-1130	2	1	0	0	0	0	**3**	0	0	0	0	0	0	**0**
1130-1145	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1145-1200	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**
1200-1215	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**
1215-1230	1	0	0	0	0	0	**1**	0	1	0	0	0	0	**1**
1230-1245	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1245-1300	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1300-1315	1	0	0	0	0	0	**1**	2	0	0	0	0	0	**2**
1315-1330	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1330-1345	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1345-1400	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**
1400-1415	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1415-1430	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1430-1445	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1445-1500	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1500-1515	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1515-1530	0	1	0	0	0	0	**1**	1	0	0	0	0	0	**1**
1530-1545	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1545-1600	1	0	0	0	0	0	**1**	1	1	0	0	0	0	**2**
1600-1615	0	0	0	0	0	0	**0**	1	1	0	0	0	0	**2**
1615-1630	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**
1630-1645	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1645-1700	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1700-1715	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1715-1730	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1730-1745	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1745-1800	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1800-1815	0	0	0	0	0	0	**0**	3	0	0	0	0	0	**3**
1815-1830	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1830-1845	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1845-1900	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
0700-1900	**13**	**3**	**0**	**0**	**0**	**0**	**16**	**30**	**3**	**0**	**0**	**0**	**0**	**33**

CHARGE SURVEYS

Site: 5 - Cockspur Street / Green Lane

Location: Birchmoor, Tamworth B78 1AN

Date: Wednesday 8th June 2022

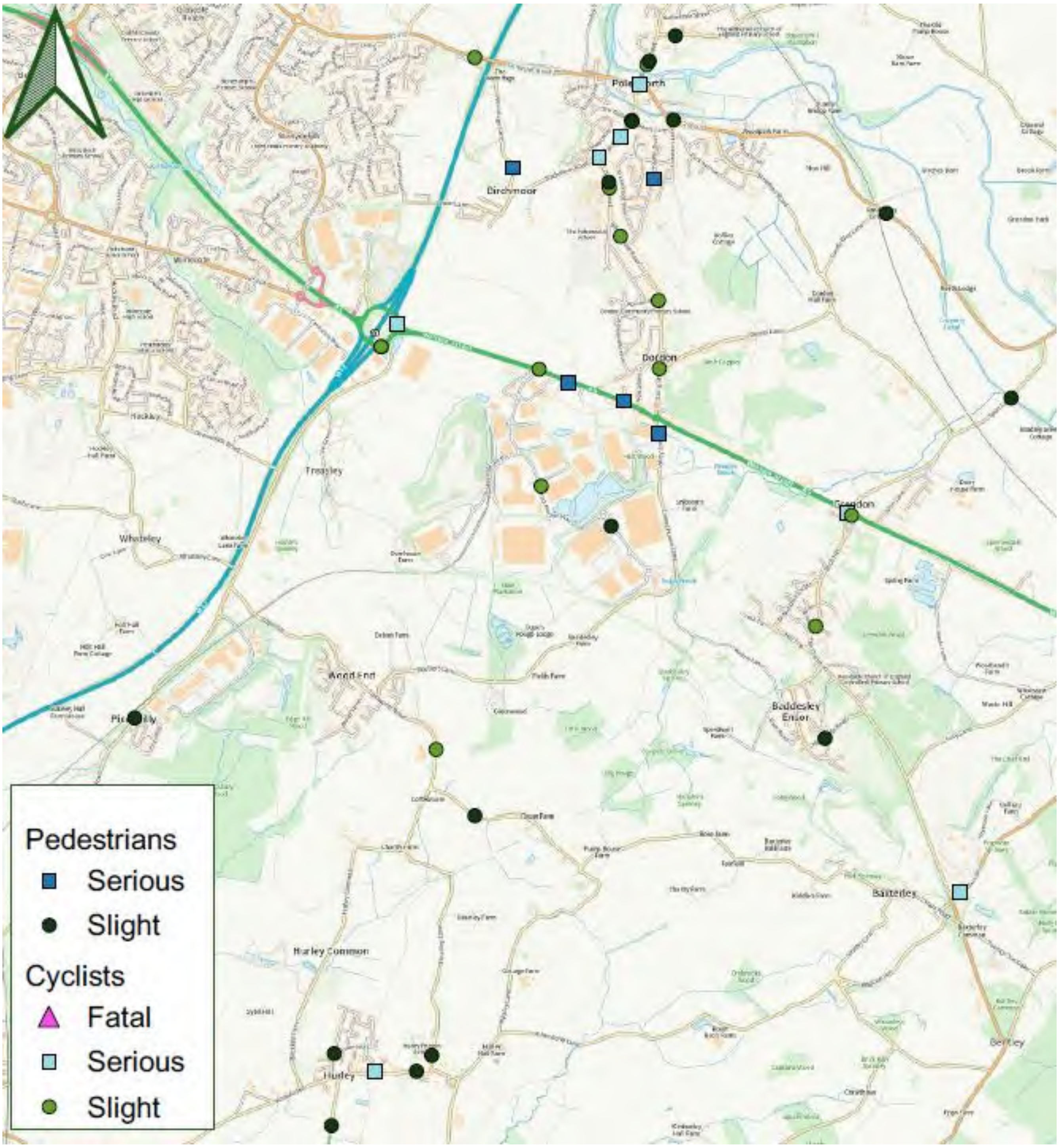
Time: 07:00-19:00

Site 5 - Cockspur Street / Green Lane - 07:00-19:00 - Hourly Totals

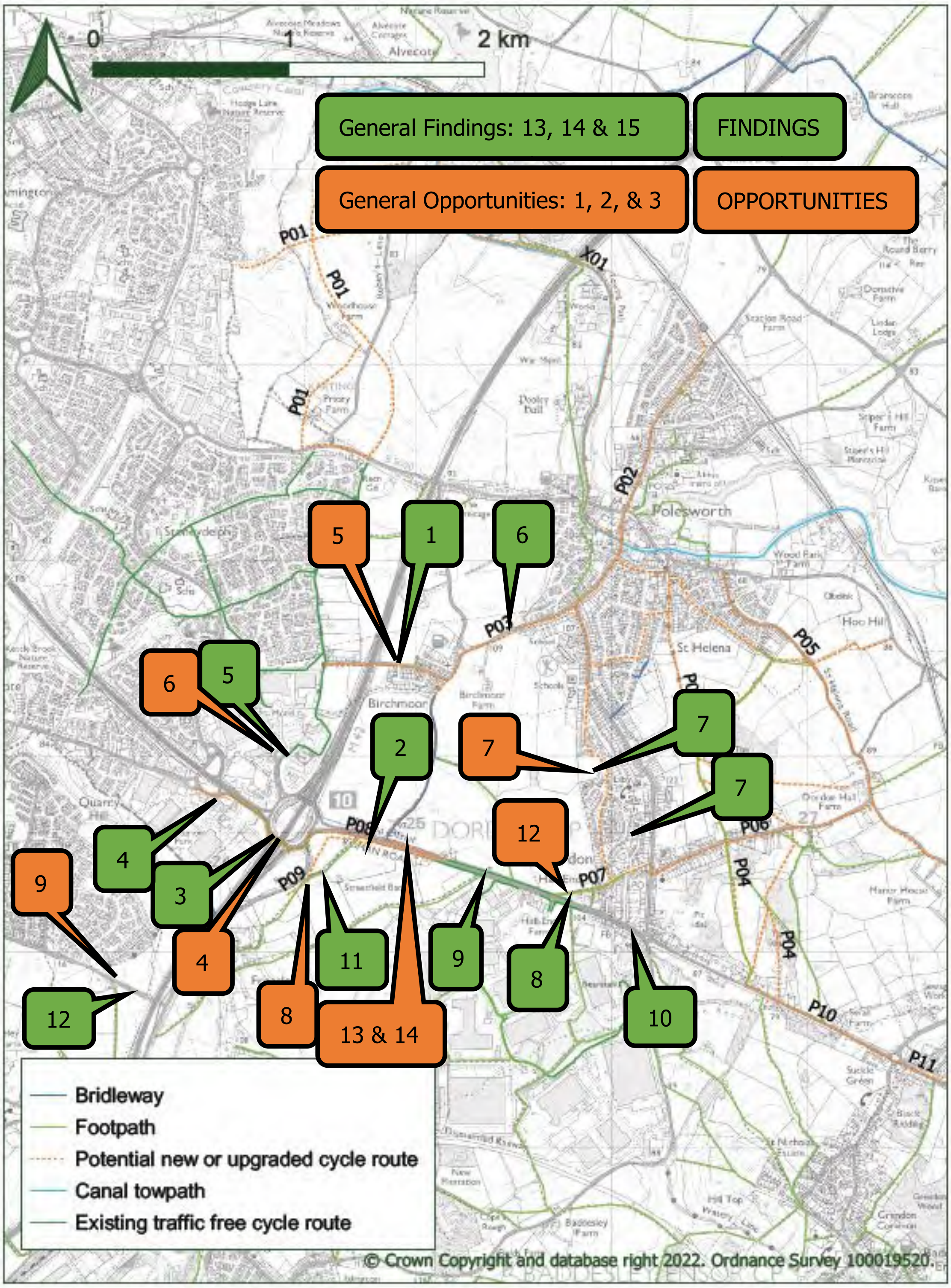
	MOVEMENT 35 FROM COCKSPUR STREET (NORTHEAST) STRAIGHT AHEAD TO COCKSPUR STREET (SOUTHWEST)							MOVEMENT 36 FROM COCKSPUR STREET (NORTHEAST) RIGHT TURN TO GREEN LANE							MOVEMENT 37 FROM GREEN LANE LEFT TURN TO COCKSPUR STREET (NORTHEAST)						
	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0800	2	0	0	0	0	0	**2**	3	1	0	0	0	0	**4**	12	4	0	0	0	0	**16**
0715-0815	2	0	0	0	0	0	**2**	3	2	0	0	0	0	**5**	17	9	1	0	0	0	**27**
0730-0830	2	0	0	0	0	0	**2**	1	2	0	0	0	0	**3**	21	9	2	0	0	0	**32**
0745-0845	2	0	0	0	0	0	**2**	1	1	0	0	0	0	**2**	20	8	2	0	0	0	**30**
0800-0900	3	0	0	0	0	0	**3**	2	2	0	0	0	0	**4**	10	6	2	0	0	0	**18**
0815-0915	2	0	0	0	0	0	**2**	3	2	0	0	0	0	**5**	6	2	1	0	0	0	**9**
0830-0930	3	0	0	0	0	0	**3**	4	2	0	0	0	0	**6**	5	2	0	0	0	0	**7**
0845-0945	3	0	0	0	0	0	**3**	5	2	0	0	0	0	**7**	7	2	0	0	0	0	**9**
0900-1000	2	0	0	0	0	0	**2**	3	1	0	0	0	0	**4**	9	2	0	0	0	0	**11**
0915-1015	3	0	0	0	0	0	**3**	2	0	0	0	1	0	**3**	9	2	0	0	0	0	**11**
0930-1030	2	0	0	0	0	0	**2**	2	0	0	0	1	0	**3**	8	2	0	0	1	0	**11**
0945-1045	2	0	0	0	0	0	**2**	1	0	0	0	1	0	**2**	6	3	0	0	1	0	**10**
1000-1100	2	0	0	0	0	0	**2**	2	1	0	0	1	0	**4**	5	2	0	0	1	0	**8**
1015-1115	0	0	0	0	0	0	**0**	3	1	0	0	0	0	**4**	4	1	0	0	1	0	**6**
1030-1130	0	0	0	0	0	0	**0**	14	2	0	0	0	0	**16**	3	1	0	0	0	0	**4**
1045-1145	0	0	0	0	0	0	**0**	14	3	0	0	0	0	**17**	2	0	0	0	0	0	**2**
1100-1200	3	0	0	0	0	0	**3**	14	2	0	0	0	0	**16**	1	0	0	0	0	0	**1**
1115-1215	3	0	0	0	0	0	**3**	13	2	0	0	0	0	**15**	1	0	0	0	0	0	**1**
1130-1230	3	0	0	0	0	0	**3**	2	1	0	0	0	0	**3**	2	0	0	0	0	0	**2**
1145-1245	4	0	0	0	0	0	**4**	2	0	0	0	0	0	**2**	2	0	0	0	0	0	**2**
1200-1300	1	0	0	0	0	0	**1**	2	0	0	0	0	0	**2**	5	0	0	0	0	0	**5**
1215-1315	3	0	0	0	0	0	**3**	5	0	0	0	0	0	**5**	7	0	0	0	0	0	**7**
1230-1330	3	1	0	0	0	0	**4**	6	0	0	0	0	0	**6**	7	1	0	0	0	0	**8**
1245-1345	2	1	0	0	0	0	**3**	6	1	0	0	0	0	**7**	8	1	0	0	0	0	**9**
1300-1400	3	1	0	0	0	0	**4**	9	2	0	0	0	0	**11**	5	1	0	0	0	0	**6**
1315-1415	1	1	0	0	0	0	**2**	11	2	0	0	0	0	**13**	4	1	0	0	0	0	**5**
1330-1430	1	0	0	0	0	0	**1**	10	2	0	0	0	0	**12**	2	0	0	0	0	0	**2**
1345-1445	1	0	0	0	0	0	**1**	10	1	0	0	0	0	**11**	3	1	0	0	0	0	**4**
1400-1500	3	0	0	0	0	0	**3**	32	4	2	0	0	0	**38**	5	2	0	0	0	0	**7**
1415-1515	3	0	0	0	0	0	**3**	27	4	2	0	0	0	**33**	5	2	0	0	0	0	**7**
1430-1530	7	0	0	0	0	0	**7**	34	5	2	0	0	0	**41**	5	5	0	0	0	0	**10**
1445-1545	7	0	0	0	0	0	**7**	35	7	2	0	0	0	**44**	4	5	0	0	0	0	**9**
1500-1600	4	0	0	0	0	0	**4**	11	3	0	0	0	0	**14**	3	5	0	0	0	0	**8**
1515-1615	5	0	0	0	0	0	**5**	13	3	0	0	0	0	**16**	2	6	0	0	0	0	**8**
1530-1630	1	0	0	0	0	0	**1**	10	3	0	0	0	0	**13**	3	3	0	0	0	0	**6**
1545-1645	1	0	0	0	0	0	**1**	9	2	0	0	0	0	**11**	5	2	0	0	0	0	**7**
1600-1700	1	0	0	0	0	0	**1**	7	2	0	0	0	0	**9**	6	2	0	0	0	0	**8**
1615-1715	0	0	0	0	0	0	**0**	5	2	0	0	0	0	**7**	8	1	0	0	0	0	**9**
1630-1730	0	0	0	0	0	0	**0**	2	1	0	0	0	0	**3**	9	1	0	0	0	0	**10**
1645-1745	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**	6	1	0	0	0	0	**7**
1700-1800	0	1	0	0	0	0	**1**	2	0	0	0	0	0	**2**	5	0	0	0	0	0	**5**
1715-1815	1	1	0	0	0	0	**2**	2	1	0	0	0	0	**3**	5	0	0	0	0	0	**5**
1730-1830	1	1	0	0	0	0	**2**	3	2	0	0	0	0	**5**	3	0	0	0	0	0	**3**
1745-1845	1	1	0	0	0	0	**2**	3	2	0	0	0	0	**5**	5	0	0	0	0	0	**5**
1800-1900	2	0	0	0	0	0	**2**	3	3	0	0	0	0	**6**	4	0	0	0	0	0	**4**
	HOURLY TOTALS							HOURLY TOTALS							HOURLY TOTALS						

	MOVEMENT 38 FROM GREEN LANE RIGHT TURN TO COCKSPUR STREET (SOUTHWEST)							MOVEMENT 39 FROM COCKSPUR STREET (SOUTHWEST) LEFT TURN TO GREEN LANE							MOVEMENT 40 FROM COCKSPUR STREET (SOUTHWEST) STRAIGHT AHEAD TO COCKSPUR STREET (NORTHEAST)						
	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL	PEDESTRIAN	PCYCLE	E-SCOOTER	MOBILITY SCOOTER	PEDESTRIAN & BUGGY	EQUESTRIAN	TOTAL
0700-0800	2	1	0	0	0	0	**3**	1	0	0	0	0	0	**1**	3	0	0	0	0	0	**3**
0715-0815	2	1	0	0	0	0	**3**	1	0	0	0	0	0	**1**	8	0	0	0	0	0	**8**
0730-0830	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**	8	0	0	0	0	0	**8**
0745-0845	2	0	0	0	0	0	**2**	2	0	0	0	0	0	**2**	8	0	0	0	0	0	**8**
0800-0900	3	0	0	0	0	0	**3**	2	0	0	0	0	0	**2**	7	0	0	0	0	0	**7**
0815-0915	1	0	0	0	0	0	**1**	3	0	0	0	0	0	**3**	0	0	0	0	0	0	**0**
0830-0930	1	0	0	0	0	0	**1**	3	0	0	0	0	0	**3**	0	0	0	0	0	0	**0**
0845-0945	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
0900-1000	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	2	0	0	0	0	0	**2**
0915-1015	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**
0930-1030	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**	3	0	0	0	0	0	**3**
0945-1045	2	1	0	0	0	0	**3**	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**
1000-1100	2	1	0	0	0	0	**3**	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**
1015-1115	1	1	0	0	0	0	**2**	3	0	0	0	0	0	**3**	1	0	0	0	0	0	**1**
1030-1130	0	1	0	0	0	0	**1**	5	1	0	0	0	0	**6**	0	0	0	0	0	0	**0**
1045-1145	1	0	0	0	0	0	**1**	5	1	0	0	0	0	**6**	0	0	0	0	0	0	**0**
1100-1200	1	0	0	0	0	0	**1**	4	1	0	0	0	0	**5**	2	0	0	0	0	0	**2**
1115-1215	2	0	0	0	0	0	**2**	2	1	0	0	0	0	**3**	4	0	0	0	0	0	**4**
1130-1230	2	0	0	0	0	0	**2**	1	0	0	0	0	0	**1**	4	1	0	0	0	0	**5**
1145-1245	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**	5	1	0	0	0	0	**6**
1200-1300	1	0	0	0	0	0	**1**	1	0	0	0	0	0	**1**	3	1	0	0	0	0	**4**
1215-1315	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**	3	1	0	0	0	0	**4**
1230-1330	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**	3	0	0	0	0	0	**3**
1245-1345	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**	3	0	0	0	0	0	**3**
1300-1400	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**	5	0	0	0	0	0	**5**
1315-1415	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**	3	0	0	0	0	0	**3**
1330-1430	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	3	0	0	0	0	0	**3**
1345-1445	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	2	0	0	0	0	0	**2**
1400-1500	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1415-1515	3	0	0	0	0	0	**3**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1430-1530	3	0	0	0	0	0	**3**	0	1	0	0	0	0	**1**	1	0	0	0	0	0	**1**
1445-1545	3	0	0	0	0	0	**3**	0	1	0	0	0	0	**1**	1	0	0	0	0	0	**1**
1500-1600	2	0	0	0	0	0	**2**	1	1	0	0	0	0	**2**	2	1	0	0	0	0	**3**
1515-1615	0	2	0	0	0	0	**2**	1	1	0	0	0	0	**2**	3	2	0	0	0	0	**5**
1530-1630	1	2	0	0	0	0	**3**	1	1	0	0	0	0	**2**	2	2	0	0	0	0	**4**
1545-1645	1	3	0	0	0	0	**4**	1	1	0	0	0	0	**2**	3	2	0	0	0	0	**5**
1600-1700	1	3	0	0	0	0	**4**	0	1	0	0	0	0	**1**	2	1	0	0	0	0	**3**
1615-1715	2	1	0	0	0	0	**3**	0	1	0	0	0	0	**1**	1	0	0	0	0	0	**1**
1630-1730	1	1	0	0	0	0	**2**	0	0	0	0	0	0	**0**	1	0	0	0	0	0	**1**
1645-1745	1	0	0	0	0	0	**1**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1700-1800	2	1	0	0	0	0	**3**	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1715-1815	1	1	0	0	0	0	**2**	0	0	0	0	0	0	**0**	3	0	0	0	0	0	**3**
1730-1830	1	1	0	0	0	0	**2**	0	0	0	0	0	0	**0**	3	0	0	0	0	0	**3**
1745-1845	1	1	0	0	0	0	**2**	0	0	0	0	0	0	**0**	3	0	0	0	0	0	**3**
1800-1900	0	1	0	0	0	0	**1**	0	0	0	0	0	0	**0**	3	0	0	0	0	0	**3**
	HOURLY TOTALS							HOURLY TOTALS							HOURLY TOTALS						

Appendix C – Collision Data


Pedestrians
Serious
Slight
Cyclists
Fatal
Serious
Slight
Birchmoor
Dordon
Freasley
Whateley
Wood End
Baddesley Ensor
Baxterley
Hurley Common
Hurley

Appendix D – Findings and Opportunities Location Plan



DRAFT LCWIP
Polesworth cycle network and Rights of Way
Date:25/05/2022 Contact: 01926 413950 alisonkennedy@warwickshire.gov.uk
Warwickshire County Council

Note: The general findings/ opportunities are area wide and do not have an arrow on the map.

APPENDIX F PUBLIC TRANSPORT STRATEGY

Land Northeast of M42 Junction 10, North Warwickshire

Public Transport Strategy

Project Number: 784-B033920

Hodgetts Estates

October 2022

Tetra Tech, 4th Floor, Rotterdam House, 116 Quayside, Newcastle upon Tyne, NE1 3DY
Tetra Tech Limited. Registered in England number: 03050297
Registered Office: 3 Sovereign Square, Sovereign Street, Leeds, United Kingdom, LS1 4ER

Document Control

Document:	Public Transport Strategy
Project:	Land Northeast of M42 Junction 10
Client:	Hodgetts Estates
Job Number:	784-B033920
File Origin:	-

Document Checking:

Primary Author	David Groves	Initialled:	DG

Checked By	Nick Bunn	Initialled:	NB

Review By	Nick Bunn	Initialled:	NB

Issue	Date	Status	Checked for Issue
1	18.08.22	Draft to client	DG
2	25.09.22	Revised draft to client	DG
3	12.10.22	Final for Planning	DG
4			
5			

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Contents

Appendices

Tetra Tech, 4th Floor, Rotterdam House, 116 Quayside, Newcastle upon Tyne, NE1 3DY
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1 INTRODUCTION

1.1 Tetra Tech (TT) have been appointed by Hodgetts Estates to produce this public transport strategy in support of their outline planning application for a proposed development of upto 100,000sqm of mixed employment uses and 150 space overnight lorry park (including an associated 400sqm amenity block) on land to the northeast of M42 Junction 10.

1.2 This report will appraise the current public transport provision, identify where improvements to the existing provision is required or where new public transport services are required, and then outline a public transport proposal for land to the northeast of M42 Junction 10.

1.3 The public transport strategy follows discussions with officers at WCC and with Stagecoach.

1.4 This report has been prepared solely in connection with the land to the northeast of M42 Junction 10 site. Whilst every reasonable effort has been made to ensure its accuracy, use of the information contained in the report by a third party for any other purpose is entirely at their own risk.

TETRA TECH

2 PROPOSED DEVELOPMENT

2.1 The application site is located to the north of the A5 Watling Street and northeast of M42 Junction 10 shown at Figure 1 at Appendix A.

2.2 The development proposal includes up to 100,000sqm of mixed employment uses and a 150 spaces overnight lorry park (including an associated 400sqm amenity block) as illustrated at the indicative masterplan at Chetwoods Drawing Number 00078 Rev P10 at Appendix B. Planning is sought in outline with all matters other than 'Access' reserved for consideration in due course. As such, this layout in only indicative at this stage.

2.3 The application site is to be accessed via a new signalised junction arrangement off the A5 Watling Street which is approximately 300m east of the M42 Junction 10.

2.4 The indicative layout shows the access road serving two large units on Plot A1 and 5 smaller units at its north end on Plot A2. The southern unit, as shown, is approximately 30,650sqm and is served by a priority access junction which is located approximately 200m north of the site access junction from the A5. The large northern unit, as shown, is approximately 59,000sqm and is served by two vehicular accesses at the southern and northern extents of the building. The ultimate layout of the development would be confirmed through reserved matters planning applications. It is intended that the site access road would be built to adoptable standards.

2.5 The proposals include a large lorry park which comprises 150 lorry spaces and has a separate access in and out of the car park. A small ancillary office is proposed to the south of the lorry park.

3 LOCAL POLICY

3.1 Warwickshire County Council and North Warwickshire Borough Council have a range of policy and guidance criteria for public transport at new development sites, which is outlined below.

Warwickshire Local Transport Plan 2011 – 2026 (Adopted April 2011)

3.2 The Warwickshire Local Transport Plan includes Policy PTB4: New Developments which is set out below:

“The County Council will encourage measures to enable good accessibility by bus services to and from new developments and, where appropriate, secure funding from developers towards the costs, consistent with the Land Use & Transportation Strategy.”

3.3 The document sets out the following challenge for transport and the Warwickshire economy which relates to public transport: *“Improve the connectivity by public transport to enable business journeys to take place and to maximise accessibility of labour markets to jobs.”*

3.4 The Warwickshire Local Transport Plan also specifies that all occupiers within a new development should be no further than 400 metres away from the nearest bus stop, in line with policy stated in respect to connectivity between ne development and local bus services.

3.5 The Local Transport Plan sets out the County Council’s policies in respect of delivering the LTP which includes Policy LUT3 Sustainable Developments which is set out below:

”The County Council will promote sustainable development and seek developer contributions, where appropriate, to provide for public transport, community transport, pedestrian and cycling facilities, traffic management measures and travel packs to serve new developments.”

North Warwickshire Borough Council Local Plan (Adopted September 2022)

3.6 The North Warwickshire Borough Council Local Plan includes Policy LP23 Transport Assessments and Travel Plans which states the following:

”Widening opportunities to access new developments for all sections of the community will need also to be addressed through the provision and enhancement of public transport services and facilities together with walking and cycling facilities.”

4 ACCESSIBILITY

Bus

4.1 Institute of Highways & Transport's (IHT) Planning for Public Transport in Developments (March 1999) states, "the maximum walking distance to a bus stop should not exceed 400m", however it also makes it clear that these walking distances are not fixed, stating "these distances are quoted for guidance, and should not be followed slavishly......it is important to provide services that are easy for passengers to understand and attractive to use rather than to achieve slavish adherence to some arbitrary criteria for walking distance", and "bus stops should, ideally, be located to minimise walking distances, yet maximise the potential catchment areas".

4.2 The WCC Local Transport Plan is discussed in Chapter 3.0 above and specifies that new development should be within 400 metres walking distance of a bus stop.

4.3 TT have analysed distances for those trips where walking was the 1st stage mode of travel and bus was the 2nd stage mode of travel. The NTS data from 2010 to 2012 was used to calculate the average and 85th percentile walking distances to a bus stop. The analysis, published in Logistics and Transport Focus March 2018, showed, outside of London, the average distance people walk to a bus stop is 580m and it can be concluded at 580m there is a good prospect people would walk to a bus stop.

4.4 Notwithstanding the above, the bus proposals for the application site would be able to provide a walk to a bus stop of 400m or less, across the entire site.

4.5 The report on walking distances to bus produced by Tetra Tech can be viewed in Appendix C.

5 EXISTING PUBLIC TRANSPORT PROVISION

Bus Services

5.1 The nearest bus stop to the M42 junction 10 site is located on the A5 Watling Street and is an approximate 650m walk from centre of the application site. The bus stop has a lay-by but no flag/ pole arrangement, seating, timetable information or segregated pavement for pedestrians using the pavement on the A5. The stop provides eastbound services but there is not a corresponding stop for westbound services on the south side of the A5 Watling Street. Table 5.1 below lists the services which call at the A5 Watling Street eastbound bus stop.

Table 5.1: Bus Routes – A5 Watling Street

Route No.	Route Description	Monday to Friday		Saturday Daytime	Sunday
		Daytime	Evening		
Stagecoach 766/ 767	**Tamworth to Nuneaton** Via Birch Coppice, Dordon, Baddesley Ensor, Grendon, Atherstone, Mancetter, Hartshill	Every 1-2 hours	No Service	Every 1-2 hours	Every 1-2 hours

5.2 The 766/ 767 provide direct journey opportunities to a range of large residential areas, where employees may live including Tamworth, Atherstone and Nuneaton.

5.3 There are a pair of bus stops served by the 766 and 767 services at Birch Coppice Business Park, which are approximately 1,300m from the centre of the application site. These stops can be reached by footway along the northside of Watling Street, the controlled pedestrian crossing facility on the A5 and footway through the business park.

5.4 There are two bus stops on Birchmoor Road to the north of the application site which can be reached within an approximate 800m walk from the centre of the proposed development. The stops can be reached via a proposed footway connection to Cockspur Street / Public Bridleway AE45 and then continuous footway on Cockspur Street and Birchmoor Road. The eastbound stop provides a flag/ pole arrangement and the westbound stop provides a flag/ pole arrangement and timetable information. Table 5.2 below lists the services which call at the Birchmoor Road stops.

Table 5.2: Bus Routes – Birchmoor Road

Route No.	Route Description	Monday to Friday		Saturday Daytime	Sunday
		Daytime	Evening		
Arriva 785/ 786	**Tamworth to Austrey** Via Arrington, Shuttington, Newton Regis, Wartyon, Polesworth	5 morning services then every 2 hours approx	No Service	5 morning services then every 2 hours approx	7 services

5.5 The 785/ 786 services provide direct journey opportunities to Tamworth and other residential areas where employees may live, including Polesworth and Shuttington.

5.6 The location of surrounding bus stops is shown at Figure 2 at Appendix A.

Rail Services

5.7 The nearest rail station to the application site is Polesworth rail station which is approximately 3km to the north. The rail station provides interchange opportunities with the Arriva 785/ 786 bus services. Wilnecote rail station is approximately 3.5km to the west of the application site.

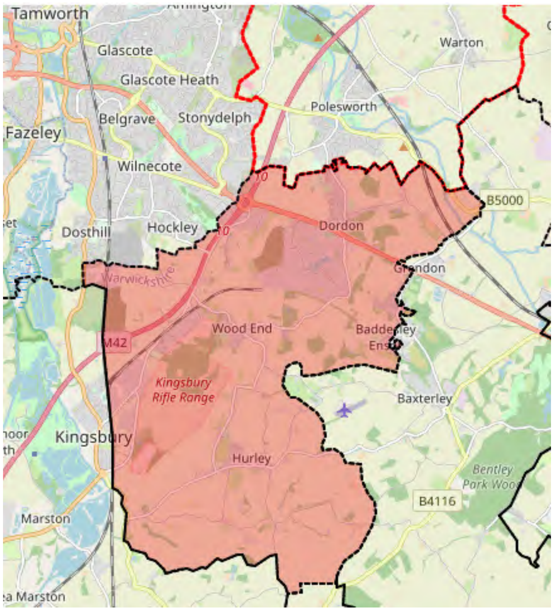
Summary

5.8 The 766 and 767 bus services provide connections to large surrounding residential areas where employees may live including Tamworth and Nuneaton and there are Arriva bus services available to other surrounding residential areas. The bus stops surrounding the application site are not within an easy accessible walk of the whole of the site and improvements to existing bus service provision are therefore proposed.

6 PUBLIC TRANSPORT DESTINATION ESTIMATES

6.1 The levels of mode share that can be expected to be achieved at the M42 Junction 10 employment site can be estimated using Census data from the Middle Super Output areas (MSOAs) in which it lies; namely MSOA E02006469. The location of MSOA North Warwickshire E02006469 is presented below.

Location of MSOAs E02006469



6.2 The mode share for journey to work trips the MSOA is presented in Table 6.1 below:

Table 6.1 Mode Share for Journey to Work Trips – MSOA E02006469

Mode	MSOA E02006469 Trips	Mode Share Percentages
Train	10	0.2%
Bus	101	1.1%
Taxi	41	0.7%
Motorcycle	73	1.3%
Car/Van driver	4324	77.7%
Passenger	585	10.5%
Bicycle	147	2.6%
Pedestrian	260	4.7%

6.3 The MSOA does not include a passenger railway station and therefore generates a small number of rail trips. The MSOA does not include large destinations with high frequency bus routes and the generation of bus trips is low.

Assignment

6.4 The assignment for public transport users has been initially estimated from journey to work by car information for North Warwickshire E02006469 Middle Super Output Area (MSOA).

6.5 It is acknowledged that the distribution is based on car trips and that the characteristics of bus travel are different to car travel as car offers greater convenience and flexibility to reach a wider range of destinations. It does, however, ensure that possible public transport trips are not constrained by the existing bus routes. The majority of people working within the MSOA travel to work by car and therefore the assignment shows where the majority of people in the MSOA live which is helpful in building a picture of where people want to travel from. The Census data shows the 5 most popular residential areas where employees are drawn from who travel by car, which are as follows:

i. Dordon/ Wood End - 9%

ii. Polesworth – 6%

iii. Belgrave/ Wilnecote/ Hockley (East Tamworth) - 4%

iv. Stoneydelph (East Tamworth) – 4%

v. Atherstone – 3%

6.6 The car travel data for the MSOA in which the application site lies, shows that the majority of employees in the MSOA are drawn from Dordon and Wood End, which is the MSOA in which the site lies, with Dordon being the larger of the two settlements. The Stagecoach 766/ 767 service calls at Dordon and also serves Belgrave, Wilnecote, Stoneydelph and Atherstone, which draw employees to employment areas within MSOA E02006469. The Arriva 785/ 786 service also provides a connection to Polesworth.

6.7 The Census data also shows the 5 most popular residential areas where employees are drawn from who travel by bus, which are as follows:

i. Dordon/ Wood End - 8%

ii. Atherstone – 6%

iii. Bolehall – 5%

iv. Glascote Heath (East Tamworth) – 4%

v. Birmingham (Central) – 4%

6.8 The bus travel data for North Warwickshire E02006469 shows that the majority of employees in the MSOA are again drawn from Dordon and Wood End. The Stagecoach 766/ 767 service calls at Dordon and also serves Atherstone and Glascote Heath which draw employees to employment areas within MSOA E02006469.

Summary

6.9 The data available for the ward in which the application site is located, shows that the majority of people working within the ward travel from Dordon and Wood End (both within the ward itself) for travel by both car and by bus. The data shows that the Stagecoach 766/ 767 service calls at a number of destinations on its route which draw employees who work within in the MSOA.

7 M42 JUNCTION 10 EMPLOYMENT SITE BUS PROPOSALS

7.1 Chapter 5 demonstrates that the current public transport provision is restricted for the M42 Junction 10 site in terms of the walking distances to existing bus stops. Improvements are therefore proposed to make the site more sustainable.

7.2 The public transport strategy for the site is to be predicated on the extension of the Stagecoach 766/ 767 services into the proposed development. Figure 3 at Appendix A shows the proposed route of the service extension.

7.3 The 766/ 767 bus service will continue to run on its existing frequency and provides a connection between large surrounding residential areas and the proposed employment site. The journey time to Tamworth town centre would be approximately 18 minutes, the journey time to Atherstone would be approximately 25 minutes and the journey time to Nuneaton town centre would be approximately 45 minutes.

7.4 As described above in Chapter 6.0, the 766/ 767 bus service provides connections to a number of residential areas which draw employees by both car and bus to the ward in which the application site lies. These areas include Tamworth, Dordon and Atherstone.

7.5 The 766/ 767 service provides a direct bus connection into Birch Coppice Business Park on its route along the A5 and would undertake a similar arrangement at the proposed development.

7.6 TT Drawing Number 00001 Rev P01 at Appendix B shows a possible arrangement for the bus turning area within the application site, indicatively located approximately 200m from the A5/ Site Access junction. The bus turning area is deliberately located close to the site access junction to reduce the length of the diversion and thereby reduce the impact on existing passengers. The length of the diversion from the site access junction and out onto the A5 is approximately 400m. The site access junction layout has been designed to include a designated left-turn and right-turn lane in and designated left-turn lane out with the predicted delay at the junction to be around 10 seconds in and 30 seconds out.

7.7 The drawing includes the requisite signage and road markings at the access and exit from the bus turning area. The possible arrangement includes an area of hard-standing at the south of the layout for a bus shelter where passengers will be able to board and alight. Footway is provided which connects to footway along the access road. The drawing also demonstrates that an 11.9m bus is able to turn around in the bus turning area and straighten up to the pick-up/ drop-off area before egressing. Stagecoach have confirmed that an 11.9m long bus is the correct specification of vehicle used on the 766/ 767 service. Its access and egress can be performed without the bus using the opposing carriageway. The second track also shows that an articulated lorry could access and egress the warehouse service yard without conflicting with the bus. It should be noted that the location of the access points into the warehouses is indicative at this stage but nevertheless, it is demonstrated there would be not conflict assuming a worst case scenario (i.e., the access to the warehouse service yard is opposite the bus turning area).

7.8 The whole of the application site is within a 400m walk of the proposed bus stop at the bus turning area, which accords with local policy requirements for new developments.

7.9 WCC's Transport Operations team have requested that pump priming is provided for a 5 year period to subside the Stagecoach 766/ 767 service. The developer and Stagecoach have agreed an annual contribution over a 5 year period.

7.10 WCC's Transport Operations team have also requested that a shelter and associated equipment be provided at the proposed bus turning area. The developer is committed to the provision of quality bus infrastructure at the application site.

7.11 Pedestrian connections are to be provided to the north of the application site to connect to Cockspur Street which facilitates pedestrian movement to the bus stops on Birchmoor Road. This allows employees who may live at Polesworth and Shuttington to access the proposed development by public transport.

7.12 WCC have confirmed their support of the public transport strategy for the proposed development. Correspondence from WCC can be viewed at Appendix D.

7.13 A letter of support from Stagecoach for the proposed service extension is attached at Appendix D. Stagecoach have stated in the letter that *"The funding is necessary for the route to be sustainable and continue to operate, in an environment where the covid-19 pandemic has reduced overall bus patronage, and would come from developer contributions."*

8 CONCLUSION

8.1 Tetra Tech have been engaged by Hodgetts Estates to produce this public transport strategy to support a planning application for a proposed development of upto 100,000sqm of mixed employment uses and 150 space overnight lorry park (including an associated 400sqm amenity block) on land to the northeast of M42 Junction 10.

8.2 The Stagecoach 766 and 767 bus services provide connections to large surrounding residential areas where employees may live including Tamworth, Dordon, Atherstone and Nuneaton and there are Arriva bus services available to other surrounding residential areas, including Polesworth. The bus stops surrounding the application site are not within easy accessible walking distance of the whole of the site and improvements to existing bus service provision are therefore proposed.

8.3 Tetra Tech have interrogated Nomis Census 2011 data for journeys to work by bus to predict where employees will be drawn from at the proposed development. The data available for the ward in which the application site is located, shows that the majority of people working within the ward travel from Dordon and Wood End (both within the ward itself) for travel by both car and by bus. The data shows that the Stagecoach 766/ 767 service calls at a number of destinations on its route which draw employees who work within in the MSOA.

8.4 The public transport strategy for the site is to be predicated on the extension of the Stagecoach 766/ 767 services into the proposed development. The 766/ 767 bus service provides connections to a number of residential areas which draw employees by both car and bus to the ward in which the application site lies. These areas include Tamworth, Dordon and Atherstone.

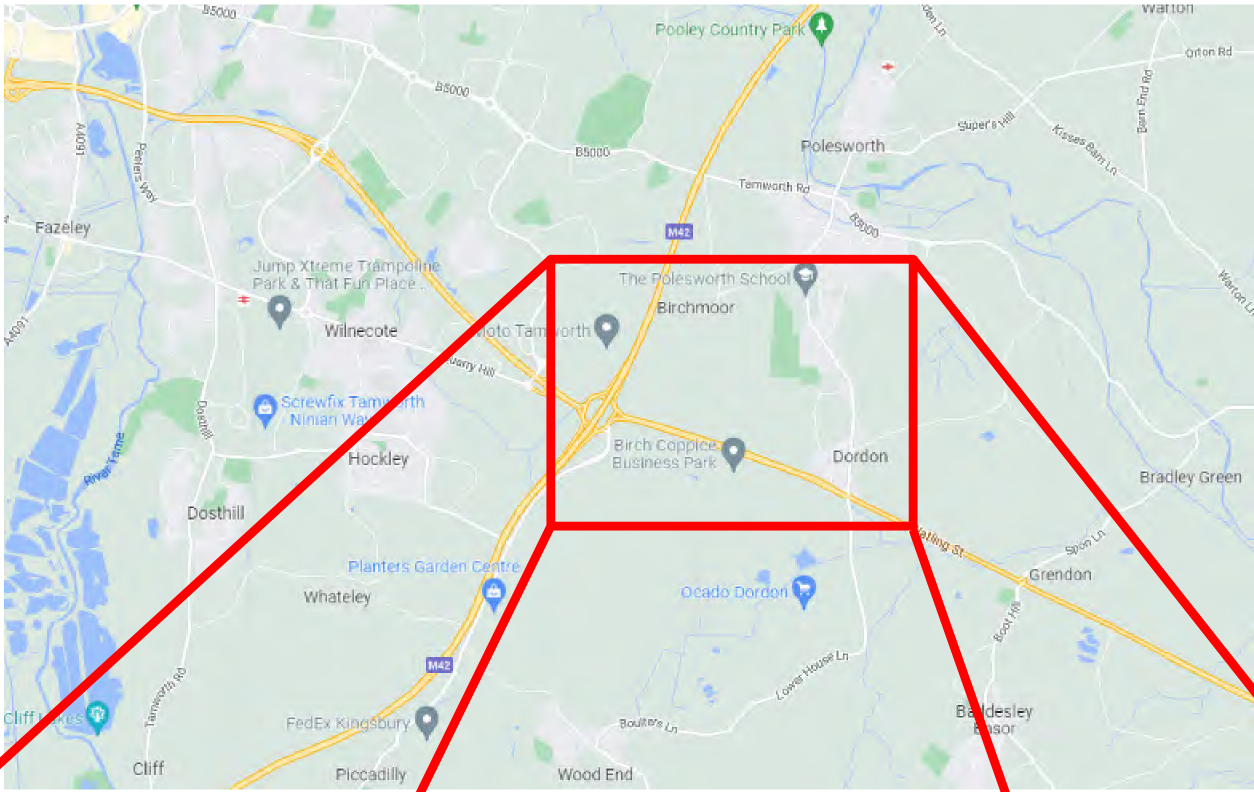
8.5 A bus turning area is proposed within the M42 employment site, which would be located approximately 200m from the A5/ Site Access junction. The proposed bus turning area would be deliberately located close to the site access junction to reduce the length of the diversion and thereby reduce the impact on existing passengers. The length of the diversion from the site access junction and out onto the A5 would be approximately 400m.

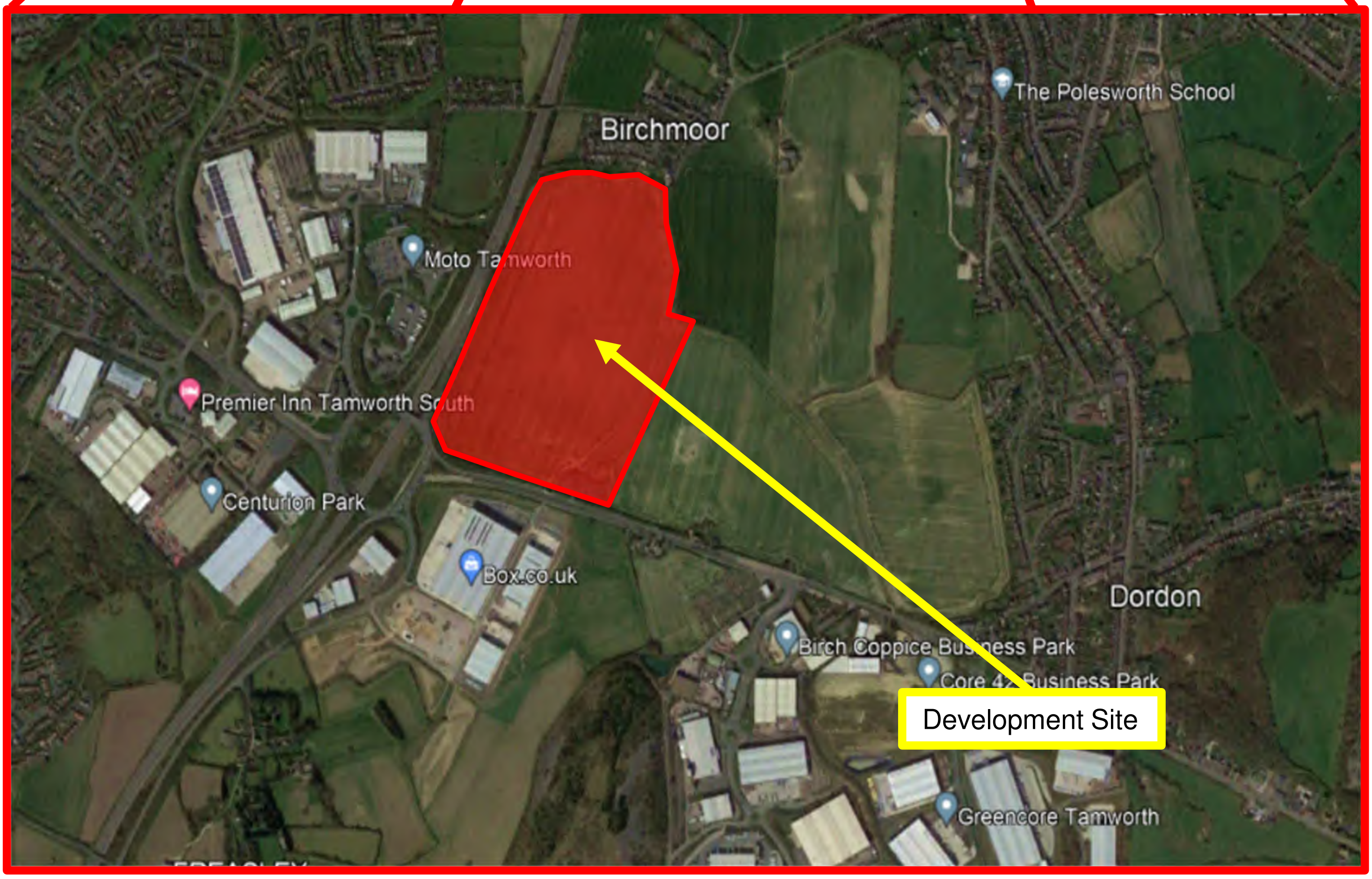
8.6 The whole of the application site would be within a 400m walk of the proposed bus stop at the bus turning area, which accords with local policy requirements for new developments.

