Land North-East of Jn10 M42 Motorway, North Warwickshire

784-B033920

PAP/2021/0663

Revised Transport Assessment

Hodgetts Estates

February 2023

TETRA TECH

Tetra Tech Newcastle, 4th Floor, Rotterdam House, 116 Quayside, Newcastle upon Tyne, United Kingdom, NE1 3DY

Tetra Tech Limited. Registered in England number: 1959704
Registered Office: 3 Sovereign Square, Sovereign Street, Leeds, United Kingdom, LS1 4ER

DOCUMENT CONTROL

Document:	Revised Transport Assessment
Project:	Land North-East of Jn10 M42 Motorway, North Warwickshire
Client:	Hodgetts Estates
Project Number:	784-B033920
File Origin:	\\lds-dc-vm-101\Data\Projects\784-B033920 Land NE of M42 Jn10\60 Project Output\61 Work in Progress\Draft Documents\Transport Assessment\Proposed Employment Land Northeast of J10 M42 - Transport Assessment.docx

Revision:	**0**	**Prepared by:**	**GW/ EB**
Date:	21 December 2022	**Checked by:**	NRB
Status:	**Draft**	**Approved By:**	NRB
Description of Revision:			

Revision:	**1**	**Prepared by:**	**GW/ EB**
Date:	3 February 2023	**Checked by:**	NRB
Status:	**Final**	**Approved By:**	NRB
Description of Revision:			

Revision:		**Prepared by:**	
Date:		**Checked by:**	
Status:		**Approved By:**	
Description of Revision:			

Revision:		**Prepared by:**	
Date:		**Checked by:**	
Status:		**Approved By:**	
Description of Revision:			

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)

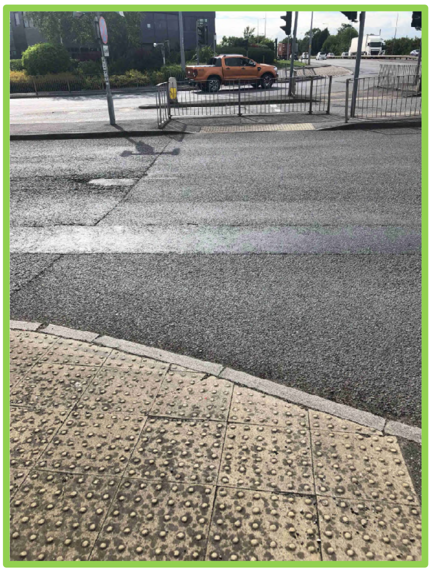
4.5 Figure 3, Appendix G, identifies opportunities for pedestrian travel to the site, based on a 1.95km walking distance (Local Transport Today in October 2017). This is a 24-minute walk at a typical walking speed of 1.3m per second. The catchment area extends north to the B5000/ Common Lane junction, 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

Reference/ Date	Location	Lighting	Dry/ Wet	Severity	Casualties
Pennine Way South Roundabout					
2 – 17149258 16/01/2017	A5 Roundabout at Junction with Centurion Way	Dark, Streetlights lit	Wet/Damp	Slight	1 cyclist
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					
4 – 17189916 03/06/2017	Pennine Way Roundabout junction with Thomas Guy Way	Daylight	Dry	Slight	1 driver
A car travelling southeast at the roundabout was waiting to enter roundabout when a second car has collided with its rear. Factors – Not reported					
5 –18299447 21/04/2018	Thomas Guy Way A5 northbound exit slip by Premier Inn	Daylight	Wet/Damp	Slight	1 driver
A car travelling to the northwest towards roundabout has braked suddenly and skidded. Factors – Poor turn or manoeuvre, sudden breaking, loss of control					
6 – 18322469 02/07/2018	Watling Street B5404 Junction with Quarry Hill	Daylight	Dry	Slight	1 cyclist and 1 driver
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.					

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.					

18 - 863408 27/12/2017	A5 Watling Street Dordon Junction with M42 10	Dark - Streetlights	Wet/Damp	Slight	2 casualties
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.					
20 - 869960 06/02/2019	Watling Street junction with M42 jct 10 island	Daylight	Dry	Serious	1 casualty
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).					
21 - 900846 19/11/2019	Watling Street at junction with Jct 10 traffic island	Daylight	Wet/Damp	Slight	1 casualty
A Heavy Goods Vehicle travelling west has collided with the rear of a stationary car waiting at the junction.					
24 - 298660 02/06/2018	Junction 10 off slip at M42 junction with A5	Daylight	Dry	Slight	2 casualties
A car travelling southwest has collided with the rear of a second vehicle waiting at the junction.					
25 - 323746 01/09/2018	Tamworth Island A5 at junction with 10 with the slip road on to the M42	Daylight	Dry	Slight	2 casualties
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.					
27 - 340418 29/10/2018	Not stated	Daylight	Wet/Damp	Slight	1 casualty
A car was stationary in a queue of traffic when a goods vehicle approaching from behind has collided with the rear of the car.					
30 - 151799 10/01/2017	Junction 10 M42, Island 15 at junction with the A5	Dark - Streetlights	Wet/Damp	Serious	1 casualty
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.					
31 - 187837 15/05/2017	A5 junction with M42	Daylight	Dry	Slight	1 casualty
A car was travelling southeast on M42 island when it collided with a second cars front drivers' side in the far-left lane.					