8.7 The bus extension and proposed bus turning area has been agreed in principle with Warwickshire County Council's Transport Operations team and with Stagecoach.

8.8 The proposals for the site at M42 Junction 10 comply with local and national standards and, if approved, would provide attractive sustainable public transport travel options for employees travelling to and from the site.

APPENDIX A - FIGURES



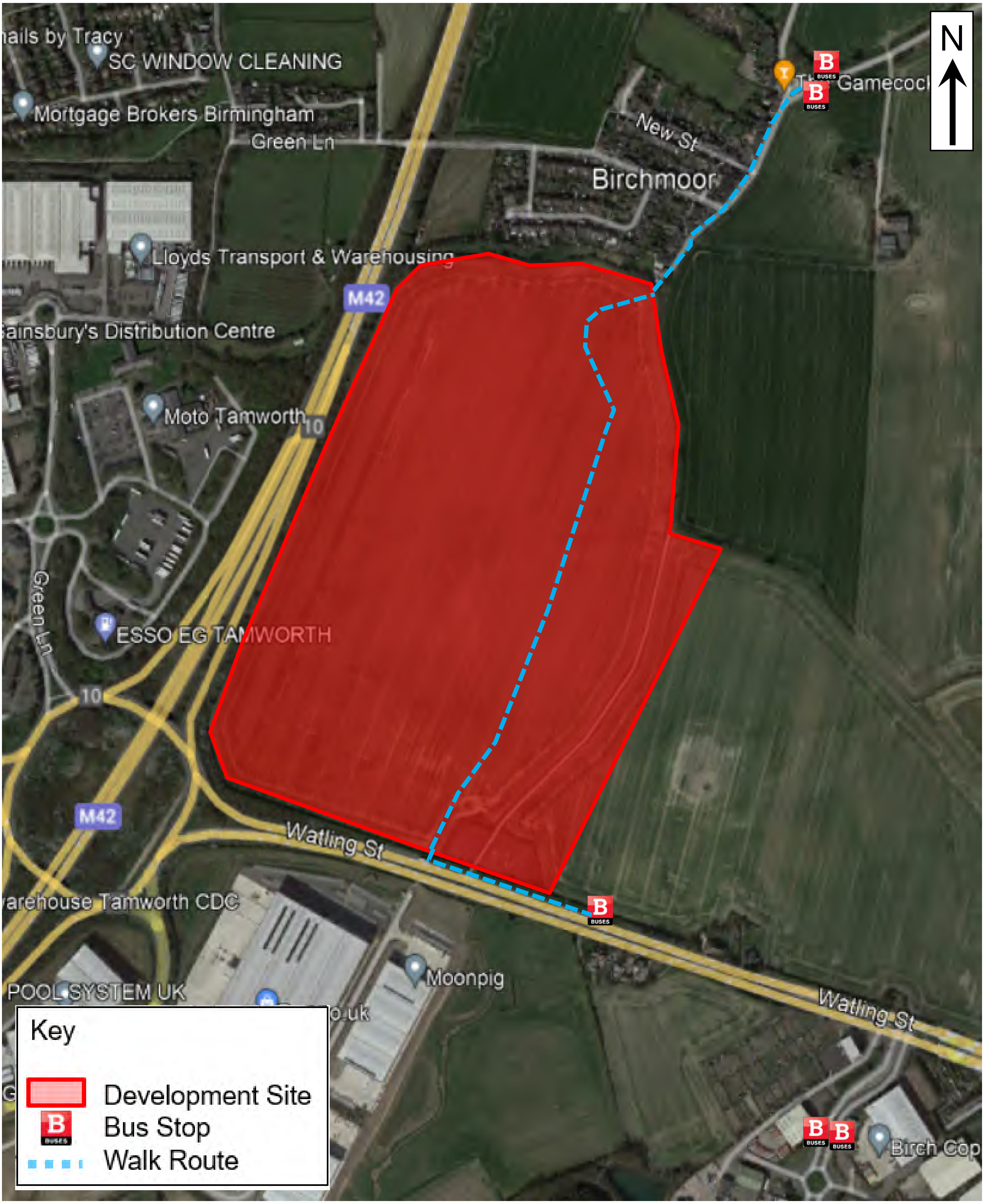


M42 Junction 10, Tamworth

Site Location Plan

Figure 1

TETRA TECH

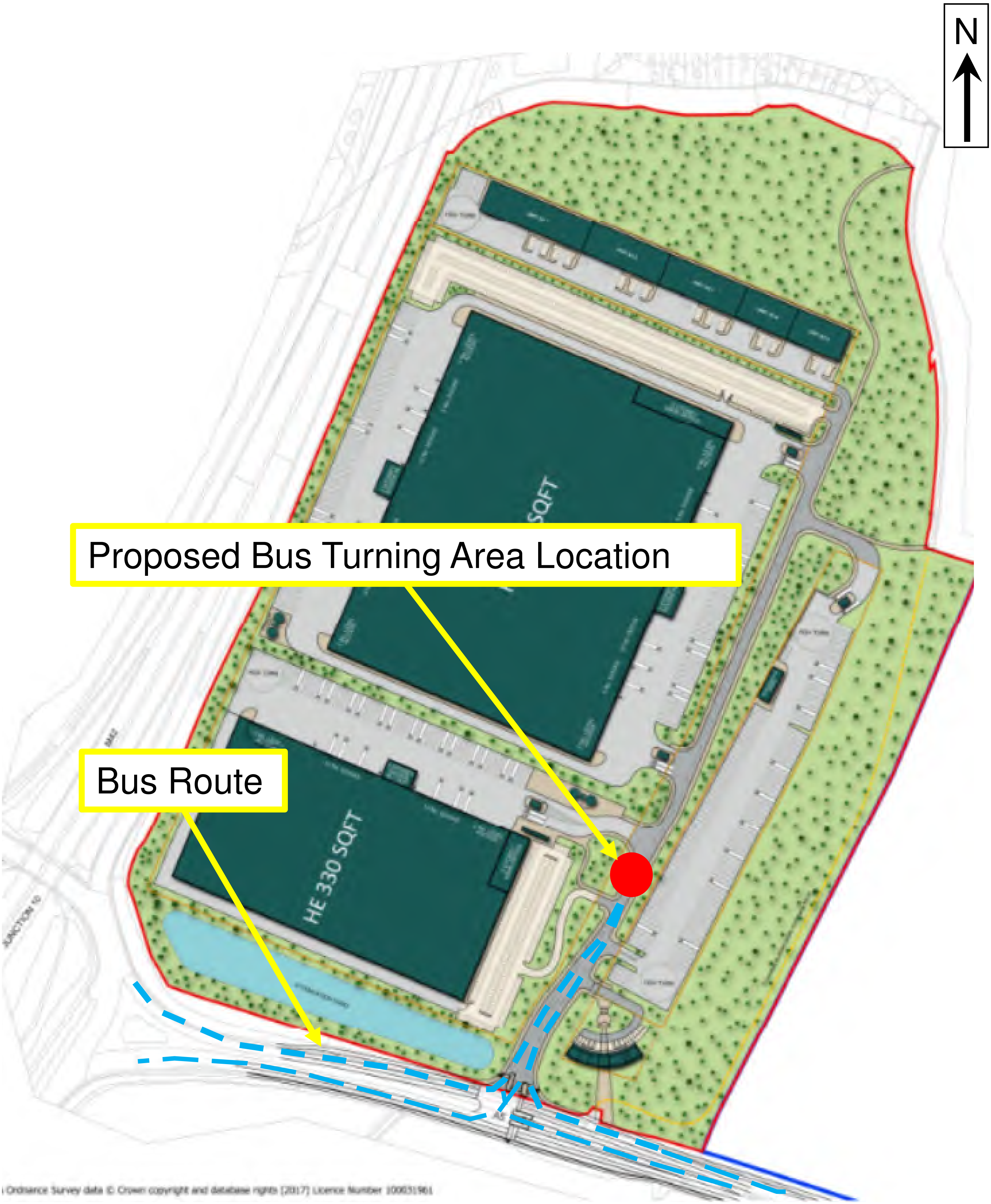


M42 Junction 10, Tamworth

Local Bus Stops

Figure 2

TETRA TECH



M42 Junction 10, Tamworth	Figure 3
Stagecoach 766/ 767 Extension Route	TETRA TECH

APPENDIX B - DRAWINGS

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SCHEDULE OF ACCOMMODATION PLOT A1

Unit HE 635		sq m	sq ft
Warehouse	:	55,560	598,048
Offices (2 Floors)	:	2,130	22,927
2 Goods in (2 Floors)	:	1,308	14,079
Gatehouse	:	20	215
TOTAL (GIA)	:	59,018	635,269
HGV Parking	:	142 (Excl. Loading)	
Car Parking	:	389 (Incl. 12 Accesible)	
Haunch Height	:	18 m	
Dock Wall Height	:	1.2m	
Dock Levellers	:	60	
Level Access	:	8	
DEMISE AREA	:	10.65 Ha /26.32acres	
SITE DENSITY	:	55.42%	

Unit HE 330		sq m	sq ft
Warehouse	:	28,770	309,677
Offices (2 Floors)	:	1,240	13,347
Goods in (2 Floors)	:	600	6,458
Gatehouse	:	20	215
TOTAL (GIA)	:	30,630	329,697
HGV Parking	:	56 (Excl. Loading)	
Car Parking	:	210 (Incl. 6 Accesible)	
Haunch Height	:	18 m	
Dock Wall Height	:	1.2m	
Dock Levellers	:	24	
Level Access	:	4	
DEMISE AREA	:	6.068 Ha /14.994 acres	
SITE DENSITY	:	50.48%	

PLOT B1 OVERNIGHT HGV PARKING

		sqm	sqft
Administration Building	:	182	1,959
Gatehouse	:	20	215
TOTAL (GIA)	:	202	2,174
HGV Parking	:	83	
Rigid HGV Parking	:	57	
Car Parking	:	5	
DEMISE AREA	:	1.839 Ha / 4.544 acres	
SITE DENSITY	:	1.10%	

PLOT B2 OVERNIGHT HGV PARKING

		sqm	sqft
Hu Office/ Community Centre	:	470	5,059
TOTAL (GIA)	:	470	5,059
Car Parking	:	13 (Incl. 4 Accessible)	
DEMISE AREA	:	0.271 Ha/ 0.669 Acres	
SITE DENSITY	:	17%	

SCHEDULE OF ACCOMMODATION PLOT A2

UNIT A2.1		sq m	sq ft
Warehouse	:	1,863	20,053
TOTAL (GIA)	:	1,863	20,053
Car Parking	:	24 (Incl. 2 Accesible)	
Van Parking	:	8	
Haunch Height	:	TBC m	
Level Access	:	2	

UNIT A2.2		sq m	sq ft
Warehouse	:	1,397	15,039
TOTAL (GIA)	:	1,397	15,039
Car Parking	:	12 (Incl. 2 Accesible)	
Van Parking	:	4	
Haunch Height	:	TBC m	
Level Access	:	2	

UNIT A2.3		sq m	sq ft
Warehouse	:	1,397	15,039
TOTAL (GIA)	:	1,397	15,039
Car Parking	:	12 (Incl. 2 Accesible)	
Van Parking	:	4	
Haunch Height	:	TBC m	
Level Access	:	2	

UNIT A2.4		sq m	sq ft
Warehouse	:	931.5	10,026
TOTAL (GIA)	:	931.5	10,026
Car Parking	:	6 (Incl. 1 Accesible)	
Van Parking	:	1	
Haunch Height	:	TBC m	
Level Access	:	2	

UNIT A2.5		sq m	sq ft
Warehouse	:	931.5	10,026
TOTAL (GIA)	:	931.5	10,026
Car Parking	:	6 (Incl. 1 Accesible)	
Van Parking	:	1	
Haunch Height	:	TBC m	
Level Access	:	2	
DEMISE AREA	:	1.66 Ha /4.10 acres	
SITE DENSITY	:	39.28%	
HGV Parking Shared	:	6	

SITE AREA PLOT A1 AND A2		
(ORANGE LINE)	:	18.38 Ha /45.41acres
SITE DENSITY	:	52.32%

NOTES:

Please note Title Plans have been scaled using Ordinace Survey features which may have altered over time. Complete accuracy cannot be guaranteed without further on-site survey.
Any dimensions given are to be confirmed with site measure.

Subject to Surveys, constraints & planning.

Red Line indicative only.

Contractors must verify all dimensions on site before commencing any work or shop drawings. This drawing is not to be scaled. Use figured dimensions only.

Subject to statutory approvals and survey.

Building areas are liable to adjustment over the course of the design process due to the ongoing construction detailing developments.

Please note the information contained within this drawing is solely for the benefit of the employer and should not be relied upon by third parties.

The CDM hazard management procedures for the Chetwoods aspects of the design of this project are to be found on the "Chetwoods - Hazard Analysis and Design Risk Assessment" and/or drawings. The full project design teams comprehensive set of hazard management procedures are available from the Principle Designer appointed for the project.

Please note Title Plans have been scaled using Ordinace Survey features which may have altered over time. Complete accuracy cannot be guaranteed without further on-site survey.

North

NB.
- **SUBJECT TO SURVEYS, CONSTRAINTS & PLANNING.**
- **LAYOUT TO BE TRACKED.**
- **RED LINE INDICATIVE ONLY.**

Development Site Boundary (79.97 acres / 32.36 Ha)

Parameter Boundary

Unit Demise Boundary

Public bridleway (to be diverted where necessary)

Rev	Revision Description	Date	Author/ Reviewer
P10	Updated boundary area, title block	15/10/21	SA/NH
P9	Updated comments	20/08/21	SA/NH
P8	Annotation added to surrounding roads; Updated generally in line with Client comments recieved 22.07.21	19/08/21	SA/NH
P7	Plot B updated	02/03/21	RC/NH
P6	Schedule updated, Hub office added	19/02/21	RC/NH
	Updated comments	21/12/20	MB/NH
	Updated comments	12/12/20	MB/NH
	Updated comments	11/12/20	MB/NH
	Updated comments	10/12/20	MB/NH
	First Issue	25/11/20	PJB/NH

PRELIMINARY

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chetwoods

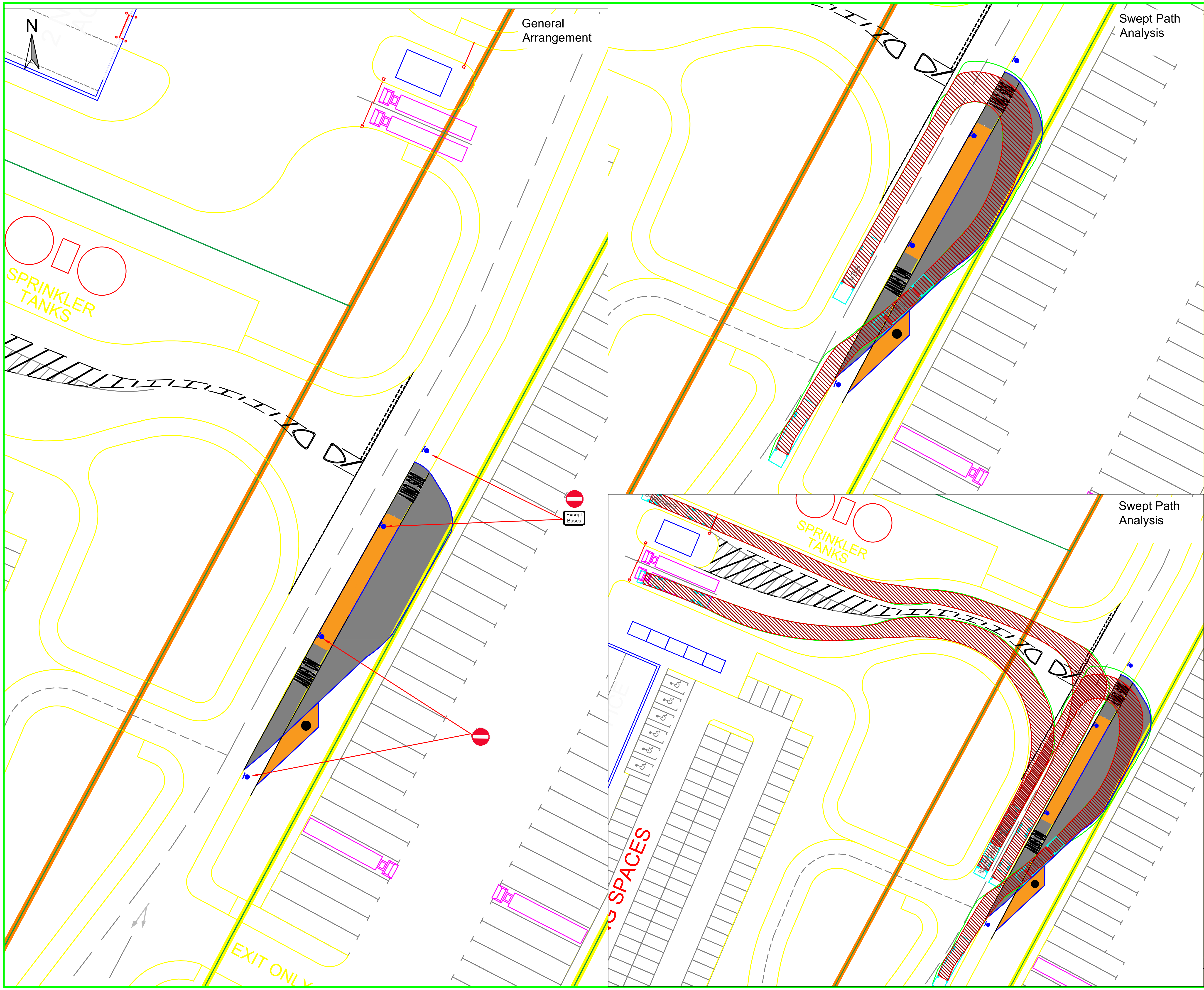
Project
LAND NORTH EAST OF J10 M42, DORDON

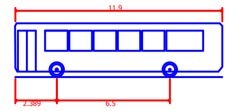
Client
HODGETTS ESTATES

Drawing Title
INDICATIVE MASTERPLAN
MULTI UNIT OPTION

Scale	Size	Drawn	Checked	Date
1:1500	A1	PJB	NH	25/11/2020

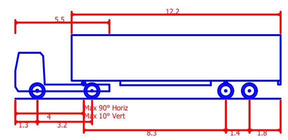
Project	Originator	Zone	Level	Type	Role	Number	Rev
4263	CA	00	00	DR	A	00078	P10





Dart SLF 11.9m

Overall Length	11.900m
Overall Width	2.401m
Overall Body Height	3.077m
Min Body Ground Clearance	0.312m
Track Width	2.360m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	9.518m



FTA Design Articulated Vehicle (1983)

Overall Length	15.500m
Overall Width	2.500m
Overall Body Height	3.695m
Min Body Ground Clearance	0.428m
Track Width	2.500m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.750m

N

KEY

- PROPOSED KERBLINE
- PROPOSED BUS STOP
- PROPOSED CARRIAGEWAY
- PROPOSED FOOT/CYCLEWAY
- PROPOSED TRAFFIC SIGN

PRELIMINARY ISSUE

Rev	Description	Date	Drn / Chk / App		
P01	PRELIMINARY FIRST ISSUE	29.04.22	AJA	DG	NB

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Client

HODGEETTS INDUSTRIAL DEVELOPMENTS (TAMWORTH) LTD

Project Name

LAND NE OF M42 JUNCTION 10

Sheet Title

PROPOSED BUS TURNING AREA AND SWEPT PATH ANALYSIS

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A3	Suitability
784-B033920	AJA	Apr '22	DG	Apr '22	NB	Apr '22	Not To Scale	S0

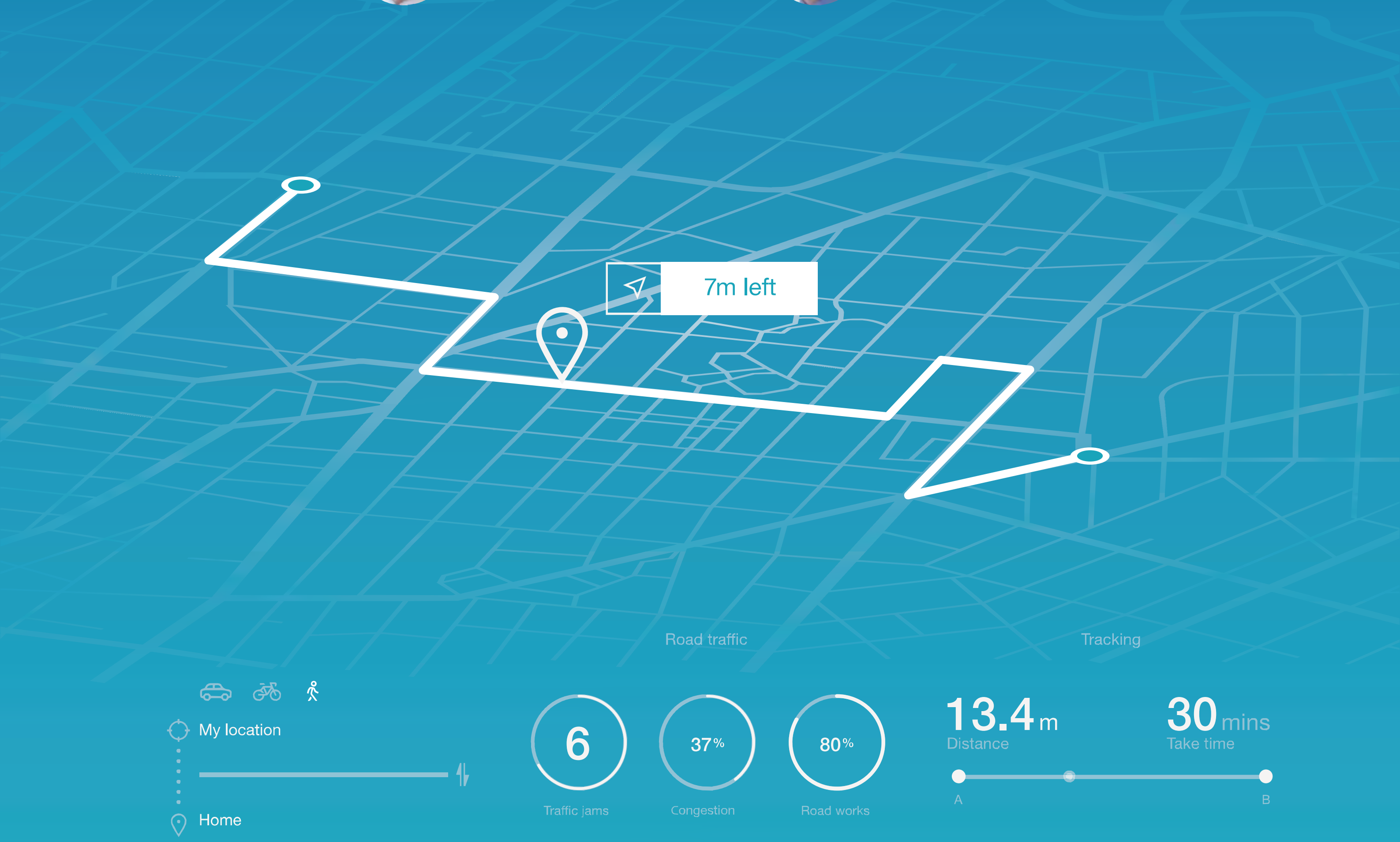
Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision
784-B033920	TTE	00	XX	DR	O	0001	P01

TTE_MT_v1

APPENDIX C – PUBLICATIONS

AUTHORS: **NICK BUNN**

GARETH WAKENSHAW

How far do people walk to **bus stops?**

Recent research from WYG transport planners reveals that people will walk further to catch a bus than current guidance suggests. →

Why is this finding of interest? Distance from bus services is important in transport planning, particularly when assessing the sustainability credentials of development sites or neighbourhoods. It determines whether new homes and businesses need additional or diverted bus services to ensure that people can use public transport for their daily journeys.

The WYG team analysed the National Travel Survey (NTS) data to assess the distances that people actually walk to access bus services. We compared this with current policy guidance and have then provided a sound evidential basis on which new guidance can be based.

Current guidance lacks evidence

Planning for Public Transport in New Development[1] *and Planning for Walking*[2] provide current guidance on acceptable walking distances to public transport.

Planning for Public Transport states that, in new development, the walk distance to a bus stop should not exceed 400m, but it says this should not be treated as some arbitrary cut-off distance. Instead it is preferable to provide sensible bus routes, rather than follow a slavish adherence to a walking distance. The document references the 400m walk distance from a Department of Environment circular[3] that advised: 'Estates should be designed so that the walking distance along the footpath system to the bus stops should not be more than 400m from the furthest houses and work places that they serve.' However, the circular provided no evidence to support this walking distance and no analysis was provided to justify the continued use of 400m.

Despite this, *Planning for Walking* sets the 400m maximum distance in stone, losing the flexibility of the earlier guidance: 'The power of a destination determines how far people will walk to get to it. For bus stops in residential areas, 400m has traditionally been regarded as a cut-off point, in town centres, 200m.' The document provides no evidence to support this advice; the 400m distance is simply seen as traditional. However, it recognises that more work is needed and welcomes new research for inclusion in further guidance.

In London, the median distance from bus services for people is 400m

The mean walking distance for the rest of the UK is 580m

National Travel Survey

The *National Travel Survey* (NTS) is a UK-wide survey by the Department for Transport (DfT) of some 15,000 households. Normally around half fully co-operate. This is some 7,700 to 8,200 households and over 18,000 individuals.

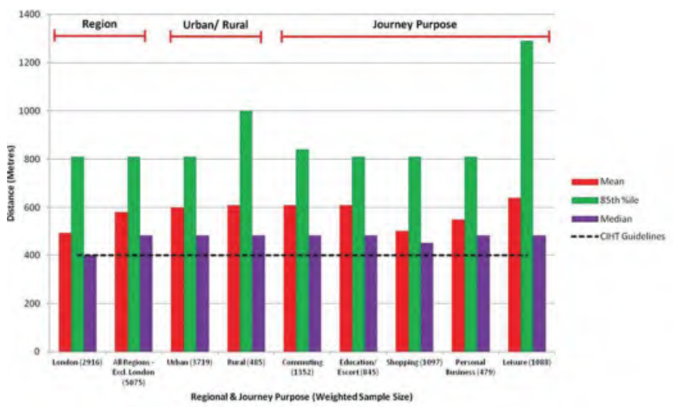
We used the 2002 to 2012 NTS dataset[4], which provides nearly 8,000 records for walking from home to a bus stop. The data has been used to report the median, average and 85th percentile walking distances for regional, journey purpose and sociodemographic reasons.

Results

Figure 1 summarises the reported distances for regional and journey purposes. It shows that people walk a range of distances to reach a bus stop, with shorter distances in London than the rest of the UK. In London, the median distance is 400m, with 480m in the rest of the UK. The mean walking distance is 490m in London and 580m in the rest of the UK; in all areas, the 85th percentile distance is 810m. There is no cut-off at 400m; instead this distance represents a point on a distribution.

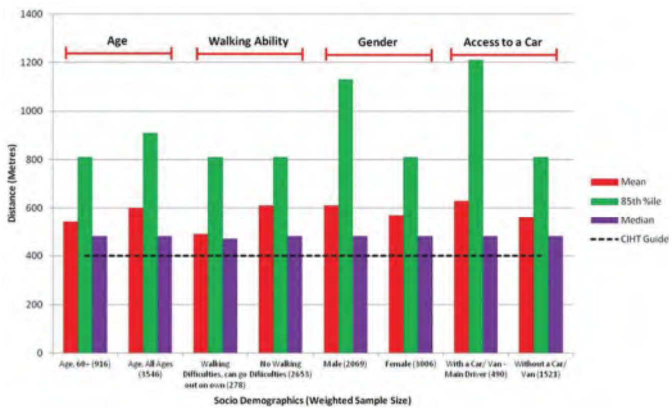
Figure 1 also shows the different walking distances for urban/rural areas and also for a range of journey purposes outside London. In each case, median and mean walking distances are greater than 400m, at 480m and 580m respectively.

Figure 2 shows the recorded distances for a range of sociodemographic factors, including gender, age, walking ability and access to a car. It also shows the walking distances outside London for several



Region and journey purpose

Figure 1



Socio-demographics

Figure 2

People walk shorter distances to reach bus stops in London than the rest of the UK

socioeconomic factors. In each case, the mean and median walking distances are greater than 400m. Interestingly, 480m median and 580m mean walk distances are not significantly affected by age, gender, disability or access to a car.

Increasing the catchment

The evidence indicates that the effective catchment of a bus stop should be increased to either the median distance or the mean distance: 400m or 490m in London and 480m or 580m outside of London. Direct and easy-to-understand bus services are surely more important than a slavish adherence to a walk distance. A rigid application of a maximum walk distance could result in bus services being diverted to cater for a small number of people, increasing travel times for all, and decreasing the attractiveness of the bus service. Instead, there needs to be a balanced approach, considering the likely passenger benefits and disadvantages.

It is our view that the best guide to an acceptable walk distance is what bus-users already do. Figure 2 shows that people with access to a car have similar mean and median walk distances to other users, so it is reasonable to expect that the median or mean walk distance would not be unacceptable to drivers. The effect of other factors such as route frequency, waiting facilities, cost, quality of services on the uptake of bus travel are unknown and require further research.

> **'The power of a destination determines how far people will walk to get to it.'**

Recommendations

From our study we recommend that there should be separate guideline walk distances for London from the rest of the UK. Current guidance on walk distance to a bus stop should be based on a sound evidential basis using either the median distance of 480m or mean distance of 580m outside London. The revised guideline walking distance should remain flexible to allow for the practicalities of operating bus services.

Nick Bunn

Director,
WYG.

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www.wyg.com

Gareth Wakenshaw

Principle Consultant,
WYG.

01912 557320

gareth.wakenshaw@wyg.com

References

1. Institute of Highways & Transportation (1999), *Guidelines for Planning for Public Transport in Developments*, Institution of Highways & Transportation
2. Chartered Institute of Highways & Transportation (2015), *Planning for Walking*, Chartered Institution of Highways & Transportation
3. Department of the Environment (1973), *Circular 82/73, Bus Operation in Residential and Industrial Areas*, Her Majesty's Stationery Office
4. Department for Transport, *National Travel Survey: England, 2010, 2011 and 2012; and Department for Transport (2013) National Travel Survey: England 2013, Notes and Definitions*, Department for Transport

A rigid application of a maximum walk distance could result in services being diverted

APPENDIX D – CORRESPONDENCE

Groves, David

From: Clive Jones <clivejones@warwickshire.gov.uk>
Sent: 11 August 2022 10:58
To: Groves, David
Cc: Dan Jeanes; Nigel Whyte
Subject: RE: M42 Junction 10 employment site - public transport strategy

OFFICIAL

Hi David

Many apologies for the delay in replying.

Looking at your diagrams, the proposed turning point is in a good location for the development vis-à-vis the A5 trunk road (for the convenience of users and without undue inconvenience to through passengers), subject to the design being such that all types of buses are able to make the turn into the bus turning circle and align to the bus stop, it appears would be acceptable to Warwickshire County Council. It will be expected that a shelter and associated equipment will be provided by the developer for the convenience of intending passengers.

The 'pump priming' s106 bus service provision is normally requested for a 5 year period, to ensure that best possible use is made to sustain the bus service into the future.

Regards

Clive Jones
Network Planning Officer
Warwickshire County Council
Transport Operations
Communities
Tel. 01926 412112

From: Groves, David <David.Groves@tetratech.com>
Sent: 11 August 2022 10:31
To: Clive Jones <clivejones@warwickshire.gov.uk>
Subject: FW: M42 Junction 10 employment site - public transport strategy

Hi Clive,

This is the email with all the information for the M42 employment site.

I look forward to hearing from you.

Kind regards,

David

David Groves

Principal Transport Planner

Tetra Tech
4th Floor, Rotterdam House, 116 Quayside, Newcastle Upon Tyne, NE1 3DY

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Mob: +44 7966298053
tetratecheurope.com

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TETRA TECH

From: Groves, David
Sent: 12 July 2022 14:57
To: 'clivejones@warwickshire.gov.uk' <clivejones@warwickshire.gov.uk>; 'stuartkocanpayne@warwickshire.gov.uk' <stuartkocanpayne@warwickshire.gov.uk>; 'danjeans@warwickshire.gov' <danjeans@warwickshire.gov>
Subject: FW: M42 Junction 10 employment site - public transport strategy

Hi Clive,

Good to discuss this scheme with you before.

Along with the original email below and attachments above, I have attached a site masterplan which shows the location of the proposed bus turning area. As stated below, the diversion distance to the turning area and back to the A5 for the 766 and 767 services is 400m and will have a minimal impact on existing patronage which has allowed us to reach agreement with Stagecoach on our strategy.

It would be great to get WCC's formal approval of the strategy as we discussed on the phone and I look forward to hearing from you.

Kind regards,

David

David Groves
Principal Transport Planner

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Mob: +44 7966298053
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Please consider the environment before printing. Read more

From: Groves, David
Sent: 06 June 2022 17:24
To: 'stuartkocanpayne@warwickshire.gov.uk' <stuartkocanpayne@warwickshire.gov.uk>; 'clivejones@warwickshire.gov.uk' <clivejones@warwickshire.gov.uk>; 'danjeans@warwickshire.gov.uk' <danjeans@warwickshire.gov.uk>
Subject: M42 Junction 10 employment site - public transport strategy

Hi Stuart,

Good to speak to you before.

As discussed we are providing the transportation input into the planning application for a large employment site near the M42 Junction 10 and I have been investigating public transport provision for the site. The location of the site is shown in the first attachment and the location of the nearest bus stops and services are shown in the second attachment. The eastbound stop for the Stagecoach 766 and 767 services which run along the A5 is approximately 650m from the centre of the development site and the nearest westbound stop is in Birch Coppice Business Park. The bus stops on Birchmoor Road are slightly further away from the centre of the site and the Arriva services that call on them do not provide a services throughout the day.

We have therefore investigated the feasibility of diverting the 766 and 767 services into the site. Please see attached TT Drawing Number 0001 Rev P01 showing our proposed bus turning area for the M42 site. We have positioned the bus turning area between the access to the car park and lorry parking area for Unit 1 and it has been situated in a location to avoid conflict with those two accesses. We have tried to situate the bus turning area as close to the A5 as possible to reduce the length of the diversion and thereby limit the impact on existing customers to make the proposal more attractive to Stagecoach and its existing customer base. The length of the diversion from the A5 to the bus turning area and back out to the A5 is just over 400m. We have a signalised access junction arrangement as you can see on the second attachment. The junction has designated left and right turn lanes in and a left lane out with the delay predicted to be around 10 seconds turning in and around 30 seconds at the lights to turn out.

The drawing incorporates the requisite signage and road markings at the access and exit from the bus turning area. We have shown an area of hardstanding at the south of the scheme for a bus shelter where passengers will board and alight. Footway is provided which connects to the footway already shown on the site layout.

The drawing also demonstrates that an 11.9m bus can turn around in the bus turning area and can straighten up to the pick-up/ drop-off area before egressing. Its access and egress can be performed without the bus using the opposing carriageway and the second track also shows that an articulated lorry can access and egress the lorry park without conflict with the bus.

We are going to have improved pedestrian connections to the north to connect to Cockspur Street which will facilitate pedestrian movement from Birchmoor and Polesworth and allow them to access the bus services.

Stagecoach have agreed to divert the service into the bus turning area on its existing service frequency which has been deemed sufficient for Birch Coppice Business Park. The site is some 100,000sqft so we are hopeful that the connections to large catchment populations such as Tamworth which can be reached within an attractive journey time will yield future patronage. We know that the bus market is experiencing difficult times with regards to bus patronage and Stagecoach are pleased that there is an opportunity for further custom for a minimal diversion and therefore a minimal impact on current passengers. The developer will fund the pump priming of the service.

Would you be able to let us know if WCC support our proposal and if so, how many years the pump priming would be required for?

If you have any questions, then please do not hesitate to contact me on the number below.

Many thanks,

David

David Groves
Principal Transport Planner

Tetra Tech
4th Floor, Rotterdam House, 116 Quayside, Newcastle Upon Tyne, NE1 3DY

Tel: +44 191 249 9816
Mob: +44 7966298053
tetratecheurope.com

Stagecoach

David Groves
Principal Transport Planner
Tetra Tech
4th Floor, Rotterdam House
116 Quayside
Newcastle Upon Tyne
NE1 3DY

9th September 2022

Dear David

M42 Junction 10 - employment site

I write to confirm that Stagecoach supports the proposed M42 Junction 10 development site and that we in principle would be happy to extend service 766/767 into it based on the very latest design that has been discussed and reviewed accordingly.

The extended service would offer links to residential areas in Tamworth, Atherstone and Dordon and would run on its current daytime and evening frequency.

The proposed bus service extension would require “pump-prime” funding due to the additional resources required. This funding is necessary for the route to be sustainable and continue to operate, in an environment where the covid-19 pandemic has reduced overall bus patronage, and would come from developer contributions. The level of contribution will be discussed further in the coming months and will form part of the Section 106 Agreement. Given the acute need to reduce road traffic, it is vital that support is given to public transport options to serve new developments.

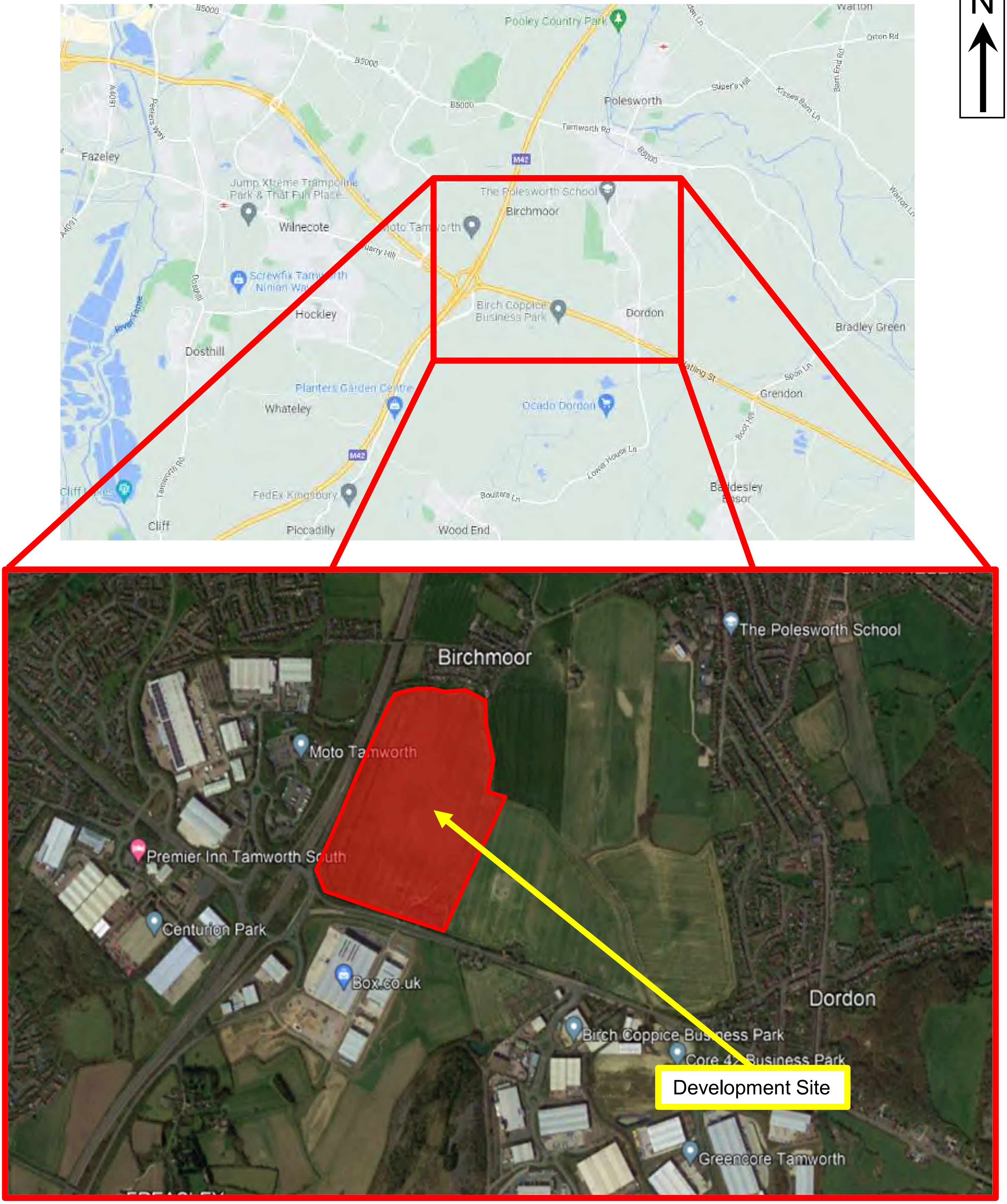
We trust this letter is sufficient to support the planning application, but please do not hesitate to contact me if you have any further queries.

Yours sincerely

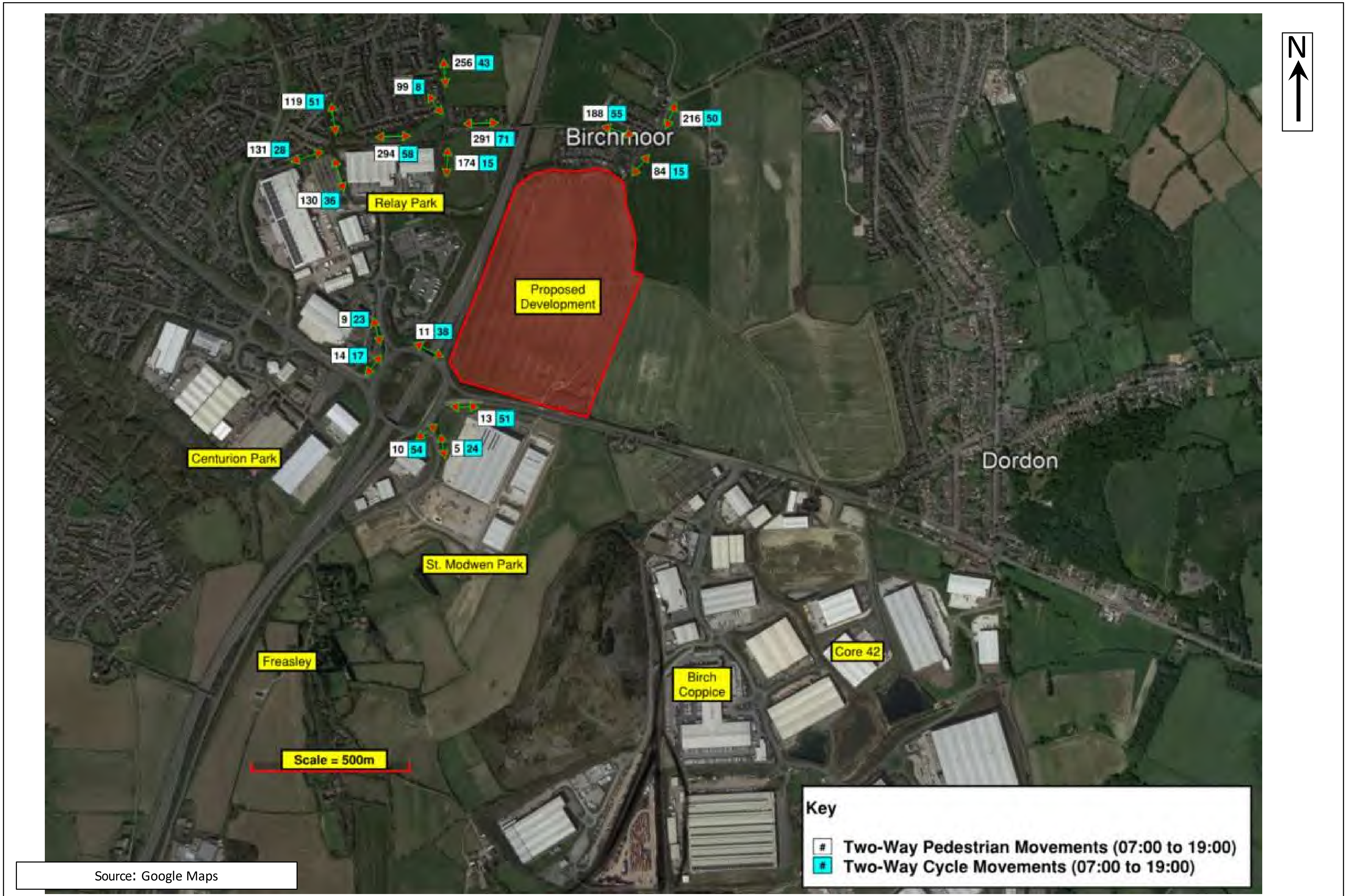
Patrick Stringer
Commercial Director

APPENDIX G FIGURES

N



M42 Junction 10, Tamworth	Figure 1
Site Location Plan	TETRA TECH



M42 Junction 10, Tamworth

Pedestrian/ Cycle Movements (Wednesday 8th June 2022)

Figure 2

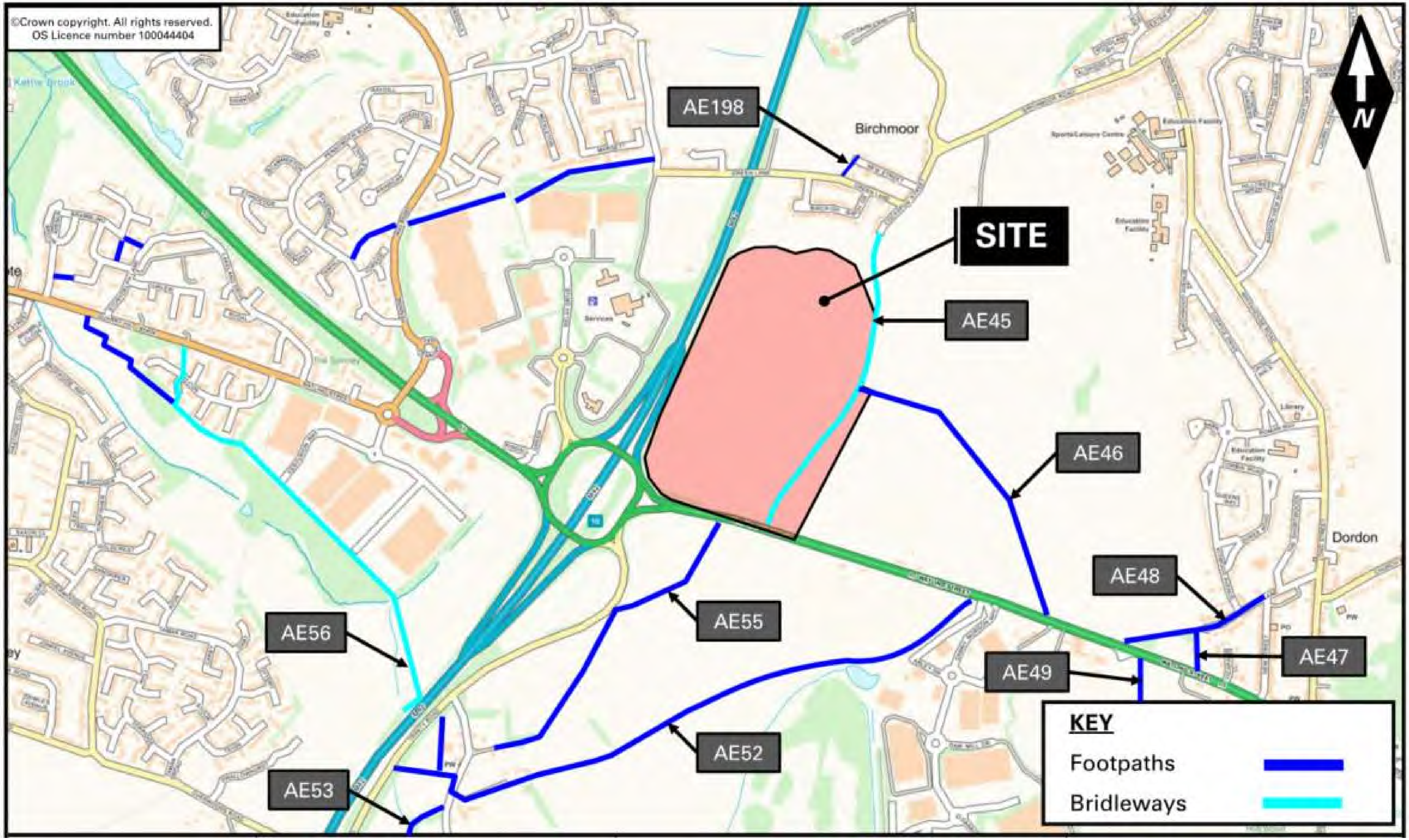
TETRA TECH

Proposed Employment Land NE of J10 M42

Walk Accessibility Plan

Figure 3

TETRA TECH



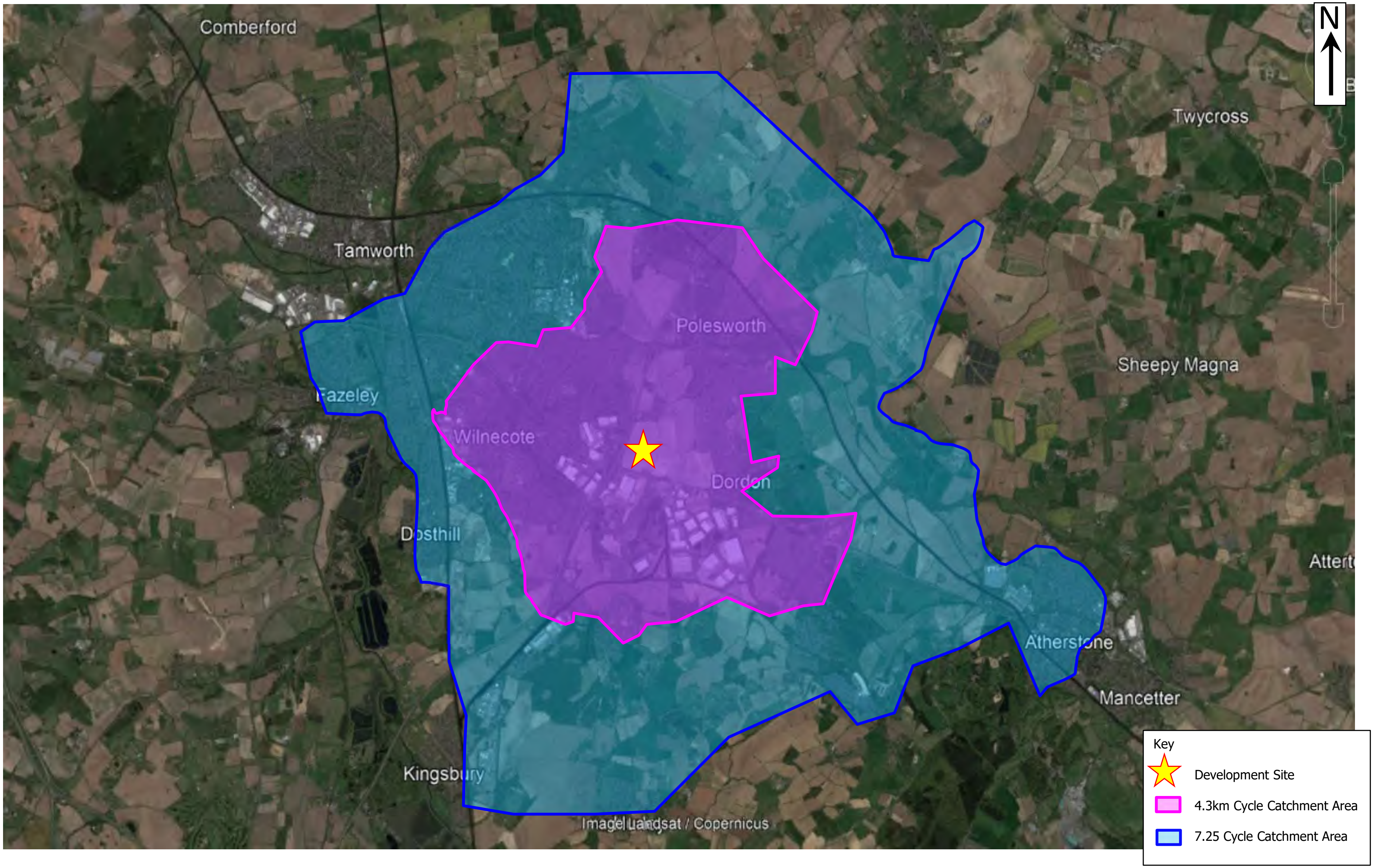
Source: Bancroft Figure 23

M42 Junction 10, Tamworth

Local Public Rights of Way

Figure 4

TETRA TECH



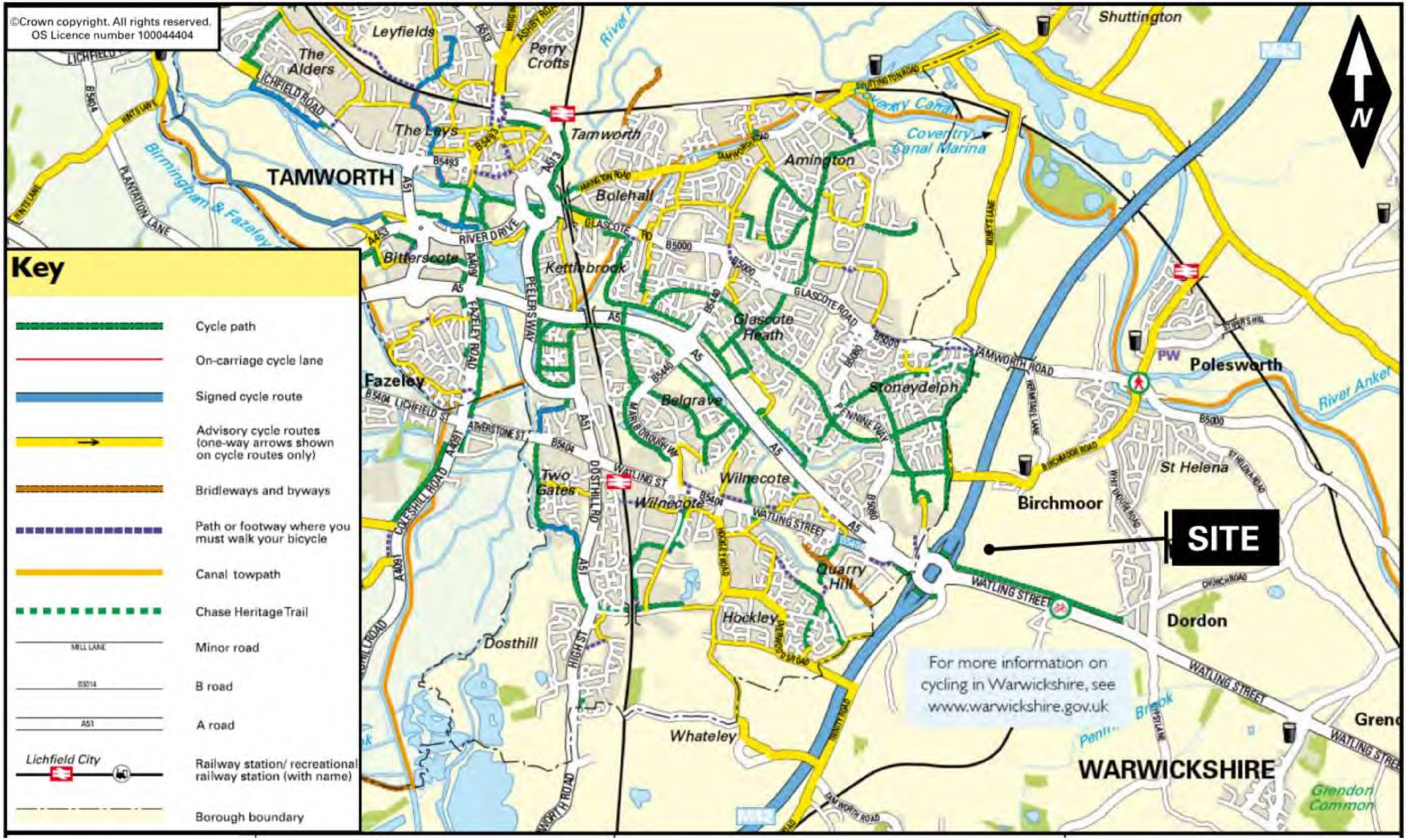
Source: Google Earth

M42 Junction 10, Tamworth

Cycling Accessibility Plan

Figure 5

TETRA TECH



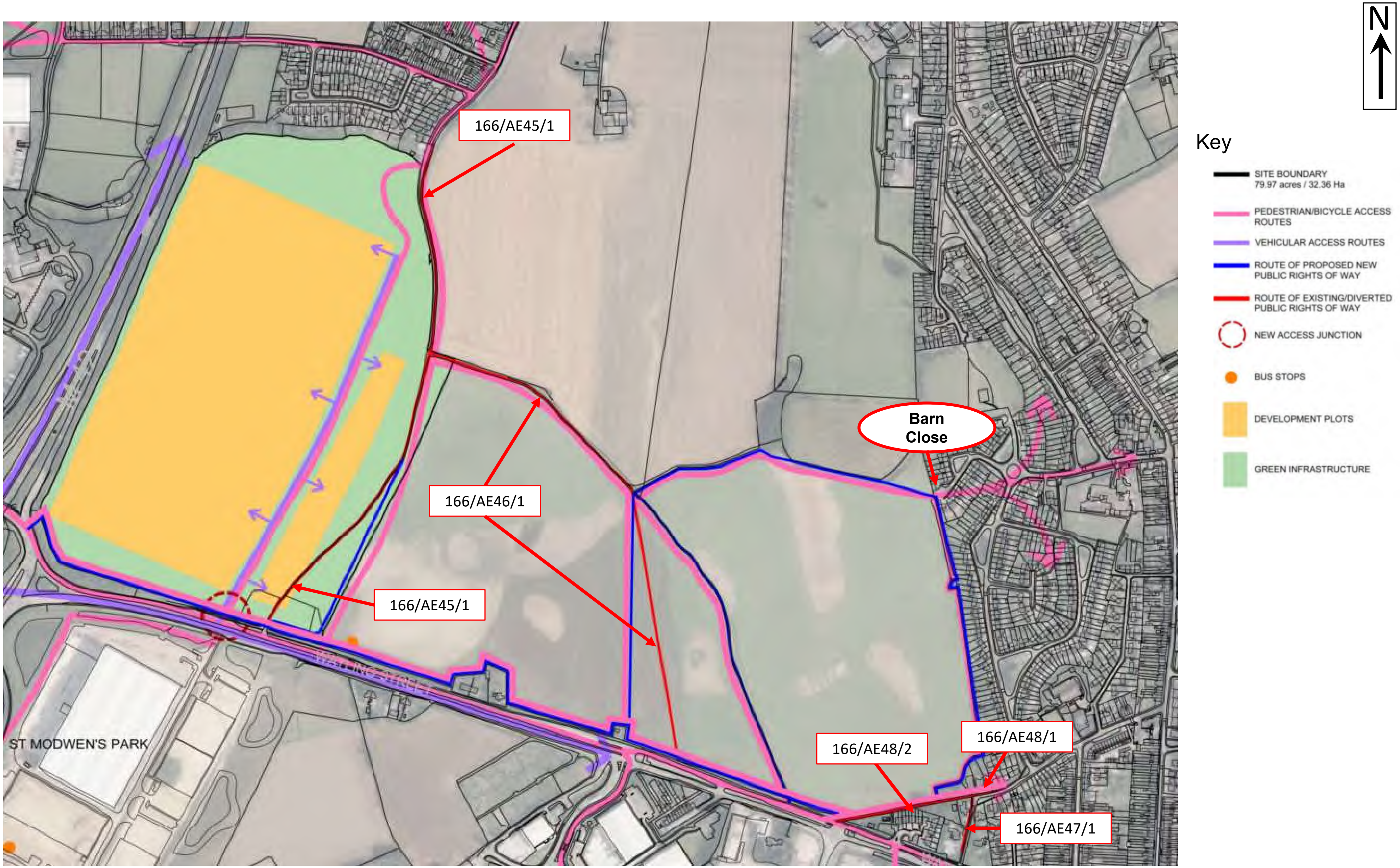
Source: Bancroft Figure 25

M42 Junction 10, Tamworth

Cycling in Lichfield Map

Figure 6

TETRA TECH



Source: Chetwoods Connectivity Strategy Plan. Drawing No: 4263 CA 00 00 DR A 00800 P5

M42 Junction 10, Tamworth

Proposed Footway to Barn Close

Figure 7

TETRA TECH

APPENDIX H A5 DORDON TO ATHERSTONE PROJECT PUBLIC CONSULTATION

national highways

A5

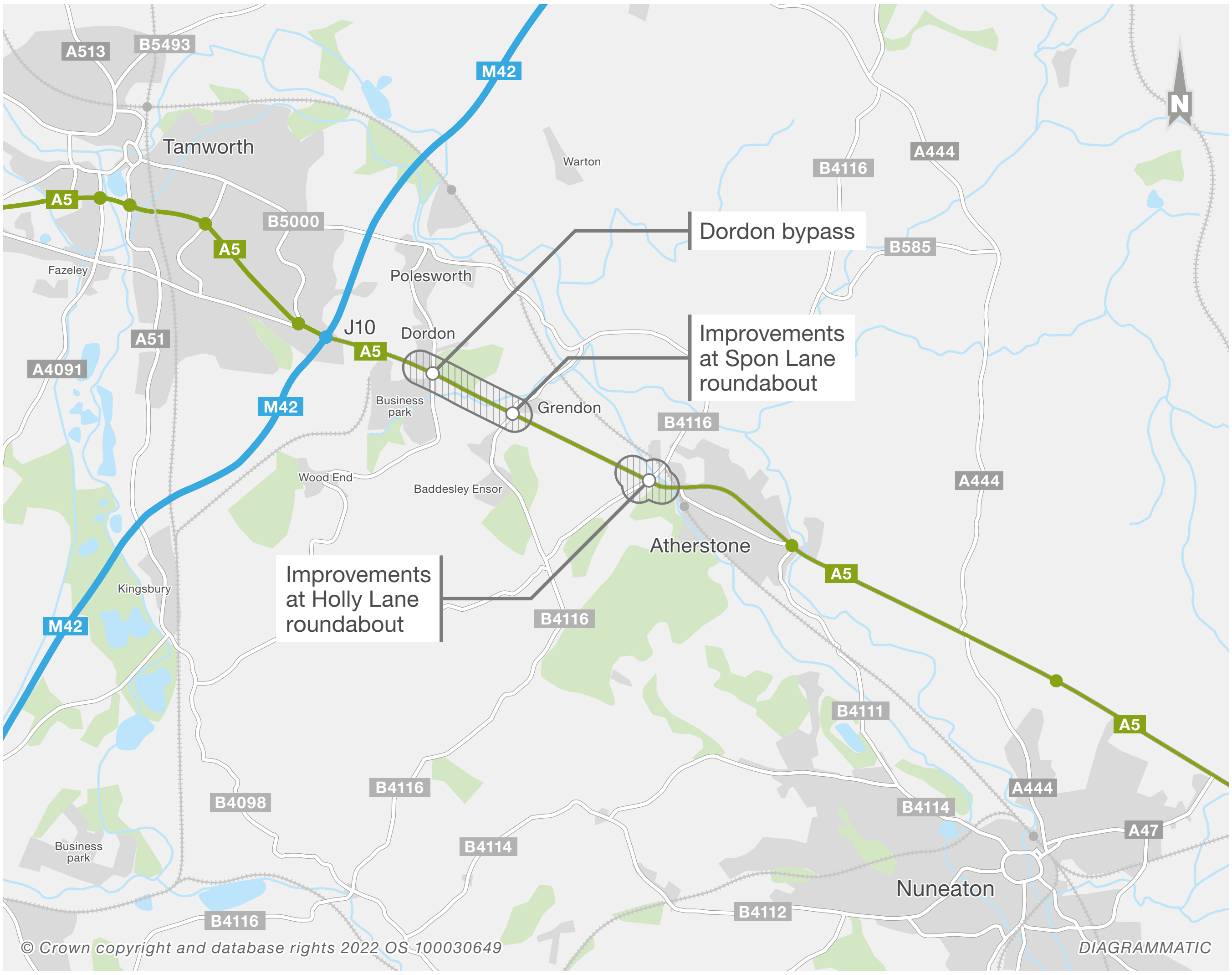
Dordon to Atherstone project

Public consultation

The need for the scheme

Warwickshire County Council and North Warwickshire Borough Council have highlighted the need for housing development and growth of businesses and logistical operations in the region. There is a need to provide adequate capacity on the A5 to accommodate increased travel demand associated with the proposed growth.

The A5 is part of a key strategic route between London and Holyhead. It forms a significant east-west link across the South Midlands connecting the East and West Midlands and acts as a local distributor connecting a number of urban areas to the national motorway network (M1, M42, M69 and M6/M6(Toll).



The scheme is located in North Warwickshire between the Dordon roundabout (A5 Watling Street / Long Street / Gypsy Lane), Spon Lane roundabout at Grendon and Holly Lane roundabout (A5 / Holly Lane / B1143 Merevale Lane).

Initial development of the scheme

This project was developed by Warwickshire County Council through the application for a Housing Infrastructure Grant in 2019 provided by the Department for Levelling Up, Housing and Communities. The application was supported by National Highways, which was then asked to take the scheme forward to develop viable options.

National Highways deliver schemes to meet customer needs

National Highways is responsible for the management, maintenance and appropriate improvement of the strategic road network and is ideally placed to understand the development of schemes to manage current and future traffic needs.

Your views matter

This brochure provides a summary of the A5 Dordon to Atherstone project proposals currently under consideration.

It also outlines the processes used to further develop the options that may be taken forward. Information can also be found online at: **https://highwaysengland.citizenspace.com/he/a5-dordon-to-atherstone.**

As potential schemes move forward, we are committed to ensuring all interested organisations and individuals will be able to comment on the proposals at public information events as well as online. We will ensure members of our project team are available to answer any questions and concerns.

See pages 18 - 19 for more information on our drop-in sessions and how to contact us for more information. We will be seeking your feedback over a six-week period, from **Monday 5 September to Sunday 16 October 2022.**

Scheme objectives

Improve connectivity and support economic growth

- Enable the delivery of housing development at strategic sites along the A5 that are linked to the scheme's funding.
- Consider wider economic growth.

Provide faster and more reliable journeys

- Reduce queuing on the A5 Dordon, Spon Lane and Holly Lane roundabouts.
- Improve journey time reliability along this section of the A5.

Improve safety for all

- Maintain and improve road safety on the A5 between Dordon and Atherstone.
- Improve road worker safety.

Environment

- Minimise adverse impacts on the environment.
- Seek opportunities to protect and enhance the environment.

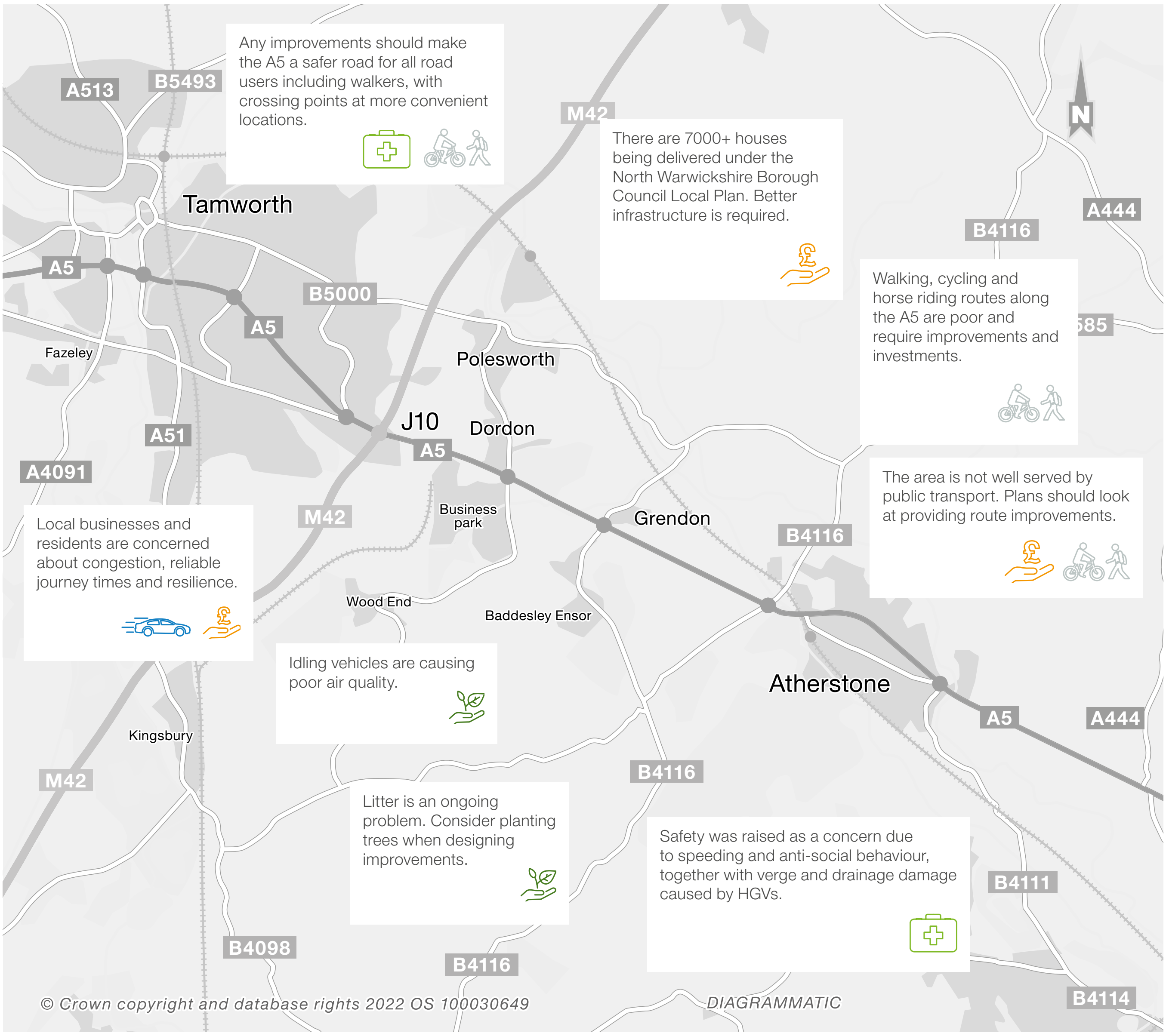
Meeting the needs of all users

- Improve accessibility and safety for local road users, cyclists, walkers, horse riders and other vulnerable users of the network.

What you have told us so far

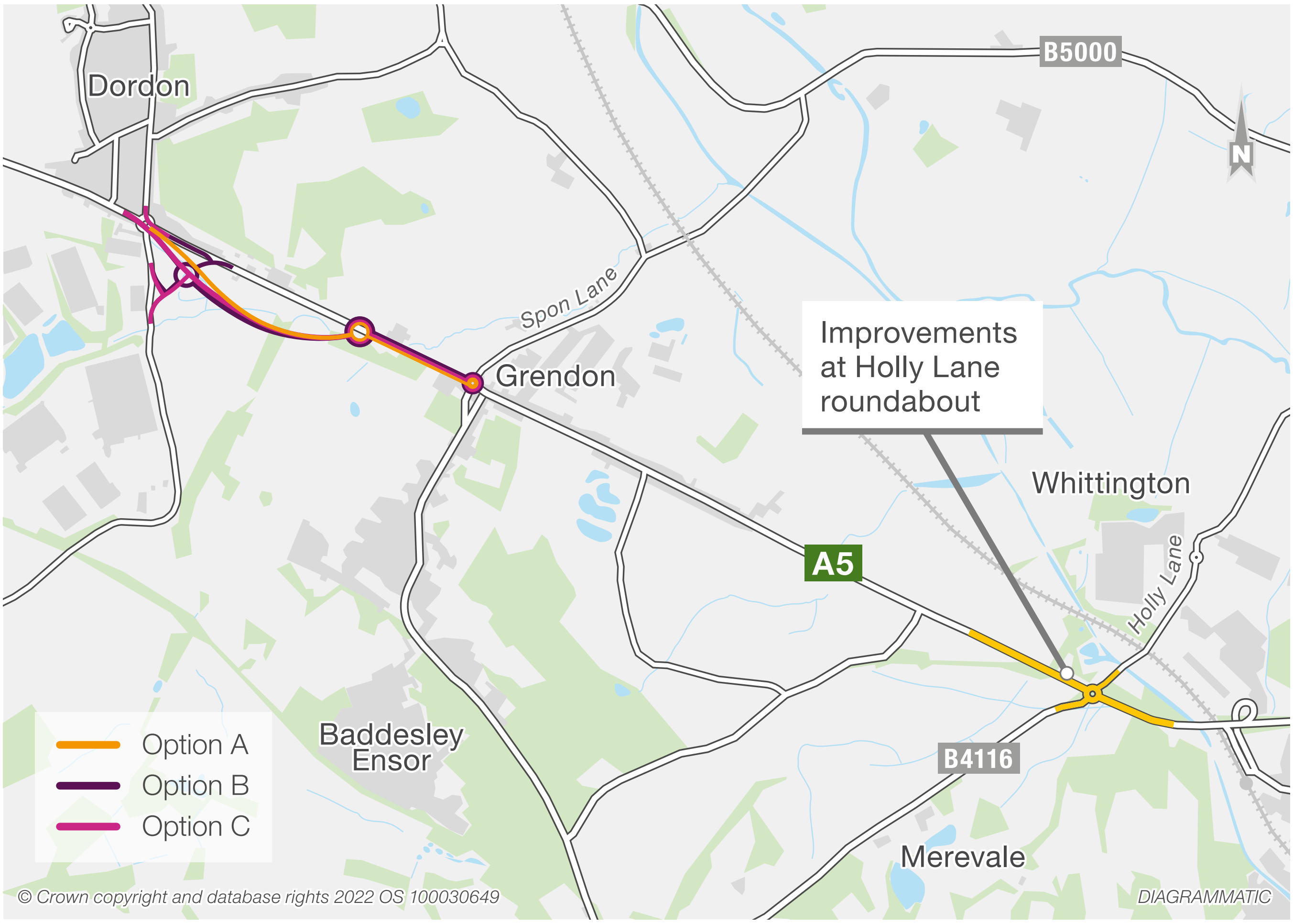
To support the development of options for this public consultation and encourage full and active participation in the planning process, engagement with North Warwickshire Borough Council, Warwickshire County Council and the A5 Partnership together with county, borough, town and local parish councillors has been taking place since July 2021.

These stakeholders have provided valuable insight that has enabled us to have a greater understanding of the concerns affecting road users, businesses and residents within the study area. We will continue to meet with these stakeholders throughout the life of the project. Such input is essential to help inform the development and design of the scheme.

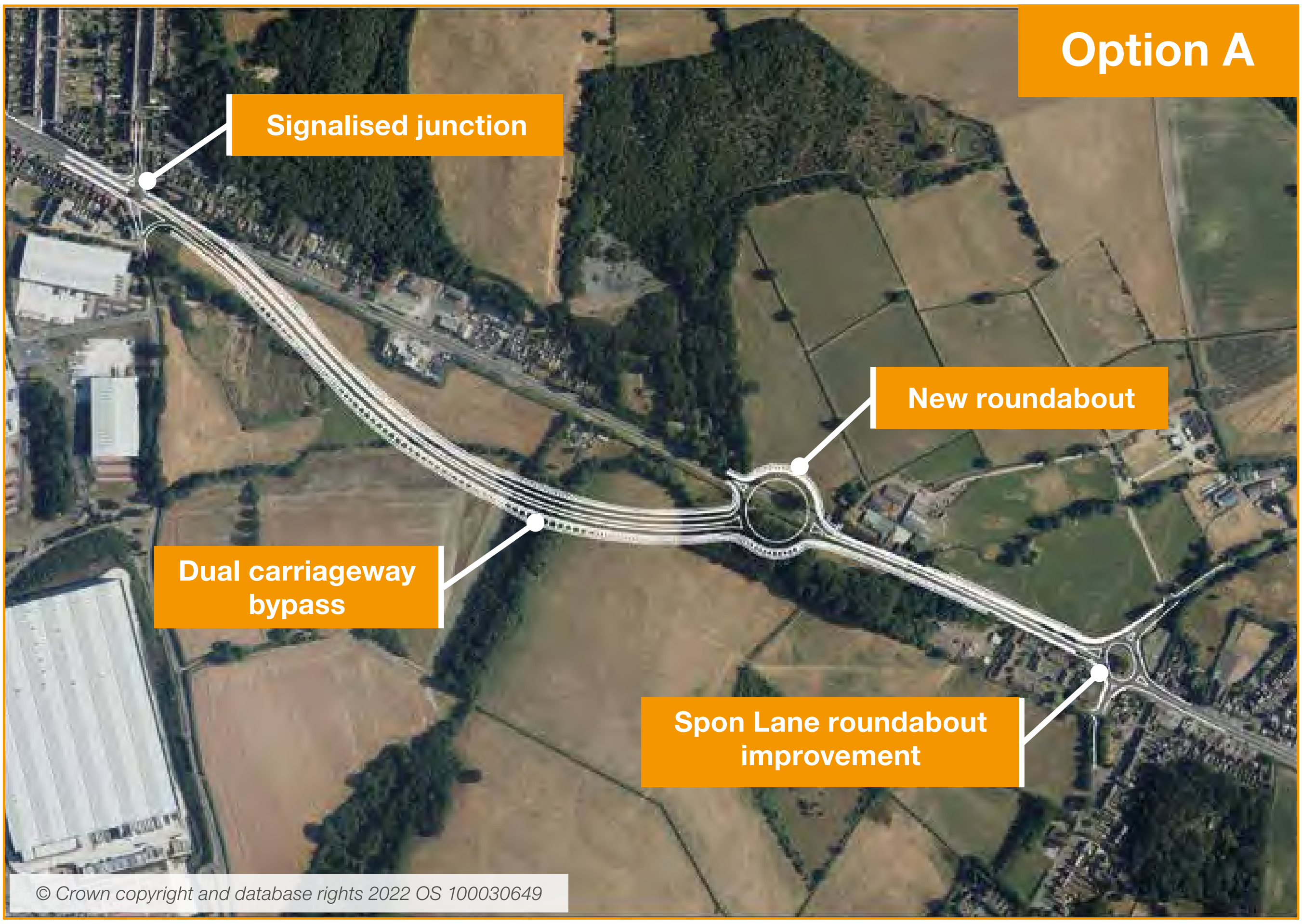


Summary of options

We are consulting on three options which have varying levels of improvements against the scheme objectives.

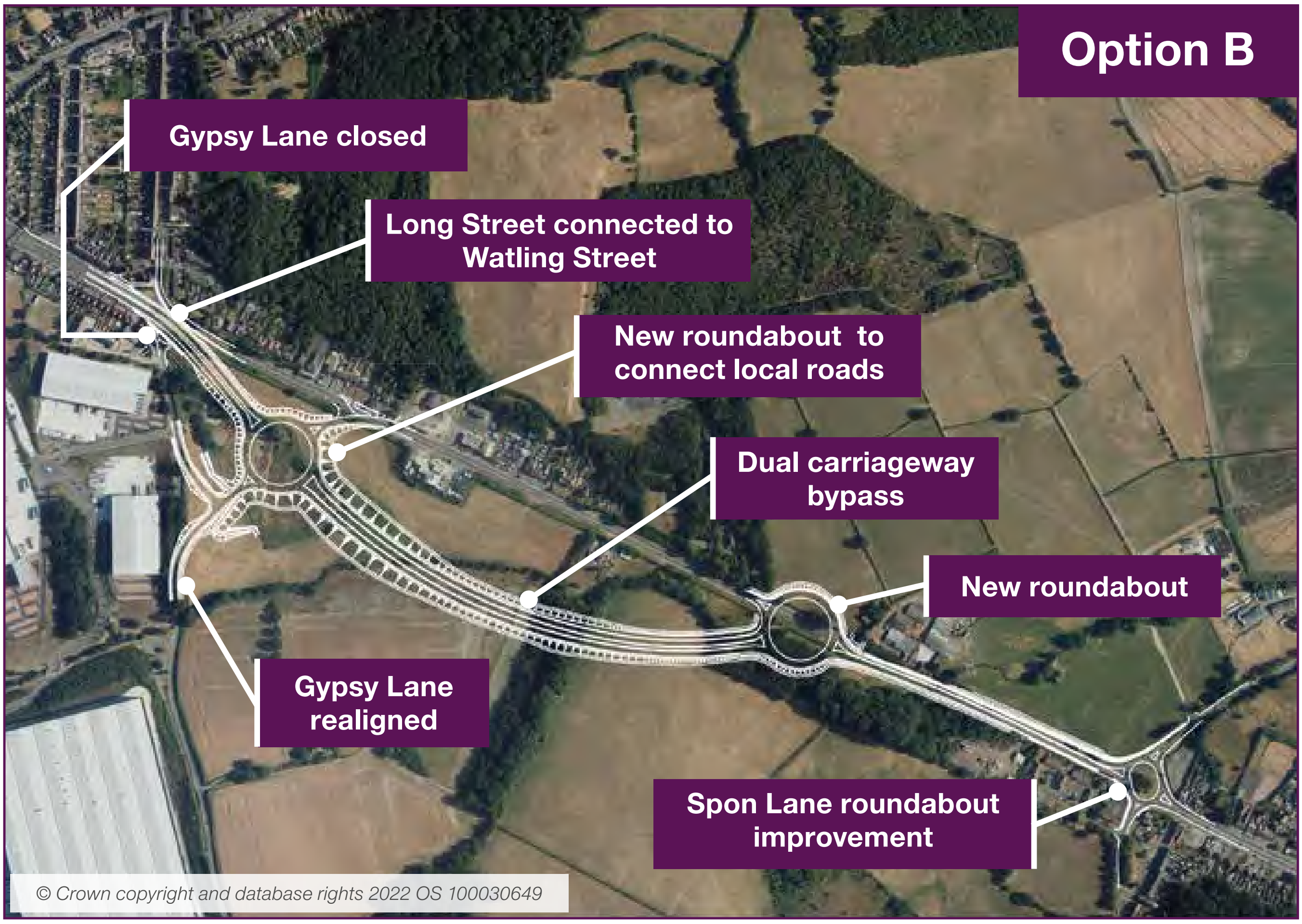


Option A (Dual carriageway, signalised junction and new roundabout)



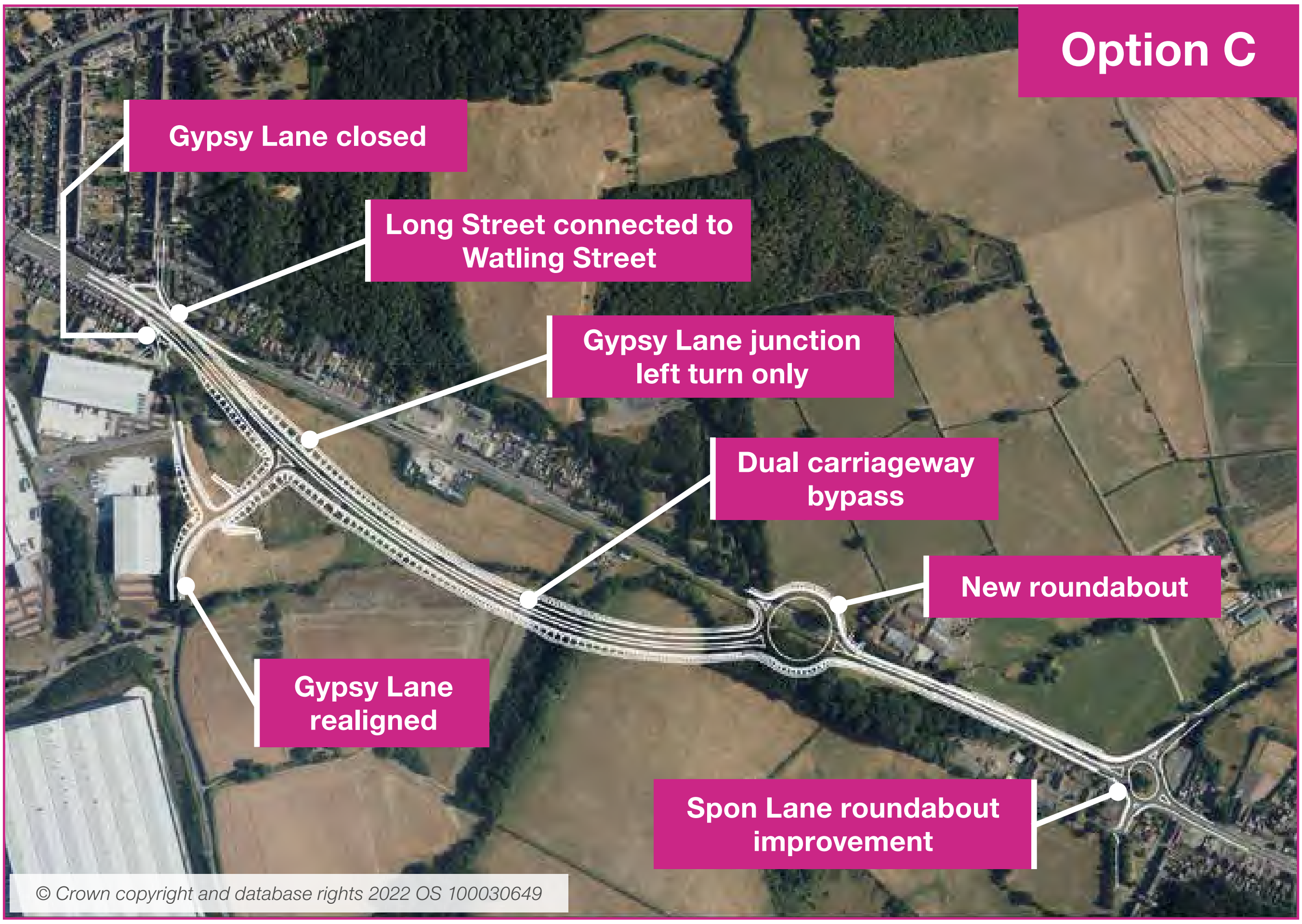
Option A introduces a dual carriageway bypass to the south of the existing A5 corridor and ties into the A5 at the Dordon roundabout. The Dordon roundabout will be upgraded to a four-way signalised junction, maintaining access to Long Street and Gypsy Lane direct from the A5 mainline. A new roundabout is proposed at the eastern end of the bypass to tie back into the existing A5. The existing bypassed section of the A5 is proposed to be de-trunked and will be accessed via the new roundabout.

Option B (Dual carriageway and two new roundabouts)



Option B introduces a dual carriageway bypass to the south of the existing A5 corridor and ties into the existing alignment of the A5 at the Dordon roundabout, with the dual carriageway replacing the existing roundabout. The existing Gypsy Lane junction with the A5 will be closed, a new roundabout will be provided to the east, along the new bypass, providing links back to Gypsy Lane, Long Street and the bypassed section of the A5. A second new roundabout is proposed at the eastern end of the bypass to tie back into the existing A5. The existing bypassed section of the A5 is proposed to be de-trunked and will also be accessible via the new eastern roundabout.

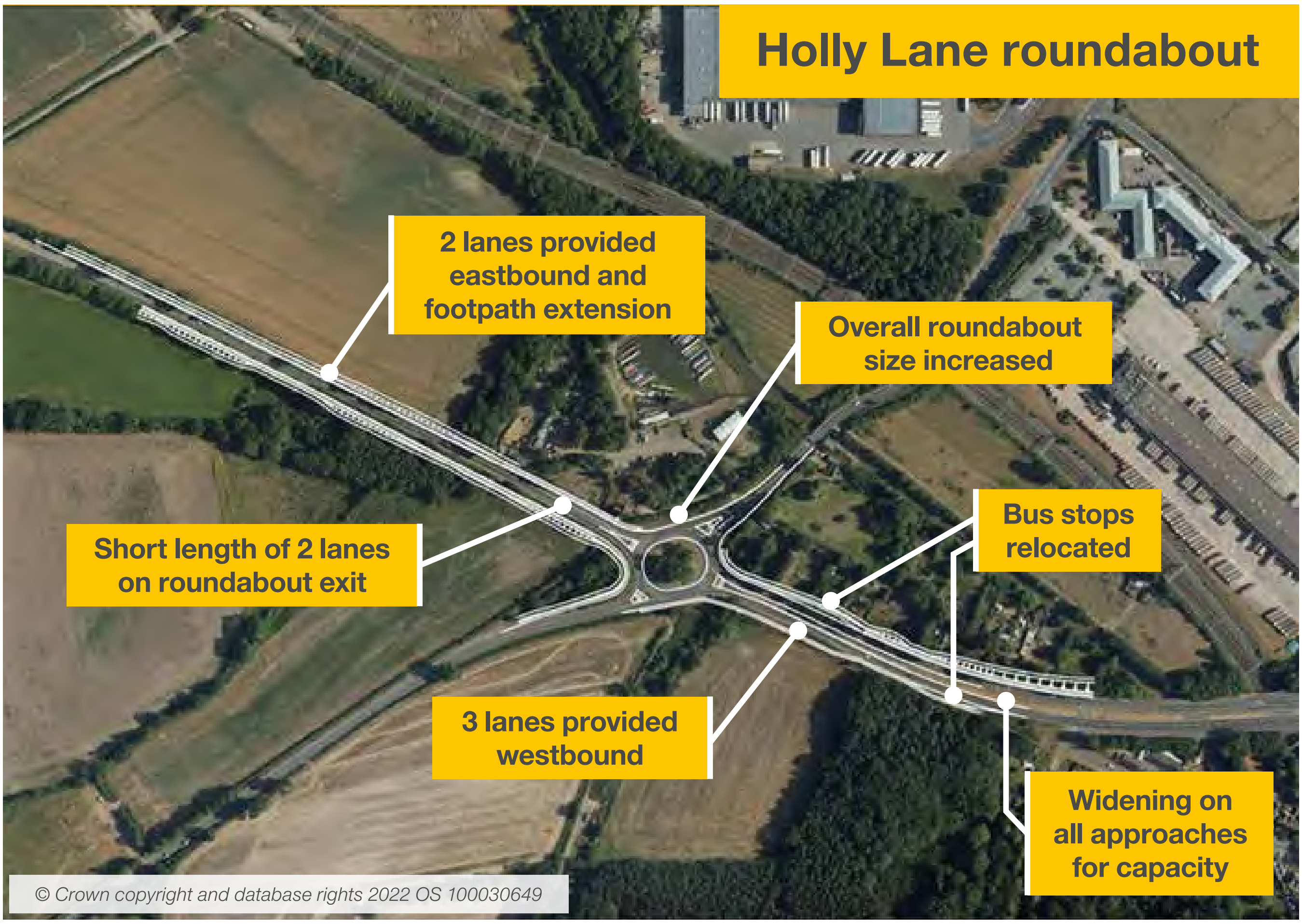
Option C (Dual carriageway, new roundabout and new junction)



Option C introduces a dual carriageway bypass to the south of the existing A5 corridor and ties into the existing A5 at the existing Dordon roundabout, with the dual carriageway replacing the existing roundabout. The existing Gypsy Lane junction with the A5 will be closed, a new left off/left on at grade junction will be provided to the east, along the new bypass, providing a link to/from Gypsy Lane. No right turns will be permitted into or out of Gypsy Lane, resulting in vehicles having to travel to the next roundabout to perform a U-turn.