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

Client: Hodgetts Estates Limited Date: 18 March 2022

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

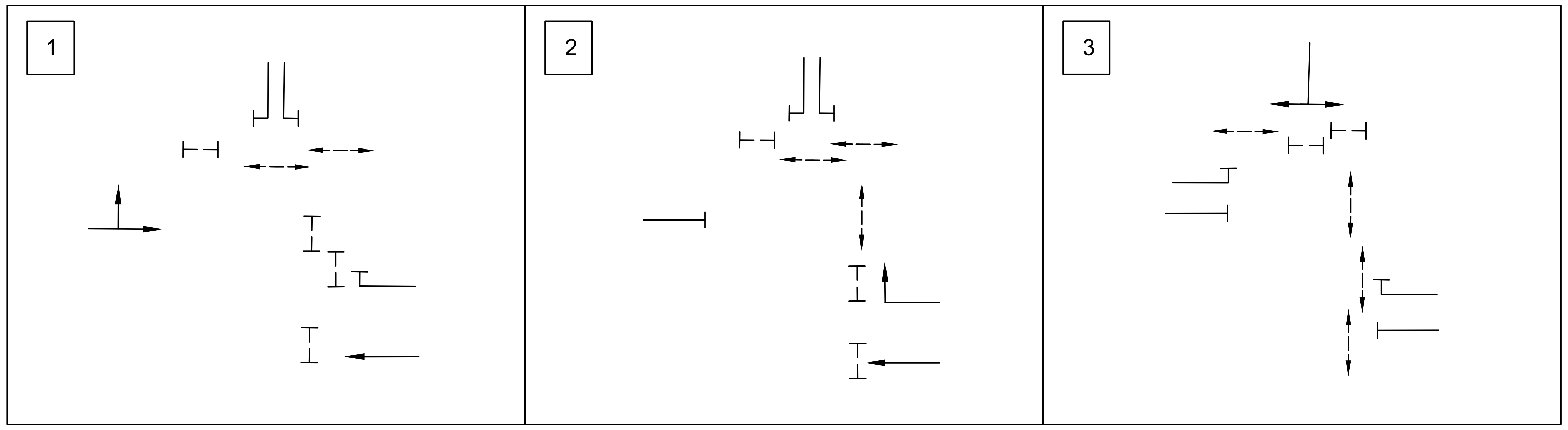
	Reference Case and 2031 Local Plan with and without development had been undertaken. 1.12. NB advised that TT can take the flows from the Paramics models and input them to the LINSIG/ TRANSYT model. Identify where the mitigation is required and develop a scheme (drawing) and then assess the benefit of 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

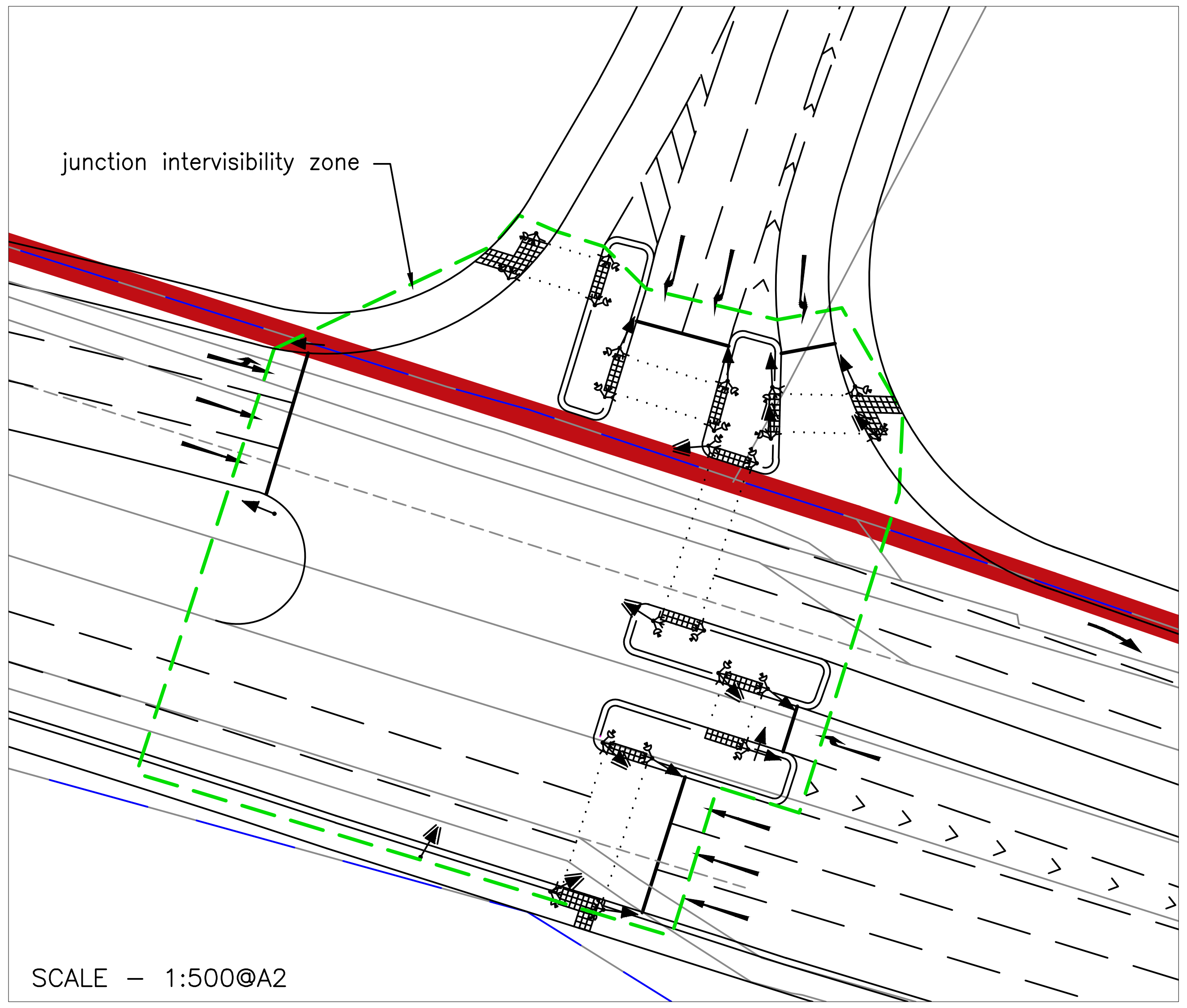
	the Jn10 scheme) both cases to be assessed with/ without the proposed development. 2.7. NB identified that the Vectos Paramics model currently has all these scenarios and the flows from the model can be presented and shared in the proposed methodology report. **ACTION TT to develop and circulate proposed 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