A new roundabout is proposed at the eastern end of the bypass to tie back into the existing A5. The existing bypassed section of the A5 is proposed to be de-trunked and will be accessible via the new eastern roundabout. Access to Dordon/Long Street will be via the newly de-trunked section of A5 carriageway.

Holly Lane roundabout improvement



Improvements to Holly Lane will increase the size of the roundabout to provide additional capacity together with footpath and bus stop provision.

What benefits does the scheme deliver?

The section of the A5 between Dordon and Atherstone has been recognised as an area in need of improvement, in order to support housing growth being proposed by North Warwickshire Borough Council, and this forms a key element of the Housing Infrastructure Grant application. Junction and associated improvement works at A5 / Long Street, A5 / Holly Lane and A5 / Spon Lane have been identified as necessary in order to support this housing growth.

As well as supporting proposed housing growth, the scheme improvements will also aim to:

1. Improve journey time reliability
2. Contribute to enabling local and regional economic growth
3. Meet the needs of all users
4. Minimise impacts on noise and air quality
5. Maintain safety for all and improve it where possible
6. Support wider economic growth created by the capacity improvements at the housing developments
7. Minimise impacts on the natural environment and optimise environmental opportunities and mitigation
8. Provide opportunities for improved accessibility for all users

Benefits and impacts of the options

	Option A	Option B	Option C	Existing
Transport				
Journey times and congestion	★★★	★★★	★★	★
Vehicle movements Gypsy Lane	★★★★	★★★★	★	★★
Vehicle movements Long Street	★★★★	★★★	★	★★
Road safety	★★★★	★★★★	★★★★	★★
Walking, cycling and horse-riding provision	★★★★	★★★★	★★★★	★
Economy				
Economic growth	★★★	★★★	★★★	★
Construction duration (approximate)	13 months	24 months	24 months	N/A
Construction disruption	x x	x x x	x x x	N/A
Cost	£££	£££££	££££	N/A
Environment				
Air quality (overall emissions)	★★	★★★	★★★	★
Greenhouse gas	★★	★★★	★★★	★
Land take	x x x	x x x x	x x x	N/A
Noise	x x x	x x x	x x x	x x x x
Cultural heritage	x x	x x x	x x x	N/A
Landscape	★★★	★★	★★★	★★★★
Biodiversity	★★★	★★★	★★★	★★
Road drainage and the water environment	★★★	★★★	★★★	★★

Key

★★★★	Very significant positive impact	x x x x	Very significant negative impact
★★★	Significant positive impact	x x x	Significant negative impact
★★	Positive impact	x x	Negative impact
★	Slight positive impact	x	Slight negative impact

Benefits and impacts of the options

Each of the options to upgrade the A5 between Dordon and Atherstone can deliver benefits for road users, the local economy and local residents but have differing benefits and impacts. Below is a summary of the impacts and benefits of each one.

Transport

Journey times and congestion

The A5 between Dordon and Atherstone is often heavily congested, being largely single carriageway. The junctions / roundabouts at Dordon, Spon Lane and Holly Lane are particular sources of congestion. This affects journey times.

The options proposed will all reduce journey times and congestion along this section of the road with option C providing the most benefit.

Vehicle movements around Gypsy Lane and Long Street

Option A allows vehicles to access all roads in particular Gypsy Lane and Long Street. Option B allows vehicles to access all roads however traffic would have to use a short section of the new distributor road to gain access to Gypsy Lane and Long Street. The existing roundabout allows for access to all roads but is impacted by high volumes of traffic.

Option C has access to Gypsy Lane and Long Street, however there is a longer route to allow this to take place, and measures would have to be considered to prevent U-turns at entrances to Core42 and Birch Coppice Business Parks.

Road safety

Options A and B are most likely to improve road safety. Option B provides the most benefit as it includes the traffic calming measures of a junction or roundabout. Option C has a slight disbenefit compared to the existing arrangement.

Walking, cycling and horse-riding provision

Options A, B and C all identify the need for a grade separated crossing where an existing Public Right of Way (Warwickshire footpath section 24) will be severed by the southern bypass. A footbridge is proposed at this location.

Option A severs a Public Right of Way near Gypsy Lane (Warwickshire footpath section 50) with the proposed approach road to the new Dordon roundabout. Likewise, this Public Right of Way is also severed by the Option C proposals. A public footpath realignment to facilitate a safer crossing is proposed in this location.

Economy

Economic growth

Reducing congestion along this section of the A5 would have widespread economic benefits as businesses and productivity benefit from quicker, cheaper journeys. All three options will provide a road suitable for the increase in users from the proposed housing developments adjacent to the current A5.

Construction duration

Option A is likely to take over a year to build. Options B and C will require more movement of earthworks on site and are likely to take up to two years to build.

Construction disruption

For all three scheme options, a large amount of the proposed construction works will be undertaken offline from the A5. Where existing junctions are altered proposed road works will be programmed to minimise the disruption impact. National Highways will work closely with the local community to keep them informed of the scheme works including route diversions and closures.

Cost

In comparison to the other options, Option A has the lowest cost followed by Option C with Option B being the most expensive option. This scheme will be funded via the Housing Infrastructure Fund (formerly Grant), provided by the Department for Levelling Up, Housing and Communities.

Environment

A preliminary assessment of the environmental impacts of the proposed scheme and route options has been undertaken ahead of this public consultation. Below is a summary of the key findings relating to the main environmental topics. To learn about our ambitious plan to reach net zero carbon visit: **Nationalhighways.co.uk/netzerohighways.**

Air quality

During construction, impacts from construction dust will be mitigated through the implementation of best practice measures during the works. All three options will increase the distance between the traffic on the A5 and properties on Watling Street, thus improving air quality experienced at these locations. The addition of the eastern roundabout in all options, the western roundabout in Option B and the T-junction in Option C, all have the potential to decrease air quality at nearby properties. However, the overall impacts on air quality from all options are likely to be neutral to slightly significant.

Greenhouse gas

All three options have been designed to minimise greenhouse gas emissions and reduce the vulnerability of the scheme to climate change impacts. During the construction phase, the options would generate impacts to greenhouse gas emissions via site clearance and earthworks, with Option B requiring a larger area of land for the western roundabout. There would also be an increase in emissions from the production of materials required to build all of the options, fuel and water use and the treatment and transportation of waste. With this in mind, all three options will be designed to minimise greenhouse gas emissions and reduce the vulnerability of the scheme to climate change impacts.

Land take

To build any of these options, we'll need to purchase land. Some of this land would be needed permanently and other parts would only be needed temporarily. Some land would already be part of the existing strategic and local road network.

A large part of the land required to build the options is agricultural. All options would result in the loss of agricultural land. We will work with the affected landowners directly to look at how we could reduce the impact on them.

As the scheme progresses and the design is developed, we'll be able to provide more accurate information on the land we would need. Key locations to note land take impacts include:

Dordon: Options A, B & C have no requirement to take land that is outside the current highway boundary. A number of verge areas will be used to realign junctions and roundabouts for the improvements that will take place.

Bypass: Options A, B & C all have the requirement to take land that is outside the current highway boundary. The land has a current agricultural or industrial use.

New roundabout to tie in with existing A5: Options A, B & C all have the requirement to take land that is outside the current highway boundary. The land has a current agricultural or industrial use.

Noise

Construction: During construction, noise levels would increase where road construction works are required. We intend to minimise this where possible through good construction practice.

Operations: Options A, B and C will aim to reduce road traffic noise by the creation of a new section of dual carriageway which has the potential to reduce the noise levels for existing properties on the north side of the scheme. We will also look into opportunities to enhance the acoustic environment of the designated Noise Important Areas associated with the scheme.

Cultural heritage

Options A, B and C will create no major impacts on heritage resources such as Listed Buildings, the Watling Street Bridge Conservation Area and the Grade II* Registered Park and Garden at Merevale Hall. There are unlikely to be significant impacts on Watling Street (Roman Road) as the modern A5 is anticipated to have removed most traces of archaeological remains.

The most likely areas where undiscovered archaeology may be found would be in areas of new land take. This can be mitigated with advanced geophysical survey or field evaluation to inform the design stage and avoid areas of highest archaeological sensitivity. This would be followed by more detailed field evaluation and archaeological monitoring to inform a suitable and proportionate programme of construction phase mitigation.

Landscape

Views from properties including along Watling Street and Swan Farm would be affected by all three options due to the elevated nature of the proposed bypass and roundabout on embankments. Views would also be affected from local Public Rights of Way and also from users of the Coventry Canal.

All of the options would permanently alter the existing topography of the area. The new road would introduce an engineered form into the landscape including the crossing over the Penmire Brook. This would alter some of the key landscape characteristics of the Arden National Character Area 97 as denoted by Natural England within which the project is located.

At detailed design stage, we will refine the horizontal and vertical alignments of the route and position of junctions and overbridges to reduce the impacts on landform, vegetation, field pattern and landscape features to reduce the effects on both the landscape character and local views.

We will replace vegetation lost during the construction phase to restore visual screening where possible, promote integration with landscape pattern and reconnect boundaries with wildlife corridors.

Biodiversity

Options A, B and C have the potential for significant ecological effects due to the construction footprint associated with the dual carriageway, roundabout and junction. The requirement for watercourse diversions and the loss and severance of woodlands and other habitats including within Penmire Brook Swamp potential Local Wildlife Site means all options would result in significant biodiversity loss with likely impacts on the remaining ecology. Option A would incur marginally fewer impacts given its smaller construction footprint.

Further ecological surveying is required before the impacts of the scheme can be fully assessed. At the next stage of the project, we will devise detailed measures to reduce the impacts of habitat loss and review the need for additional land take to offset the impacts.

At National Highways, we're working hard to achieve our target on all current schemes of no net loss of biodiversity by the end of 2025. For schemes which start beyond 2025, as would be the case for this scheme, we will go further, aiming for a 10% biodiversity net gain as required by the new Environment Act 2021. We'll explore ways to increase biodiversity by 10% in and around this scheme at a later stage.

Water environment

Options A, B and C are all proposed to cross over a new section of the Penmire Brook. This will impact the current alignment of the Penmire Brook requiring culverting under the road. The design of the culvert can impact the amount of flow downstream, impacting on flow regime and peak levels. This could lead to increased flood risk and impact natural habitats. All options also have the potential to increase surface water runoff with potential impacts on the watercourse and surrounding ecology. Excavations below ground have the potential to alter groundwater flow paths.

The effects on the water environment have the potential to be significant. We will be undertaking a more detailed level of assessment and modelling of the Penmire Brook and associated tributaries at the next stage of development to enable a more accurate assessment to be undertaken. This will help us to refine the necessary mitigation and monitoring.

Long list options not taken forward

In previous stages of the study, Warwickshire County Council looked at a wide list of options and how they performed against the scheme objectives. The options not taken forward considered proposals to the north of the A5 and online widening, these were discounted due to their impacts on existing housing together with greater environmental impacts when compared to the southern options.

While there were many subtle variations of the three options that were finally selected, all long list options were compared against each other and assessed and appraised against the scheme objectives together with stakeholder opinions to create the short list to be consulted on.

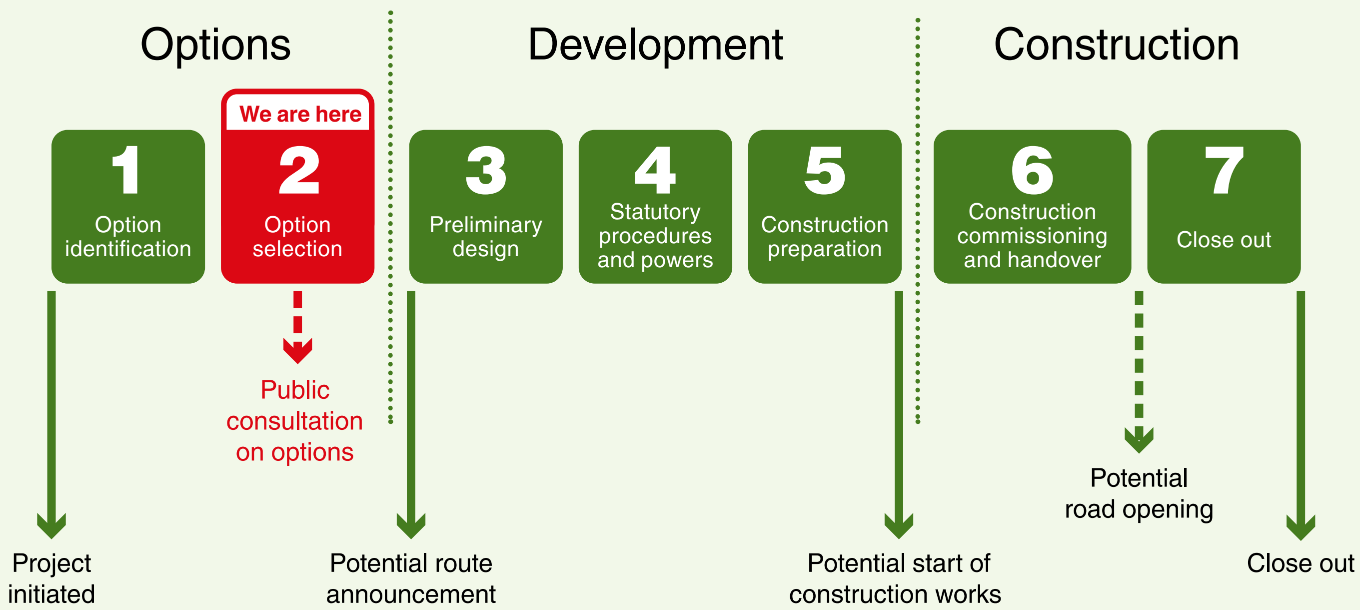
What if we did nothing?

Increased traffic flows will cause additional pressure on the road and its junctions' capacity in the future.

The current levels of traffic congestion on the A5 between Dordon and Atherstone will increase without intervention. The forecasted increase in traffic together with housing that is proposed within the North Warwickshire Borough Council Local Plan means the congestion will worsen over time.

What happens next?

Having received the full range of responses to the consultation, National Highways will undertake a programme of analysis and produce a consultation report. This report will summarise and consolidate the feedback received and will be made available to the public once the consultation has concluded. Comments, concerns and expressions of support will be passed on to the project team and included as part of the ongoing project development.



How to find out more

Dordon Village Hall,
Browns Lane, Dordon, Tamworth, B78 1TR.

Thursday 8 September 2022
2pm - 8pm

Thursday 6 October 2022
2pm-8pm

Grendon Community Centre,
Boot Hill, Grendon, Atherstone CV9 2EL.

Thursday 15 September 2022
3pm - 8pm

Owen Street Community Arts Centre,
Owen Street, Atherstone CV9 1DG.

Wednesday 28 September 2022
11:30am - 5pm

To speak to a member of the team, call 0300 470 0663 from 9am to 5pm, Monday to Friday

Webinars
We're holding two webinars, where attendees will receive a presentation about the route options from the project team and will be given opportunities to ask questions. These webinars will be held on:
Tuesday 20 September at 6pm
Thursday 13 October at 6pm

Engagement van
Our mobile engagement van will also be visiting a number of locations throughout the consultation period.

Or pick up a brochure at:

Dordon Library/Post Office, Whitehouse Road, Dordon, Tamworth, Staffordshire, B78 1QE.

Baddesley Village Hall, Community Hub and Library, 31, 32 Keys Hill, Baddesley Ensor, Atherstone CV9 2DF.

Atherstone Library and Information Centre, Long Street, Atherstone, CV9 1AX.

Baddesley Store & Post Office, 17-19 New Street, Baddesley Ensor, Atherstone CV9 2DW.

Grendon Newsagents, 79 Watling Street, Grendon, Atherstone, CV9 2PQ.

Coleshill Road Post Office and Convenience Store, 90 Coleshill Rd, Atherstone CV9 2AF.

Mancetter Post Office and Mobile Shop, 1A Manor Rd, Mancetter, Atherstone, CV9 1NS.

Esso Petrol Station, A5 Watling Street, Dordon, Tamworth, B78 1SS (eastbound and westbound).

Polesworth Library and Information Centre, Bridge St, Polesworth, Tamworth B78 1DT.

Polesworth Post Office/Spar, 2-4 Bridge St, Polesworth, Tamworth B78 1DT.

Costa Drive Thru, Watling St, Grendon, Atherstone CV9 2PY.

Moto Tamworth Services
M42, Junction 10.

For further details about our webinars or engagement van visit: **https://highwaysengland.citizenspace.com/he/a5-dordon-to-atherstone.**

How to respond

Please respond using one of the following channels, set up for the specific purpose of this consultation:

Online: https://highwaysengland.citizenspace.com/he/a5-dordon-to-atherstone.

Email: A5dordontoatherstone@nationalhighways.co.uk

Post: Please note the address is case sensitive: **Freepost A5 D2A CONSULTATION**

National Highways wants to hear your views.
You can find an online response form at: **https://highwaysengland.citizenspace.com/he/a5-dordon-to-atherstone** or post the response form at the centre of this document. National Highways is unable to guarantee that responses sent by channels other than those listed above will be included in the consultation process.

All responses should include your name and postcode and state whether you are responding as an individual or representing the views of an organisation. If responding on behalf of an organisation, please make it clear what the organisation is and how the views of members were gathered if applicable.

All responses must be received by **11.59pm on 16 October 2022. Responses after this date may not be considered.**

If you are filling out our physical questionnaire please pull out of the full brochure and put it in an envelope with our Freepost address, there's no need for a stamp. If you need additional room to fill out your comments feel free to use extra paper.

Public Consultation reponse form

We'd like to understand your views on the options for highways improvements on the A5 between Dordon and Atherstone. Our consultation is running for six weeks from **5 September to 16 October 2022.**

Before completing this response form we recommend you read the consultation brochure which can be found on our webpage at: **https://highwaysengland.citizenspace.com/he/a5-dordon-to-atherstone.**

You can also find more information about this consultation and complete this response form online. All information provided is treated in confidence. To return this form by post, please put it in an envelope, write our Freepost address on the front and put it in a post box. There is no need for a stamp. The Freepost address is: **Freepost A5 D2A CONSULTATION** (Please note the Freepost address is case sensitive).

To ensure that your views can be taken into account, please return this form by **16 October 2022.**
Please provide your name, address and either your email address or telephone number. If you'd prefer your comments to be anonymous, please just provide your postcode so we can understand where you live in relation to the scheme.

Name: ....
Address: ....
Postcode: ....
Email address: ....
Telephone number: ....

We may use your details to contact you in the future about your response or to provide you with updates about the scheme.

Are you happy for us to contact you about your response if required?
Yes ☐
No ☐

Do you want to receive future updates about the scheme?
Yes ☐
No ☐

Are you responding on behalf of an organisation?
Yes ☐
No ☐

If **Yes** please provide the name of your organisation and your role within it.

Organisation name: ....

Role within organisation: ....

Section 1:
Your views on the current road

The following questions relate to your current use of the A5 between Dordon and Atherstone.

1. Which of the following best describes you?
(please tick):
I'm a local resident ☐
I'm a local business owner ☐
I work locally ☐
I'm an affected landowner ☐
I travel along the A5 between Dordon and Atherstone regularly using a private vehicle ☐
I travel along the A5 between Dordon and Atherstone regularly using a commercial vehicle i.e. HGV, van, coach ☐
Other (please specify):...

2. Please tell us why you use the A5 between Dordon and Atherstone?
(please tick):
Travelling to or from work ☐
Travelling for business ☐
Leisure/recreation ☐
School pick up/drop off ☐
Long distance journeys (greater than 10 miles) ☐
I don't use this section of road ☐
Other (please specify):...

3. How do you normally travel along the A5 between Dordon and Atherstone?
(please tick):
Car ☐
HGV or LGV ☐
Bus or coach ☐
Motorcycle ☐
Walking / cycling / horse riding ☐
Other (please specify):...

4. How often do you travel along the A5 between Dordon and Atherstone?
(please tick):
Daily ☐
Weekly ☐
Fortnightly ☐
Monthly ☐
Quarterly ☐
Twice-yearly ☐
Annually ☐
Never ☐

5. When do you usually travel along the A5 between Dordon and Atherstone?

(tick all that apply):

- Weekday morning peak (typically between 7am to 10am) ☐
- Weekday evening peak (typically between 4pm to 7pm) ☐
- Weekday off-peak (all other times) ☐
- Weekends anytime ☐
- Never ☐

6a. How satisfied or dissatisfied are you with the following elements of the A5 between Dordon and Atherstone as it is now?

(Please tick one answer in each row):

	Very dissatisfied	Dissatisfied	Neither dissatisfied nor satisfied	Satisfied	Very satisfied
Congestion	☐	☐	☐	☐	☐
Journey time	☐	☐	☐	☐	☐
Road safety	☐	☐	☐	☐	☐
Road layout between Dordon and Atherstone	☐	☐	☐	☐	☐
Noise	☐	☐	☐	☐	☐
Air quality	☐	☐	☐	☐	☐
Visual impact	☐	☐	☐	☐	☐
Access for pedestrians, cyclists and horse riders	☐	☐	☐	☐	☐

6b. Please provide any further comments you may have on the A5 between Dordon and Atherstone as it is now.

Consider commenting on issues like safety, journey times, how it impacts on your livelihood or lifestyle.

Section 2:
Your views on the options to dual the route

These questions relate to the three options for dualling the A5 between Dordon and Atherstone. These can be seen on pages 7-9 of the consultation brochure.

7. To what extent do you agree that improvements to the A5 between Dordon and Atherstone are needed?

Strongly agree	Agree	Neither disagree nor agree	Disagree	Strongly disagree
☐	☐	☐	☐	☐

8a. Which option would you prefer when considering safety?
For more information about each of these factors, see page 12 - 13 of the brochure.
(Please tick):

	Option A	Option B	Option C	No preference
Safety during construction	☐	☐	☐	☐
Safety of completed improvement scheme	☐	☐	☐	☐

8b. Which option would you prefer when considering journey time?
For more information about each of these factors, see page 12 - 13 of the brochure.
(Please tick):

	Option A	Option B	Option C	No preference
Journey time in construction	☐	☐	☐	☐
Journey time of completed improvement scheme	☐	☐	☐	☐

8c. Which option would you prefer when considering the environment?

For more information about each of these factors, see pages 14 - 16 of the brochure.

(Please tick):

	Option A	Option B	Option C	No preference
Air quality	☐	☐	☐	☐
Greenhouse gas	☐	☐	☐	☐
Land take	☐	☐	☐	☐
Noise	☐	☐	☐	☐
Cultural heritage	☐	☐	☐	☐
Landscape	☐	☐	☐	☐
Biodiversity	☐	☐	☐	☐
Water environment	☐	☐	☐	☐

9a. Out of the three options proposed for dualling the A5 between Dordon and Atherstone, which option do you think would be best overall?

(Please tick):

Option A	Option B	Option C	No preference
☐	☐	☐	☐

9b. If you have selected a preferred option in question 9a, please tell us your reason(s).

(tick all that apply):

Reduced congestion ☐
Improved journey time ☐
Improved road safety ☐
Least visual or noise impact ☐
Shortest construction time ☐
Least amount of land taken ☐
Smallest impact on biodiversity ☐
Don't know ☐
Other (please specify) ....

9c. Please expand on your reasons for selecting the answer(s) in question 9a and 9b.

Section 3: Your views on proposed improvements to the A5

10a. How supportive are you of the proposed improvements to the A5?

Please tick the box that best represents your views (details on proposed improvements can be seen on pages 7-9 of the consultation brochure):

Strongly support	Support	Neither support nor oppose	Oppose	Strongly oppose
☐	☐	☐	☐	☐

10b. Please provide any further comments you may have on the A5 improvements:

Section 4: Any additional comments

11. Do you have anything else you'd like to share in relation to the proposed dualling improvements, including how it may improve or impact your lifestyle or livelihood?

Section 5: Working with you

To help us improve how we consult in future, we'd be grateful if you could answer the questions below.

12. How did you hear about the consultation?
(tick all that apply):

Leaflet received in the post	☐
Local media	☐
Scheme webpage alert	☐
Social media	☐
Word of mouth	☐
Poster	☐
National Highways' engagement van	☐

Other (please specify): ....

13. How helpful did you find our consultation materials and events?
(Please tick):

	Very helpful	Helpful	Neutral	Unhelpful	Very unhelpful
Consultation brochure	☐	☐	☐	☐	☐
Online virtual exhibition	☐	☐	☐	☐	☐
Consultation event(s)	☐	☐	☐	☐	☐

Online webinar(s)	☐	☐	☐	☐	☐
National Highways' engagement van	☐	☐	☐	☐	☐

14. What is your preferred method of communication for consultation?
(Please tick):

	Preferred communication method
Consultation brochure	☐
Online virtual exhibition	☐
In person consultation event(s)	☐
Online webinar(s)	☐
National Highways' engagement van	☐

Section 6: Equality and diversity

We'd be grateful if you could answer the following equality and diversity questions.

We'll use this information to help understand whether our consultation has been useful to people of different backgrounds and with different requirements. We may publish a summary of the results, but no information about an individual would be revealed.

The answers you provide to this question are defined as 'special category data'. If you agree to provide this information, you can withdraw your permission for us to use it at any time. To do that, please email DataProtectionAdvice@nationalhighways.co.uk.

☐ I consent to National Highways processing my special category data for the purposes of understanding the accessibility of the A5 Dordon to Atherstone consultation. I have read National Highways' privacy notice on page 30 and understood how it will be processing this data.

15. How would you define your gender?

Male ☐
Female ☐
Transgender ☐
Other ☐
Prefer not to say ☐

16. How would you define your ethnicity?

Asian or British Asian ☐
White (British) ☐
White (other) ☐
Black African ☐
Black Carribean ☐
Black (British) ☐
Mixed or multiple ethnic ☐
Other ethnic group ☐
Prefer not to say ☐

17. Age:

Under 16 ☐
16 - 24 ☐
25 - 34 ☐
35 - 44 ☐
45 - 54 ☐
55 - 64 ☐
65+ ☐
Prefer not to say ☐

18. Is your ability to travel limited by a health or disability which has lasted, or is expected to last, at least 12 months?

Yes, limited a lot ☐
Yes, limited a little ☐
No ☐
Prefer not to say ☐

19. Are you responsible for caring for an adult relative/partner, disabled child or other?

Yes ☐
No ☐
Prefer not to say ☐

20. Are you a blue badge holder?

Yes ☐
No ☐
Prefer not to say ☐

Data protection and you

National Highways has fully committed to compliance with the UK General Data Protection Regulation (UK-GDPR).

We collect and handle a variety of personal data so that we can deliver services to our customers and anyone using England's motorways and major A-roads.

This privacy notice applies to any personal data collected by us or on our behalf, by any format - phone, letter, email, online or face to face.

We collect and handle data to:

- provide the service you've asked for - for example, if you have a query that you need a response to, or if you use our crossing on the Dartford Tunnel
- process payments for our crossings
- stay in contact with you - for example, if you sign up to one of our newsletters to get information about traffic updates or are involved in our consultation exercises
- fulfil legal obligations
- provide information to central government, when the law says we need to
- assess our performance, ensure value for money, and set targets for departments
- provide information to the Office of Rail and Road and to Transport Focus, which are our regulatory authorities

For full details of our data protection policy please visit: **www.nationalhighways.co.uk/about-us/privacy-notice/** or contact: **dataprotectionadvice@nationalhighways.co.uk.**

Notes

If you need help accessing this or any other National Highways information, please call **0300 123 5000** and we will help you.

This document is also available on our website at **www.nationalhighways.co.uk**.

For an accessible version of this publication please call **0300 123 5000** and we will help you.

If you have any enquiries about this publication email **info@nationalhighways.co.uk**
or call **0300 123 5000***. Please quote the National Highways publications code **PR168/22.**

National Highways creative job number BHM22_0120.

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APPENDIX I BANCROFT CONSULTING RADAR SPEED METER SURVEY RESULTS 26 APRIL 2021

observed speed mph	no. of readings n	n×x	n×x²
10	0	0	0
11	0	0	0
12	0	0	0
13	0	0	0
14	0	0	0
15	0	0	0
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0
20	0	0	0
21	0	0	0
22	0	0	0
23	0	0	0
24	1	24	576
25	0	0	0
26	0	0	0
27	0	0	0
28	0	0	0
29	2	58	1682
30	1	30	900
31	0	0	0
32	3	96	3072
33	4	132	4356
34	5	170	5780
35	6	210	7350
36	14	504	18144
37	10	370	13690
38	6	228	8664
39	12	468	18252
40	12	480	19200
41	8	328	13448
42	9	378	15876
43	11	473	20339
44	18	792	34848
45	13	585	26325
46	11	506	23276
47	8	376	17672
48	5	240	11520
49	11	539	26411
50	6	300	15000
51	4	204	10404
52	5	260	13520
53	3	159	8427
54	2	108	5832
55	1	55	3025
56	3	168	9408
57	2	114	6498
58	0	0	0
59	0	0	0
60	0	0	0
61	0	0	0
62	1	62	3844
63	2	126	7938
64	0	0	0
65	1	65	4225
66	0	0	0
67	0	0	0
68	0	0	0
69	0	0	0
70	0	0	0
71	0	0	0
72	0	0	0
73	0	0	0
74	0	0	0
75	0	0	0
76	0	0	0
77	0	0	0
78	0	0	0
79	0	0	0
80	0	0	0
	n=	Σv=	Σv²=
Total Σ	200	8608	379502

SPEED READINGS FOR DUAL CARRIAGEWAYS

location:	**A5 Watling Street, Dordon**
direction:	**Eastbound**
day:	**Monday**
date	**26.04.21**
time:	**0900 to 0946**

SUMMARY

mean	43.04	mph	69.3	kph
85%ile	49.68	mph	79.9	kph

Step 1:
Mean speed

$$m = \frac{\sum v}{n}$$

m= 43.04 **mph**

Step 2:
Finding Value ∑

$$\sum(v\text{-}m)^2 = \sum v^2 - \frac{(\sum v^2)}{n}$$

∑(v - m)² = 9013.68

Step 3:
Standard deviation

$$s = \sqrt{\frac{\sum(v-m)^2}{n-1}}$$

s= 6.64 **mph**

Step 4:
85 percentile dry weather spot speed

$$p85 = m + s$$

p= 49.68

checks: 85%ile/mean = 1.15
should be 1.1 to 1.25

S.D./mean = 0.15
should be approx 1/6 (0.17)

A5 WATLING ROAD, DORDON - EASTBOUND SPEED SURVEY RESULTS (09:00 to 09:46)

observed speed mph	no. of readings n	n×x	n×x^2
10	0	0	0
11	0	0	0
12	0	0	0
13	0	0	0
14	0	0	0
15	0	0	0
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0
20	0	0	0
21	0	0	0
22	0	0	0
23	0	0	0
24	0	0	0
25	0	0	0
26	0	0	0
27	0	0	0
28	0	0	0
29	0	0	0
30	0	0	0
31	1	31	961
32	2	64	2048
33	0	0	0
34	0	0	0
35	2	70	2450
36	5	180	6480
37	5	185	6845
38	8	304	11552
39	7	273	10647
40	10	400	16000
41	5	205	8405
42	17	714	29988
43	9	387	16641
44	5	220	9680
45	7	315	14175
46	11	506	23276
47	8	376	17672
48	12	576	27648
49	8	392	19208
50	5	250	12500
51	11	561	28611
52	7	364	18928
53	9	477	25281
54	9	486	26244
55	6	330	18150
56	5	280	15680
57	1	57	3249
58	5	290	16820
59	2	118	6962
60	7	420	25200
61	3	183	11163
62	2	124	7688
63	3	189	11907
64	1	64	4096
65	1	65	4225
66	1	66	4356
67	0	0	0
68	0	0	0
69	0	0	0
70	0	0	0
71	0	0	0
72	0	0	0
73	0	0	0
74	0	0	0
75	0	0	0
76	0	0	0
77	0	0	0
78	0	0	0
79	0	0	0
80	0	0	0
	n=	Σv=	Σv²=
Total Σ	200	9522	464736

SPEED READINGS FOR DUAL CARRIAGEWAYS

location:	**A5 Watling Street, Dordon**
direction:	**Westbound**
day:	**Monday**
date	**26.04.21**
time:	**1028 to 1113**

SUMMARY

mean	47.61	mph	76.6	kph
85%ile	55.09	mph	88.6	kph

Step 1:
Mean speed

$$m = \frac{\sum v}{n}$$

m= 47.61 **mph**

Step 2:
Finding Value ∑

$$\sum(v\text{-}m)^2 = \sum v^2 - \frac{(\sum v^2)}{n}$$

∑ (v - m)² = 11393.58

Step 3:
Standard deviation

$$s = \sqrt{\frac{\sum(v-m)^2}{n-1}}$$

s= 7.48 **mph**

Step 4:
85 percentile dry weather spot speed

$$p85 = m + s$$

p= 55.09

checks: 85%ile/mean = 1.16
should be 1.1 to 1.25

S.D./mean = 0.16
should be approx 1/6 (0.17)

A5 WATLING ROAD, DORDON - WESTBOUND SPEED SURVEY RESULTS (10:28 to 11:13)

Vehicle speeds	**49.68**	mph			
	79.94	kph			
	22.20	v (m/s)			
	493.03	v^2			
Driver Perception-Reaction time	**2**	t (s)			
	44.41	v x t			
Deceleration Rate	**0.25**	g			
	2.45	d (m/s)			
	4.91	2d			
Gradient	**0.00**	a*			
	2.45	d+0.1a			
	4.905	2(d+0.1a)			
	v t	+	v^2 / 2(d+0.1a)	=	SSD
Stopping Sight Distance (SSD) =	**44.41**	+	**100.52**	=	**144.92**
SSD Bonnet Adjusted (SSD+2.4)**	**147.32**				

Formula: *$SSD = vt + v^2/2(d+0.1a)$*

	Manual for Streets 2		**DMRB**	
	Light Vehicles (less than 5% HGVs)	HGVs/Buses (over 5% of total vehicles)	All traffic (Maximum decel.)	All traffic (Desirable decel.)
Perception-Reaction Time (t)	**1.5s**	**1.5s**	**2s**	**2s**
Deceleration Rate (g = 9.81m/s^2)	**0.45g**	**0.375g**	**0.375g**	**0.25g**

Enter gradient as positive for uphill towards junction and negative for downhill towards junction

* for simplicity, gradient will be given as zero where details of levels are unavailable and observed gradients are deemed to be insignificant in terms of the effect on vehicle braking

** 2.4 metres added to splay to allow for bonnet length of approaching vehicles

VISIBILITY SPLAY CALCULATOR: A5 WATLING STREET, DORDON - EASTBOUND (09:00 TO 09:46)

Vehicle speeds	**55.09**	mph
	88.64	kph
	24.62	v (m/s)
	606.25	v^2
Driver Perception-Reaction time	**2**	t (s)
	49.24	v x t
Deceleration Rate	**0.25**	g
	2.45	d (m/s)
	4.91	2d
Gradient	**0.00**	a*
	2.45	d+0.1a
	4.905	2(d+0.1a)

Formula: *$SSD = vt + v^2/2(d+0.1a)$*

	Manual for Streets 2		DMRB	
	Light Vehicles (less than 5% HGVs)	HGVs/Buses (over 5% of total vehicles)	All traffic (Maximum decel.)	All traffic (Desirable decel.)
Perception-Reaction Time (t)	**1.5s**	**1.5s**	**2s**	**2s**
Deceleration Rate ($g = 9.81m/s^2$)	**0.45g**	**0.375g**	**0.375g**	**0.25g**

Enter gradient as positive for uphill towards junction and negative for downhill towards junction

	v t	+	v^2 / 2(d+0.1a)	=	SSD
Stopping Sight Distance (SSD) =	**49.24**	+	**123.60**	=	**172.84**

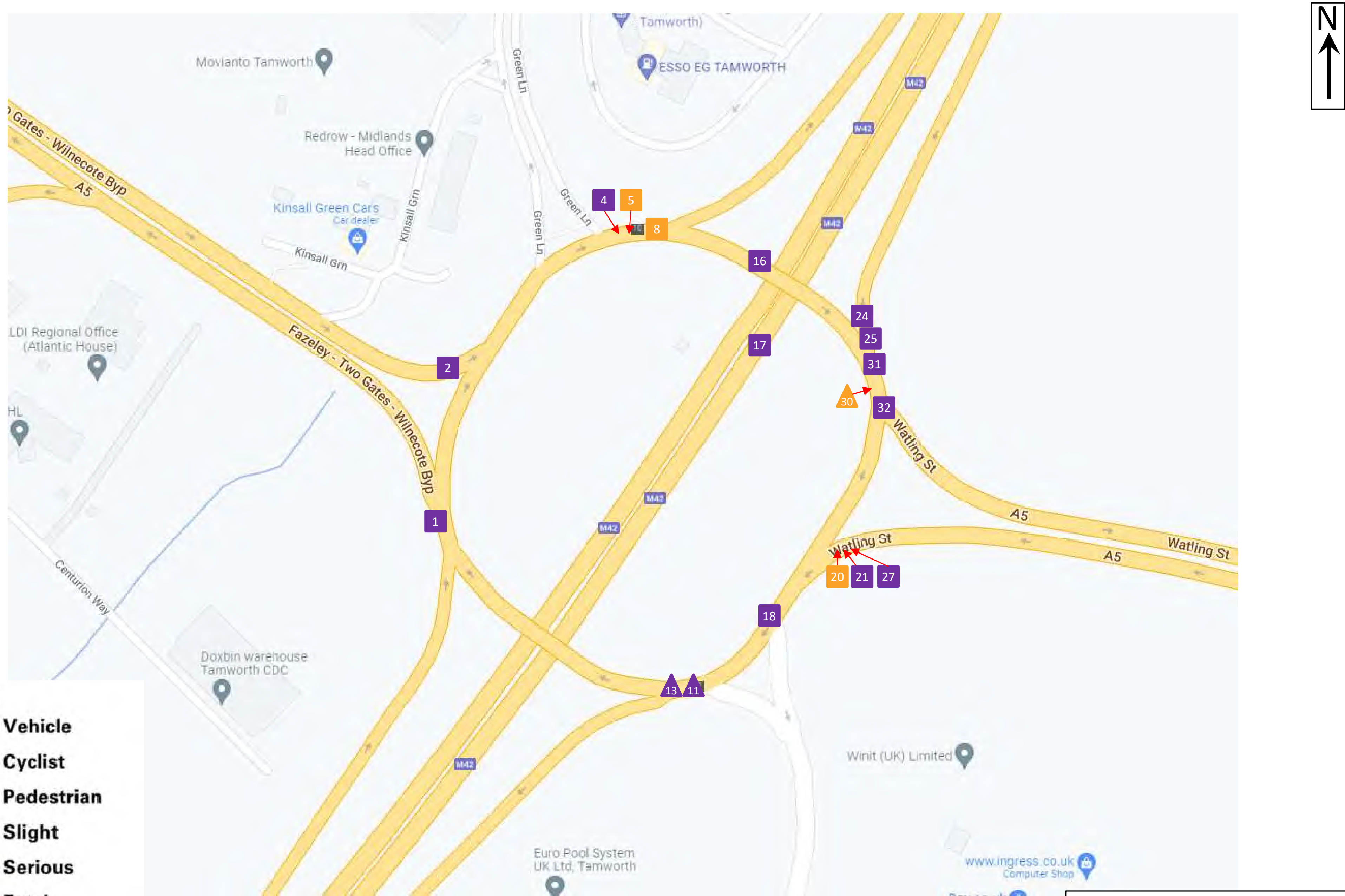
SSD Bonnet Adjusted (SSD+2.4)** **175.24**

* for simplicity, gradient will be given as zero where details of levels are unavailable and observed gradients are deemed to be insignificant in terms of the effect on vehicle braking

** 2.4 metres added to splay to allow for bonnet length of approaching vehicles

VISIBILITY SPLAY CALCULATOR: A5 WATLING STREET, DORDON - WESTBOUND (10:28 TO 11:13)

APPENDIX J ROAD SAFETY DATA



KEY

- = Vehicle
- = Cyclist
- = Pedestrian
- = Slight
- = Serious
- = Fatal

Source: Accident Data from WCC. Only accidents from 1/1/2017 to 31/12/19 extracted from data.

M42 Junction 10, Tamworth	Figure J1
Accident Locations	TETRA TECH

FULL LISTING **Run on: 10/ 11/2022**

AccsMap - Accident Analysis System

Accidents between dates **01/01/2017 and 31/12/2019** (36) months

Selection: **Notes:**

Selected using Manual Selection

Acc. Ref. No: 17143638 **Road:** A 5 **Grid Reference:** 423989 300905
District Council: Tamworth **Time:** 1458 Wednesday 04-January-2017
Lighting: Daylight **Weather:** Fine without high winds **Speed limit:** 70
Severity: SERIOUS **Road surface** Wet/Damp
Location: A5 EB EXIT SLIP TO STONEYDELPH

The accident occured at a T or staggered junction on the A5, a slip road at its junction with the A5 controlled by a give way or uncontrolled..

Special conditions and hazards: None

Vehicle 1 Car, travelling from NW to N was going ahead on a left bend on the main carriageway. The vehicle cleared junction or waiting/parked at junction exit. The female driver aged 18 lived in B77.

Vehicle 2 Car, travelling from N to S was going ahead other on the main carriageway. The vehicle was approaching junction or waiting/parked at jun approach. The female driver aged 84 lived in B77.

Casualty 1 (Vehicle 2) A female driver aged 84 suffered a serious injury.

Contributory Factors

Vehicle 1 Travelling too fast for conditions

Acc. Ref. No: 17149258 **Road:** B 5404 **Grid Reference:** 423866 300840
District Council: Tamworth **Time:** 0645 Monday 16-January-2017
Lighting: Darkness: street lights present and lit **Weather:** Raining without high winds **Speed limit:** 30
Severity: SLIGHT **Road surface** Wet/Damp
Location: A5 R'BT AT JN WITH CENTURION WAY

The accident occured at a roundabout on the B5404, at its junction with the A5 controlled by a give way or uncontrolled..

Special conditions and hazards: None

Vehicle 1 Car, travelling from SE to NW was going ahead other on the main carriageway. The vehicle was entering roundabout. The male driver age lived in CV6.

Vehicle 2 Pedal Cycle, travelling from NE to SW was going ahead other on the main carriageway. The vehicle was mid junction - on roundabout or n road. The male driver aged 33 lived in B77.

Casualty 1 (Vehicle 2) A male rider aged 33 suffered a slight injury.

Contributory Factors

Vehicle 1 Failed to look properly
Vehicle 1 Passing too close to cyclist, horse rider or pedestrian
Vehicle 2 Cyclist wearing dark clothing at night
Vehicle 2 Not displaying lights at night or in poor visibility

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Acc. Ref. No: 17157293 **Road:** A 5 **Grid Reference:** 423990 300869
District Council: Tamworth **Time:** 1230 Thursday 16-February-2017
Lighting: Daylight **Weather:** Fine without high winds **Speed limit:** 60
Severity: SLIGHT **Road surface** Dry
Location: A5 EASTBOUND JUNCTION A5 FROM PENNINE WAY B5080

The accident occured at a T or staggered junction on the A5, a dual carriageway at its junction with the B5080 controlled by a give way or uncontrolled..

Special conditions and hazards: None

Vehicle 1 Car, travelling from NW to SE was going ahead other on the main carriageway. The vehicle was approaching junction or waiting/parked at junction approach. The female driver aged 56 lived in LE9.

Vehicle 2 Car, travelling from NW to SE was stopping on the main carriageway. The vehicle was approaching junction or waiting/parked at junction approach. The male driver aged 34 lived in NG20.

Casualty 1 (Vehicle 2) A male driver aged 34 suffered a slight injury.

Contributory Factors

Vehicle 1 Failed to look properly
Vehicle 1 Failed to judge other persons path or speed
Vehicle 1 Following too close
Vehicle 2 Sudden braking

Accidents between dates **01/01/2017 and 31/12/2019** (36) months

Selection: **Notes:**

Selected using Manual Selection

Acc. Ref. No: 17189916 **Road:** B 5080 **Grid Reference:** 423940 301050
District Council: East Staffordshire **Time:** 1610 Saturday 03-June-2017
Lighting: Daylight **Weather:** Fine without high winds **Speed limit:** 40
Severity: SLIGHT **Road surface** Dry
Location: PENNINE WAY R'BT J/W THOMAS GUY WAY

The accident occured at a roundabout on the B5080, a single carriageway at its junction with the A5 controlled by a give way or uncontrolled..

Special conditions and hazards: None

Vehicle 1 Car, travelling from NW to SE was going ahead other on the main carriageway. The vehicle was entering roundabout. The female driver a 18 lived in B77.
Vehicle 2 Car, travelling from NW to SE was stopping on the main carriageway. The vehicle was entering roundabout. The male driver of an unknov age lived in B9.

Casualty 1 (Vehicle 1) A female driver aged 18 suffered a slight injury.

Acc. Ref. No: 18299447 **Road:** A 5 **Grid Reference:** 423916 300819
District Council: Tamworth **Time:** 1530 Saturday 21-April-2018
Lighting: Daylight **Weather:** Fine without high winds **Speed limit:** 70
Severity: SLIGHT **Road surface** Wet/Damp
Location: THOMAS GUY WAY A5 NB EXIT SLIP BY PREMIER INN

The accident occured on the A5, a slip road.

Special conditions and hazards: None

Vehicle 1 Car, travelling from SE to NW was stopping on the main carriageway. The vehicle was not at, or within 20M of a junction and skidded. The male driver aged 18 lived in BH31.

Casualty 1 (Vehicle 1) A male driver aged 18 suffered a slight injury.

Contributory Factors

Vehicle 1 Poor turn or manoevre
Vehicle 1 Sudden braking
Vehicle 1 Loss of control

Acc. Ref. No: 18322469 **Road:** D 66 **Grid Reference:** 423838 300842
District Council: Tamworth **Time:** 1703 Monday 02-July-2018
Lighting: Daylight **Weather:** Fine without high winds **Speed limit:** 30
Severity: SLIGHT **Road surface** Dry
Location: WATLING ST B5404 JN WITH QUARRY HILL

The accident occured at a roundabout on the D66, a single carriageway at its junction with the B5404 controlled by a give way or uncontrolled.

Special conditions and hazards: None

Vehicle 1 Car, travelling from SW to NE was going ahead other on the main carriageway. The vehicle was approaching junction or waiting/parked at junction approach. The female driver aged 24 lived in NG8.
Vehicle 2 Pedal Cycle, travelling from NW to SE was going ahead other on the main carriageway. The vehicle was entering main road. The female d aged 23.

Casualty 1 (Vehicle 2) A female rider aged 23 suffered a slight injury.
Casualty 2 (Vehicle 1) A female driver aged 24 suffered a slight injury.

Contributory Factors

Vehicle 2 Illegal turn or direction of travel
Vehicle 2 Cyclist entering road from pavement

Accidents between dates **01/01/2017 and 31/12/2019** (36) months

Selection: **Notes:**

Selected using Manual Selection

Acc. Ref. No: 18338615 **Road:** B 5404 **Grid Reference:** 423839 300845
District Council: Tamworth **Time:** 1430 Tuesday 25-September-2018
Lighting: Daylight **Weather:** Fine without high winds **Speed limit:** 30
Severity: SLIGHT **Road surface** Dry
Location: QUARRY HILL B5404 AT JN WITH PENINE WAY

The accident occured at a roundabout on the B5404, at its junction with the B5080 controlled by a give way or uncontrolled..

Special conditions and hazards: None

Vehicle 1 Car, travelling from NE to NW was turning right on the main carriageway. The vehicle was mid junction - on roundabout or main road. The male driver of an unknown age .

Vehicle 2 Car, travelling from NE to NW was stopping on the main carriageway. The vehicle was mid junction - on roundabout or main road. The fem driver aged 24 lived in B77.

Casualty 1 (Vehicle 2) A female driver aged 24 suffered a slight injury.

Contributory Factors

Vehicle 1 Failed to look properly

Acc. Ref. No: 19400169 **Road:** A 5 **Grid Reference:** 424202 300705
District Council: Tamworth **Time:** 2018 Tuesday 28-May-2019
Lighting: Daylight **Weather:** Fine without high winds **Speed limit:** 70
Severity: SLIGHT **Road surface** Dry
Location: THOMAS GUY WAY (A5) APPROX 60MTS NW M42 ISLAND

The accident occured on the A5, a dual carriageway .

Special conditions and hazards: None

Vehicle 1 Motorcycle over 500cc, travelling from SE to NW was going ahead other on the main carriageway. The vehicle was not at, or within 20M of junction. The male driver aged 68 lived in DA2.

Casualty 1 (Vehicle 1) A male rider aged 68 suffered a slight injury.

Contributory Factors

Vehicle 1 Dazzling sun

Acc. Ref. No: 19868172 **Road:** A 5 **Grid Reference:** 424034 300813
District Council: Tamworth **Time:** 2018 Thursday 18-July-2019
Lighting: Daylight **Weather:** Fine without high winds **Speed limit:** 70
Severity: SLIGHT **Road surface** Dry
Location: A5 NB J/W STONEYDELPH EXIT

The accident occured at a T or staggered junction on the A5, a slip road at its junction with the A5 controlled by a give way or uncontrolled..

Special conditions and hazards: None

Vehicle 1 Motorcycle over 500cc, travelling from SE to W was turning left on the main carriageway. The vehicle cleared junction or waiting/parked at junction exit. The male driver aged 44 lived in CV9.

Casualty 1 (Vehicle 1) A male rider aged 44 suffered a slight injury.

Contributory Factors

Vehicle 1 Dazzling sun
Vehicle 1 Swerved

Accidents between dates **01/01/2017 and 31/12/2019** (36) months

Selection: **Notes:**

Selected using Manual Selection

Acc. Ref. No: 19887971 **Road:** A 5 **Grid Reference:** 424220 300718

District Council: Tamworth **Time:** 1202 Saturday 07-September-2019

Lighting: Daylight **Weather:** Fine without high winds **Speed limit:** 70

Severity: SLIGHT **Road surface** Dry

Location: A5 - APPROX 38MTS SE J/W KINSALL GREEN

The accident occured on the A5, a dual carriageway .

Special conditions and hazards: None

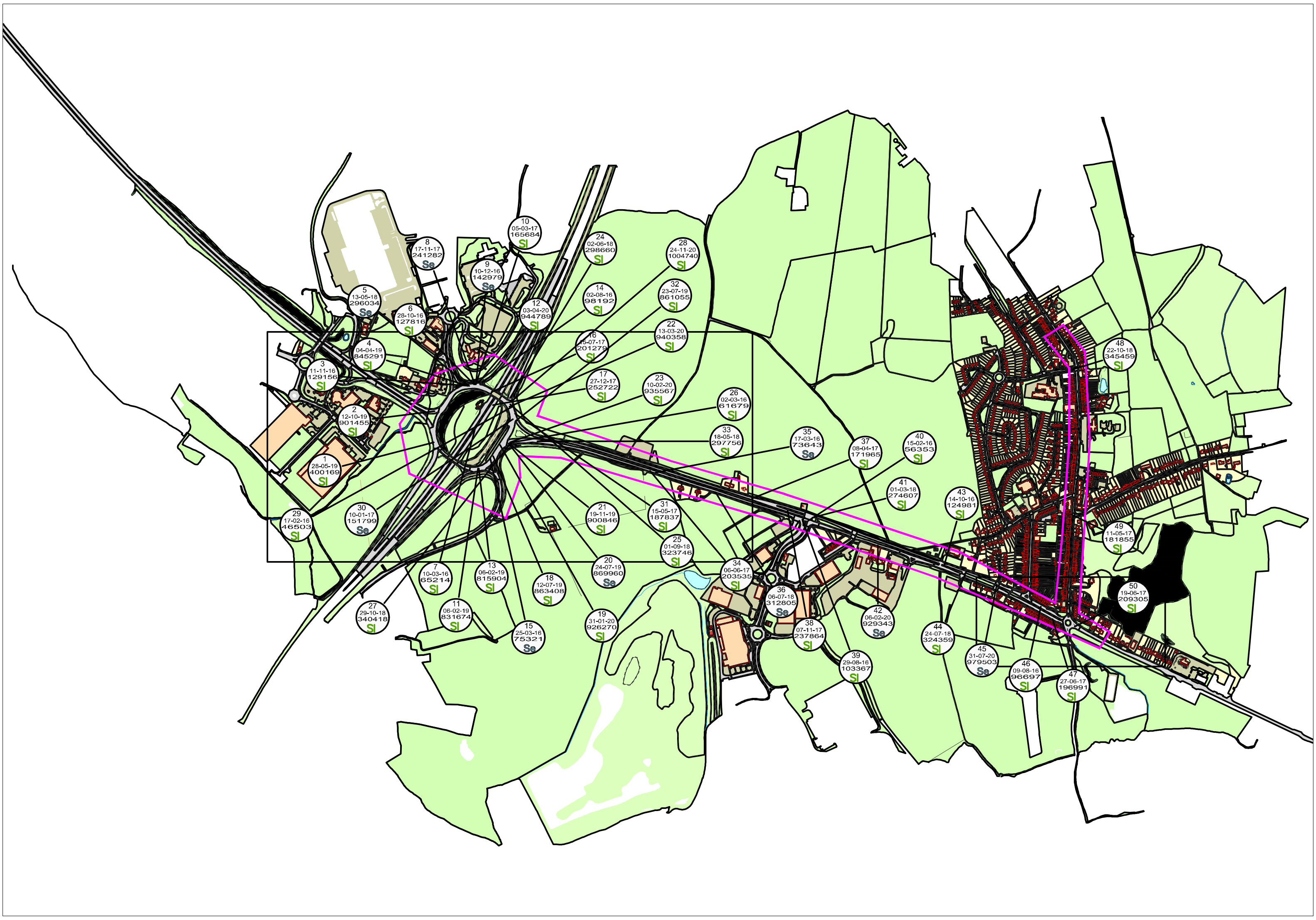
Vehicle 1 Car, travelling from NW to SE was going ahead other on the main carriageway. The vehicle was not at, or within 20M of a junction. The fer driver aged 70 lived in DE13.

Vehicle 2 Car, travelling from NW to SE was going ahead but held up on the main carriageway. The vehicle was not at, or within 20M of a junction. T male driver aged 53 lived in B75.

Casualty 1 (Vehicle 1) A female vehicle or pillion passenger aged 74 suffered a slight injury.

Contributory Factors

Vehicle 1 Following too close
Vehicle 1 Failed to look properly
Vehicle 1 Failed to judge other persons path or speed



1 28-05-19 400169 Sl
2 12-10-19 901455 Sl
3 11-11-16 129156 Sl
4 04-04-19 845291 Sl
5 13-05-18 296034 Se
6 28-10-16 127816 Sl
7 10-03-16 65214 Sl
8 17-11-17 241282 Se
9 10-12-16 142979 Se
10 05-03-17 165684 Sl
11 06-02-19 831674 Sl
12 03-04-20 944789 Sl
13 06-02-19 815904 Sl
14 02-08-16 98192 Sl
15 25-03-16 75321 Se
16 15-07-17 201279 Sl
17 27-12-17 252722 Sl
18 12-07-19 863408 Sl
19 31-01-20 926270 Sl
20 24-07-19 869960 Se
21 19-11-19 900846 Sl
22 13-03-20 940358 Sl
23 10-02-20 935567 Sl
24 02-06-18 298660 Sl
25 01-09-18 323746 Sl
26 02-03-16 61679 Sl
27 29-10-18 340418 Sl
28 24-11-20 1004740 Sl
29 17-02-16 46503 Sl
30 10-01-17 151799 Se
31 15-05-17 187837 Sl
32 23-07-19 861055 Sl
33 18-05-18 297756 Sl
34 06-06-17 203535 Sl
35 17-03-16 73643 Se
36 06-07-18 312805 Se
37 08-04-17 171965 Sl
38 07-11-17 237864 Sl
39 29-08-16 103367 Sl
40 15-02-16 56353 Sl
41 01-03-18 274607 Sl
42 06-02-20 929343 Se
43 14-10-16 124981 Sl
44 24-07-18 324359 Sl
45 31-07-20 979503 Se
46 09-08-16 96697 Sl
47 27-06-17 196991 Sl
48 22-10-18 345459 Sl
49 11-05-17 181855 Sl
50 19-06-17 209305 Sl

ALL ROAD USERS - ACCIDENTS

Year	Fatal	Serious	Slight	Total
2016	0	3	10	13
2017	0	2	10	12
2018	0	2	7	9
2019	0	1	8	9
2020	0	2	5	7

Month	Fatal	Serious	Slight	Total
January	0	1	1	2
February	0	1	5	6
March	0	2	5	7
April	0	0	3	3
May	0	1	4	5
June	0	0	4	4
July	0	3	4	7
August	0	0	3	3
September	0	0	1	1
October	0	0	5	5
November	0	1	4	5
December	0	1	1	2

Day	Fatal	Serious	Slight	Total
Sunday	0	1	1	2
Monday	0	0	7	7
Tuesday	0	1	10	11
Wednesday	0	1	5	6
Thursday	0	2	4	6
Friday	0	4	8	12
Saturday	0	1	5	6

Ped Crossing	Fatal	Serious	Slight	Total
Not at crossing	0	10	39	49
Zebra	0	0	0	0
Pelican	0	0	0	0
Ped Phase	0	0	1	1
Footbridge	0	0	0	0
Refuge	0	0	0	0
Unknown	0	0	0	0

Bends (Veh Totals)	Fatal	Serious	Slight	Total
Left Hand Bend	0	0	3	3
Right Hand Bend	0	0	0	0

Time	Fatal	Serious	Slight	Total
0000-0059	0	0	0	0
0100-0159	0	0	0	0
0200-0259	0	0	0	0
0300-0359	0	0	1	1
0400-0459	0	0	1	1
0500-0559	0	0	1	1
0600-0659	0	1	0	1
0700-0759	0	0	1	1
0800-0859	0	0	2	2
0900-0959	0	0	1	1
1000-1059	0	0	3	3
1100-1159	0	0	1	1
1200-1259	0	1	2	3
1300-1359	0	0	1	1
1400-1459	0	1	4	5
1500-1559	0	3	2	5
1600-1659	0	2	3	5
1700-1759	0	1	7	8
1800-1859	0	1	3	4
1900-1959	0	0	0	0
2000-2059	0	0	1	1
2100-2159	0	0	3	3
2200-2259	0	0	3	3
2300-2359	0	0	0	0

Lighting	Fatal	Serious	Slight	Total
Daylight	0	7	28	35
Darkness	0	3	12	15

Weather	Fatal	Serious	Slight	Total
Fine without high winds	0	10	33	43
Raining without high winds	0	0	4	4
Snowing without high winds	0	0	0	0
Fine with high winds	0	0	0	0
Raining with high winds	0	0	1	1
Snowing with high winds	0	0	0	0
Fog or mist - if hazard	0	0	1	1
Other	0	0	1	1
Unknown	0	0	0	0

Road Surface	Fatal	Serious	Slight	Total
Dry	0	8	25	33
Wet/Damp	0	2	14	16
Snow	0	0	0	0
Frost/Ice	0	0	1	1
Flood	0	0	0	0
Unknown	0	0	0	0

District	Fatal	Serious	Slight	Total
North Warwickshire	0	10	38	48
Tamworth	0	0	2	2

Road Class	Fatal	Serious	Slight	Total
M	0	0	7	7
A(M)	0	0	0	0
A	0	10	31	41
B	0	0	0	0
Other	0	0	2	2

Speed Limit	Fatal	Serious	Slight	Total
20	0	0	0	0
30	0	0	11	11
40	0	1	1	2
50	0	2	14	16
60	0	3	3	6
70	0	4	11	15

Obstruction (Veh Totals)	Fatal	Serious	Slight	Total
Sign/Signal	0	0	0	0
Lamp Post	0	0	0	0
Pole	0	1	0	1
Tree	0	0	0	0
Bus Stop	0	0	0	0
Barrier	0	1	0	1
Other	0	0	0	0

Junction Type	Fatal	Serious	Slight	Total
Not at Junction	0	3	11	14
Roundabout	0	6	23	29
Mini R'about	0	0	1	1
T or Staggered	0	1	3	4
Slip Road	0	0	0	0
Crossroads	0	0	0	0
Multiple Junct	0	0	1	1
Private Drive	0	0	0	0
Other Junction	0	0	1	1
Unknown	0	0	0	0

ALL ROAD USERS - CASUALTIES

Year	Fatal	Serious	Slight	Total
2016	0	3	12	15
2017	0	2	15	17
2018	0	2	12	14
2019	0	1	13	14
2020	0	2	7	9

Month	Fatal	Serious	Slight	Total
January	0	1	1	2
February	0	1	7	8
March	0	2	6	8
April	0	0	4	4
May	0	1	6	7
June	0	0	5	5
July	0	3	9	12
August	0	0	3	3
September	0	0	2	2
October	0	0	8	8
November	0	1	5	6
December	0	1	3	4

Day	Fatal	Serious	Slight	Total
Sunday	0	1	2	3
Monday	0	0	9	9
Tuesday	0	1	11	12
Wednesday	0	1	7	8
Thursday	0	2	5	7
Friday	0	4	13	17
Saturday	0	1	12	13

Ped Crossing	Fatal	Serious	Slight	Total
Not at crossing	0	10	58	68
Zebra	0	0	0	0
Pelican	0	0	0	0
Ped Phase	0	0	1	1
Footbridge	0	0	0	0
Refuge	0	0	0	0
Unknown	0	0	0	0

Bends	Fatal	Serious	Slight	Total
Left Hand Bend	0	0	3	3
Right Hand Bend	0	0	0	0

Casualty Age	Fatal	Serious	Slight	Total
0 - 5	0	0	3	3
6 - 10	0	0	1	1
11 - 16	0	1	0	1
17 - 25	0	1	18	19
26 - 35	0	1	9	10
36 - 45	0	2	10	12
46 - 55	0	3	6	9
56 - 64	0	1	9	10
65+	0	1	3	4
Unknown	0	0	0	0

Time	Fatal	Serious	Slight	Total
0000-0059	0	0	0	0
0100-0159	0	0	0	0
0200-0259	0	0	0	0
0300-0359	0	0	2	2
0400-0459	0	0	1	1
0500-0559	0	0	1	1
0600-0659	0	1	0	1
0700-0759	0	0	1	1
0800-0859	0	0	2	2
0900-0959	0	0	2	2
1000-1059	0	0	3	3
1100-1159	0	0	1	1
1200-1259	0	1	2	3
1300-1359	0	0	3	3
1400-1459	0	1	5	6
1500-1559	0	3	4	7
1600-1659	0	2	5	7
1700-1759	0	1	9	10
1800-1859	0	1	7	8
1900-1959	0	0	0	0
2000-2059	0	0	2	2
2100-2159	0	0	4	4
2200-2259	0	0	5	5
2300-2359	0	0	0	0

Lighting	Fatal	Serious	Slight	Total
Daylight	0	7	43	50
Darkness	0	3	16	19

Weather	Fatal	Serious	Slight	Total
Fine without high winds	0	10	51	61
Raining without high winds	0	0	5	5
Snowing without high winds	0	0	0	0
Fine with high winds	0	0	0	0
Raining with high winds	0	0	1	1
Snowing with high winds	0	0	0	0
Fog or mist - if hazard	0	0	1	1
Other	0	0	1	1
Unknown	0	0	0	0

Road Surface	Fatal	Serious	Slight	Total
Dry	0	8	36	44
Wet/Damp	0	2	22	24
Snow	0	0	0	0
Frost/Ice	0	0	1	1
Flood	0	0	0	0
Unknown	0	0	0	0

District	Fatal	Serious	Slight	Total
North Warwickshire	0	10	57	67
Tamworth	0	0	2	2

Road Class	Fatal	Serious	Slight	Total
M	0	0	10	10
A(M)	0	0	0	0
A	0	10	47	57
B	0	0	0	0
Other	0	0	2	2

Speed Limit	Fatal	Serious	Slight	Total
20	0	0	0	0
30	0	0	16	16
40	0	1	2	3
50	0	2	18	20
60	0	3	6	9
70	0	4	17	21

Obstruction	Fatal	Serious	Slight	Total
Sign/Signal	0	0	0	0
Lamp Post	0	0	0	0
Pole	0	1	1	2
Tree	0	0	0	0
Bus Stop	0	0	0	0
Barrier	0	1	0	1
Other	0	0	0	0

ALL ROAD USERS - CASUALTIES

Junction Type	Fatal	Serious	Slight	Total
Not at Junction	0	3	20	23
Roundabout	0	6	31	37
Mini R'about	0	0	1	1
T or Staggered	0	1	5	6
Slip Road	0	0	0	0
Crossroads	0	0	0	0
Multiple Junct	0	0	1	1
Private Drive	0	0	0	0
Other Junction	0	0	1	1
Unknown	0	0	0	0

D-PRINT CRASH REPORT

1-Mar-2021
13:31:32

No	Location	Severity	Date	Day	Time	Street Lighting	Road Surface	Weather	Pedestrian Direction	Factors	Involved
1	**Road No A5 Section** **Grid Ref 424245E 300619N**	SLIGHT	28/05/2019	3	21:20	L	Dry	Fine		S.VEH	M/C
	A5 NEAR JUNCTION WITH M42								Tamworth		
	Rider of V1 has exited the island from the M42 onto the A5 West bound and the low sun has taken his visibility and has caused him to lose control of the bike, hitting a junction maker sign and this has dislodged him from the bike causing him to slide down the carriageway.						Veh1, m/cycle > 500cc, S -> NW			Casualties 1 Vehicles 1	
2	**Road No A5 Section** **Grid Ref 424247E 300714N**	SLIGHT	12/10/2019	7	18:40	L	Wet/Damp	Fine			
	A5 - 27 METRES FROM JUNCTION WITH WATLING STREET (A5)								North Warwickshire		
	Vehicle 2 was stationary at traffic lights at the M42 island when Vehicle 1 has collided with the rear of Vehicle 2.						Veh1, car, E -> W Veh2, car, E -> W			Casualties 4 Vehicles 2	
3	**Road No A5 Section** **Grid Ref 424346E 300792N**	SLIGHT	11/11/2016	6	14:55	L	Wet/Damp	Fine			
	M42 JCT 10 ROUNDABOUT A5 AT JN WITH NB SLIP ON RD M42								North Warwickshire		
	VEH 2 IN INSIDE LANE. VEH 1 IN OUTSIDE LANE. VEH 1 CUT ACROSS REAR OF VEH 2 HITTING SAME, THEN WENT BACK INTO OUTSIDE LANE AND DROVE OFF.						Veh1, car, W -> E Veh2, car, W -> E			Casualties 1 Vehicles 2	
4	**Road No A5 Section** **Grid Ref 424349E 300791N**	SLIGHT	04/04/2019	5	18:40	L	Wet/Damp	Rain			M/C
	WATLING STREET (A5) NEAR JUNCTION WITH RELAY DRIVE								Tamworth		
	A car changed lanes quickly to avoid traffic which in turned caused the Ford Mondeo [redacted] to brake sharply. This subsequently caused a Honda moped [redacted] to brake sharply collide with the rear of the mondeo. Direction of travel was towards the M42 Southbound junction. 3rd vehicle is unknown.						Veh1, car, S -> NE Veh2, m/cycle 50 - 125cc, S -> NE			Casualties 1 Vehicles 2	

Key

Involved
PED *Pedestrian*
HGV *Heavy Goods Vehicle*
GV *Goods Vehicle*
M/C *Motor Cycle*
P/C *Pedal Cycle*
PSV *Bus/Coach*

Street Lighting
L *Daylight*
STL *Street Lights*
USL *Street LIghts Unlit*
NSL *No Street Lights*
STU *Street Lights Unknown*

FACTORS
+VE *Positive Breath Test*
R.TURN *Right Turn Manoeuvre*
O/TAKE *Overtaking Manoeuvre*
S.VEH *Single Vehicle*

Special Conditions
ATS OUT *Traffic Lights Not Working*
ATS DEF *Traffic Lights Defective*
SIGNS *Road Signs Defective or Obscurred*
RD WRKS *Road Works*
Surface *Road Surface Defective*

D-PRINT CRASH REPORT

1-Mar-2021
13:31:32

No	Location	Severity	Date	Day	Time	Street Lighting	Road Surface	Weather	Pedestrian Direction	Factors	Involved
5	**Road No A5 Grid 424353E** **Section Ref 300791N**	SERIOUS	13/05/2018	1	18:27	L	Dry	Fine			
	WILNECOTE BYPASS ISLAND A5 AT JN WITH GREEN LANE								North Warwickshire		
	VEHICLE 1 AND 2 HAVE TRAVELLED ALONG THE A5 FROM TAMWORTH AND APPROACHED THE M42 ROUNDABOUT. VEHICLE 2 WAS STATIONARY AT THE TRAFFIC LIGHTS WITH SEVERAL CARS BEHIND THEM HOWEVER STALLED WHEN THE LIGHTS TURNED GREEN. VEHICLE 1 HAS CHANGED LANES MOVING TO THE RIGHT HAND SIDE ATTEMPTNG TO GO AROUND THE QUE OF CARS, HOWEVER CUT IN FRONT OF VEHICLE 2 TO TRAVEL DOWN M42 SLIP ROAD CAUSING A COLLISION. VEHICLE 2 WAS TRAVELLING STRAIGHT AHEAD INTENDING TO TAKE THE A5 EXIT.						Veh1, car, NW -> NE Veh2, car, NW -> SE				Casualties 2 Vehicles 2
6	**Road No A5 Grid 424368E** **Section Ref 300796N**	SLIGHT	28/10/2016	6	15:24	L	Dry	Fine			
	JUNCTION 10 ISLAND A5 AT JN WITH M42								North Warwickshire		
	VEH02 WAS TRAVELLING IN THE INSIDE LANE HEADING TOWARDS ATHERSTONE AND AS SHE WAS DRIVING PAST THE JUNCTION/SLIP ROAD OF THE M42 VEH01 HAS DROVE INTO THE SIDE OF VEH02						Veh1, car, SW -> NE Veh2, car, SW -> E				Casualties 1 Vehicles 2
7	**Road No M42 Grid 424370E** **Section Ref 300657N**	SLIGHT	10/03/2016	5	08:17	L	Dry	Fine			
	AT JCT 10 SB M42								North Warwickshire		
	THREE VEHICLE ROAD TRAFFIC COLLISION. VEHICLE 001 HAS COLLIDED INTO THE REAR OF VEHICLE 002 WHICH HAD BEEN SLOWING DUE TO TRAFFIC. VEHICLE 001 HAS PUSHED VEHICLE 002 INTO VEHICLE 003.						Veh1, car, NE -> SW Veh2, car, NE -> SW Veh3, car, NE -> SW				Casualties 1 Vehicles 3

Key

Involved

PED	*Pedestrian*
HGV	*Heavy Goods Vehicle*
GV	*Goods Vehicle*
M/C	*Motor Cycle*
P/C	*Pedal Cycle*
PSV	*Bus/Coach*

Street Lighting

L	*Daylight*
STL	*Street Lights*
USL	*Street Lights Unlit*
NSL	*No Street Lights*
STU	*Street Lights Unknown*

FACTORS

+VE	*Positive Breath Test*
R.TURN	*Right Turn Manoeuvre*
O/TAKE	*Overtaking Manoeuvre*
S.VEH	*Single Vehicle*

Special Conditions

ATS OUT	*Traffic Lights Not Working*
ATS DEF	*Traffic Lights Defective*
SIGNS	*Road Signs Defective or Obscured*
RD WRKS	*Road Works*
Surface	*Road Surface Defective*

D-PRINT CRASH REPORT

1-Mar-2021
13:31:32

No	Location		Severity	Date	Day	Time	Street Lighting	Road Surface	Weather	Pedestrian Direction	Factors	Involved
8	**Road No A5** **Section**	**Grid 424370E** **Ref 300796N**	SERIOUS	17/11/2017	6	15:54	L	Dry	Fine			
	A5 AT JN WITH JUNCTION 10 M42									North Warwickshire		
	FROM INFORMATION AT THE SCENE IT APPEARS VEHICLE 1 HAS BEEN IN LANE 3 AND VEHICLE 2 IN LANE 1 ON TOP OF JUNCTION 10 M42. VEHICLE 1 HAS THEN TRIED TO GO DOWN THE SLIP ROAD ONTO THE M42 AT WHICH POINT IT HAS CAUGHT THE BACK OF VEHICLE 2 CAUSING VEHICLE 2 TO SPINT AND END UP FACING THE WRONG WAY ON THE CARRIAGEWAY. VEHICLE 1 HAS LEFT THE CARRIAGEWAY AND HAS ENDED UP HITTING A LAMP POST CAUSING DAMAGE, THE LAMP POST WAS LATER REMOVED BY HIGHWAYS AGENCY DUE TO BEING UNSAFE DUE TO IT'S LOCATION.							Veh1, car, SW -> NE Veh2, car, N -> S				Casualties 2 Vehicles 2
9	**Road No A5** **Section**	**Grid 424373E** **Ref 300796N**	SERIOUS	10/12/2016	7	15:00	DRK STL	Wet/Damp	Fine			M/C
	WATLING STREET A5 AT JN WITH NB SLIP ON RD M42									North Warwickshire		
	VEH001 AND VEH002 TRAVELLING FROM TAMWORTH HS. VEH001'S ROUTE WAS TOWARDS NOTTINGHAM GOING DOWN SLIP ROAD ONTO M42 NORTH. HE WAS POSITIONED IN 2ND LANE FROM INSIDE. VEH002'S ROUTE WAS TO CONTINUE ON A5 TOWARDS ATHERSTONE, HOWEVER, WAS ON THE INSIDE LANE FROM TAMWORTH. VEH001 CAME ACROSS ONTO 2ND LANE ONTO M42, VEH002 INTENTIONS TO CONTINUE MAKING CONTACT WITH VEH001 HAVING CUT ACROSS HIM.							Veh1, car, W -> E Veh2, m/cycle > 500cc, W -> E				Casualties 1 Vehicles 2

Key

Involved		*Street Lighting*		*FACTORS*		*Special Conditions*	
PED	*Pedestrian*	*L*	*Daylight*	*+VE*	*Positive Breath Test*	*ATS OUT*	*Traffic Lights Not Working*
HGV	*Heavy Goods Vehicle*			*R.TURN*	*Right Turn Manoeuvre*	*ATS DEF*	*Traffic Lights Defective*
GV	*Goods Vehicle*	*STL*	*Street Lights*	*O/TAKE*	*Overtaking Manoeuvre*	*SIGNS*	*Road Signs Defective or Obscurred*
M/C	*Motor Cycle*	*USL*	*Street LIghts Unlit*	*S.VEH*	*Single Vehicle*	*RD WRKS*	*Road Works*
P/C	*Pedal Cycle*	*NSL*	*No Street Lights*			*Surface*	*Road Surface Defective*
PSV	*Bus/Coach*	*STU*	*Street Lights Unknown*				

D-PRINT CRASH REPORT

1-Mar-2021
13:31:32

No	Location		Severity	Date	Day	Time	Street Lighting	Road Surface	Weather	Pedestrian Direction	Factors	Involved
10	**Road No A5 Section**	**Grid 424373E Ref 300796N**	SLIGHT	05/03/2017	1	12:40	L	Dry	Fine		R.TURN	
	TAMWORTH A5 AT JN WITH MOTORWAY SLIP JUNCTION 10 M42									North Warwickshire		
	VEH001 LANE 2 (OF 4 LANES) AROUND AS ISLAND. (M42 J10) VEH001 IS TRAVELLING LANE1. VEH001 CHANGES TO LANE 1 FROM 2 ACROSS THE PATH OF VEH002.VEH001'S F/N/S WING COLLIDES WITH VEH002 CAUSING VEH002 TO CRASH INTO N/S BARRIER.							Veh1, car, W -> NE Veh2, car, W -> SE				Casualties 1 Vehicles 2
11	**Road No A5 Section**	**Grid 424380E Ref 300539N**	SLIGHT	06/02/2019	4	17:50	DRK STU	Dry	Other			GV P/C
	WATLING STREET (A5) NEAR JUNCTION WITH TRINITY ROAD									North Warwickshire		
	IP ON PUSH BIKE TRAVELLING ON A5 WATLING STREET TOWARES JUNCTION 10 M42 SOUTH. IP HAS GONE ACROSS JUCNTION AND HAS BEEN STRUCK BEFORE SLIP ROAD TO M42 BY A WHITE RECOVERY VEHICLE. INJURY TO RIGHT ARM AND LEG, DRIVER STOPPED BY IP DID NOT TAKE ANY DETAIL AS WAS IN SHOCK. NO VRM OR MAKE OR MODEL OR DRIVER DETAILS AVAILABLE.							Veh1, goods < 3.5t, NE -> W Veh2, pedal cycle, NE -> W				Casualties 1 Vehicles 2
12	**Road No M42 Section**	**Grid 424381E Ref 300800N**	SLIGHT	03/04/2020	6	07:35	L	Dry	Fine			HGV GV
	M42 NB JCT 10 SLIP ROAD JUNCTION WITH A5 ISLAND									North Warwickshire		
	V001 HAS BEEN DRIVING ON THE INSIDE LANE OF THE M42 JUNCTION 10 ROUNDABOUT. V001 HAS COLLIDED WITH V002 ON ATTEMPTING TO EXIT THE SLIP ROAD JUNCTION 10 N/B.							Veh1, goods < 3.5t, SW -> NE Veh2, goods > 7.5t, SW -> NE				Casualties 1 Vehicles 2

Key

Involved		*Street Lighting*		*FACTORS*		*Special Conditions*	
PED	*Pedestrian*	*L*	*Daylight*	*+VE*	*Positive Breath Test*	*ATS OUT*	*Traffic Lights Not Working*
HGV	*Heavy Goods Vehicle*			*R.TURN*	*Right Turn Manoeuvre*	*ATS DEF*	*Traffic Lights Defective*
GV	*Goods Vehicle*	*STL*	*Street Lights*	*O/TAKE*	*Overtaking Manoeuvre*	*SIGNS*	*Road Signs Defective or Obscurred*
M/C	*Motor Cycle*	*USL*	*Street LIghts Unlit*	*S.VEH*	*Single Vehicle*	*RD WRKS*	*Road Works*
P/C	*Pedal Cycle*	*NSL*	*No Street Lights*			*Surface*	*Road Surface Defective*
PSV	*Bus/Coach*	*STU*	*Street Lights Unknown*				

D-PRINT CRASH REPORT

1-Mar-2021
13:31:32

No	Location	Severity	Date	Day	Time	Street Lighting	Road Surface	Weather	Pedestrian Direction	Factors	Involved
13	**Road No A5** **Grid 424382E** **Section** **Ref 300539N**	SLIGHT	06/02/2019	4	18:00	DRK STL	Wet/Damp	Fine			P/C
	WATLING STREET (A5) AT JUNCTION WITH TRINITY ROAD								North Warwickshire		
	VEHICLE 2 WAS CYCLING AROUND THE ROUNDABOUT WHEN VEHICLE 1 HAS CUT HIM UP AND BUMPED HIS ARM.					Veh1, goods unknown weight, SE -> SW Veh2, pedal cycle, E -> W				Casualties 1 Vehicles 2	
14	**Road No M42** **Grid 424392E** **Section** **Ref 300802N**	SLIGHT	02/08/2016	3	22:00	DRK STL	Dry	Fine			
	SLIP ROAD JCT 10 TAMWORTH M42 A5								North Warwickshire		
	THE CALLER WAS DRIVING HER VEHICLE A FOCUS WP12LCY ON TO THE M42 AT JUNCTION 10. THERE ARE TWO LEFT LANES. THE 1P IN THE RIGHT LANE AND THE OFFENDING VEHICLE A TNT ARTICULATED LORRY WAS IN THE LEFT AS THE VEHICLES HAVE ENTERED THE SLIP ROAD THE LORRY HAS DRIFTED ACROSS INTO THE 1P'S LANE HITTING THE REAR LEFT SIDE OF THE VEHICLE KNOCKING IT SIDEWAYS INTO A BARRIER.					Veh1, car, SW -> NE Veh2, goods unknown weight, SW -> NE				Casualties 1 Vehicles 2	
15	**Road No A5** **Grid 424417E** **Section** **Ref 300571N**	SERIOUS	25/03/2016	6	12:20	L	Dry	Fine		S.VEH	HGV
	TRAFFIC ISLAND M42 JUNC 10 A5 AT JN WITH TRINITY RD KINGSBURY								North Warwickshire		
	VEH01 TRAVELLING ONTO ROUNDABOUT FROM TRINITY ROAD ACCESSES ROUNDABOUT FROM LANE 3 INTO LANE 3. VEH01 CARRYING 23 TONNES STEEL LEAVES CARRIAGEWAY OFFSIDE AND JACKKNIVES ONTO CENTRAL BARRIER. POSSIBLE SHIFT IN LOAD WITH MOMENTUM HAS TOPPLED VEHICLE OVER					Veh1, goods > 7.5t, N -> SW				Casualties 1 Vehicles 1	

Key

Involved		*Street Lighting*		*FACTORS*		*Special Conditions*	
PED	*Pedestrian*	*L*	*Daylight*	*+VE*	*Positive Breath Test*	*ATS OUT*	*Traffic Lights Not Working*
HGV	*Heavy Goods Vehicle*			*R.TURN*	*Right Turn Manoeuvre*	*ATS DEF*	*Traffic Lights Defective*
GV	*Goods Vehicle*	*STL*	*Street Lights*	*O/TAKE*	*Overtaking Manoeuvre*	*SIGNS*	*Road Signs Defective or Obscurred*
M/C	*Motor Cycle*	*USL*	*Street LIghts Unlit*	*S.VEH*	*Single Vehicle*	*RD WRKS*	*Road Works*
P/C	*Pedal Cycle*	*NSL*	*No Street Lights*			*Surface*	*Road Surface Defective*
PSV	*Bus/Coach*	*STU*	*Street Lights Unknown*				

D-PRINT CRASH REPORT

No	Location	Severity	Date	Day	Time	Street Lighting	Road Surface	Weather	Pedestrian Direction	Factors	Involved
16	**Road No A5 Grid 424421E** **Section Ref 300773N**	SLIGHT	15/07/2017	7	17:14	L	Dry	Fine			
	WATLING STREET A5 AT JN WITH M42								North Warwickshire		
	VEHICLE 1 AND VEHICLE 2 TRAVELLING ON A5 TOWARDS DORDON. WHILST NEGOTIATING ROUNDABOUT AT JUNCTION 10 M42, VEHICLE 1 HAS DRIVEN FROM 3RD LANE INTO OFFSIDE OF VEHICLE 2 TRAVELLING IN 2ND LANE CAUSING VEHICLE 2 TO MOVE INTO LANE 3. VEHICLES HAVE STOPPED IN LAYBY JUST OFF ROUNDABOUT.						Veh1, car, NW -> SE Veh2, car, NW -> SE				Casualties 2 Vehicles 2
17	**Road No M42 Grid 424425E** **Section Ref 300733N**	SLIGHT	27/12/2017	4	13:33	L	Wet/Damp	Fine			
	SB JCTS 10-9 M42 NEAR JN WITH JNCT 10 EXIT A5								North Warwickshire		
	V1 FAILS TO SEE STATIONARY TRAFFIC AHEAD AND COLLIDES WITH V2.THIS SPINS V1 INTO V3 AND THEN V4. DRIVER THEN GETS OUT OF V1 TO CHECK DAMAGE THEN MAKES OFF FROM SCENE.V1 EVENTUALLY BREAKS DOWN AT JCT 9 AND MAKES OFF ON FOOT.V1 WAS REPORTED STOLEN LATER THAT DAY						Veh1, car, NE -> SW Veh2, car, NE -> SW Veh3, car, NE -> SW Veh4, car, NE -> SW				Casualties 3 Vehicles 4
18	**Road No A5 Grid 424426E** **Section Ref 300577N**	SLIGHT	12/07/2019	6	03:29	DRK STL	Wet/Damp	Rain			HGV
	A5 WATLING ST ISLAND DORDON J/W M42 JCT 10								North Warwickshire		
	It appears that vehicle02 has been driving in lane 1 of the M42 Junction 10 Island towards M42 (SW) slip when Vehicle01 has merged into lane 1 from lane 2 without noticing Vehicle02 and has collided into the o/s of Vehicle02 with its n/s. Vehicle01 has then only noticed it has been in a collision when stopped, suggesting the drive drove without due care and attention.						Veh1, goods 3.5 - 7.5t, NE -> SW Veh2, car, NE -> SW				Casualties 2 Vehicles 2

Key

Involved		*Street Lighting*		*FACTORS*		*Special Conditions*	
PED	*Pedestrian*	*L*	*Daylight*	*+VE*	*Positive Breath Test*	*ATS OUT*	*Traffic Lights Not Working*
HGV	*Heavy Goods Vehicle*			*R.TURN*	*Right Turn Manoeuvre*	*ATS DEF*	*Traffic Lights Defective*
GV	*Goods Vehicle*	*STL*	*Street Lights*	*O/TAKE*	*Overtaking Manoeuvre*	*SIGNS*	*Road Signs Defective or Obscurred*
M/C	*Motor Cycle*	*USL*	*Street LIghts Unlit*	*S.VEH*	*Single Vehicle*	*RD WRKS*	*Road Works*
P/C	*Pedal Cycle*	*NSL*	*No Street Lights*			*Surface*	*Road Surface Defective*
PSV	*Bus/Coach*	*STU*	*Street Lights Unknown*				

D-PRINT CRASH REPORT

No	Location	Severity	Date	Day	Time	Street Lighting	Road Surface	Weather	Pedestrian Direction	Factors	Involved
19	Road No A5 Grid 424447E Section Ref 300611N	SLIGHT	31/01/2020	6	17:00	DRK STL	Dry	Fine			HGV
	A5 DORDON ISLAND J/W M42 JCT 10								North Warwickshire		
	V001 WAS TRAVELLING AROUND THE ISLAND IN LANE TO GO TOWARDS THE A5. V002 WAS IN THE MIDDLE LANE TRAVELLING TOWARDS KINGSBURY. V001 HAS COME ACROSS INTO THE LANE OF V002, CLIPPING THE LEFT HAND SIDE OF V002.					Veh1, goods > 7.5t, NE -> SW Veh2, car, NE -> SW					Casualties 1 Vehicles 2
20	Road No A5 Grid 424473E Section Ref 300616N	SERIOUS	24/07/2019	4	16:45	L	Dry	Fine			M/C
	WATLING STREET (A5) J/W M42 JCT 10 ISLAND								North Warwickshire		
	AT APPROXIMATELY 16:45 HRS ON 24.07.2019 RIDER OF VEH 002 HAS BEEN TRAVELLING ON THE A5, M42 ISLAND HEADING WEST, COMING FROM THE DIRECTION OF HINCKLEY, GOING TOWARDS TAMWORTH. RIDER OF VEH 002 HAS BEEN FILTERING BETWEEN LANES 3 AND 4 AT THE ISLAND ON THE APPROACH TO THE JUNCTION. THE RAFFIC LIGHTS WERE NOT WORKING WITH SIGNS DISPLAYING THIS - RIDER OF VEH 002 WAS AWARE OF THE BORKEN LIGHTS. WHILST WAITING TO PULL OUT OF THE JUNCTION, VEH 002 HAS BEEN HIT FROM BEHIND, CAUSING HIM TO FALL OFF HIS BIKE ON TO THIS LEFT SHOULDER CAUSING INJURY - HUMERAL FRACTURE.					Veh1, car, E -> W Veh2, m/cycle > 500cc, E -> W					Casualties 1 Vehicles 2
21	Road No A5 Grid 424475E Section Ref 300615N	SLIGHT	19/11/2019	3	11:47	L	Wet/Damp	Fine			GV
	WATLING STREET (A5) JW A5 M42 JCT 10 TRAFFIC ISLAND								North Warwickshire		
	Veh 2 struck veh 1 from behind whilst stationary at traffic lights on A5 dordon tamworth.					Veh1, car, E -> W Veh2, goods < 3.5t, E -> W					Casualties 1 Vehicles 2

Key

Involved		*Street Lighting*		*FACTORS*		*Special Conditions*	
PED	*Pedestrian*	*L*	*Daylight*	*+VE*	*Positive Breath Test*	*ATS OUT*	*Traffic Lights Not Working*
HGV	*Heavy Goods Vehicle*			*R.TURN*	*Right Turn Manoeuvre*	*ATS DEF*	*Traffic Lights Defective*
GV	*Goods Vehicle*	*STL*	*Street Lights*	*O/TAKE*	*Overtaking Manoeuvre*	*SIGNS*	*Road Signs Defective or Obscured*
M/C	*Motor Cycle*	*USL*	*Street LIghts Unlit*	*S.VEH*	*Single Vehicle*	*RD WRKS*	*Road Works*
P/C	*Pedal Cycle*	*NSL*	*No Street Lights*			*Surface*	*Road Surface Defective*
PSV	*Bus/Coach*	*STU*	*Street Lights Unknown*				