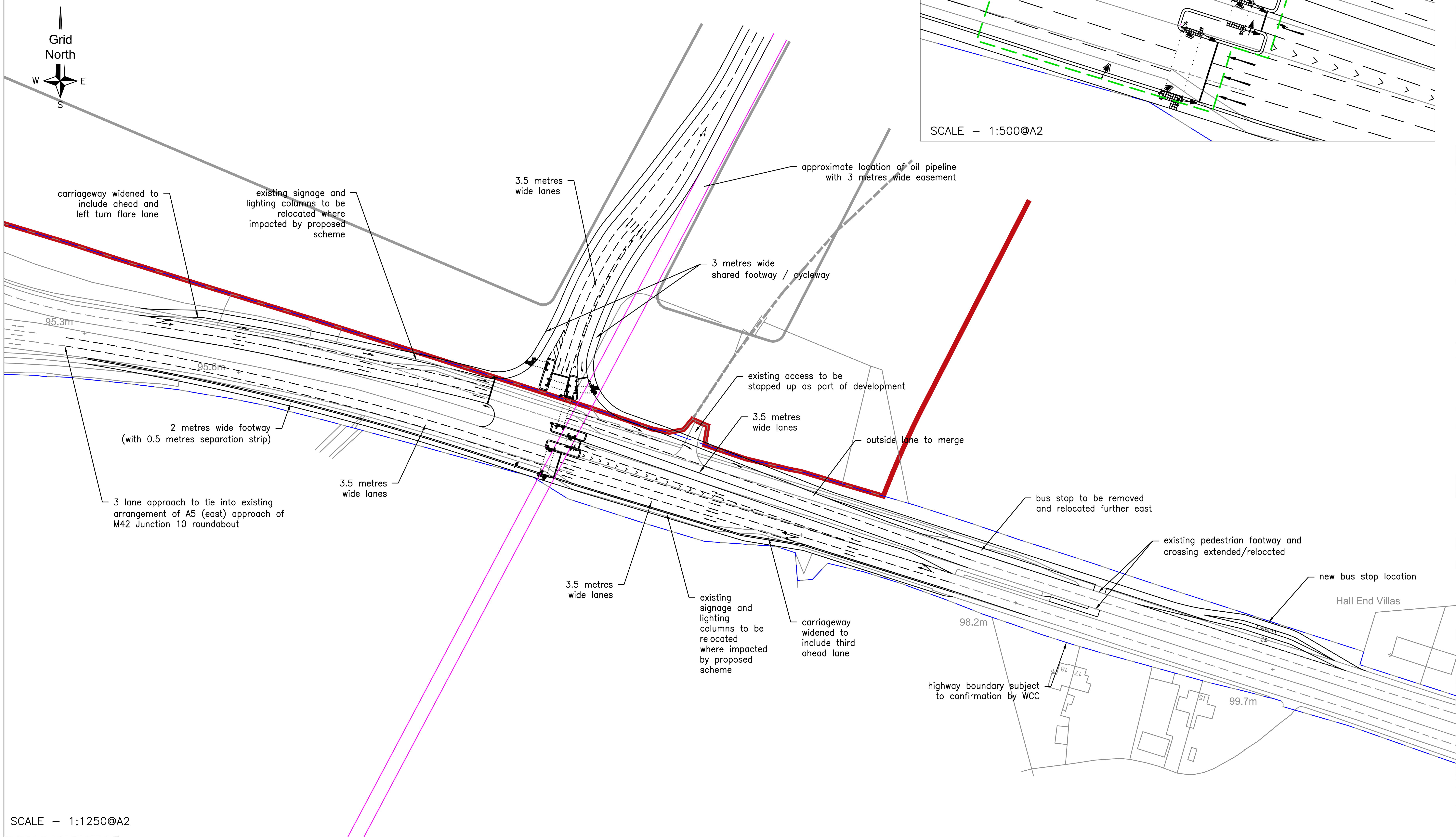
	plenty of land available that could be utilised as part of future potential mitigation package of works. 3.9. BS concluded that NH would much rather we reached an agreement on highways and mitigation requirements to avoid an appeal scenario. 3.10. NB identified that TRANSYT modelling will model the queuing 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

DRG. No. F19123/07 | REV. No. A







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

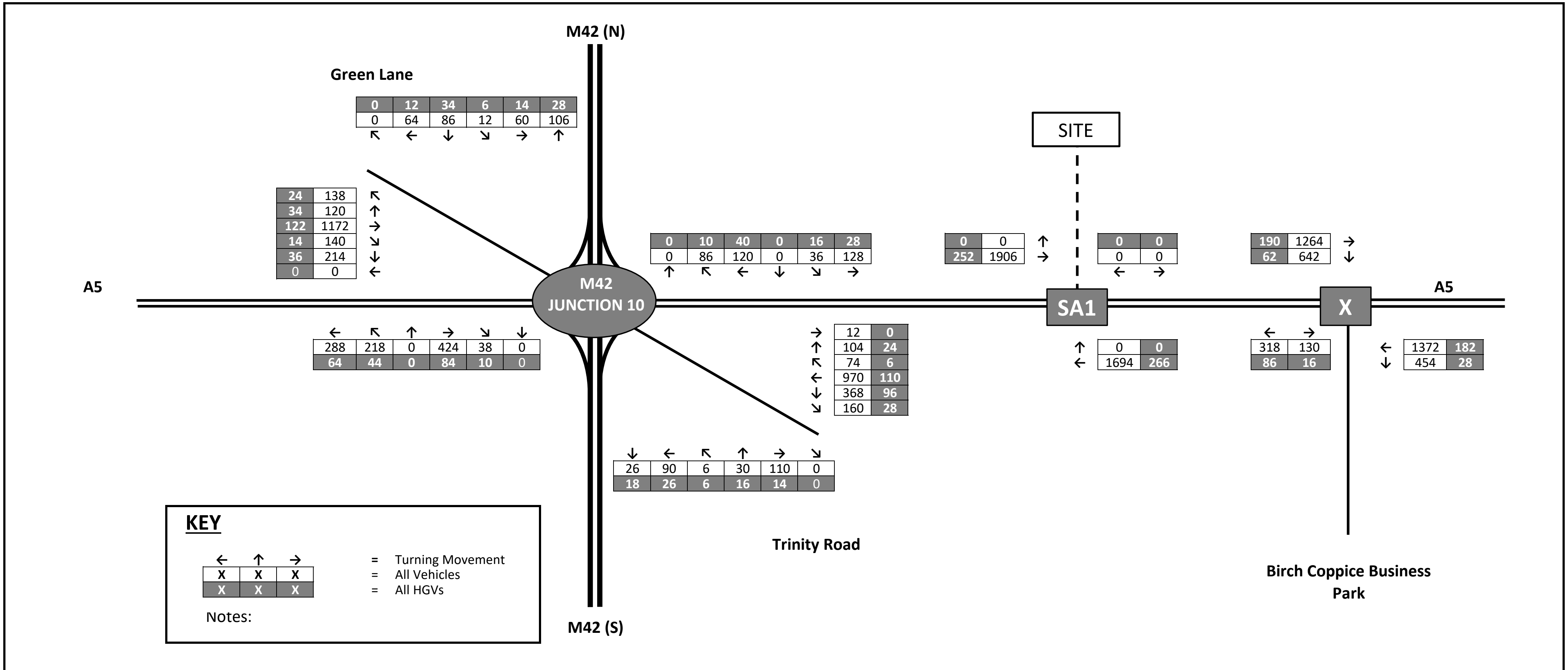
t 0115 9602919
f 0115 9648201
e office@bancroftconsulting.co.uk