D-PRINT CRASH REPORT

No	Location	Severity	Date	Day	Time	Street Lighting	Road Surface	Weather	Pedestrian Direction	Factors	Involved
22	**Road No A5 Section** **Grid Ref 424476E 300728N**	SLIGHT	13/03/2020	6	10:45	L	Dry	Fine			
	A5 NEAR JUNCTION WITH M42								North Warwickshire		
	VEH 002 WAS DRIVING AROUND THE ROUNDABOUT BUT TRAFFIC HAD BUILT UP SO HAD TO MAKE A FEW STOPS JUST BEFORE GETTING OFF THE ROUNDABOUT, VEH 002 WAS STOPPED BY TRAFFIC AND VEH 001 BEHIND DID NOT NOTICE THAT VEH 002 HAD STOPPED AND WENT INTO THE BACK OF VEH 002.						Veh1, car, NW -> S Veh2, car, NW -> S				Casualties 1 Vehicles 2
23	**Road No A5 Section** **Grid Ref 424477E 300619N**	SLIGHT	10/02/2020	2	21:25	DRK STL	Wet/Damp	Fine			HGV
	WATLING STREET (A5) J/W M42 JCT 10 DORDON								North Warwickshire		
	VEH 001 APPROACHED THE LIGHTS FROM THE A5 TOWARDS KINGSBURY ISLE. THIS VEHICLE HAS THEN PULLED OFF AND HAS COLLIDED WITH VEH 002 ON THE LEFT HAND SIDE CAUSING IT TO SPIN. THIS HAS DAMAGED BOTH VEHICLES 1 AND 2.						Veh1, goods > 7.5t, E -> W Veh2, car, E -> W				Casualties 2 Vehicles 2
24	**Road No M42 Section** **Grid Ref 424477E 300754N**	SLIGHT	02/06/2018	7	16:55	L	Dry	Fine			
	JUNCTION 10 OFFSLIP M42 AT JN WITH A5								North Warwickshire		
	V2 WAS STATIONARY AT RED ATS AT END OF OFF SLIP WAITING TO JOIN ROUNDABOUT. V1 HAS FAILED TO SEE V2 STATIONARY AND HAS REACTED TOO LATE COLLIDING WITH REAR OF V2.						Veh1, car, NE -> SW Veh2, car, NE -> SW				Casualties 2 Vehicles 2

Key

Involved		*Street Lighting*		*FACTORS*		*Special Conditions*	
PED	*Pedestrian*	*L*	*Daylight*	*+VE*	*Positive Breath Test*	*ATS OUT*	*Traffic Lights Not Working*
HGV	*Heavy Goods Vehicle*			*R.TURN*	*Right Turn Manoeuvre*	*ATS DEF*	*Traffic Lights Defective*
GV	*Goods Vehicle*	*STL*	*Street Lights*	*O/TAKE*	*Overtaking Manoeuvre*	*SIGNS*	*Road Signs Defective or Obscurred*
M/C	*Motor Cycle*	*USL*	*Street LIghts Unlit*	*S.VEH*	*Single Vehicle*	*RD WRKS*	*Road Works*
P/C	*Pedal Cycle*	*NSL*	*No Street Lights*			*Surface*	*Road Surface Defective*
PSV	*Bus/Coach*	*STU*	*Street Lights Unknown*				

D-PRINT CRASH REPORT

1-Mar-2021
13:31:32

No	Location		Severity	Date	Day	Time	Street Lighting	Road Surface	Weather	Pedestrian Direction	Factors	Involved
25	**Road No A5** **Section**	**Grid 424478E** **Ref 300735N**	SLIGHT	01/09/2018	7	09:30	L	Dry	Fine			
	TAMWORTH ISLAND A5 AT JN WITH JCT 10 SLIP OFF M42									North Warwickshire		
	Ambo are travelling around the roundabout on blue with sirens activated. V1 & V2 travelling onto the roundabout from M42 south, V2 has slowed to allow ambo to pass and V1 has bumped into the rear							Veh1, car, NE -> NW Veh2, car, NE -> NW Veh3, , NW -> SE				Casualties 2 Vehicles 3
26	**Road No A5** **Section**	**Grid 424480E** **Ref 300618N**	SLIGHT	02/03/2016	4	08:55	L	Wet/Damp	Rain			
	WATLING STREET A5 AT JN WITH M42									North Warwickshire		
	PERSON REPORTING WAS STATIONARY AT TRAFFIC LIGHTS OF J10. M42 WHILST STATIONARY HAS FELT IMPACT FROM VEHICLE BEHIND. PERSON REPORTING HAS ALIGHTED FROM VEHICLE AS HAS VEHICLE NO 2 DRIVER.							Veh1, car, SE -> W Veh2, car, SE -> NW				Casualties 1 Vehicles 2
27	**Road No A5** **Section**	**Grid 424482E** **Ref 300620N**	SLIGHT	29/10/2018	2	15:30	L	Wet/Damp	Fine			
										North Warwickshire		
	VEHICLE 2 STATIONARY IN TRAFFIC QUEUE. VEHICLE 1 APPROACHED FROM BEHIND AND HIT VEHICLE 2. DRIVER OF VEHICLE 1 REFUSED TO EXCHANGE DETAILS.							Veh1, goods unknown weight, E -> W Veh2, car, E -> W				Casualties 1 Vehicles 2

Key

Involved		*Street Lighting*		*FACTORS*		*Special Conditions*	
PED	*Pedestrian*	*L*	*Daylight*	*+VE*	*Positive Breath Test*	*ATS OUT*	*Traffic Lights Not Working*
HGV	*Heavy Goods Vehicle*			*R.TURN*	*Right Turn Manoeuvre*	*ATS DEF*	*Traffic Lights Defective*
GV	*Goods Vehicle*	*STL*	*Street Lights*	*O/TAKE*	*Overtaking Manoeuvre*	*SIGNS*	*Road Signs Defective or Obscurred*
M/C	*Motor Cycle*	*USL*	*Street LIghts Unlit*	*S.VEH*	*Single Vehicle*	*RD WRKS*	*Road Works*
P/C	*Pedal Cycle*	*NSL*	*No Street Lights*			*Surface*	*Road Surface Defective*
PSV	*Bus/Coach*	*STU*	*Street Lights Unknown*				

D-PRINT CRASH REPORT

No	Location		Severity	Date	Day	Time	Street Lighting	Road Surface	Weather	Pedestrian Direction	Factors	Involved
28	**Road No M42** **Section**	**Grid 424482E** **Ref 300744N**	SLIGHT	24/11/2020	3	04:32	DRK STL	Dry	Fine			HGV
	M42 J10 EXIT SLIP AT JUNCTION WITH A5, DORDON TAMWORTH									North Warwickshire		
	IN THE MORNING 24/11/2020 I WAS DRIVING TO WORK. ON MENTIONED LOCATION I WAS IN LEFT FILE LEAVING M42 ROUNDABOUT TOA5 SOUTH WHEN OTHER DRIVER (MERCEDES) DRIVING IN RIGHT FILE SUDDENLY CHANGED HIS FILE FROM RIGHT TO LEFT WITH VERY SHORT NOTICE OF SIGNALS AS I WAS AT THE SAME LEVEL. I'VE TRIED TO STOP AS SOON AS POSSIBLE BUT I COULDN'T AVOID COLLISION AND OTHER DRIVER HIT ME TO RIGHT DRIVER'S SIDE AND KEPT DRIVING FOR NEXT CCA50 METERS.							Veh1, goods > 7.5t, NE -> SE Veh2, car, NE -> SE				Casualties 1 Vehicles 2
29	**Road No M42** **Section**	**Grid 424485E** **Ref 300728N**	SLIGHT	17/02/2016	4	10:12	L	Wet/Damp	Rain Wind			
	ISLAND AT JUNCTION 10 M42 AT JN WITH SLIP ROAD LEADING TO A5 A5									North Warwickshire		
	V1 and V2 travelling around the island on the M42. V1 & V2 collided as V1 began to turn towards the slip road A5 leading to Atherstone. Both parties stopped & exchanged details. Passenger of V1 complained of pains in his neck.							Veh1, car, NE -> S Veh2, goods unknown weight, NE -> S				Casualties 1 Vehicles 2
30	**Road No A5** **Section**	**Grid 424486E** **Ref 300690N**	SERIOUS	10/01/2017	3	06:25	DRK STL	Wet/Damp	Fine			P/C
	JUNCTION 10 M42, ISLAND A5 AT JN WITH A5									North Warwickshire		
	AS CALLER HAS ENTERED THE ISLAND ON J10, M42S ON PEDAL CYCLE A LORRY HAS MOVED INTO THE INSIDE LANE OF THE ISLAND AND THEN CUT BACK INTO THE MIDDLE LANE COLLIDING WITH CALLER CAUSING HIM TO COME OFF HIS PEDAL CYCLE WHERE HAS SUSTAINED AN OPEN WOUND TO HIS LEFT ELBOW AND DEEP GRAZES TO BOTH KNEES AND LEFT HIP. CYCLE IS DAMAGED AND CLOTHING TORN.							Veh1, goods unknown weight, N -> S Veh2, pedal cycle, N -> S				Casualties 1 Vehicles 2

Key

Involved		*Street Lighting*		*FACTORS*		*Special Conditions*	
PED	*Pedestrian*	*L*	*Daylight*	*+VE*	*Positive Breath Test*	*ATS OUT*	*Traffic Lights Not Working*
HGV	*Heavy Goods Vehicle*			*R.TURN*	*Right Turn Manoeuvre*	*ATS DEF*	*Traffic Lights Defective*
GV	*Goods Vehicle*	*STL*	*Street Lights*	*O/TAKE*	*Overtaking Manoeuvre*	*SIGNS*	*Road Signs Defective or Obscurred*
M/C	*Motor Cycle*	*USL*	*Street LIghts Unlit*	*S.VEH*	*Single Vehicle*	*RD WRKS*	*Road Works*
P/C	*Pedal Cycle*	*NSL*	*No Street Lights*			*Surface*	*Road Surface Defective*
PSV	*Bus/Coach*	*STU*	*Street Lights Unknown*				

D-PRINT CRASH REPORT

No	Location		Severity	Date	Day	Time	Street Lighting	Road Surface	Weather	Pedestrian Direction	Factors	Involved
31	**Road No A5** **Section**	**Grid 424493E** **Ref 300707N**	SLIGHT	15/05/2017	2	17:41	L	Dry	Fine			
	A5 AT JN WITH M42									North Warwickshire		
	VEHICLE 1 AND VEHICLE 2 WERE TRAVELLING AROUND THE M42 ISLAND. VEHICLE 1 HAS COLLIDED WITH THE FRONT DRIVERS SIDE OF VEHICLE 2. VEHICLE 2 WAS IN THE FAR LEFT LANE.							Veh1, car, NW -> SE Veh2, car, NW -> SE				Casualties 1 Vehicles 2
32	**Road No A5** **Section**	**Grid 424495E** **Ref 300685N**	SLIGHT	23/07/2019	3	20:15	L	Dry	Fine			M/C
	A5 NEAR JUNCTION WITH UNCLASSIFIED ROAD									North Warwickshire		
	THIS IS A 2 VEHICLE SLIGHT INJURY RTC WHERE BOTH VEHICLES ARE MOTORCYCLES. TRAVELLING IN THE SAME LANE, TAKING THE SAME EXIT. AS THEY HAVE TAKEN THE EXIT OFF OF THE TRAFFIC ISLAND, THEY HAVE HAD CONTACT CAUSING BOTH RIDERS TO FALL FROM THEIR MACHINES.							Veh1, m/cycle > 500cc, NW -> E Veh2, m/cycle > 500cc, NW -> E				Casualties 2 Vehicles 2
33	**Road No A5** **Section**	**Grid 424561E** **Ref 300622N**	SLIGHT	18/05/2018	6	22:40	DRK STL	Dry	Fine			
	A5 NEAR JN WITH JCT 10 ISLAND M42									North Warwickshire		
	VEHICLE 1 AND VEHICLE 2 WERE TRAVELLING ALONG A5 FROM ATHERSTONE TOWARDS TAMWORTH WHEN VEHICLE 1 HAS DRIVEN INTO THE REAR OF VEHICLE 2 CAUSING MINOR DAMAGE AND SLIGHT INJURY TO THE OCCUPANTS OF VEHICLE 2. VEHICLE 1 LEFT THE SCENE.COLLISION OCCURED ON THE WARWICKSHIRE FORCE AREA. PLEASE SEN TO THEM FOR RECORDING. THERE ARE NO WITNESSES AND NO CCTV. INFORMANT ADVISED THAT THIS MATTER WILL BE FILED.							Veh1, car, E -> W Veh2, car, E -> W				Casualties 2 Vehicles 2

Key

Involved		*Street Lighting*		*FACTORS*		*Special Conditions*	
PED	*Pedestrian*	*L*	*Daylight*	*+VE*	*Positive Breath Test*	*ATS OUT*	*Traffic Lights Not Working*
HGV	*Heavy Goods Vehicle*			*R.TURN*	*Right Turn Manoeuvre*	*ATS DEF*	*Traffic Lights Defective*
GV	*Goods Vehicle*	*STL*	*Street Lights*	*O/TAKE*	*Overtaking Manoeuvre*	*SIGNS*	*Road Signs Defective or Obscurred*
M/C	*Motor Cycle*	*USL*	*Street LIghts Unlit*	*S.VEH*	*Single Vehicle*	*RD WRKS*	*Road Works*
P/C	*Pedal Cycle*	*NSL*	*No Street Lights*			*Surface*	*Road Surface Defective*
PSV	*Bus/Coach*	*STU*	*Street Lights Unknown*				

D-PRINT CRASH REPORT

1-Mar-2021
13:31:32

No	Location	Severity	Date	Day	Time	Street Lighting	Road Surface	Weather	Pedestrian Direction	Factors	Involved
34	**Road No A5 Grid 424905E** **Section Ref 300532N**	SLIGHT	06/06/2017	3	17:44	L	Wet/Damp	Fine			
	WATLING STREET A5 NEAR JN WITH M42 ISLAND								North Warwickshire		
	V01 HAS HIT THE REAR OF V02. V02 WAS STATIONARY IN TRAFFIC JUST BEFORE THE ISLAND FOR THE M42 JUNCTION.						Veh1, car, E -> W Veh2, car, E -> W				Casualties 1 Vehicles 2
35	**Road No A5 Grid 424921E** **Section Ref 300526N**	SERIOUS	17/03/2016	5	14:40	L	Dry	Fine			
	DORDON A5 NEAR JN WITH NR BIRCH COPPICE INDUSTRIAL ESTATE								North Warwickshire		
	VEH01 HAD BEEN TRAVELLING ALONG THE A5 FROM BIRCH COPPICE INDUSTRIAL ESTATE TOWARDS JUNCTION OF THE M42. VEH02 HAS BRAKED HEAVILY IN FRONT OF VEH01 CAUSING VEH01 TO COLLIDE WITH THE REAR OF VEH02. VEH03 HAS THEN COLLIDED WITH THE REAR OF VEH01 CAUSING VEH01 TO MOUNT THE CENTRAL CRASH BARRIER. VEH04 HAS THEN COLLIDED WITH THE REAR OF VEH03 EXTENSIVE DAMAGE CAUSED TO VEH01 & VEH03						Veh1, car, E -> W Veh2, car, E -> W Veh3, car, E -> W Veh4, car, E -> W				Casualties 2 Vehicles 4
36	**Road No A5 Grid 425105E** **Section Ref 300467N**	SERIOUS	06/07/2018	6	15:37	L	Dry	Fine			
	DORDON A5 NEAR JN WITH JUNCTION 10 M42								North Warwickshire		
	V1 has been in the outside lane of a two lane stretch of the A5. V2 has been in lane 1. V1 has then tried to merge into lane 1 and has not seen V2 and has hit V2 causing extensive damage.						Veh1, goods unknown weight, E -> W Veh2, car, E -> W				Casualties 2 Vehicles 2

Key

Involved		*Street Lighting*		*FACTORS*		*Special Conditions*	
PED	*Pedestrian*	*L*	*Daylight*	*+VE*	*Positive Breath Test*	*ATS OUT*	*Traffic Lights Not Working*
HGV	*Heavy Goods Vehicle*			*R.TURN*	*Right Turn Manoeuvre*	*ATS DEF*	*Traffic Lights Defective*
GV	*Goods Vehicle*	*STL*	*Street Lights*	*O/TAKE*	*Overtaking Manoeuvre*	*SIGNS*	*Road Signs Defective or Obscurred*
M/C	*Motor Cycle*	*USL*	*Street LIghts Unlit*	*S.VEH*	*Single Vehicle*	*RD WRKS*	*Road Works*
P/C	*Pedal Cycle*	*NSL*	*No Street Lights*			*Surface*	*Road Surface Defective*
PSV	*Bus/Coach*	*STU*	*Street Lights Unknown*				

D-PRINT CRASH REPORT

1-Mar-2021
13:31:32

No	Location		Severity	Date	Day	Time	Street Lighting	Road Surface	Weather	Pedestrian Direction	Factors	Involved
37	**Road No A5 Section**	**Grid Ref 425216E 300447N**	SLIGHT	08/04/2017	7	17:40	L	Dry	Fine			
	O/S HALL END HOUSE DORDON A5									North Warwickshire		
	VEHICLE 1 FAILED TO OBSERVE VEHICLE 2 BRAKING AND HIT VEHICLE FROM BEHIND. MINOR INJURIES CAUSED TO CASUALTIES. EXTENSIVE DAMAGE TO VEHICLE.							Veh1, car, W -> E Veh2, car, W -> E				Casualties 2 Vehicles 2
38	**Road No A5 Section**	**Grid Ref 425325E 300410N**	SLIGHT	07/11/2017	3	17:15	DRK STL	Wet/Damp	Rain		O/TAKE	M/C
	A5 AT JN WITH BIRCH COPPICE INDUSTRIAL ESTATE									North Warwickshire		
	VEHICLE 2 WAS TRAVELLING FROM TAMWORTH TO DORDON INDUSTRIAL ESTATE TO WORK. AT THE PREVIOUS ISLAND A CAR THAT HE RECOGNISED AS HIS FRIEND'S MUM'S (WITH FRIEND IN PASSENGER SEAT) BEGAN TO HONK THE HORN. WHILST THEY BOTH ENTERED THE RIGHT HAND SLIP ROAD INTO BIRCH COPPICS THE CAR (VEHICLE 1) TRIED TO OVERTAKE CLIPPING THE IP CAUSING DAMAGE TO THE MOTORBIKE AND HIS RIGHT KNEE. VEHICLE 1 DIDN'T STOP.							Veh1, car, W -> E Veh2, m/cycle 50 - 125cc, W -> E				Casualties 1 Vehicles 2
39	**Road No A5 Section**	**Grid Ref 425370E 300383N**	SLIGHT	29/08/2016	2	21:35	DRK STL	Dry	Fine		R.TURN	
	WATLING STREET DORDON A5 AT JN WITH BIRCH COPPICE BUSINESS PARK									North Warwickshire		
	VEH01 HAS ALLEDGEDLY DRIVEN THROUGH A RED LIGHT AND COLLIDED WITH VEH02 WHO WAS TURNING RIGHT ACROSS VEHICLE 1'S PATH							Veh1, car, SE -> NW Veh2, car, SW -> SE				Casualties 1 Vehicles 2

Key

Involved		*Street Lighting*		*FACTORS*		*Special Conditions*	
PED	*Pedestrian*	*L*	*Daylight*	*+VE*	*Positive Breath Test*	*ATS OUT*	*Traffic Lights Not Working*
HGV	*Heavy Goods Vehicle*			*R.TURN*	*Right Turn Manoeuvre*	*ATS DEF*	*Traffic Lights Defective*
GV	*Goods Vehicle*	*STL*	*Street Lights*	*O/TAKE*	*Overtaking Manoeuvre*	*SIGNS*	*Road Signs Defective or Obscurred*
M/C	*Motor Cycle*	*USL*	*Street LIghts Unlit*	*S.VEH*	*Single Vehicle*	*RD WRKS*	*Road Works*
P/C	*Pedal Cycle*	*NSL*	*No Street Lights*			*Surface*	*Road Surface Defective*
PSV	*Bus/Coach*	*STU*	*Street Lights Unknown*				

D-PRINT CRASH REPORT

1-Mar-2021
13:31:32

No	Location	Severity	Date	Day	Time	Street Lighting	Road Surface	Weather	Pedestrian Direction	Factors	Involved
40	**Road No A5 Grid 425388E Section Ref 300379N**	SLIGHT	15/02/2016	2	22:11	DRK STL	Wet/Damp	Fine		R.TURN	
	DORDON A5 AT JN WITH DANNY MORSON WAY								North Warwickshire		
	DRIVER OF V001 WAS TURNING RIGHT ONTO DANNY MORSON WAY INTO THE INDUSTRIAL ESTATE WHEN HE HAS MISTAKEN THE GREEN LIGHT FOR GO AHEAD ONLY, FOR HIS SIGNAL TO GO. ALTHOUGH THE LIGHTS TO TURN RIGHT WERE STILL ON RED. WHILST TURNING HE HAS THEN PULLED INTO THE PATH OF V002 WHO WAS COMING THE OPPOSITE WAY CAUSING V002 TO CRASH INTO V001'S LEFT SIDE.						Veh1, car, NW -> S Veh2, goods unknown weight, SE -> NW				Casualties 2 Vehicles 2
41	**Road No A5 Grid 425412E Section Ref 300392N**	SLIGHT	01/03/2018	5	05:49	DRK STL	Frost/Ice	Fog Mist			P/C
	A5 AT JN WITH BIRCH COPPICE BUSINESS PARK								North Warwickshire		
	VEHICLE 1 WAS TRAVELLING ALONG THE A5, DORDON AND AS HE WAS APPROACHING TRAFFIC LIGHTS WHICH WERE ON GREEN HE CONTINUED TO TRAVEL. IP HAS THEN CROSSED THE ROAD ON HIS PEDAL CYCLE IN FRONT OF VEHICLE 1 CAUSING THEM BOTH TO COLLIDE.						Veh1, car, W -> E Veh2, pedal cycle, N -> S				Casualties 1 Vehicles 2
42	**Road No A5 Grid 425601E Section Ref 300304N**	SERIOUS	06/02/2020	5	17:30	DRK STL	Dry	Fine	NE	S.VEH	PED
	WATLING STREET (A5) DORDON								North Warwickshire		
	CASUALTY 001 HAS RAN OUT INTO THE CARRIAGEWAY AND HAS BEEN HIT BY V001 AT LOW SPEED AS VEHICLE WAS IN SLOW MOVING TRAFFIC.						Veh1, car, SE -> NW				Casualties 1 Vehicles 1

Key

Involved		*Street Lighting*		*FACTORS*		*Special Conditions*	
PED	*Pedestrian*	*L*	*Daylight*	*+VE*	*Positive Breath Test*	*ATS OUT*	*Traffic Lights Not Working*
HGV	*Heavy Goods Vehicle*			*R.TURN*	*Right Turn Manoeuvre*	*ATS DEF*	*Traffic Lights Defective*
GV	*Goods Vehicle*	*STL*	*Street Lights*	*O/TAKE*	*Overtaking Manoeuvre*	*SIGNS*	*Road Signs Defective or Obscurred*
M/C	*Motor Cycle*	*USL*	*Street LIghts Unlit*	*S.VEH*	*Single Vehicle*	*RD WRKS*	*Road Works*
P/C	*Pedal Cycle*	*NSL*	*No Street Lights*			*Surface*	*Road Surface Defective*
PSV	*Bus/Coach*	*STU*	*Street Lights Unknown*				

D-PRINT CRASH REPORT

1-Mar-2021
13:31:32

No	Location	Severity	Date	Day	Time	Street Lighting	Road Surface	Weather	Pedestrian Direction	Factors	Involved
43	**Road No A5 Section** **Grid Ref 425803E 300243N**	SLIGHT	14/10/2016	6	14:26	L	Dry	Fine		O/TAKE S.VEH	M/C
	AMBO STATION DORDON A5								North Warwickshire		
	VEH 01 HEADING SOUTH EAST OF THE A5 TOWARDS DORDON ISLAND. VEH 01 HAS HIT THE OFFSIDE OF THE CURB ON THE MIDDLE CARRIAGEWAY DURING AN OVERTAKING MANOUVRE. THIS HAS CAUSED VEH 01 TO SWERVE ACROSS THE CARRIAGEWAY. VEH 01 HAS COME TO A HALT AND THE RIDER HAS BEEN EJECTED OVER THE HANDLEBARS CAUSING INJURY.						Veh1, m/cycle > 500cc, NW -> SE				Casualties 1 Vehicles 1
44	**Road No A5 Section** **Grid Ref 425871E 300225N**	SLIGHT	24/07/2018	3	16:34	L	Dry	Fine			
	NEAR TO VICARAGE CLOSE A5								North Warwickshire		
	VEHICLE 2 WAS TRAVELLING ALONG THE A5 TOWARDS NUNEATON WHILST VEHICLE 1 WAS TRAVELLING ALONG THE A5 IN THE OPPOSITE DIRECTION ON THE OPPOSITE CARRIAGEWAY. VEHICLE 1 HAS THEN DONE A U TURN THROUGH A GAP IN THE CENTRAL RESERVATION CAUSING VEHICLE 2 TO TAKE EVASIVE ACTION. THE VEHICLES HAVEN'T COLLIDED BUT VEHICLE 2 HAS BUMPED INTO THE KERB ON THE LEFT SIDE CAUSING DAMAGE TO HER NEARSIDE FRONT TYRE AND HER EXHAUST. VEHICLE 1 HAS FAILED TO STOP AT THE SCENE						Veh1, car, SE -> SE Veh2, car, NW -> SE				Casualties 1 Vehicles 2

Key

Involved		*Street Lighting*		*FACTORS*		*Special Conditions*	
PED	*Pedestrian*	*L*	*Daylight*	*+VE*	*Positive Breath Test*	*ATS OUT*	*Traffic Lights Not Working*
HGV	*Heavy Goods Vehicle*			*R.TURN*	*Right Turn Manoeuvre*	*ATS DEF*	*Traffic Lights Defective*
GV	*Goods Vehicle*	*STL*	*Street Lights*	*O/TAKE*	*Overtaking Manoeuvre*	*SIGNS*	*Road Signs Defective or Obscured*
M/C	*Motor Cycle*	*USL*	*Street LIghts Unlit*	*S.VEH*	*Single Vehicle*	*RD WRKS*	*Road Works*
P/C	*Pedal Cycle*	*NSL*	*No Street Lights*			*Surface*	*Road Surface Defective*
PSV	*Bus/Coach*	*STU*	*Street Lights Unknown*				

D-PRINT CRASH REPORT

No	Location	Severity	Date	Day	Time	Street Lighting	Road Surface	Weather	Pedestrian Direction	Factors	Involved
~~45~~	~~**Road No A5 Section** **Grid Ref 425964E 300186N**~~	~~SERIOUS~~	~~31/07/2020~~	~~6~~	~~16:44~~	~~L~~	~~Dry~~	~~Fine~~	~~SW~~	~~S.VEH~~	~~M/C~~
	~~WATLING STREET (A5) NEAR JUNCTION WITH VICARAGE CLOSE, DORDON~~								~~North Warwickshire~~		~~PED~~
	~~VEH 001 HAS BEEN TRAVELLING A5 FROM TAMWORTH TOWARDS DORDON, PEDESTRAIN HAS WALKED ACROSS THE A5 FROM VICARAGE CLOSE DORDON. AS THE PEDESTRAIN WHO WAS LOOKING DOWN AT MOBILE PHONE WAS APPROXIMATELY HALFWAY ACROSS LANE 2 WHEN HIT BY A MOTORCYCLE.~~						~~Veh1, m/cycle 50 - 125cc, NW -> SE~~			~~Casualties 2 Vehicles 1~~	
~~46~~	~~**Road No A5 Section** **Grid Ref 426098E 300117N**~~	~~SLIGHT~~	~~09/08/2016~~	~~3~~	~~14:50~~	~~L~~	~~Dry~~	~~Fine~~			
	~~AT LAYBY WATLING ST DORDON A5 NEAR JN WITH GYPSY LANE~~								~~North Warwickshire~~		
	~~VEH01 WAS STATIONARY IB LAY BY AND THE DRIVER OPENED THE REAR DOOR, THE DOOR STEP FAILED AND STRUCK THE SIDE OF VEH02 CAUSING THE NEARSIDE WING MIRROR TO HIT THE NEARSIDE PASSENGER DOOR WINDOW SMASHING THE GLASS AS VEH02 WAS PASSING IN THE RUNNING LANE 1.~~						~~Veh1, goods unknown weight, P -> P Veh2, goods unknown weight, NW -> SE~~			~~Casualties 1 Vehicles 2~~	
47	**Road No A5 Section** **Grid Ref 426134E 300079N**	SLIGHT	27/06/2017	3	12:15	L	Dry	Fine			
	O/S NO. 11 WATLING STREET A5								North Warwickshire		
	VEHICLE 1 [redacted] PARKED IN LANE 1 ON THE A5 OUTSIDE #11, VEHICLE 1 WAS HIT BY VEHICLE 2 - [redacted] REAR OFFISDE DAMAGE TO VEHICLE 1, FRONT NEARSIDE DAMAGE TO VEHICLE 2. AS VEHICLE 2 HAS HIT VEHICLE 1, VEHICLE 1 HAS MOVED FORWARD INTO A PARKED CAR VEHICLE 3 - [redacted] THIS CAUSING DAMAGE OT OFFSIDE DRIVERS DOOR. VEHICLE 1 AND VEHICLE 2 UNDRIVEABLE.CORRECT ORDER OF VEHICLES T7 - VEHICLE 1 [redacted] VEHICLE 2 [redacted] VEHICLE 3						Veh1, car, SE -> NW Veh2, car, P -> P Veh3, car, P -> P			Casualties 1 Vehicles 3	

Key

Involved		*Street Lighting*		*FACTORS*		*Special Conditions*	
PED	*Pedestrian*	*L*	*Daylight*	*+VE*	*Positive Breath Test*	*ATS OUT*	*Traffic Lights Not Working*
HGV	*Heavy Goods Vehicle*			*R.TURN*	*Right Turn Manoeuvre*	*ATS DEF*	*Traffic Lights Defective*
GV	*Goods Vehicle*	*STL*	*Street Lights*	*O/TAKE*	*Overtaking Manoeuvre*	*SIGNS*	*Road Signs Defective or Obscurred*
M/C	*Motor Cycle*	*USL*	*Street Llghts Unlit*	*S.VEH*	*Single Vehicle*	*RD WRKS*	*Road Works*
P/C	*Pedal Cycle*	*NSL*	*No Street Lights*			*Surface*	*Road Surface Defective*
PSV	*Bus/Coach*	*STU*	*Street Lights Unknown*				

D-PRINT CRASH REPORT

1-Mar-2021
13:31:32

No	Location	Severity	Date	Day	Time	Street Lighting	Road Surface	Weather	Pedestrian Direction	Factors	Involved
48	**Road No U Grid 426191E Section Ref 300840N**	SLIGHT	22/10/2018	2	14:48	L	Dry	Fine		R.TURN	P/C
	ROMAN WAY AT JN WITH LONG STREET								North Warwickshire		
	VEHICLE 1 TURNED RIGHT AT ISLAND INTO ROMAN WAY, CYCLIST, WHO AT OWN ADMITANCE WAS ON HIS PHONE CYCLED INTO PATH OF VEHICLE 1 AND WAS HIT TO THE RIGHT SIDE, ON THE BACK WHEEL.						Veh1, car, N -> W Veh2, pedal cycle, S -> N				Casualties 1 Vehicles 2
49	**Road No U Grid 426197E Section Ref 300396N**	SLIGHT	11/05/2017	5	10:27	L	Dry	Fine		R.TURN	P/C
	LONG STREET DORDON AT JN WITH CHURCH ROAD								North Warwickshire		
	BICYCLE HAS BEEN TRAVELLING DOWN LONG STREET, WHEN GOING PAST JUNCTION OF CHURCH ROAD, V1 - A VAN HAS BEEN TRAVELLING UP LONG STREET AND TURNED INTO JUNCTION OF CHURCH ROAD. WHEN VAN HAS TURNED RIGHT INTO CHURCH ROAD IT HAS COLLIDED WITH THE BICYCLE. CYCLIST HAS SUFFERED BRUISING AND HIS IKE HAS BEEN SCRATCHED AND SCUFFED. VAN DRIVER DID STOP.						Veh1, goods unknown weight, S -> NE Veh2, pedal cycle, N -> S				Casualties 1 Vehicles 2

Key

Involved		*Street Lighting*		*FACTORS*		*Special Conditions*	
PED	*Pedestrian*	*L*	*Daylight*	*+VE*	*Positive Breath Test*	*ATS OUT*	*Traffic Lights Not Working*
HGV	*Heavy Goods Vehicle*			*R.TURN*	*Right Turn Manoeuvre*	*ATS DEF*	*Traffic Lights Defective*
GV	*Goods Vehicle*	*STL*	*Street Lights*	*O/TAKE*	*Overtaking Manoeuvre*	*SIGNS*	*Road Signs Defective or Obscurred*
M/C	*Motor Cycle*	*USL*	*Street LIghts Unlit*	*S.VEH*	*Single Vehicle*	*RD WRKS*	*Road Works*
P/C	*Pedal Cycle*	*NSL*	*No Street Lights*			*Surface*	*Road Surface Defective*
PSV	*Bus/Coach*	*STU*	*Street Lights Unknown*				

D-PRINT CRASH REPORT

No	Location	Severity	Date	Day	Time	Street Lighting	Road Surface	Weather	Pedestrian Direction	Factors	Involved
50	**Road No A5 Grid 426202E Section Ref 300056N**	SLIGHT	19/06/2017	2	16:27	L	Dry	Fine			
	WATLING ST A5 AT JN WITH GYPSY LANE								North Warwickshire		
	VEHICLE 1 APPROACHED ROUNDABOUT WHICH HAD BEEN CONED OFF NOT ALLOWING ACCESS TO VEHICLE IN NORMAL CLOCKWISE DIRECTION SO AT SPEED WENT RIGHT ACROSS ROUNDABOUT OVER THE OTHERSIDE AND CONTINUED ALONG THE A5 ON THE RIGHT SIDE OF THE CARRIAGEWAY TOWARDS NUNEATON NARROWLY MISSING VEHICLES COMING TOWARDS THE ROUNDABOUT IN BOTH DIRECTIONS.VEHICLE 2 APPROACHING ROUNDABOUT HAD TO SLAM ON BRAKES RESULTING IN DRIVER TO STRIKE HER HEAD ON THE STEERING WHEEL CAUSING INJURIES NAMELY REDDENING TO HER HEAD/FACE AND SEATBELT MARK.					Veh1, car, NW -> SE Veh2, car, SE -> NW					Casualties 1 Vehicles 2

Key

Involved		*Street Lighting*		*FACTORS*		*Special Conditions*	
PED	*Pedestrian*	*L*	*Daylight*	*+VE*	*Positive Breath Test*	*ATS OUT*	*Traffic Lights Not Working*
HGV	*Heavy Goods Vehicle*			*R.TURN*	*Right Turn Manoeuvre*	*ATS DEF*	*Traffic Lights Defective*
GV	*Goods Vehicle*	*STL*	*Street Lights*	*O/TAKE*	*Overtaking Manoeuvre*	*SIGNS*	*Road Signs Defective or Obscurred*
M/C	*Motor Cycle*	*USL*	*Street LIghts Unlit*	*S.VEH*	*Single Vehicle*	*RD WRKS*	*Road Works*
P/C	*Pedal Cycle*	*NSL*	*No Street Lights*			*Surface*	*Road Surface Defective*
PSV	*Bus/Coach*	*STU*	*Street Lights Unknown*				

APPENDIX K ILLUSTRATIVE MASTERPLAN

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SCHEDULE OF ACCOMMODATION PLOT A1

Unit HE 635		sq m	sq ft
Warehouse	:	55,560	598,048
Offices (2 Floors)	:	2,130	22,927
2 Goods in (2 Floors)	:	1,308	14,079
Gatehouse	:	20	215
TOTAL (GIA)	:	59,018	635,269
HGV Parking	:	142 (Excl. Loading)	
Car Parking	:	389 (Incl. 12 Accesible)	
Haunch Height	:	18 m	
Dock Wall Height	:	1.2m	
Dock Levellers	:	60	
Level Access	:	8	
DEMISE AREA	:	10.65 Ha /26.32acres	
SITE DENSITY	:	55.42%	

Unit HE 330		sq m	sq ft
Warehouse	:	28,770	309,677
Offices (2 Floors)	:	1,240	13,347
Goods in (2 Floors)	:	600	6,458
Gatehouse	:	20	215
TOTAL (GIA)	:	30,630	329,697
HGV Parking	:	56 (Excl. Loading)	
Car Parking	:	210 (Incl. 6 Accesible)	
Haunch Height	:	18 m	
Dock Wall Height	:	1.2m	
Dock Levellers	:	24	
Level Access	:	4	
DEMISE AREA		:6.068 Ha /14.994 acres	
SITE DENSITY		:50.48%	

PLOT B1 OVERNIGHT HGV PARKING

		sqm	sqft
Administration Building	:	182	1,959
Gatehouse	:	20	215
TOTAL (GIA)	:	202	2,174
HGV Parking	:	83	
Rigid HGV Parking	:	57	
Car Parking	:	5	
DEMISE AREA	:	1.839 Ha / 4.544 acres	
SITE DENSITY	:	1.10%	

PLOT B2 OVERNIGHT HGV PARKING

		sqm	sqft
Hu Office/ Community Centre	:	470	5,059
TOTAL (GIA)	:	470	5,059
Car Parking	:	13 (Incl. 4 Accessible)	
DEMISE AREA	:	0.271 Ha/ 0.669 Acres	
SITE DENSITY	:	17%	

SCHEDULE OF ACCOMMODATION PLOT A2

UNIT A2.1		sq m	sq ft
Warehouse	:	1,863	20,053
TOTAL (GIA)	:	1,863	20,053
Car Parking	:	24 (Incl. 2 Accesible)	
Van Parking	:	8	
Haunch Height	:	TBC m	
Level Access	:	2	

UNIT A2.2		sq m	sq ft
Warehouse	:	1,397	15,039
TOTAL (GIA)	:	1,397	15,039
Car Parking	:	12 (Incl. 2 Accesible)	
Van Parking	:	4	
Haunch Height	:	TBC m	
Level Access	:	2	

UNIT A2.3		sq m	sq ft
Warehouse	:	1,397	15,039
TOTAL (GIA)	:	1,397	15,039
Car Parking	:	12 (Incl. 2 Accesible)	
Van Parking	:	4	
Haunch Height	:	TBC m	
Level Access	:	2	

UNIT A2.4		sq m	sq ft
Warehouse	:	931.5	10,026
TOTAL (GIA)	:	931.5	10,026
Car Parking	:	6 (Incl. 1 Accesible)	
Van Parking	:	1	
Haunch Height	:	TBC m	
Level Access	:	2	

UNIT A2.5		sq m	sq ft
Warehouse	:	931.5	10,026
TOTAL (GIA)	:	931.5	10,026
Car Parking	:	6 (Incl. 1 Accesible)	
Van Parking	:	1	
Haunch Height	:	TBC m	
Level Access	:	2	
DEMISE AREA	:	1.66 Ha /4.10 acres	
SITE DENSITY	:	39.28%	
HGV Parking Shared	:	6	

SITE AREA PLOT A1 AND A2		
(ORANGE LINE)	:	18.38 Ha /45.41acres
SITE DENSITY	:	52.32%

NOTES:

Please note Title Plans have been scaled using Ordinace Survey features which may have altered over time. Complete accuracy cannot be guaranteed without further on-site survey.
Any dimensions given are to be confirmed with site measure.

Subject to Surveys, constraints & planning.

Red Line indicative only.

Contractors must verify all dimensions on site before commencing any work or shop drawings. This drawing is not to be scaled. Use figured dimensions only.

Subject to statutory approvals and survey.

Building areas are liable to adjustment over the course of the design process due to the ongoing construction detailing developments.

Please note the information contained within this drawing is solely for the benefit of the employer and should not be relied upon by third parties.

The CDM hazard management procedures for the Chetwoods aspects of the design of this project are to be found on the "Chetwoods - Hazard Analysis and Design Risk Assessment" and/or drawings. The full project design teams comprehensive set of hazard management procedures are available from the Principle Designer appointed for the project.

Please note Title Plans have been scaled using Ordinace Survey features which may have altered over time. Complete accuracy cannot be guaranteed without further on-site survey.

North

NB.
- **SUBJECT TO SURVEYS, CONSTRAINTS & PLANNING.**
- **LAYOUT TO BE TRACKED.**
- **RED LINE INDICATIVE ONLY.**

Development Site Boundary (79.97 acres / 32.36 Ha)

Parameter Boundary

Unit Demise Boundary

Public bridleway (to be diverted where necessary)

Rev	Revision Description	Date	Author/ Reviewer
P10	Updated boundary area, title block	15/10/21	SA/NH
P9	Updated comments	20/08/21	SA/NH
P8	Annotation added to surrounding roads; Updated generally in line with Client comments recieved 22.07.21	19/08/21	SA/NH
P7	Plot B updated	02/03/21	RC/NH
P6	Schedule updated, Hub office added	19/02/21	RC/NH
	Updated comments	21/12/20	MB/NH
	Updated comments	12/12/20	MB/NH
	Updated comments	11/12/20	MB/NH
	Updated comments	10/12/20	MB/NH
	First Issue	25/11/20	PJB/NH

PRELIMINARY

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Project
LAND NORTH EAST OF J10 M42, DORDON

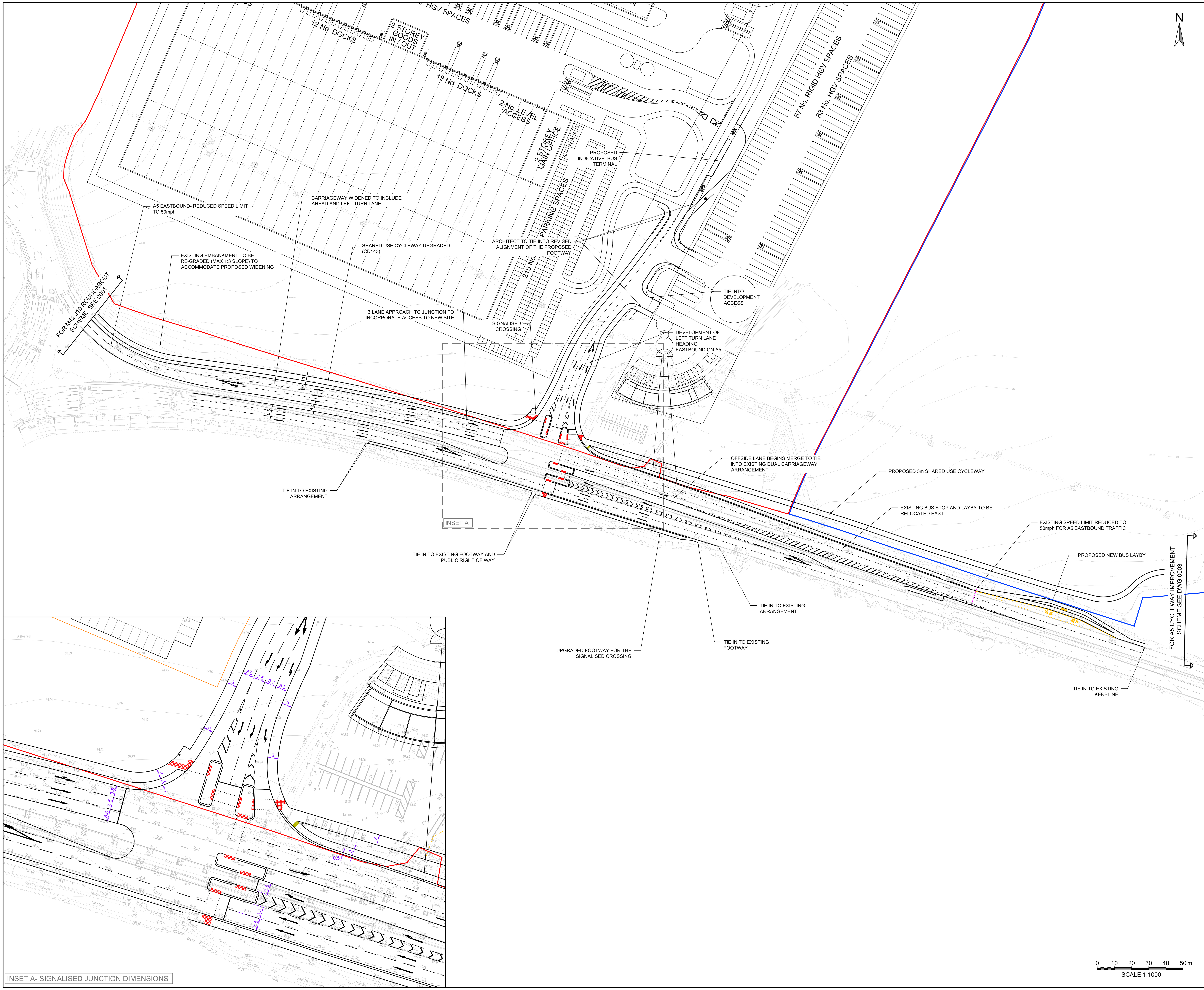
Client
HODGETTS ESTATES

Drawing Title
INDICATIVE MASTERPLAN
MULTI UNIT OPTION

Scale	Size	Drawn	Checked	Date
1:1500	A1	PJB	NH	25/11/2020

Project	Originator	Zone	Level	Type	Role	Number	Rev.
4263	CA	00	00	DR	A	00078	P10

APPENDIX L DRAWINGS



NOTES -

1. ALL DIMENSIONS IN METRES UNLESS STATED OTHERWISE.
2. THE INFORMATION SHOWN ON THIS DRAWING IS INTENDED TO PROVIDE A GENERAL OUTLINE OF THE HIGHWAY IMPROVEMENT WORKS.

KEY:

SITE BOUNDARY 1

SITE BOUNDARY 2

PRELIMINARY ISSUE

Rev	Description	Date	Drn / Chk / App		
P01	PRELIMINARY FIRST ISSUE	04.11.2022	LJB	LB	NB

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Client

HODGETTS ESTATES

Project Name

M42 JUNCTION 10
A5 CYCLEWAY IMPROVEMENT

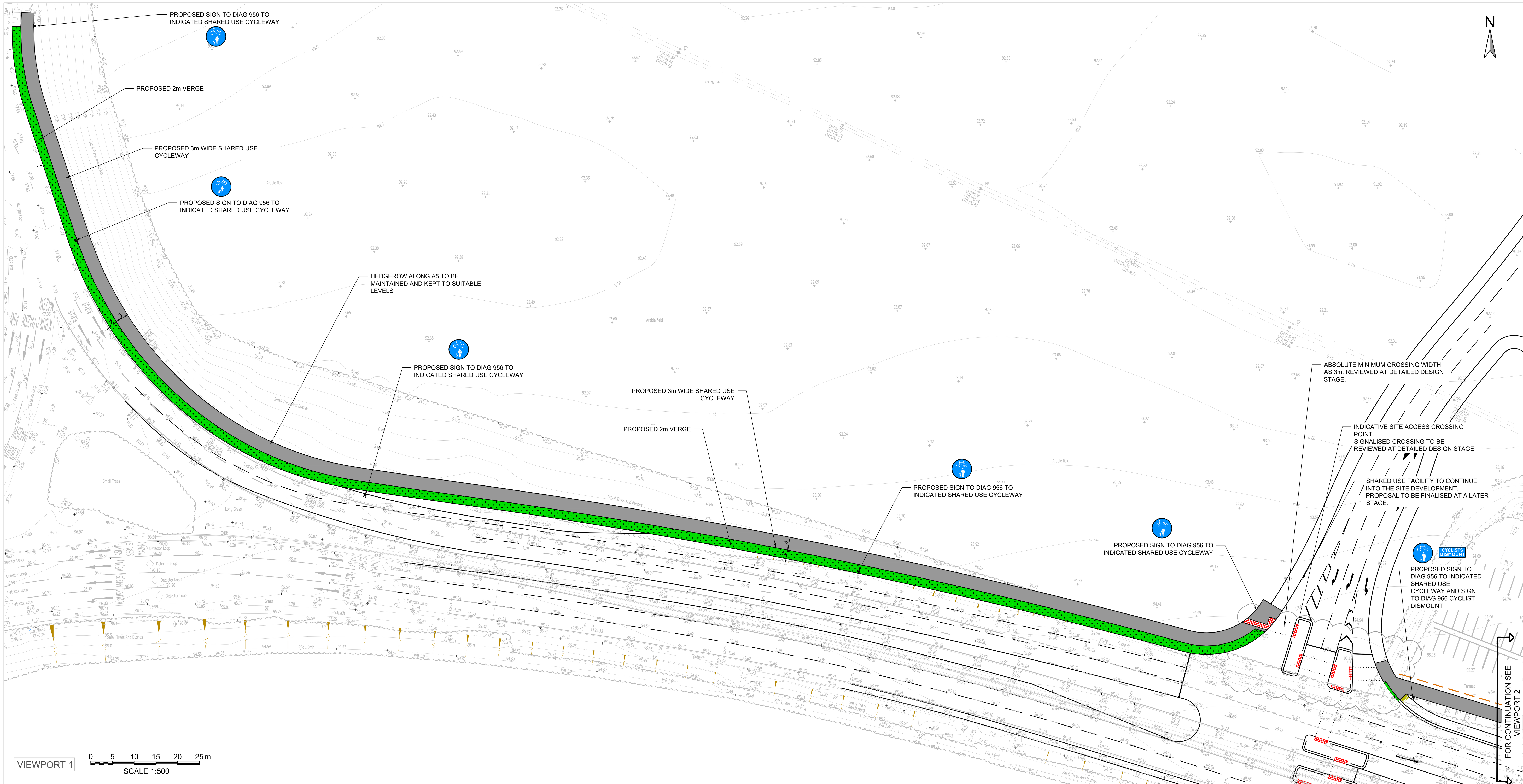
Sheet Title

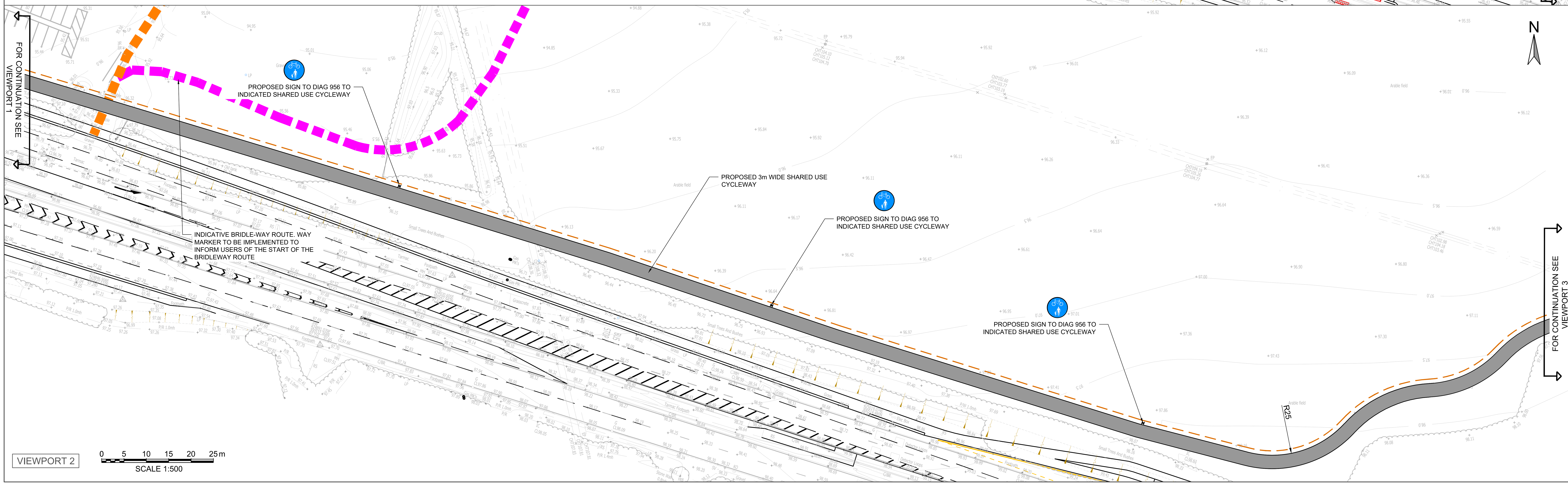
PROPOSED LAYOUT FOR A5 AND NEW SITE ACCESS

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A1	Suitability
784-B033920	LJB	Oct'22	LB	Oct '22	NB	Oct '22	1:1000	S3

Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision
B033920	TTE	00	ZZ	PL	H	0002	P01

TTE_MT_v1



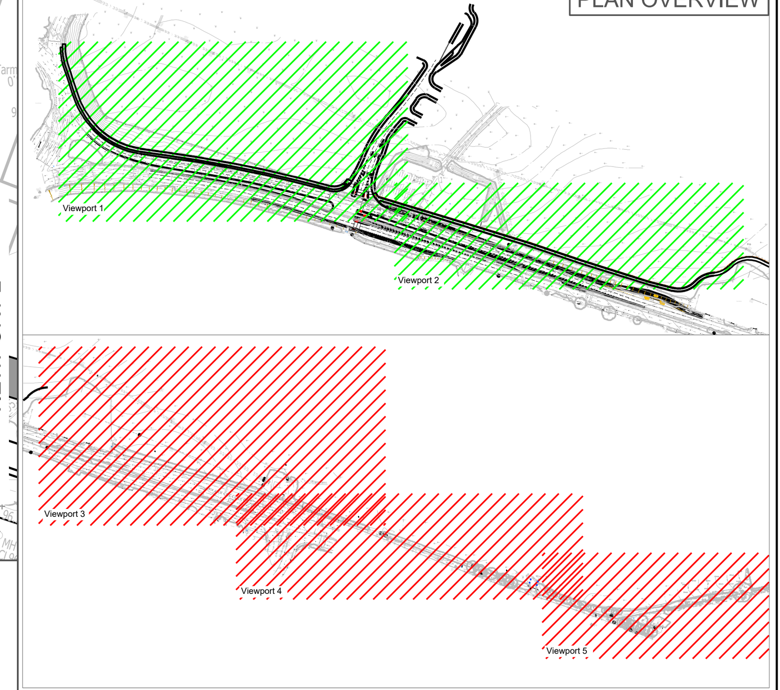


1. THIS DRAWING SHOULD BE READ IN RELATION TO THE SUBJECT OF THE TITLE ONLY. OTHER INFORMATION SHOWN ON THE DRAWING IS TO BE CONSIDERED INDICATIVE ONLY. REFERENCE SHOULD BE MADE TO APPROPRIATE DRAWING SERIES/SPECIFICATIONS FOR OTHER INFORMATION.
2. ALL DIMENSIONS ARE IN METRES UNLESS SPECIFIED OTHERWISE.
3. PROPOSALS FOR THE SHARED USE CYCLEWAY HAVE BEEN DESIGNED IN ACCORDANCE WITH LTN1/20. DUE TO THE LOW VOLUME OF PEDESTRIANS SHARED USE CYCLEWAY HAS BEEN UTILISED COINCIDING WITH POINTS 6.5.2 AND 6.5.6 OF THE LTN 1/20 DESIGN GUIDANCE.

KEY:

- SITE BOUNDARY 1
- SITE BOUNDARY 2
- PROPOSED 5m SHARED USE CYCLEWAY
- INDICATIVE SITE ACCESS LAYOUT
- PROTECTIVE TIMBER FENCE OR SIMILAR APPROVED
- EXISTING BRIDLEWAY ROUTE (166/AE45/1)
- PROPOSED DIVERSION OF BRIDLEWAY ROUTE

PLAN OVERVIEW



PRELIMINARY ISSUE

Rev	Description	Date	Drn / Chk / App		
P02	INITIAL COMMENTS INCORPORATED	11.08.2022	LJB	JG	LB
P01	PRELIMINARY FIRST ISSUE	25.05.2022	LJB	JG	LB

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Client

Project Name

M42 JUNCTION 10
A5 CYCLEWAY IMPROVEMENT

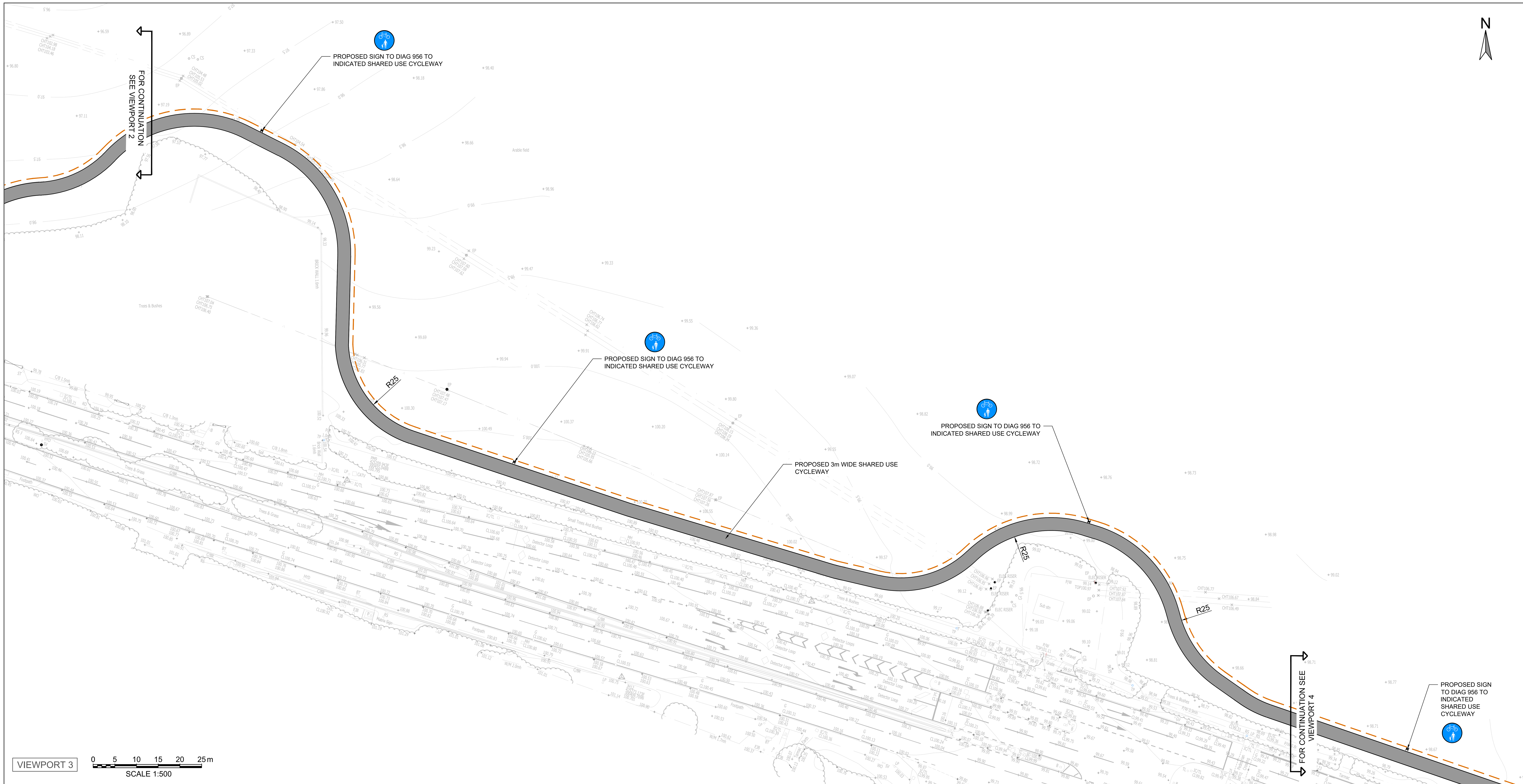
Sheet Title

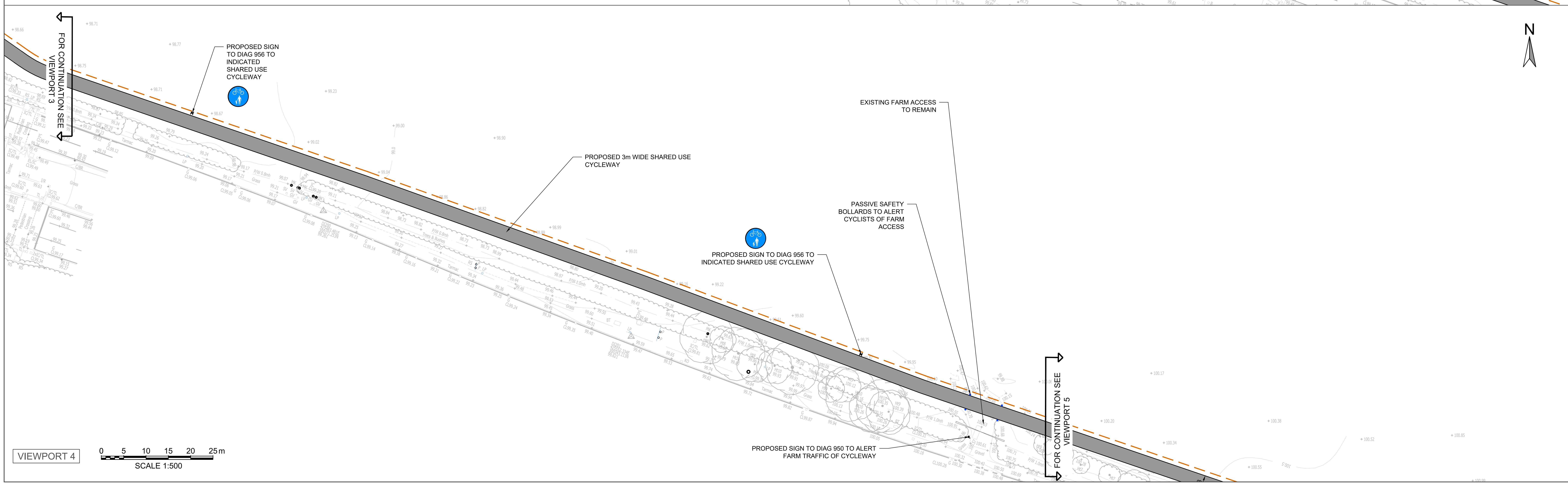
PROPOSED LAYOUT
SHEET 1

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A1	Suitability
784-B033920	LJB	May '22	JG	May '22	LB	May '22	1:500	S3

Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision
B033920	TTE	00	ZZ	PL	H	0003	P02

TTE_MT_v1

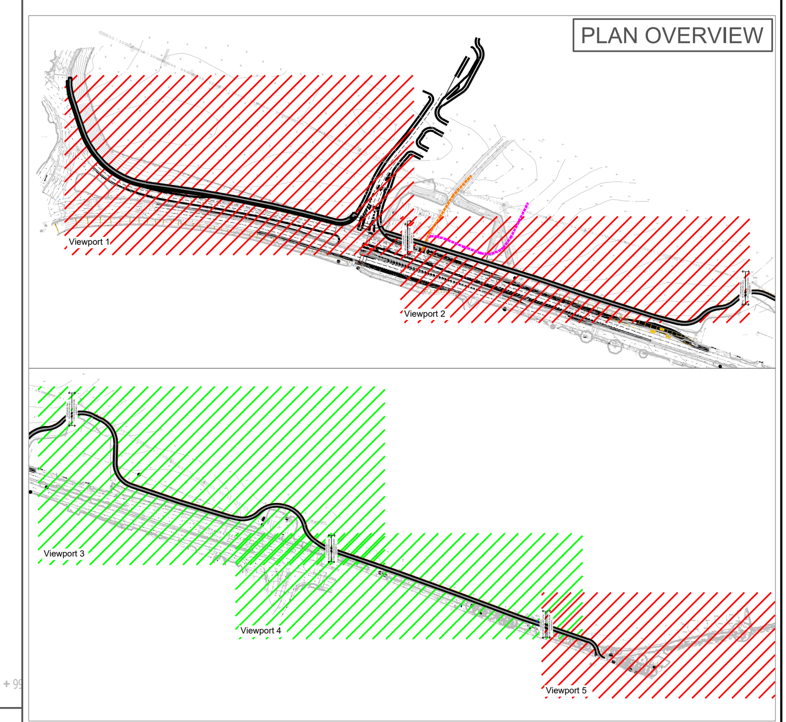




1. THIS DRAWING SHOULD BE READ IN RELATION TO THE SUBJECT OF THE TITLE ONLY. OTHER INFORMATION SHOWN ON THE DRAWING IS TO BE CONSIDERED INDICATIVE ONLY. REFERENCE SHOULD BE MADE TO APPROPRIATE DRAWING SERIES/SPECIFICATIONS FOR OTHER INFORMATION.
2. ALL DIMENSIONS ARE IN METRES UNLESS SPECIFIED OTHERWISE.
3. PROPOSALS FOR THE SHARED USE CYCLEWAY HAVE BEEN DESIGNED IN ACCORDANCE WITH LTN1/20. DUE TO THE LOW VOLUME OF PEDESTRIANS SHARED USE CYCLEWAY HAS BEEN UTILISED COINCIDING WITH POINTS 6.5.2 AND 6.5.6 OF THE LTN 1/20 DESIGN GUIDANCE.

KEY:

- SITE BOUNDARY 2
- PROPOSED 5m SHARED USE CYCLEWAY
- PROTECTIVE TIMBER FENCE OR SIMILAR APPROVED
- PASSIVE SAFETY BOLLARDS



PRELIMINARY ISSUE

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P01	PRELIMINARY FIRST ISSUE	25.05.2022	LJB	JG	LB

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Client

HODGETTS ESTATES

Project Name

M42 JUNCTION 10
A5 CYCLEWAY IMPROVEMENT

Sheet Title

PROPOSED LAYOUT
SHEET 2

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A1	Suitability
784-B033920	LJB	May '22	JG	May '22	LB	May '22	1:500	S3

Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision
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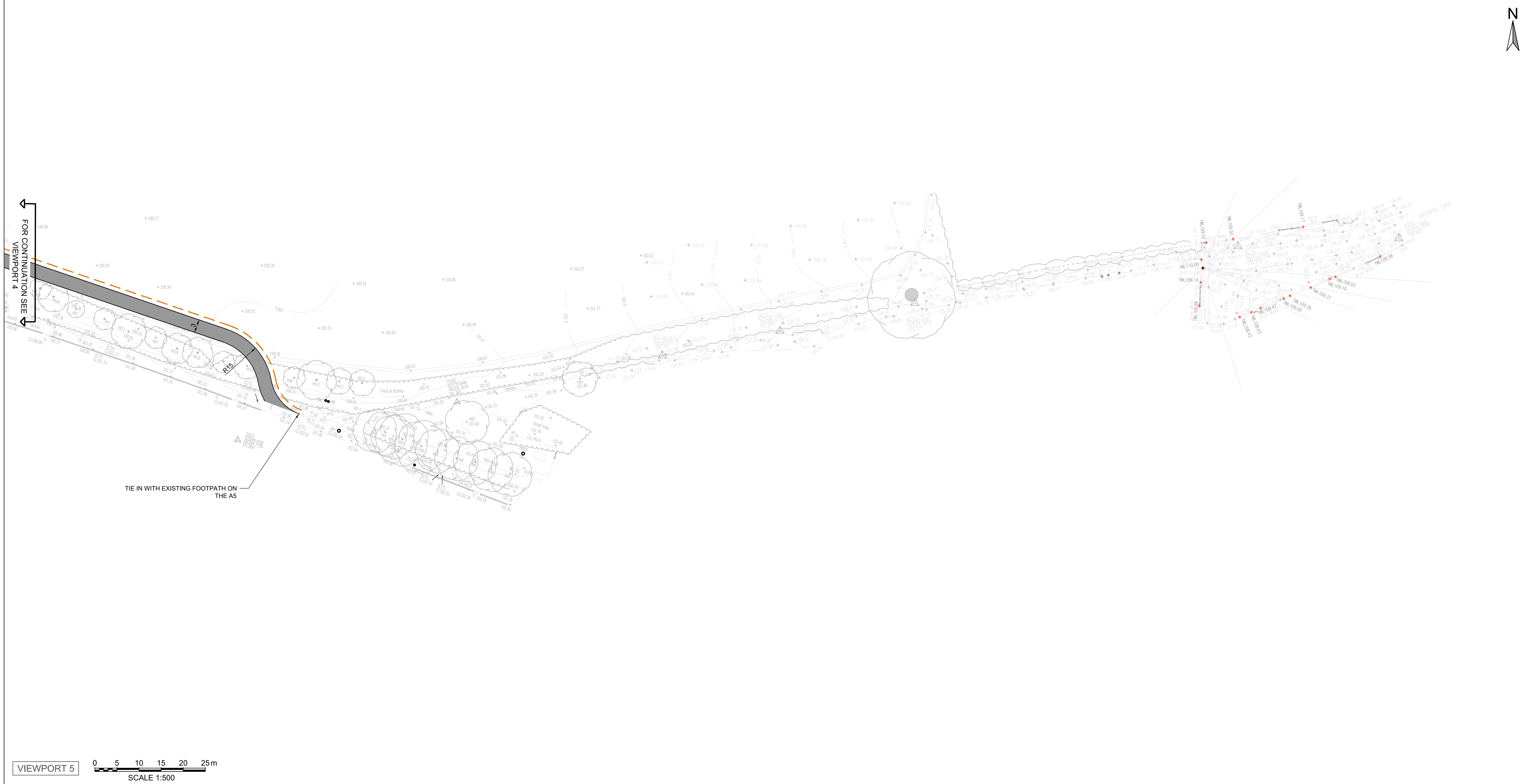
TTE_MT_v1



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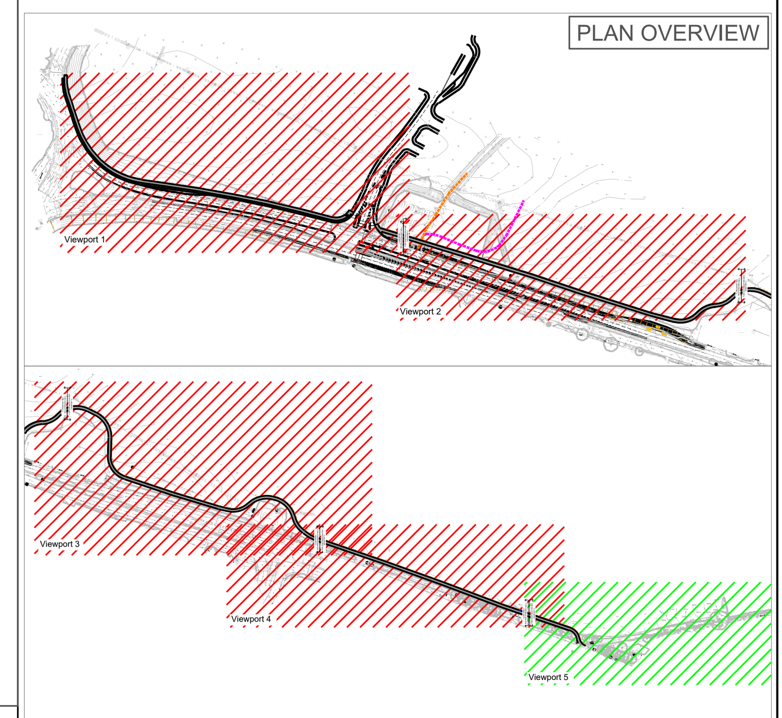
KEY:

- SITE BOUNDARY 2
- PROPOSED 5m SHARED USE CYCLEWAY
- PROTECTIVE TIMBER FENCE OR SIMILAR APPROVED



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P02	INITIAL COMMENTS INCORPORATED	11.08.2022	LJB	LB	NB
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Project Name
M42 JUNCTION 10
A5 CYCLEWAY IMPROVEMENT

Sheet Title
PROPOSED LAYOUT
SHEET 3

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A1	Suitability
784-B033920	LJB	May '22	JG	May '22	LB	May '22	1:500	S3

Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision
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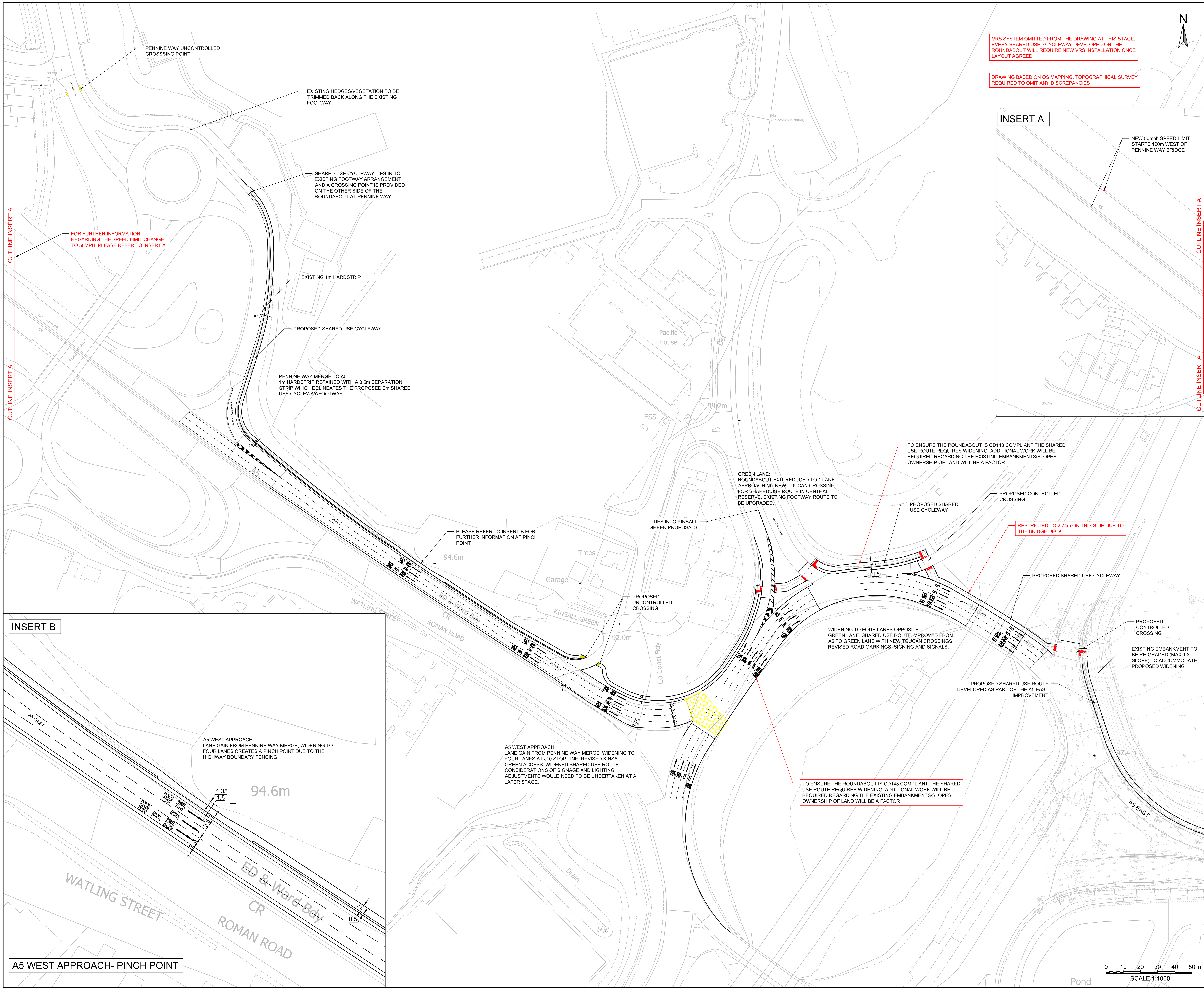
TTE_MT_v1



1. THIS DRAWING SHOULD BE READ IN RELATION TO THE SUBJECT OF THE TITLE ONLY. OTHER INFORMATION SHOWN ON THE DRAWING IS TO BE CONSIDERED INDICATIVE ONLY. REFERENCE SHOULD BE MADE TO APPROPRIATE DRAWING SERIES/SPECIFICATIONS FOR OTHER INFORMATION.
2. ALL DIMENSIONS ARE IN METRES UNLESS SPECIFIED OTHERWISE.

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Rev	Description	Date	Drn / Chk / App		
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HODGETTS ESTATES

Project Name

M42 JUNCTION 10
ROUNDABOUT IMPROVEMENT

Sheet Title

PROPOSED LAYOUT

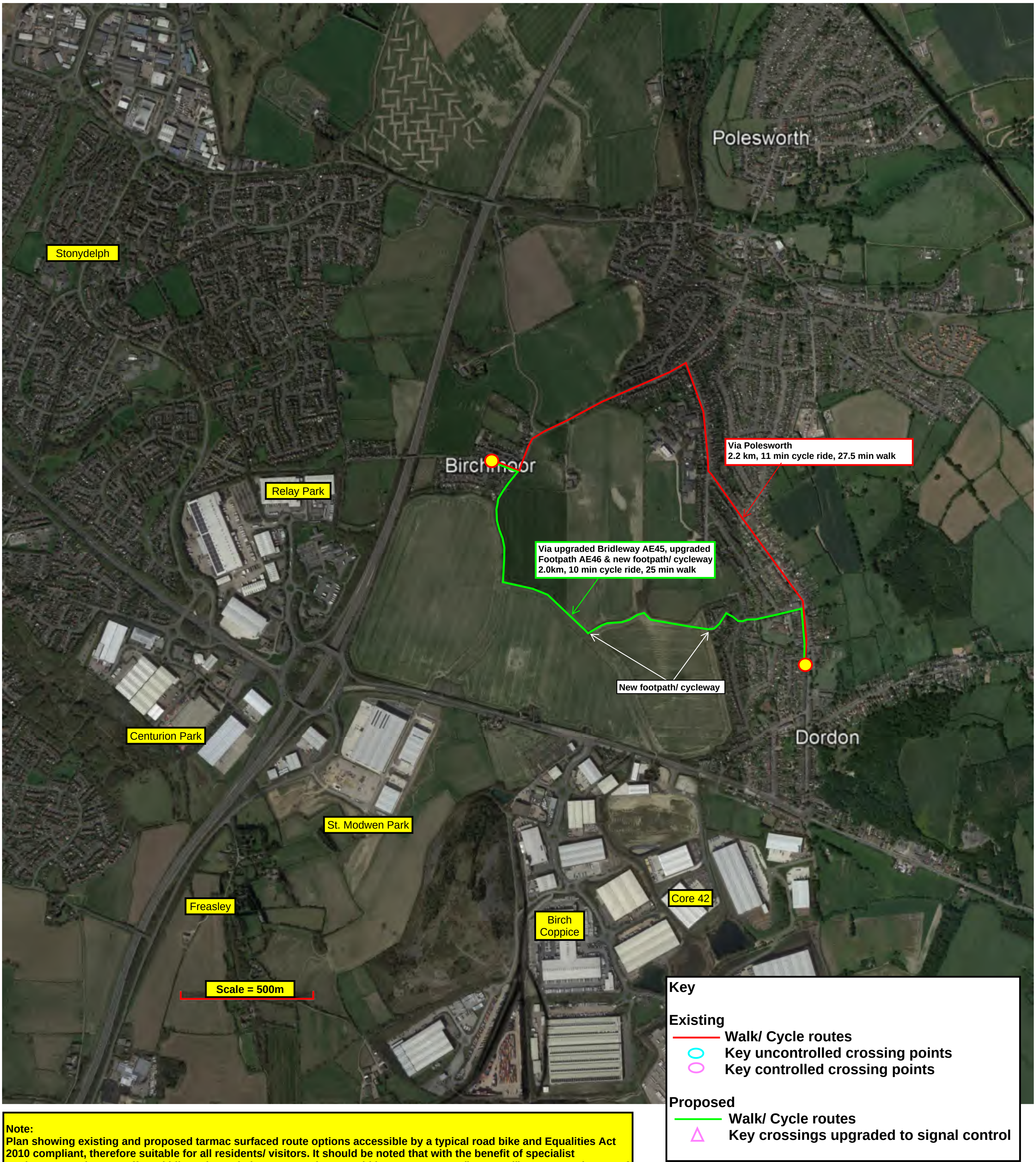
TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A1	Suitability
784-B033920	LJB	Sep'22	LB	Sep '22	NB	Sep '22	1:1000	S3

Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision
B033920	TTE	00	ZZ	PL	H	0001	P01

TTE_MT_v1

APPENDIX M CONNECTIVITY PLANS

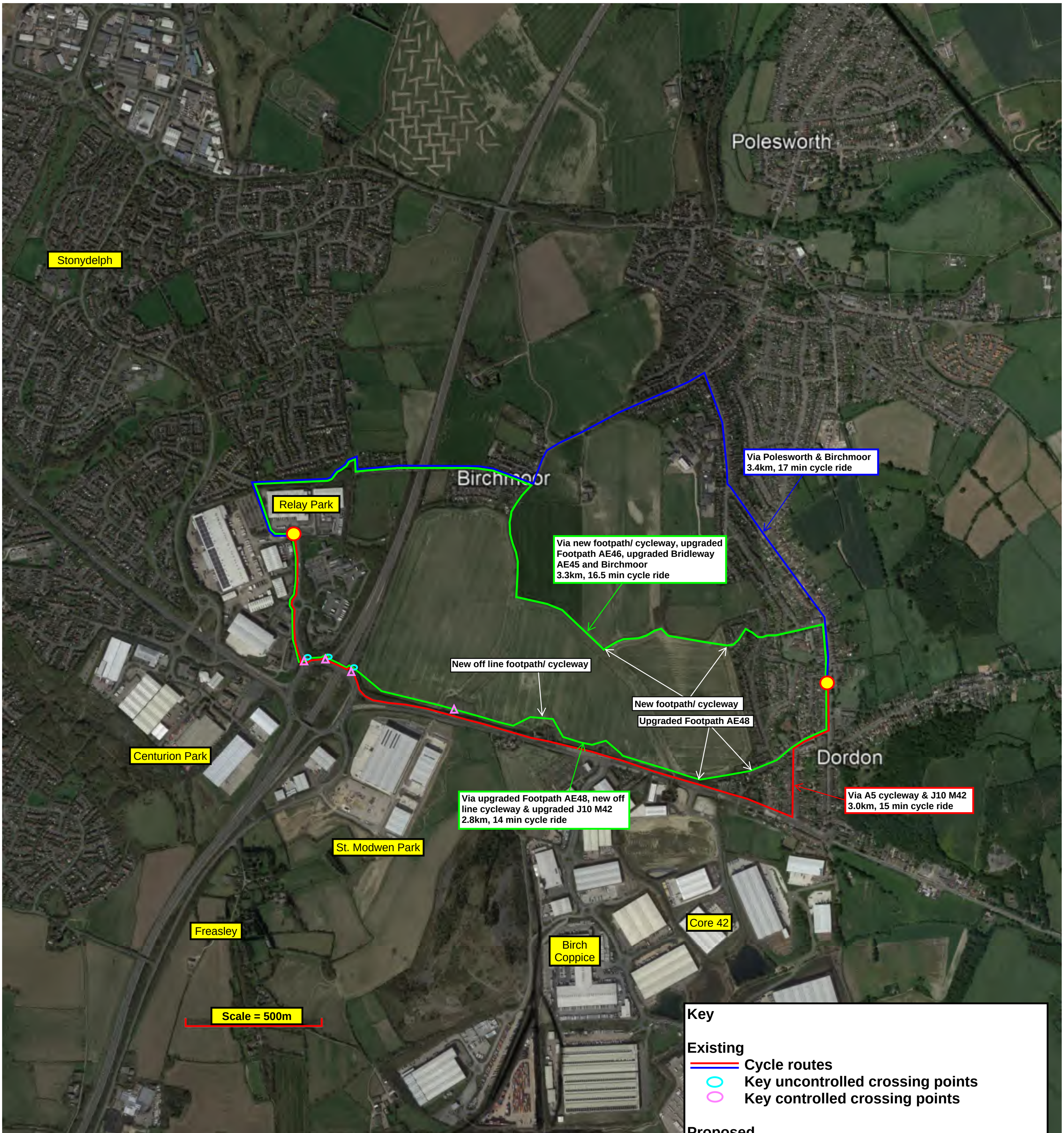
Community Integration Route Plan: Birchmoor to Dordon



Note:
Plan showing existing and proposed tarmac surfaced route options accessible by a typical road bike and Equalities Act 2010 compliant, therefore suitable for all residents/ visitors. It should be noted that with the benefit of specialist equipment, such as an off-road bike, other existing route options would be open to some (but not all). However, the use of these existing routes is not practicable for all residents/ visitors (such as those with physical and mobility impairments).

TETRA TECH

Commuter Point-to-Point Plan: Dordon to Relay Park



Key

Existing

- Cycle routes
- Key uncontrolled crossing points
- Key controlled crossing points

Proposed

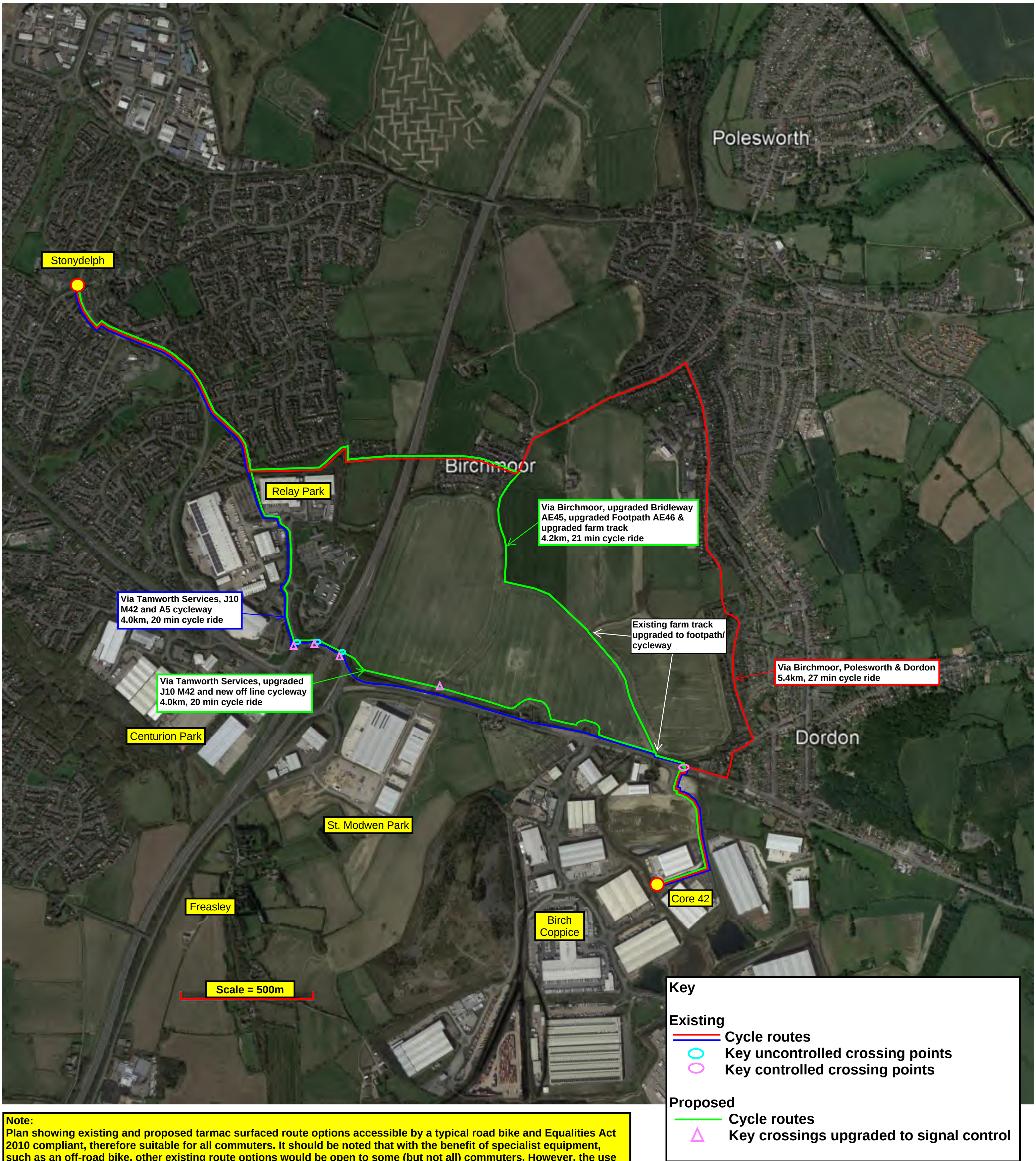
- Cycle routes
- Key crossings upgraded to signal control

Note:
Plan showing existing and proposed tarmac surfaced route options accessible by a typical road bike and Equalities Act 2010 compliant, therefore suitable for all commuters. It should be noted that with the benefit of specialist equipment, such as an off-road bike, other existing route options would be open to some (but not all) commuters. However, the use of these existing routes is not practicable for all commuters (such as those with physical and mobility impairments) or certain jobs/positions where there is an imperative to arrive clean and/or shower facilities are not readily available.

The existing and proposed routes shown are in excess of the typical 2km maximum walking distance for commuters, so possible walking routes are therefore not shown on this plan.