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

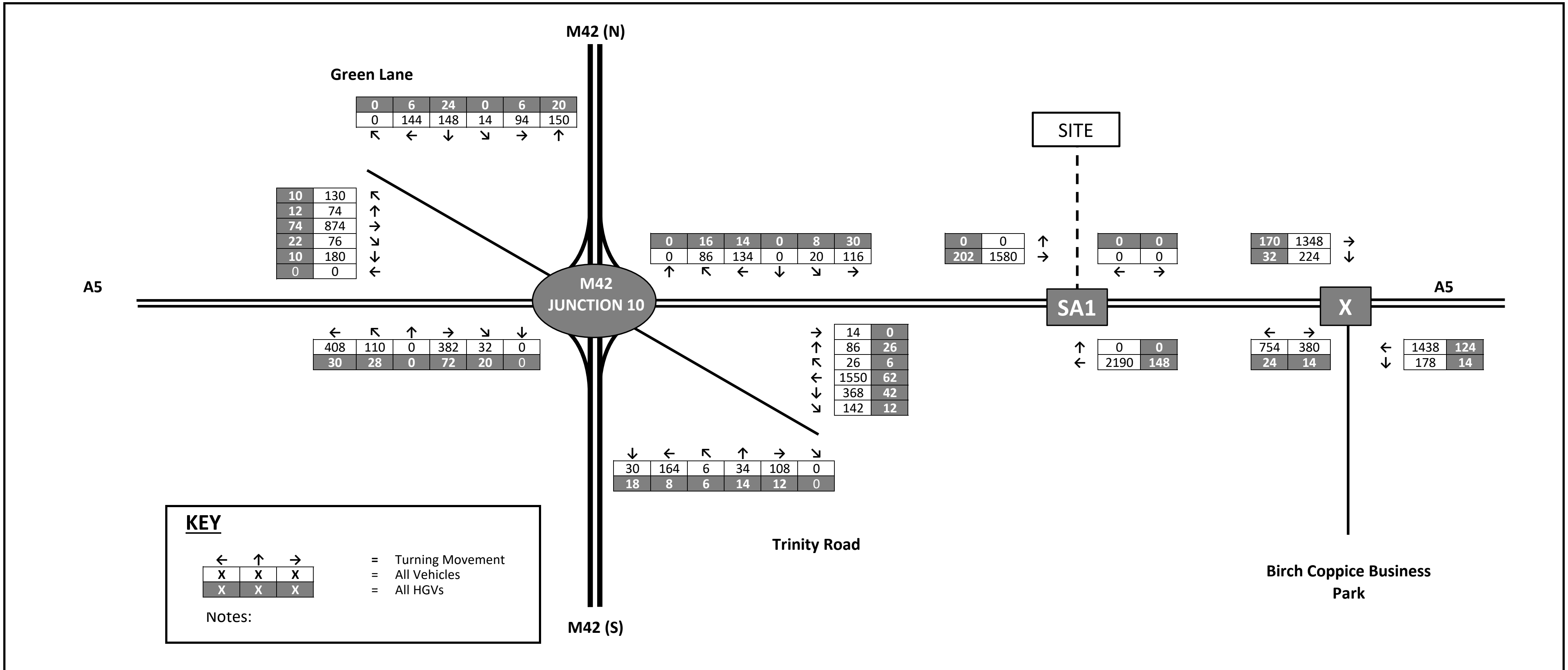


FIGURE 11

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

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB

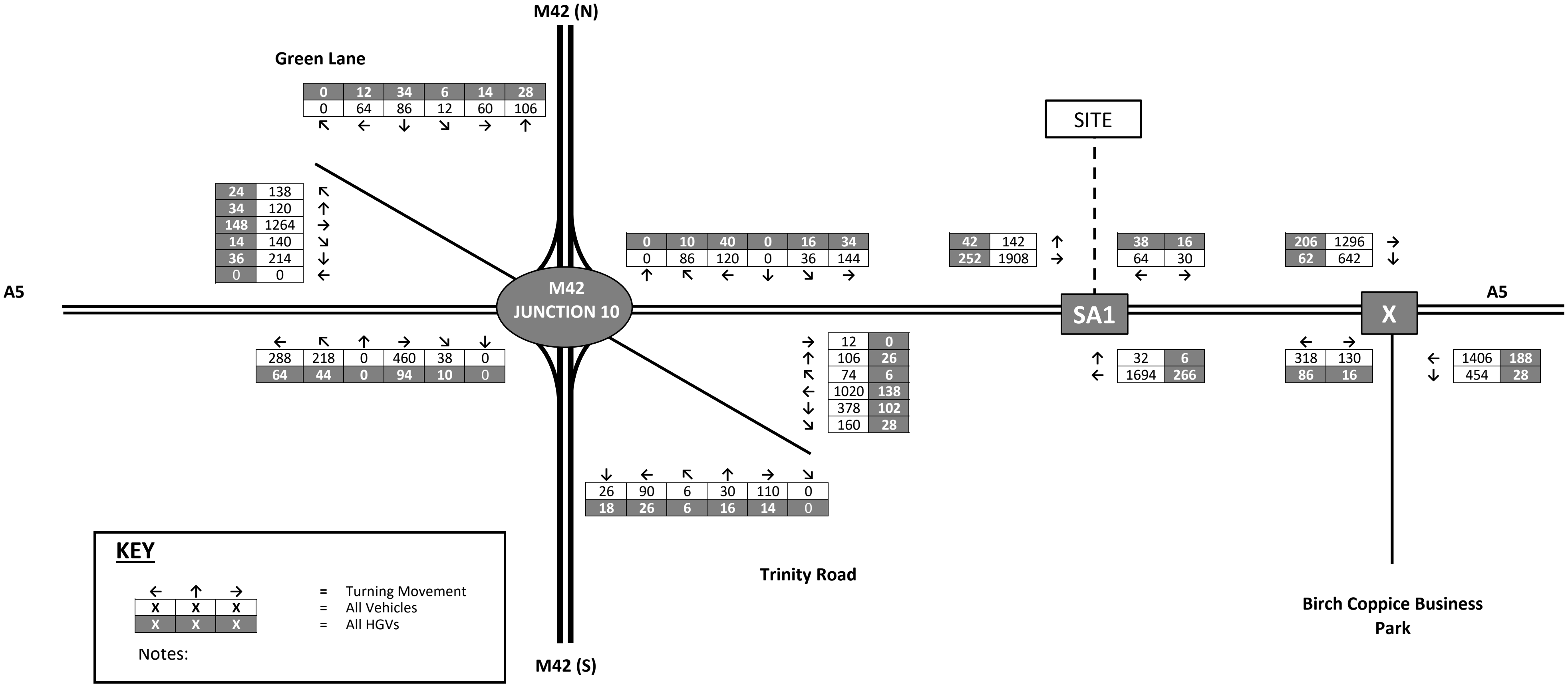


FIGURE 12

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

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB

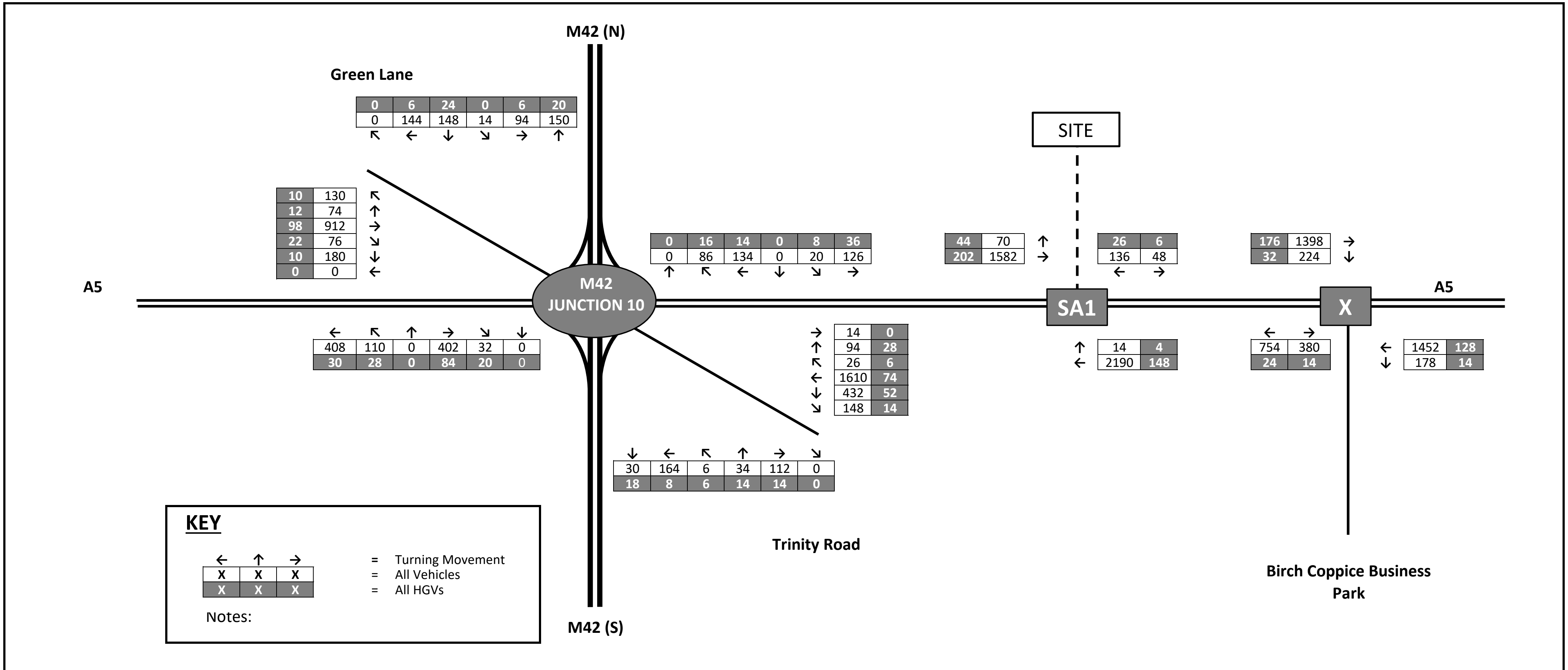


FIGURE 13

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

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB

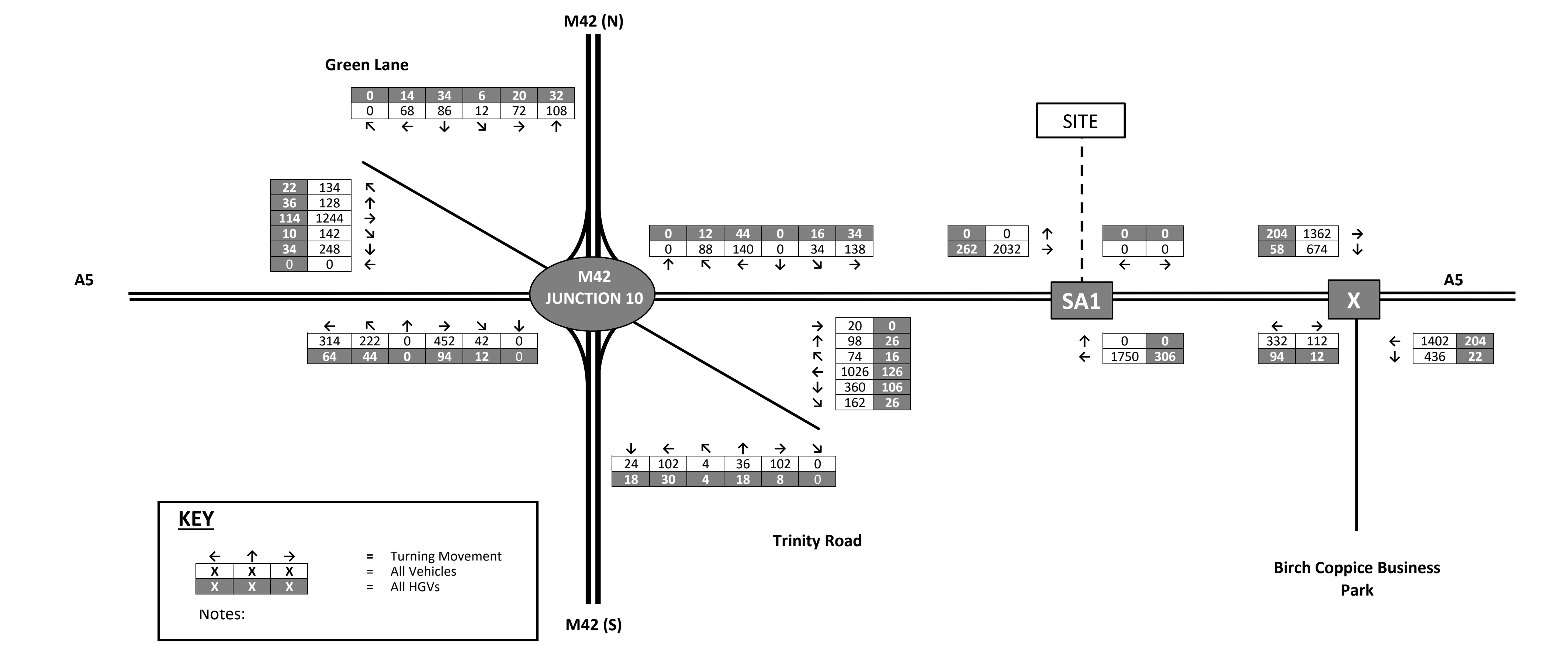


FIGURE 14

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