TETRA TECH

Commuter Point-to-Point Plan:
Stonydelph to Core 42

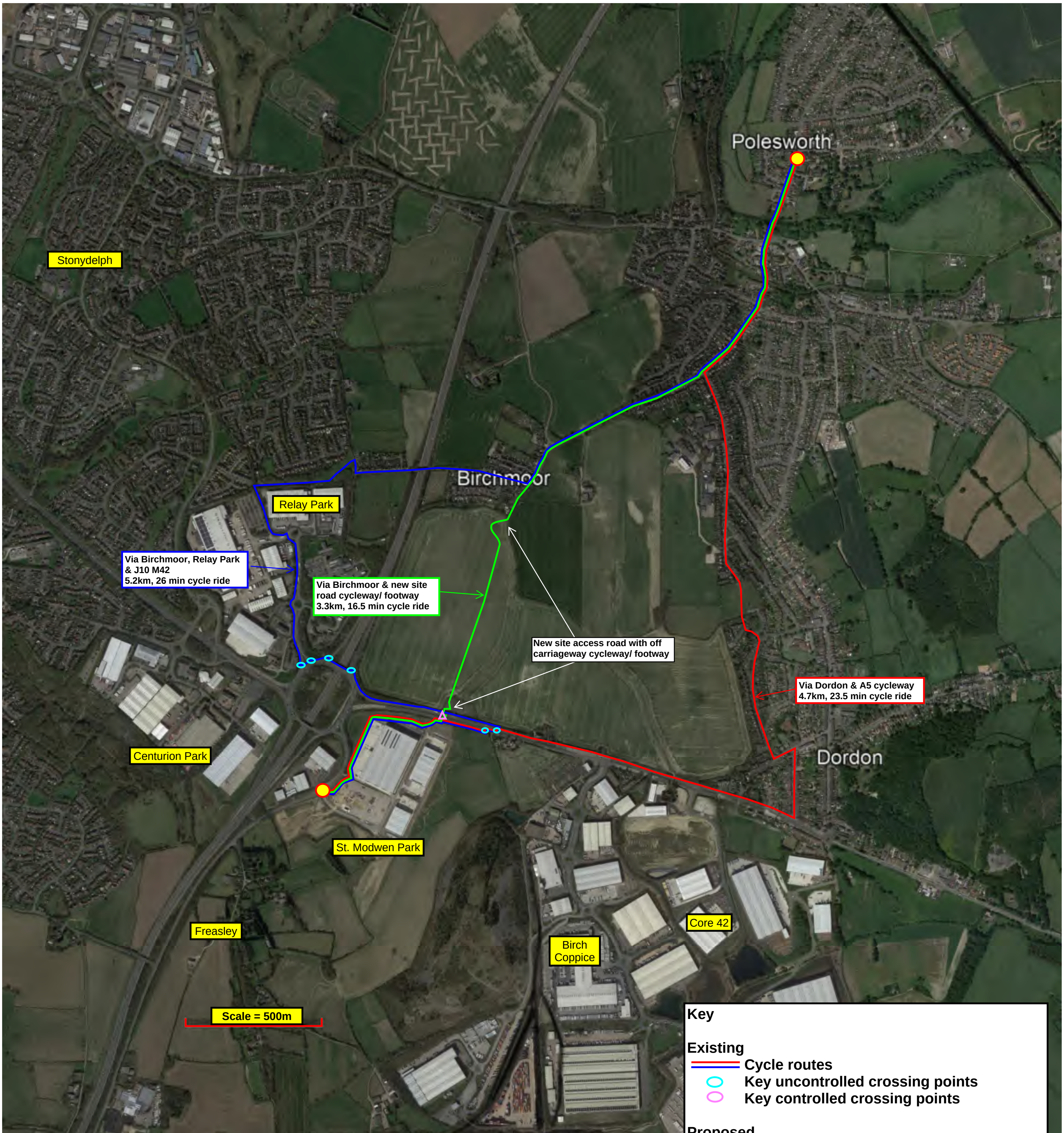


Note:
Plan showing existing and proposed tarmac surfaced route options accessible by a typical road bike and Equalities Act 2010 compliant, therefore suitable for all commuters. It should be noted that with the benefit of specialist equipment, such as an off-road bike, other existing route options would be open to some (but not all) commuters. However, the use of these existing routes is not practicable for all commuters (such as those with physical and mobility impairments) or certain jobs/positions where there is an imperative to arrive clean and/or shower facilities are not readily available.

The existing and proposed routes shown are in excess of the typical 2km maximum walking distance for commuters, so possible walking routes are therefore not shown on this plan.

TETRA TECH

Commuter Point-to-Point Plan: Polesworth to St. Modwen Park



Key

Existing
- Cycle routes
- Key uncontrolled crossing points
- Key controlled crossing points

Proposed
- Cycle routes
- Key crossings upgraded to signal control

Note:
Plan showing existing and proposed tarmac surfaced route options accessible by a typical road bike and Equalities Act 2010 compliant, therefore suitable for all commuters. It should be noted that with the benefit of specialist equipment, such as an off-road bike, other existing route options would be open to some (but not all) commuters. However, the use of these existing routes is not practicable for all commuters (such as those with physical and mobility impairments) or certain jobs/positions where there is an imperative to arrive clean and/or shower facilities are not readily available.

The existing and proposed routes shown are in excess of the typical 2km maximum walking distance for commuters, so possible walking routes are therefore not shown on this plan.

TETRA TECH

APPENDIX N MDS TRANSMODAL REPORT

Rail Terminal Connectivity Statement

November 2021

MDS Transmodal

Ref: 220053r_rail_final

CONTENTS

1. INTRODUCTION

1.1 This technical report has been prepared to support *Hodgetts Estates* who are submitting proposals for a new strategic industrial warehousing scheme on land to the north-east of Junction 10 of the M42. Up to 100,000 square metres of new high-bay logistics and industrial floor space is proposed for the site. The scheme has been planned from the outset to operate successfully as a standalone road-based logistics warehousing facility, and accompanying documents demonstrate market need for such and that it is acceptable and deliverable in planning application traffic terms. The logic for locating the facility in this location is clear, J10 of the M42 being the nexus of the M42 motorway and the A5 trunk road, both major freight corridors, as well as its close proximity to *Birmingham Intermodal Freight Terminal (BIFT)* at *Birch Coppice Business Park* (around 500m) and *Hams Hall Rail Freight Terminal* (15km)

1.2 Notwithstanding this position, due to its close proximity to *Birch Coppice Business Park*, the proposed warehouse development can also in practice be classified as rail-served. Occupiers will be able to access the *BIFT* facilities on the same basis as those currently located within the business park. A higher proportion of the resultant traffic can therefore be expected to arrive or depart using rail via Birch Coppice than might otherwise be the case. The purpose of this technical note, therefore, is to explain why this situation arises, and to demonstrate the benefits of rail connectivity that will potentially accrue to future warehouse occupiers at the planned development and wider society. These added benefits, while not central to the planning justification, provide additional support for the proposed development.

1.3 The significance of this position is that Government planning policy promotes the location of logistics facilities at sites which offer genuine modal choice to shippers. This is for two principal reasons:

- It creates the conditions where rail freight can become cost competitive when compared with road haulage. Shippers utilising rail freight under these conditions can therefore expect to accrue financial (productivity) benefits (so called user benefits); and
- It promotes mode shift to rail freight. Rail freight is recognised as being a substantially more sustainable mode of transport, which generates wider societal benefits when compared with road haulage. Emissions of greenhouse gases (GHG), for example, are significantly lower on tonne-km basis, which is particularly important given internationally binding national commitments to reduce and ultimately become a net-zero GHG emitter.

1.4 The proposed development will therefore conform with the Government’s current policy with respect to promoting modal choice and the location of large scale logistics facilities.

2. PLANNING POLICY – SUPPORT FOR RAIL FREIGHT

2.1 Planning policy alongside the proposed scheme's acceptability and deliverability in planning terms is addressed in accompanying documents. However, by way of background it is worth briefly setting out current planning policy with respect to rail-served freight/logistics developments.

National Planning Policy Framework

2.2 National planning policy for England is set out in the *National Planning Policy Framework (NPPF)*. This was originally published by the *Department for Communities and Local Government (DCLG)* in March 2012 and then revised and reissued reissued in February 2019 and July 2021 (by the renamed *Ministry of Housing, Communities and Local Government* or *MHCLG*).

2.3 Section 9 of the NPPF provides for transport policies that facilitate sustainable development but also contribute towards wider sustainability objectives. In particular, it notes that significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes (Para 105). This can help to reduce congestion and emissions, and improve air quality and public health. It notes that plans and decisions should identify and protect, where there is robust evidence, sites and routes which could be critical in developing infrastructure to widen transport choice and realise opportunities for large scale development (Para 106c). It also stipulates that plans and decisions should recognise the importance of providing adequate overnight lorry parking facilities, taking into account any local shortages, to reduce the risk of parking in locations that lack proper facilities or could cause a nuisance (Para 109).

National Planning Statement for National Networks

2.4 On a similar basis, the *National Planning Statement (NPS) for National Networks*, published by the *Department for Transport (DfT)* in December 2014, includes the Government's current policies concerning the development of *Strategic Rail Freight Interchanges (SRFIs)*. It is considered to be the principal policy document concerning the development of rail-served warehousing and logistics facilities. While the proposed Junction 10 scheme is being progressed through the planning system as a stand-alone road-based development, as will be demonstrated below it would in practice be a rail-served site (it will be able to access Birch Coppice's rail terminal facilities at *BIFT* on the same basis as those currently located within the business park).

2.5 The NPS states that the aim of SRFIs is to optimise the use of rail in the freight journey through the co-location of freight and distribution activities (Para 2.44). Further, the NPS states that the users of warehousing and distribution services are increasingly looking to integrate rail into their transport operations. This will require the logistics industry to develop new facilities that need to be located alongside the major rail routes, close to major trunk roads as well as near the conurbations that consume the goods (Paragraph 2.45).

2.6 The NPS notes that the Government's vision is for a sustainable transport system that is an engine for economic growth. The NPS consequently states that the transfer of freight from road to rail has an important part to play in reducing greenhouse gas emissions and addressing climate change (Paragraph 2.53). To facilitate this modal transfer, the NPS concludes that a network of SRFIs is needed across the regions, to serve regional, sub-regional and cross-regional markets. The NPS concludes that a reliance on existing rail freight interchanges and on road-only based logistics is neither viable nor desirable. The Government has therefore concluded that there is a compelling need for an expanded network of SRFIs (Paragraphs 2.54-2.56 and Table 4).

3. RAIL-SERVED LOGISTICS WAREHOUSING

3.1 Rail-served logistics warehouses fall into two types. The first type involves the installation of rail sidings along one side of the warehouse (normally one of the long sides) or even into the warehouse itself. Cargo is transferred directly between railway wagons positioned in the sidings and the warehouse using fork-lift trucks or similar lifting equipment, thereby avoiding the need to use road transport. Such facilities are only suitable (and economic) when handling commodities which tend to move in full train-load volumes (train of at least 400m length). Consequently, their use is fairly niche and normally associated with semi-bulk cargoes such as steel or forest products moved in conventional box or flat wagons. Consumer goods normally move in much smaller (less than train-load) volumes but more frequently. *ProLogis Park* in Coventry (Kerseley), due to a condition of its planning consent, had such sidings installed alongside a number of the warehouses. The site has never handled regular services and is currently not receiving trains.

3.2 The second type of rail-served logistics warehousing is where they are located within close proximity to an intermodal terminal, and connected to the terminal by 'internal' roads which tend to be privately owned and maintained (although this is not the case at Hams Hall where the internal site roads are adopted by the local highway authority).

3.3 An intermodal terminal is a set of railway sidings where containers and other types of intermodal units are lifted to and from railway wagons using fixed overhead or mobile lifting equipment. Goods conveyed in intermodal units arrive by train at the terminal, from where they are subsequently transferred to the warehousing by means of a short distance shunt via the internal roads using yard tractors and skeletal semi-trailer equipment. Yard tractors are designed to haul semi-trailers away from the public road network, such as within port estates, at large distribution centres and rail terminals. They are highly manoeuvrable and can lift/drop trailers quickly and efficiently. An example of such equipment is provided in the picture below.

Picture 1: Yard Tractor and Semi-trailer

3.4 This type of rail connectivity is possible due to the 'off public highway' connectivity and generates the following benefits:

- Vehicles which operate entirely within private land are currently able to operate with lower operating costs, meaning terminal to warehouse transfer costs are lower (see below);
- Drivers of yard tractors do not need to be fully qualified HGV licence holders (though operators would need to provide training), meaning wage rates are generally lower. It also means operators are not impacted by the current significant shortage of HGV drivers;
- Yard tractor equipment is cheaper to purchase or lease when compared with road-legal HGVs; and
- As the container is already 'on-site', there is no public highway network congestion to negotiate. Consequently, there is no requirement to build in any buffer time to ensure 'just-in-time' delivery time-windows are met, meaning the yard tractor equipment can be utilised more intensively when compared with road-legal HGVs serving off-site origins/destinations.

3.4 The implications of this position are explored in the following section. Developments over the past two decades have seen multiple warehouse new-builds 'cluster' around an intermodal terminal within a single rail-served site. In planning terms these have become known as *Strategic Rail Freight Interchanges (SRFIs)*, and include facilities at *DIRFT* (near Crick, Northants), *East Midlands Gateway* (Kegworth, Notts), *Hams Hall* and *Birch Coppice Business Park*. This clustering has the effect of concentrating large freight volumes at one location, thereby generating a critical mass capable of attracting viable intermodal rail freight services from a variety of origins (rail freight is generally only economically viable in train lengths over c400m).

3.5 For consumer cargo (i.e. that which passes through warehouses of the type proposed), intermodal rail is the more attractive option. As these goods generally move in smaller volumes, intermodal rail allows individual shippers to move goods at less than train-load volumes (e.g. single or a few containers at one time); a full-length train comprising containers from multiple shippers. For this reason, warehouses which are rail-served by means of being within close proximity to an intermodal terminal are the preferred type of connectivity. In contrast to directly rail-connected warehouses, where SRFIs have been developed, intermodal train services have been quickly established. For example, *East Midlands Gateway*, which officially opened in February 2020, has recently announced a fifth daily service (to/from Felixstowe, to complement the existing services from Felixstowe, Southampton and Liverpool).

3.6 *Birch Coppice Business Park* was originally developed by IM Properties at the end of the 1990s. It initially consisted of a single directly rail-connected warehouse (VW spare parts), though today it is a full-scale SRFI accommodating a modern intermodal terminal operated by *Maritime Transport* (known as *BIFT*) and a significant quantum of warehouse floor space. On a typical weekday, the terminal receives three trains/day from the Port of Felixstowe and two trains/day from the Port of Southampton. The table below summarises the key characteristics of the site.

	Birmingham International Rail Terminal (BIFT), Birch Coppice Business Park, Tamworth.
Railway Line	Birmingham-Derby Main Line
Loading Gauge	W10
Terminal Operator	Maritime Transport
Number sidings and train length	6 x reception sidings - varying length up to 530m 4 x 340m terminal sidings
On-site warehousing	Circa 450,000 sqm across +25 occupiers, including at Core 42 Business Park
Additional Information	Loading using overhead gantry cranes.

3.7 It is interesting to note that the original directly rail-connected warehouse, designed to handle cargo in conventional box wagons rather than intermodal, resulted from a planning consent condition, albeit it never received regular train services. Since the development of the intermodal terminal, the SRFI has grown to handle 5 trains/day as described.

3.8 The proposals are on the opposite side of the A5 to the existing Birch Coppice SRFI. The gate-to-gate public road network distance between the two sites is likely to be around 500m (i.e., the distance on the public road network connecting the respective private estate roads).

3.9 The site is also a short distance from the Hams Hall SRFI (circa 15km via the M42). Originally developed by Powergen in the late 1990s, it accommodates a modern intermodal terminal operated by *ABP Connect*. The table below summarises the key characteristics of the site. On a typical weekday, the terminal receives three trains/day from the Port of Felixstowe and daily trains from the ports of Southampton and London Gateway.

Terminal Name and Location	Hams Hall, near Coleshill.
Railway Line	Birmingham to Nuneaton/Derby
Loading Gauge	W10
Terminal Operator	ABP Connect
Number sidings and train length	2 x reception sidings 775m 4 x 400m terminal sidings
On-site warehousing	Circa 320,000 sqm
Additional Information	Loading using mobile reach stackers. Internal site roads are adopted highway.

3.10 However, given the distance from the application site via the public road network (M42), transfers of containers to/from Hams Hall would need to be undertaken by road-legal HGVs. In this case, it would be a standard articulated HGV, comprising a tractor unit hauling a skeletal semi-trailer. An example is provided in the picture below.

Picture 2: Tractor Unit and Semi-trailer

3.11 When compared with yard tractors within an SRFI, the terminal to off-site warehouse transfer process (whether in this case to Hams Hall or more generally) has the following disadvantages:

- Drivers need to be fully licenced and qualified HGV drivers (significantly higher wage rates and current recruitment issues due to shortages of fully qualified drivers);
- Road-legal HGV equipment is more expensive to purchase or lease when compared with yard tractors; and

- Buffer time has to be built into schedules to ensure 'just-in-time' delivery time-windows are met therefore meaning the equipment is potentially utilised less intensively.

3.12 Overall, transfer costs from terminal to warehousing which is not rail-served are substantially higher. This issue is addressed in the following section of this report.

4. RAIL CONNECTIVITY – LOGISTICS OPERATOR BENEFITS

Use of Yard Tractors on the Public Road Network

4.1 While yard tractors (as described in the previous section) have been designed to haul semi-trailers on private land (such as between intermodal terminals and warehousing within SRFIs), under limited circumstances they can also be operated on the public highway (defined as roads maintained at public expense). In these situations, they are classed as *'works trucks'* and are defined under the Construction and Use Regulation as:

> *"A motor vehicle (other than a straddle carrier) designed for use in private premises and used on a road only in delivering goods from or to such premises, to or from a vehicle on a road in the immediate neighbourhood, or in passing from one part of any such premises to another or to other private premises in the immediate neighbourhood"*

4.2 When operated on the public highway, a works truck needs to be licenced with the DVLA and pay Vehicle Excise Duty (VED). While certain derogations exist for 'works trucks', by and large they must conform to the requirements of the Construction and Use Regulations when operating on the public highway, particularly with respect to being within gross vehicle weight limits, having a speedometer (if they can exceed 25mph), fitment of suitable brakes and appropriate lighting (headlights, indicators etc..). Note that the definition requires the vehicle to be 'designed for use in private premises', meaning that former road-going vehicles used as 'shunters', such as old tractor units, cannot be classed as works trucks.

4.3 The term *'immediate neighbourhood'* in the works truck description is not defined in terms of distance. It is regarded as a matter of judgement for the operator and ultimately would be for a Court to determine. However, given the location of the application site on the opposite side of the A5 to Birch Coppice (gate-to-gate around 500m) and that Revenue and Customs have to date adopted 1km when permitting the use of rebated fuels on public roads (see below), the proposed warehouse development clearly falls within the description of the term 'immediate neighbourhood'. On that basis, yard tractors which operate internally within the *Birch Coppice Business Park* (to/from *BIFT*) will also be able to access the site on the same terms (under the works truck conditions).

4.4 In addition to their lower purchase/lease costs, there are currently two important exemptions for works trucks when used on the public highway which when compared with the use of standard road-legal HGVs can generate a significant operating cost advantage.

4.5 Firstly, works trucks can be legally driven on a standard Category B 'car' driving licence when on the public highway. They are classed as an 'exempted goods vehicle'; the driver must be aged 21 or older and have held a Category B driving licence for at least two years (albeit for health and safety reasons operators would need to ensure adequate training had been provided to the driver). Drivers of road-legal HGVs must hold a vocational driving licence (Category C+E for articulated HGVs) and possess a Driver Certificate of Professional Competence (Driver CPC) qualification. Consequently, wage rates for fully qualified HGV drivers (C+E licence plus Driver CPC) are significantly higher than for yard tractor operatives. This is significant in light of the identified (and well publicised) shortage of qualified HGV drivers nationally[1].

4.6 Secondly, VED rates are significantly lower for a works truck. Currently it is only £165 per annum, compared with the full rate of £1,200 for a standard articulated HGV.

4.7 Vehicles such as yard tractors which operate entirely within private land have also been able to use fuel where a much lower rate of excise duty has been charged. For diesel powered vehicles, the fuel is referred to as 'rebated diesel' or 'red diesel' (after the colour of the dye which is added to distinguish it from the full duty paid version). However, the Chancellor of the Exchequer announced in the March 2021 Budget that most rebated diesel exemptions are to be removed from April 2022 onwards, even on vehicles operating entirely on private land. That includes yard tractors.

4.8 Drawing the above together, it can be concluded that the proposed warehouse development adjacent to Junction 10 can in practice be classified as rail-served (effectively it will be 'inside' the SRFI). Occupiers will be able to access *BIFT* on the same basis as those currently located within the SRFI (i.e., using work trucks). The implications of this position in terms of transport/transfer costs are explored below.

[1] Letter to Prime Minister from Road Haulage Association, 23 June 2021

Transfer Costs to and from BIFT

4.9 The internal shunting operation between *BIFT* and the surrounding warehousing (within the SRFI and the application site) would most likely adopt the 'drop trailer' method. A loaded container on a skeletal semi-trailer would be shunted from the rail terminal to its destination warehouse, and positioned at the appropriate loading dock. The yard tractor/works truck would then leave the container/semi-trailer combination at the loading dock for discharge, and subsequently collect an empty container/semi-trailer combination, ideally from another loading dock or nearby warehouse, before returning to the rail terminal. The yard tractor therefore 'keeps moving' and a round-trip out from and back to the rail terminal is able to shunt two containers.

4.10 Occupiers with a sufficiently high volume of incoming/outgoing freight via the *BIFT* may elect to invest their own yard tractor/works truck, either purchase outright or lease. The annual leasing costs (including maintenance) for a typical yard tractor/works truck that is used in ports and rail terminals is around £25,000. Vehicle Excise Duty (so that it can operate as a 'Works Truck' on the public highway network, as per above) is £165 per year. Annual driver wages, including on-costs, would be around £32,000 per driver. It is assumed that overheads would equate to around 25% of the yard tractor fixed costs. Total annual fixed costs would therefore total around £111,500 per annum for each yard tractor operated, assuming two drivers per vehicle. A skeletal semi-trailer would cost around £6,000 per annum to lease. Duty paid diesel (excluding VAT) currently costs around £1.19 per litre and fuel consumption is around 1.4km/l (4 mpg) for a yard tractor. Once tyre wear is accounted for, the running costs for the yard tractor/works truck and semi-trailer combination would be around £0.90 per km.

4.11 Given the scale of the Birch Coppice SRFI, it is likely that a driver would be able to undertake 7 x drop/collect round-trips as described within an 11 hour shift (i.e., between 1.25-1.5 hours per round trip once shunting, waiting time, paperwork and statutory breaks etc. are accounted for). This equates to 14 round-trips per 24 hour period for each yard tractor/works truck, shunting a total of 28 containers to or from *BIFT*. Assuming a dwell time of around 4 hours at each warehouse, a skeletal semi-trailer would therefore undertake 2 x round-trips per driver shift. Terminals such as *BIFT* generally operate 5.5 days per week (i.e., Saturday AM), equating to 275 days per annum.

4.12 On that basis, the total costs per round-trip (assuming an average round-trip distance is 6km) will be approximately £40 or £20 per container shunted. Once the operator's margin is accounted for, this would equate to a rate per shunt of around £22. This is shown in the table below.

Table 4.1: Yard Tractor/Works Truck Transfer Costs with SRFIs

Red Diesel			
Yard Tractor/Works Truck		Days pa	275
Annual lease inc maint & ins	£25,000	Round trips/day - yard tractor	14
VED	£165	Round trips/day - semi-trailer	4
Driver wages - 2 x £32k inc NIC	£64,000		
Overheads (25%)	£22,291	*Fixed cost round trip*	
Total pa	£111,456	Yard tractor	£29
		Semi-trailer	£5
Skeletal semi-trailer		*Total*	*£34*
Annual lease inc maintenance	£6,000		
		Running costs per km	£0.90
		Distance/round trip (km)	6
		Running costs	£6
		Total cost per round trip	**£40**
		Total cost per container	**£20**

4.13 In contrast, for a road-legal 6x2 tractor unit the annual leasing costs (including maintenance) is around £33,000. Vehicle Excise Duty is £1,200 per year. Annual driver's wages, including on-costs, in this case would be around £42,000 per driver. Once other operating costs are accounted for and overheads (again, it is assumed that overheads would equate to around 25% of the tractor unit fixed costs), annual fixed costs would therefore total around £154,000 per annum for each tractor unit operated - £42,500 more than the yard tractor option. The lease of the skeletal semi-trailer would again be on top of this. Assuming fuel consumption is around 2.5km/l (7 mpg), once tyre wear is accounted for the running costs for the road legal tractor unit and semi-trailer combination would actually be lower at around £0.54 per km.

4.14 Consider a transfer operation from *BIFT* to warehousing within the vicinity of the SRFI but beyond the 'works truck' limitations (as described). Such an operation would see a container road haulier collect the unit from the rail terminal and transport it to the destination warehouse. It would then wait with the container at the loading dock while it is discharged before returning it to the terminal. Assuming this round-trip operation takes 3.5 hours (waiting, travel time, discharge etc..), the total costs per round-trip (assuming an average round-trip distance is 15km) will be around £116 per container. Once the operator's margin is accounted for, this would equate to a rate per container moved of around £130. This is shown in the table below.

4.15 Clearly, being rail-served 'results in significantly lower transfer costs between rail terminal and warehouse.

Table 4.2: Road Legal-HGV Transfer Costs Beyond SRFIs

Road Legal HGV			
Tractor			
Annual lease inc maint & ins	£33,000	Days pa	275
VED	£1,200	Hours pa	5,000
Driver wages - 2 x £42k inc NIC	£84,000		
Overheads (25%)	£29,550	Fixed cost per hour	£30.75
Total pa	£147,750	Running costs per km	£0.54
Skeletal semi-trailer		Fixed cost (3.5 hours)	£108
Annual lease inc maintenance	£6,000	Running cost (15km)	£8
		Total	**£116**
Total Fixed Costs pa	£153,750		

User Benefits

4.16 Consider the example of deep-sea maritime containers being transported from the Port of Southampton to a distribution centre in the Tamworth area. The shipper would have the option of using intermodal rail freight (via *BIFT*) or road haulage direct from the port to warehouse.

4.17 A typical intermodal freight trains costs around £12 per train-km to operate (fixed costs plus fuel) on a siding-to-siding basis. Based on this rate plus a further £1,500 per train to account for other fixed costs (shunting, wagon down-time etc..), the total train cost for the 240km trip between Southampton and BIFT would be in the region of £4,400. Assuming a mean loading of 36 containers per train, that equates to a port gate to *BIFT* sidings rate of £122 per container. The port at Southampton would charge around £35 per container to load to rail. Terminal lift charges at BIFT are around £25 per container, plus £22 for a local shunt within or close by to the Birch Coppice estate. Assuming the destination warehouse is within the Birch Coppice SRFI (and by extension the application site), total port to warehouse costs are therefore estimated to be in the region of £204 per container.

4.18 For a destination beyond Birch Coppice, a local road haul is estimated (from above) to be around £120. For an off-site destination, total port to warehouse costs are therefore estimated to be in the region of £300 per container.

4.19 The same trip by road haulage would most likely take around 6.5 hours once waiting time at the port and warehouse are accounted for. On the basis of the fixed and running costs stated above, the total port to warehouse costs are also estimated to be in the region of £290 per container. This is shown in the table below.

Table 4.3: Estimated Intermodal and Road Haulage Costs Southampton to Tamworth

Rail			Road		
Cost per train-km	£12		Travel time + waiting	6.5	hrs
Distance	240	km	Distance	240	km
Containers/train	36				
Train cost	£2,880		Fixed cost	£200	
Other fixed costs	£1,500		Running cost	£94	
Total Costs	£4,380		***Total cost***	***£293***	
SRFI Rail-served					
Train cost/container	£122				
Port handling - rail	£35				
Terminal lift	£25				
Internal shunt	£22				
Total cost	***£204***				
Off-site					
Cost/container	£122				
Port handling - rail	£35				
Terminal lift	£25				
Local road haul	£120				
Total cost	***£302***				

4.20 This analysis demonstrates that one of the main factors which renders rail freight cost competitive against road haulage is the ability to locate distribution centres in rail-served locations. Where this occurs, shippers are able to accrue financial benefits (which in transport economics and appraisal are termed *user benefits*). In the costed example above, rates to a rail-served warehouse from a deep-sea port (in this case Southampton) are around *£80 per container less* when compared with road haulage. For a warehouse located away from a rail-served site, transport rates are broadly comparable. Given that future occupiers at the application site will be able to access *BIFT* on the same basis as those currently located within the SRFI (as described), they will consequently be able to accrue these user benefits. A proportion of the resultant traffic at the planned development can therefore be expected to arrive or depart using rail via Birch Coppice (BIFT), and this is addressed in the following section.

4.21 Shippers will therefore consider other factors (speed, delivery times, etc..) when deciding which mode to use. For reference, intermodal rail's market share into the Midlands from the Port of Southampton is currently around 45%. It is also worth noting that 250km is the approximate 'break even' distance above which intermodal rail freight should offer a more cost competitive solution where one end of the trip is rail-served (in this example the Port of Southampton, but several of the UK's main container ports including London Gateway, Teesport and Felixstowe all also exceed this distance).

4.22 It is worth noting that Maritime Transport already runs several yard tractors/works trucks from *BIFT* so in reality there will be no cost associated with leasing these, making the option much more cost effective for prospective site occupiers. Furthermore, given the short distance journeys involved in shunting between *BIFT* and the application site, the work load involved allows the yard tractors/works trucks to be adapted to low cardon technologies such as fully electric (EVs) or hybrid electric vehicles, which have a limited range at present. This, in turn, would save on VED making the use of *BIFT* even more cost effective whilst also saving carbon.

5. WIDER SUSTAINABILITY BENEFITS

5.1 In addition to the potential user benefits described above, rail freight is recognised as being a more sustainable mode of transport, generating wider societal benefits when compared with road haulage. Modal switch to rail from road generates lower levels of pollutants (improved air quality), causes fewer accidents and leads to less wear/tear on road surfaces. Emissions of greenhouse gases (GHG), in particular, are significantly lower on tonne-km basis, which is particularly important given internationally binding national commitments to reduce and ultimately become a net-zero GHG emitter.

5.2 The Department for Transport (DfT) has monetised the wider societal benefits of moving goods by rail freight rather than road haulage (which in transport appraisals are termed mode shift benefits (MSBs) or non-user benefits). On a weighted average basis, MSBs are currently valued by the DfT at £0.34 per HGV-km removed from the road network. For the Port of Southampton to BIFT example flow presented above, moving the container by rail rather than road haulage would therefore generate around £82 in wider non-user benefits. This section of the report has therefore estimated the potential mode-shift to rail resulting from the proposed development being ‘rail-served’ (as described) alongside the wider non-user benefits, with a particular focus on the estimated reduction in GHG emissions.

Traffic Volumes and Distribution

5.3 The starting point of this assessment was the forecast HGV trip generation to/from the proposed warehouse units during the peak hours, as agreed by *Bancroft Consulting* with the various highway authorities. Then using TRICS data, these were expanded upon to estimate that over the 12-hour period 07:00 to 19:00, *627 HGVs* will depart the site, as follows:

- 157 HGVs to the South East of the site (A5);
- 33 HGVs to the North East of the site (M42);
- 338 HGVs to the North West of the site (A5); and
- 99 HGVs to the South West of the site (M42).

5.4 An equivalent level for incoming traffic is also forecast. For the purposes of this wider benefits exercise, these 12-hour figures needed to be translated into an estimated 24-hour total[2]. This was based on observed traffic flows (by means of a survey) at the Swan Valley warehousing development in Northampton, data which subsequently formed the basis of the accepted trip generation analysis for the East Midlands Gateway SRFI Development Consent Order

[2] Warehouses such as that planned for the application site will receive and despatch HGVs 24 hours per day, whereas the highway traffic assessment is principally concerned with daytime traffic flows measured against network capacity during the busy daytime period.

examination. This suggests that 56.8% of observed HGV arrivals and departures took place during the 07:00 to 19:00 time period. Consequently, the agreed 12-hour figure has been scaled by 1/0.568 to establish an estimated 24-hour total. On this basis, the planned warehousing at the application site can expect to despatch *1,104 HGVs per 24-hour period* (with an equivalent level for incoming traffic).

5.5 The Swan Valley traffic survey was utilised as that particular development has a broadly similar quantum of floor space (c135,000 sqm) to that planned for the application site, a range of warehouse and manufacturer occupiers and that the 24-hour distribution of traffic subsequently formed the basis of the accepted traffic generation rates at the East Midlands Gateway examination. Also, for the avoidance of doubt, these 24-hour traffic figures (as described) have been estimated purely to establish the potential mode shift to rail and the wider non-user benefits. As noted, Bancroft Consulting's previously agreed peak-hour rates should be adopted for any highway capacity assessments.

5.6 The total HGV arrivals and departures over the 24-hour period will include both loaded and empty re-positioning movements (Bancroft Consulting's figures include both loaded and empty HGVs). For example, a loaded outbound departure to a retail outlet or another distribution centre might return empty (albeit conveying empty roll cages/pallets or waste packaging). Likewise, a loaded arrival from a supplier would realistically depart empty, potentially to collect a backload from another warehouse in the vicinity.

5.7 The table below therefore shows the total estimated 24-hour flows to and from the application site once empty arrivals and departures are accounted for. In this case, we have assumed that 75% of loaded inbound HGVs subsequently depart empty (25% collecting a backload directly from the site), and likewise that 75% of loaded outbound HGVs will return to the site empty. On this basis, the Junction 10 site is estimated to attract 631 loaded HGVs per 24-hour period (and likewise a similar level of departing loaded HGVs).

Table 5.1: Summary of Estimated 24-hour HGV Arrivals and Departures

HGVs			
Loaded inbound	631	Empty Outbound	473
Empty inbound	473	Loaded outbound - backload	158
		Loaded outbound - empty in	473
Total inbound	1,104	Total outbound	1,104
Total per 24-hours	***2,209***		

Source: Bancroft Consulting (agreed peak-hour flows), expanded to 24-hour based on TRICS data and Swan Valley observed traffic flows

5.8 The MDS Transmodal *GB Freight Model (GB Freight Model)*[3] provides an origin-destination matrix of loaded warehousing traffic to/from the site's zone (MSOA: E02006469; North Warwickshire 002: Dordon, Hurley & Wood End). This includes both domestic and unitised port traffic. The imported proportion of incoming cargo to the zone in this case is set at 33%. This is potentially conservative as some warehouses, particularly those operating as National Distribution Centres typical of the area (e.g., Aldi National Distribution Centre at Atherstone), will be handling significantly higher proportions of imported cargo; this is typically more suitable to rail, particularly if moved through one of the rail-served deep-sea container ports.

5.9 The estimated loaded 24-hour HGV traffic in each of the 4 directions has subsequently been distributed nationally in-line with the GB Freight Model's origin-destination matrix of loaded warehousing traffic for the Dordon zone. This is shown in the table below differentiated by standard geographical regions.

Table 5.2: Estimated Distribution of Application Site Loaded Warehouse Traffic by Region

	Loaded HGVs	
GB Region	From Dordon	To Dordon
North East	2	2
North West	127	144
Yorkshire & the Humber	11	14
East Midlands	111	67
West Midlands	238	168
Eastern	40	86
Greater London	25	7
South East	29	95
South West	12	10
Wales	14	22
Scotland	23	15
Total	**631**	**631**

Source: GB Freight Model, based on Table 5.1

5.10 On the basis that all loaded traffic moves by road haulage i.e., assuming initially that no traffic arrives/depart by rail via *BIFT* (this is 'corrected' below), derived from the GB Freight Model's highway assignment module the total daily loaded HGV-km is estimated to be as follows:

- 98,180 HGV-km for loaded inbound HGVs;

[3] Comprehensive freight analytical tool developed/maintained by MDST that models current and forecasts future freight flows by mode, Origin-Destination and commodity grouping. Produces forecasts for, amongst others, DfT, Network Rail, TfN and Midlands Connect.

- 70,933 HGV-km for loaded outbound HGVs; and
- 169,113 HGV-km total for loaded HGVs.

5.11 This represents an average length of haul (ALOH) of 156km for loaded inbound HGVs and 112km for loaded outbound HGVs. For the empty HGVs arriving and departing (Table 5.1 above), these are assumed to have repositioned empty for 25km prior to arriving or following departure from the site. This equates to *23,663 HGV-km per* 24-hour period (i.e., 473 X 2 directions x 25km). The total HGV-km are therefore *192,776 HGV-km* per 24-hour period (i.e., 169,113km + 23,663km).

5.12 However, as described above future occupiers at the application site site will be able to access *BIFT* on the same basis as those currently located within the SRFI, and subsequently accrue user-benefits for some flows. A proportion of the traffic estimated in Table 5.2 above can therefore be expected to arrive or depart using rail freight via BIFT (modal shift). Using the GB Freight Model's mode assignment module, the level of traffic that could be expected to arrive or depart by rail freight has subsequently been estimated (including the origin and destinations). One of the main components of GB Freight Model is the cost-based mode choice calculation which, for every origin to destination, works out the cheapest rail route (including local road hauls at either end). It then calculates the road versus rail trunk haul mode share based on a Logit model. This mode share calculation approach has therefore been applied to the loaded traffic distribution described above. This is shown in the table below.

Table 5.3: Estimated Mode Split at the Proposed Junction 10 Warehouse Development

	Loaded HGV-equivalent units				
	By Rail		Remaining by Road		Rail mode share
GB Region	From Dordon	To Dordon	From Dordon	To Dordon	(Both directions together)
North East	1	0	1	2	20%
North West	8	8	119	136	6%
Yorkshire & the Humber	1	0	10	14	5%
East Midlands	2	1	109	66	2%
West Midlands	3	2	235	166	1%
Eastern	4	38	36	48	33%
Greater London	2	0	23	6	8%
South East	3	12	26	83	12%
South West	2	1	10	9	13%
Wales	1	1	13	21	7%
Scotland	19	11	4	4	79%
Total	**46**	**76**	**585**	**555**	**10%**

MDS Transmodal

Source: GB Freight Model

5.13 On that basis, around 76 loaded inbound HGV-equivalent units can be expected to arrive by rail via *BIFT* across the 24-hour period. The equivalent for loaded outbound is 46 HGV-equivalent units. Combined, rail therefore equates to 122 loaded HGV-equivalent units (sum of both directions) across the 24-hour period. This suggests just over 3 'works trucks' shuttle movements per hour between BIFT and the application site when spread evenly across the 24-hour period (as described in Section 4, in each case delivering a loaded container and returning to *BIFT* with a loaded outbound or empty container). Overall, the rail mode share for all cargo, when simply measured in terms of the number of HGV-equivalent units passing through the gate, is 7% for outgoing traffic and 12% for incoming traffic (10% for both directions combined). When measured in terms of unit-km i.e., also accounting for distance moved, the rail mode share is estimated to be around 21%.

Reduction in GHG Emissions

5.14 The *Department of Business, Energy and Industrial Strategy (BEIS)* publishes conversion factors in order that those organisations required to can calculate and report their GHG emissions[4]. The current figure for an average laden articulated HGV is 0.91569kg CO_2e per HGV-km. Therefore, on the basis that all cargo moves by road haulage, the total of 192,776 HGV-km per 24-hour period (as per above) equates to GHG emissions of 176,523kg CO_2e (i.e., 192,776km x 0.91569). Assuming the equivalent of 300 operating days per year, this equates to *53,000 tonnes of CO_2e per year*.

5.15 On a per tonne-km basis, rail transport has lower carbon emissions than the equivalent road transport. Therefore, a switching of appropriate movements from road to rail can be expected to result in a reduction in GHG emissions. For rail freight, the BEIS conversion factors only provides a per tonne-km value. This is 3.1 times lower than that for the average laden articulated HGV, meaning that the like-for-like figure for movements by rail freight is 0.29492kg CO_2e per HGV-equivalent km. The total of 122 loaded HGV-equivalent units (sum of both directions) across the 24-hour period equates to *34,915 HGV-equivalent km*, with an ALOH of 286km. This equates to GHG emissions of 10,297kg CO_2e per 24-hour period directly associated with rail freight transport or just under *3,100 tonnes CO_2e per annum* assuming 300 operating days. However, for rail freight the estimation also needs to consider the emissions derived from:

- Lifting equipment at the terminals and ports; and
- Local road hauls and 'works truck' shunting between BIFT and the application site.

[4] www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020
Outputs are reported as kilograms of carbon dioxide equivalent (kg CO_2e)

5.16 Container lifting operations (to/from rail wagons) at each end of the journey will involve either a reach stacker or a terminal gantry crane. Compared to the transport legs, the GHG emissions will be very small and these have been estimated these to be the equivalent of 1km of HGV haulage (at the BEIS conversion factor for average laden HGV).

5.17 We have assumed 6km of 'works truck' shunting at BIFT per unit moved (at the BEIS conversion factor for an average laden HGV). For non-port rail traffic, a local road haul from the destination terminal to the cargo's final destination is assumed at a distance of 40km. As with road journeys direct from the application site, it is assumed that there will be an additional 75 empty movements associated with every 100 loaded movements, each travelling 25km. Therefore, for each non-port loaded rail unit moved there are 65.75 HGV-km of GHG emissions to include in the calculation (i.e., 6km + 1km + 40km + (75% X 25km) = 65.75 HGV-km), again at the BEIS conversion factor for an average laden HGV. For each port loaded rail unit moved, there are 7 HGV-km of GHG emissions to include (i.e., 6km + 1km = 7km).

5.18 Due to the estimated modal shift from road to rail, the GB Freight Model forecasts that the remaining loaded road journeys to and from the application site are as follows:

- 555 HGVs inbound to the site with an ALOH of 141km, equating to 77,981 HGV-km daily;
- 585 HGVs outbound from the site with an ALOH of 96km, equating to 56,217 HGV-km daily; and
- Daily total of *134,198 loaded HGV-km*.

5.19 The associated empty HGV movements are *21,375 HGV-km*, calculated on the same basis as the 'road only' served site (i.e. (585+554) x 75% x 25km). The total HGV-km are therefore 155,573 *HGV-km* per 24-hour day (i.e., 134,198km + 21,375km). The estimated GHG emissions associated with the forecast road and rail freight volumes (Table 5.3) is therefore shown in the table below, and subsequently compared with the 'road only' figure calculated earlier.

Table 5.4: Estimated GHG Emissions at Junction 10 Site

		GHG Emissions (CO_2e) per 24-hours
Road and Rail		
Rail	34,915 HGV-equiv km x 0.29492kg CO_2e	10,297kg CO_2e
Non-port	72 HGV-equiv units x 65.75km x 0.91569kg CO_2e	4,335kg CO_2e
Port	50 HGV-equiv units x 7km x 0.91569kg CO_2e	320kg CO_2e
Remaining Road	155,575 HGV-km x 0.91569kg CO_2e	142,458kg CO_2e
Total		*157,410kg CO_2e*
Road Only		
Road	192,776 HGV-km x 0.91569kgCO_2e	*176,523kg CO_2e*
		GHG Emissions (CO_2e) per annum*
Road		*52,957 tonnes CO_2e*
Road and Rail		*47,223 tonnes CO_2e*
Saving		***5,734 tonnes CO_2e***

*300 operating days per annum

Source: GB Freight Model and BEIS Conversion Factors

5.20 On this basis, it is estimated that the modal shift from road to rail will generate a saving of just under **5,800 tonnes of carbon dioxide equivalent per annum**. To put that figure into context, it is broadly the same amount of carbon dioxide equivalent produced by around *2,750 typical mid-sized diesel powered cars* during the course of a year (on the basis that a typical mid-sized diesel car generates around 130g CO_2e per km and will on average cover 16,000km/c10,000 miles per annum)[5].

Non-User Benefits

5.21 Further, from the above forecasts the overall reduction in loaded HGV-km to and from the application site resulting from this modal shift is estimated to be around 34,915 HGV-km per 24-hour period (i.e., 169,113 HGV-km – 134,198 HGV-km). Assuming 300 operating days per annum, this represents a reduction of 10.4 million HGV-km over the course of a year. Based on the current MSB rate (weighted average) of £0.34 per HGV-km removed from the road network, this represents total non-user benefits to the country of around *£3.5 million per annum*.

[5] 0.130kg CO_2e x 16,000km = 2,080kg per annum (i.e., 2.08 tonnes) for each car. 5,734 tonnes/ 2.08 tonnes = 2,756 cars

6. SUMMARY AND CONCLUSIONS

6.1 The proposed road-based warehouse development is justifiable and deliverable in both planning and road traffic terms, based on the overarching identified need for logistics development in this location. However, due to the application site's close proximity to *Birmingham Intermodal Freight Terminal*, the proposed development can also in practice be classified as rail-served, and a proportion of the resultant traffic can therefore be expected to arrive or depart using rail freight. The purpose of this technical note is to explain why this situation arises, and to demonstrate the benefits of rail connectivity that will would be accrued by future warehouse occupiers at the application site and wider society.

6.2 Government planning policy (NPPF and NPS for National Networks) promotes the location of logistics facilities at sites which offer genuine modal choice to shippers. This is for two principal reasons:

- It creates the conditions where rail freight can become cost competitive when compared with road haulage, generating so called user benefits; and
- Rail freight is recognised as being a more sustainable mode of transport, generating wider societal benefits (non-user benefits) when compared with road haulage.

6.3 Developments over the past two decades have seen multiple warehouse new-builds 'cluster' around an intermodal terminal. In planning terms, these have become known as *Strategic Rail Freight Interchanges (SRFIs)* and it includes the warehousing and rail terminal developed at *Birch Coppice Business Park*. The proposed scheme is on the opposite side of the A5 to the existing Birch Coppice SRFI; the gate-to-gate distance via the public road network will be around 500m.

6.4 While yard tractors have been designed to haul semi-trailers on private land (such as between intermodal terminals and warehousing within SRFIs), under limited circumstances they can also be operated on the public road network. In these situations, they are classed as *'works trucks'*. It was demonstrated that the proposed warehouse development falls within the 'works truck' conditions and can therefore in practice be classified as rail-served (effectively it will be 'inside' the SRFI). Occupiers will be able to access *BIFT* on the same basis as those currently located within the SRFI.

6.5 It was subsequently shown that, for certain flows, future occupiers located at the application site would be able to accrue user benefits when using rail freight via *BIFT*. A proportion of the resultant traffic at the planned development can therefore be expected to arrive or depart using rail via *BIFT*. Given that position, analysis has forecast (using the GB Freight Model) that around 10% of loaded inbound and outbound traffic could be expected to move by rail freight via *BIFT*. It was subsequently estimated that the forecast modal shift from road to rail will, in terms of GHG emissions, generate a saving of just under *5,800 tonnes of carbon dioxide equivalent per annum*. Based on the current MSB rate (weighted average) of £0.34 per HGV-km removed from the road network, the forecast modal shift equates to annual non-user benefits of around *£3.5 million* to the nation but focused locally to the site.

6.6 It is therefore concluded that while the proposed road-based warehouse development is not dependent on access to *BIFT*, the plans conform with the Government's current policy with respect to the location of large scale logistics facilities, promoting modal choice and the transition to net-zero GHG emissions and as such, will generate several user and non-user benefits planning benefits, when compared to a site that is not rail-served.