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB

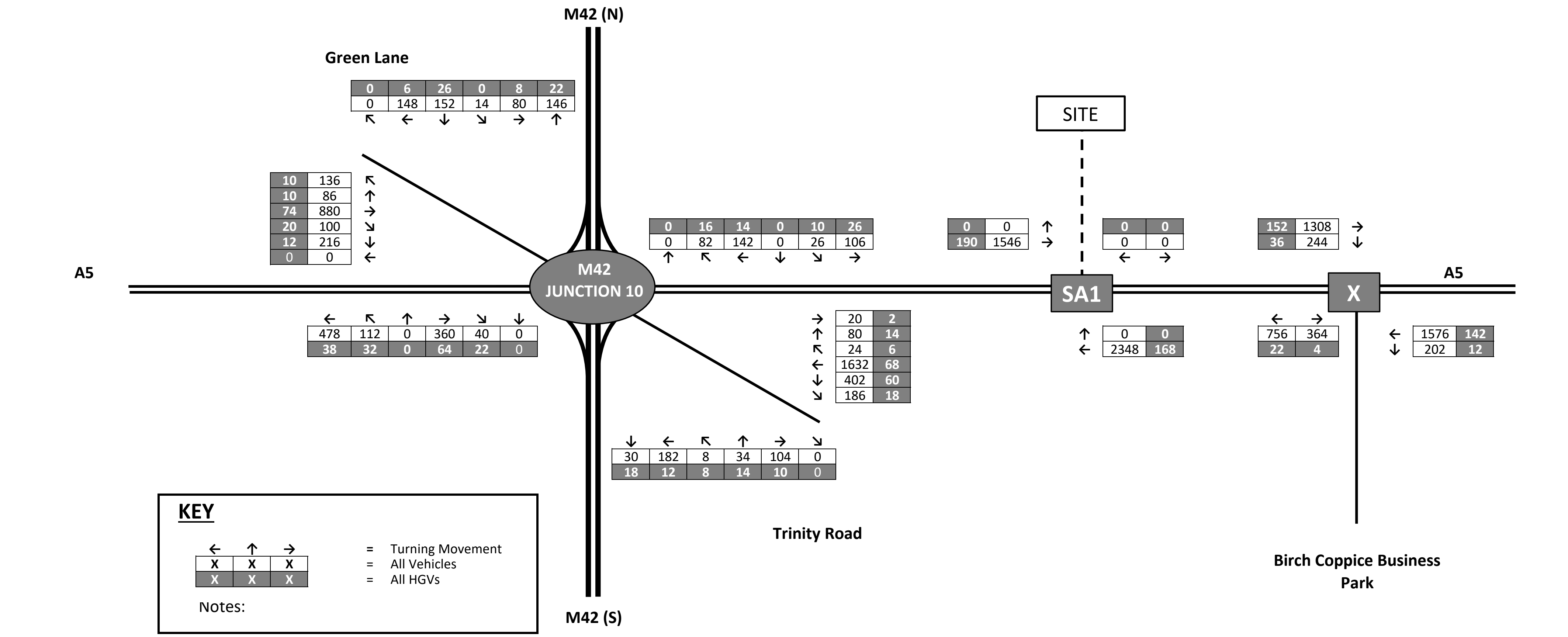


FIGURE 15

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

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB

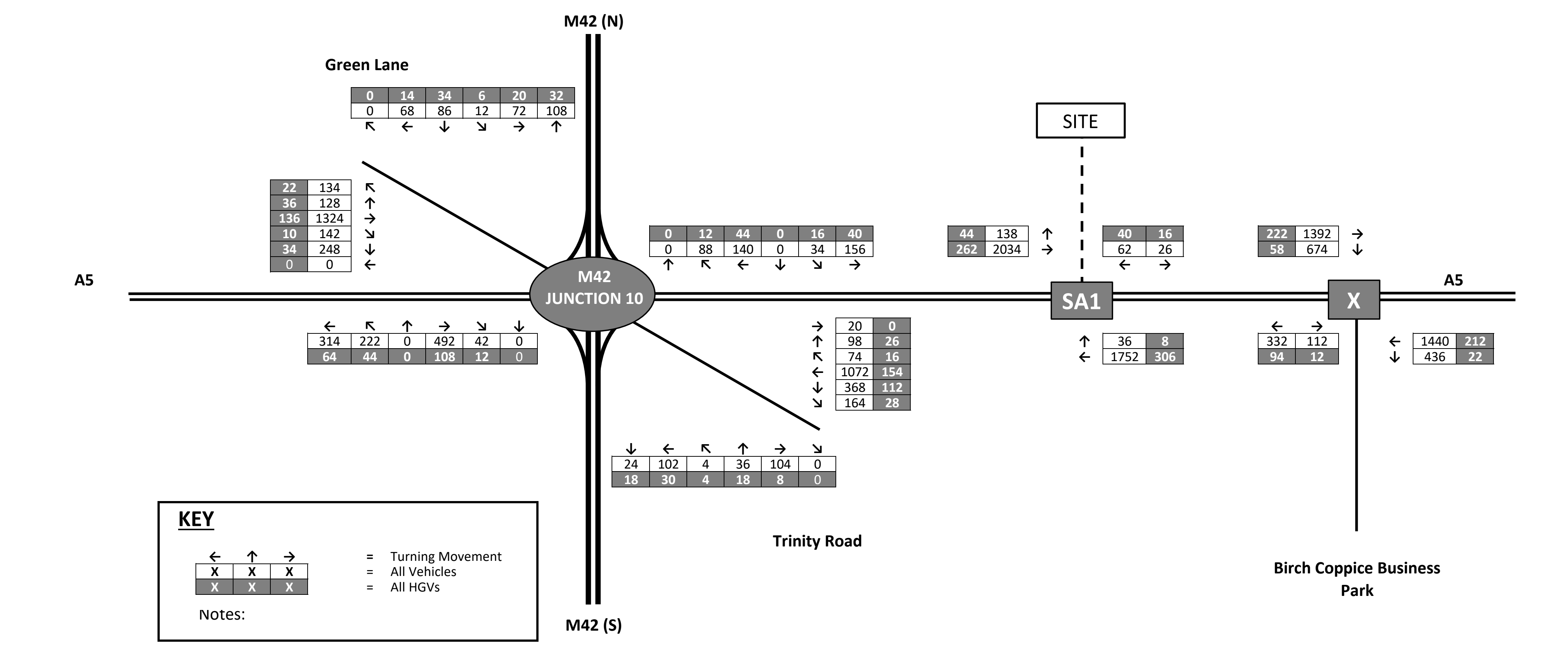


FIGURE 16

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

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB

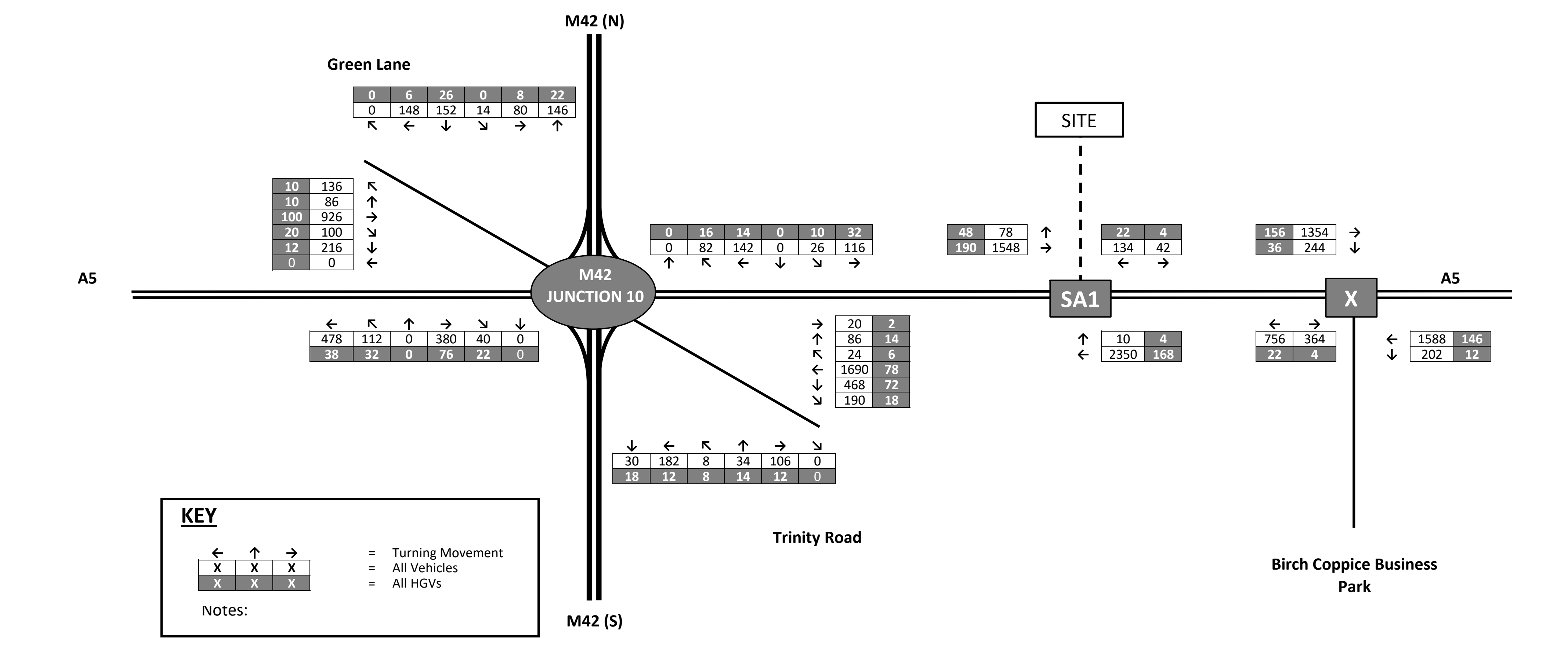


FIGURE 17

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

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB

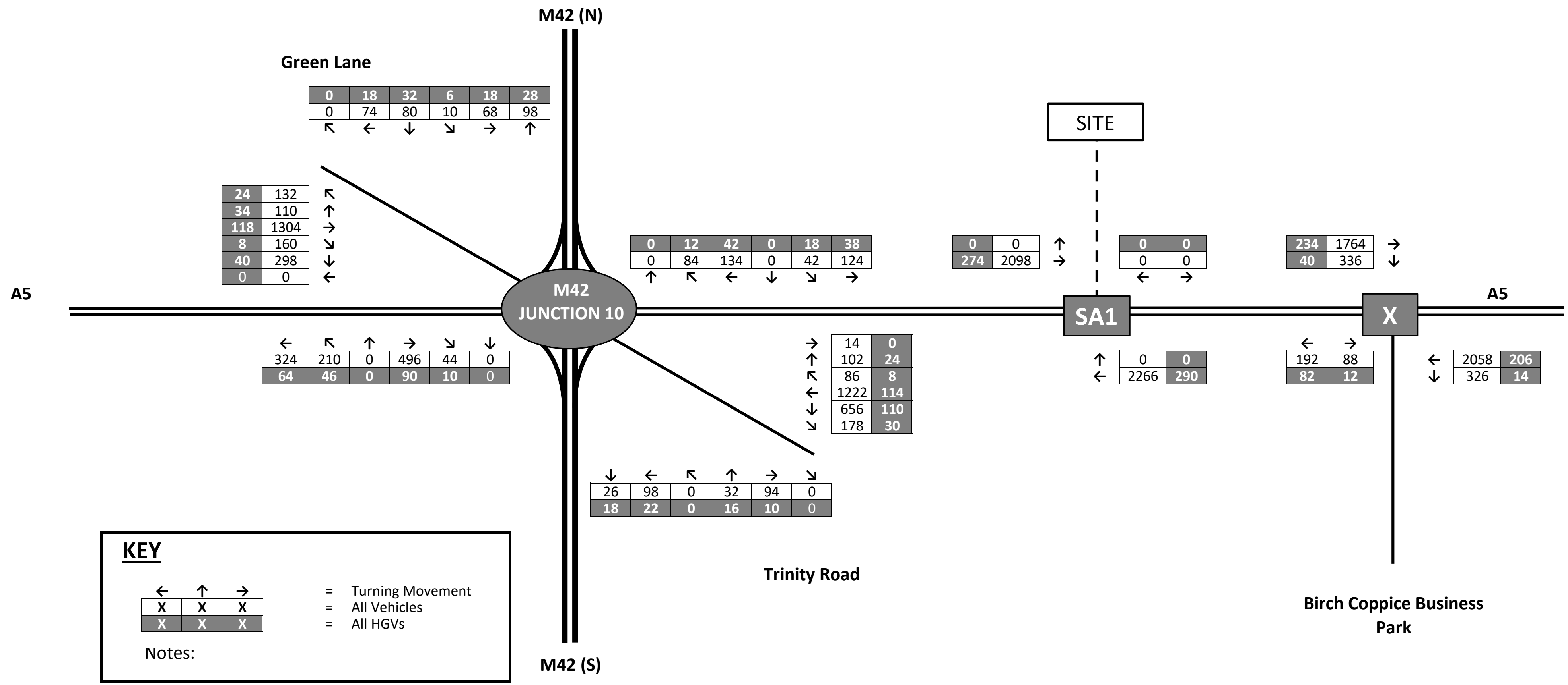


FIGURE 18

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

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB

BANCROFT CONSULTING

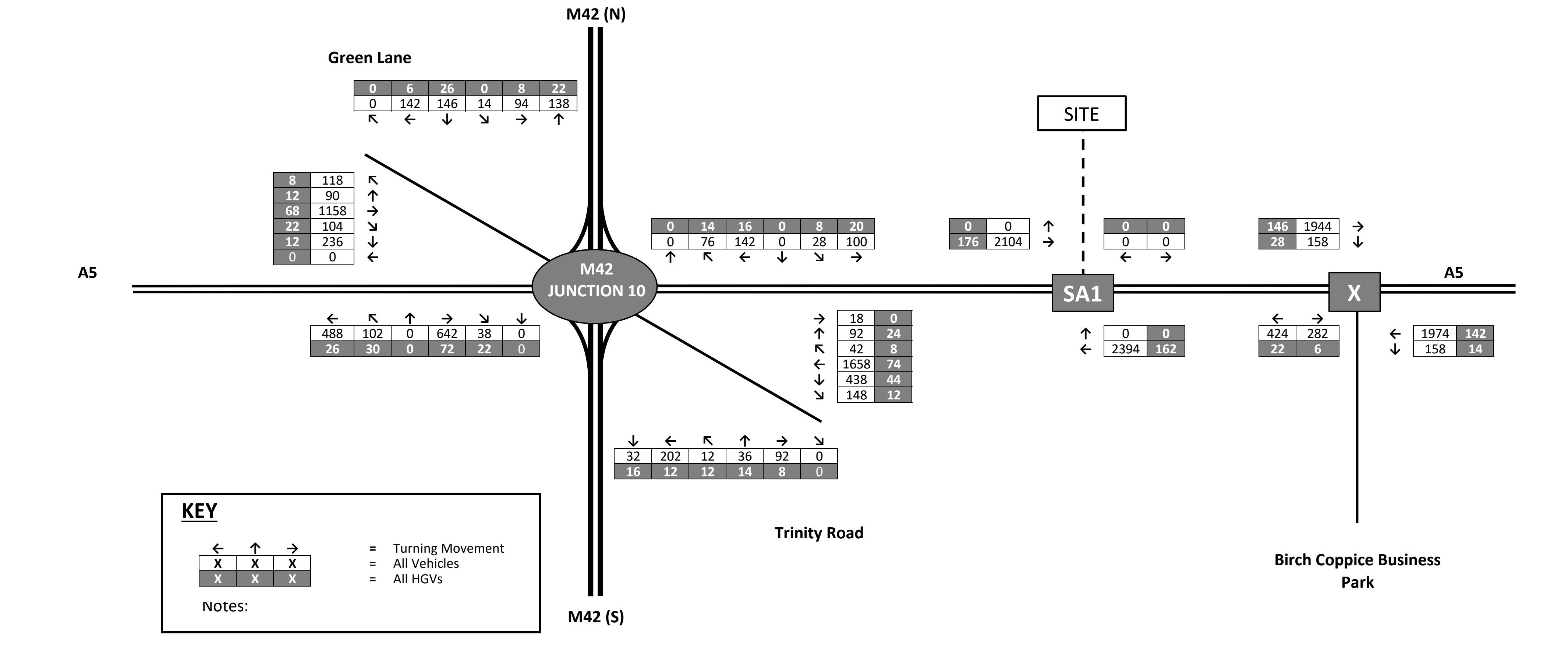


FIGURE 19

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

LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB

BANCROFT CONSULTING

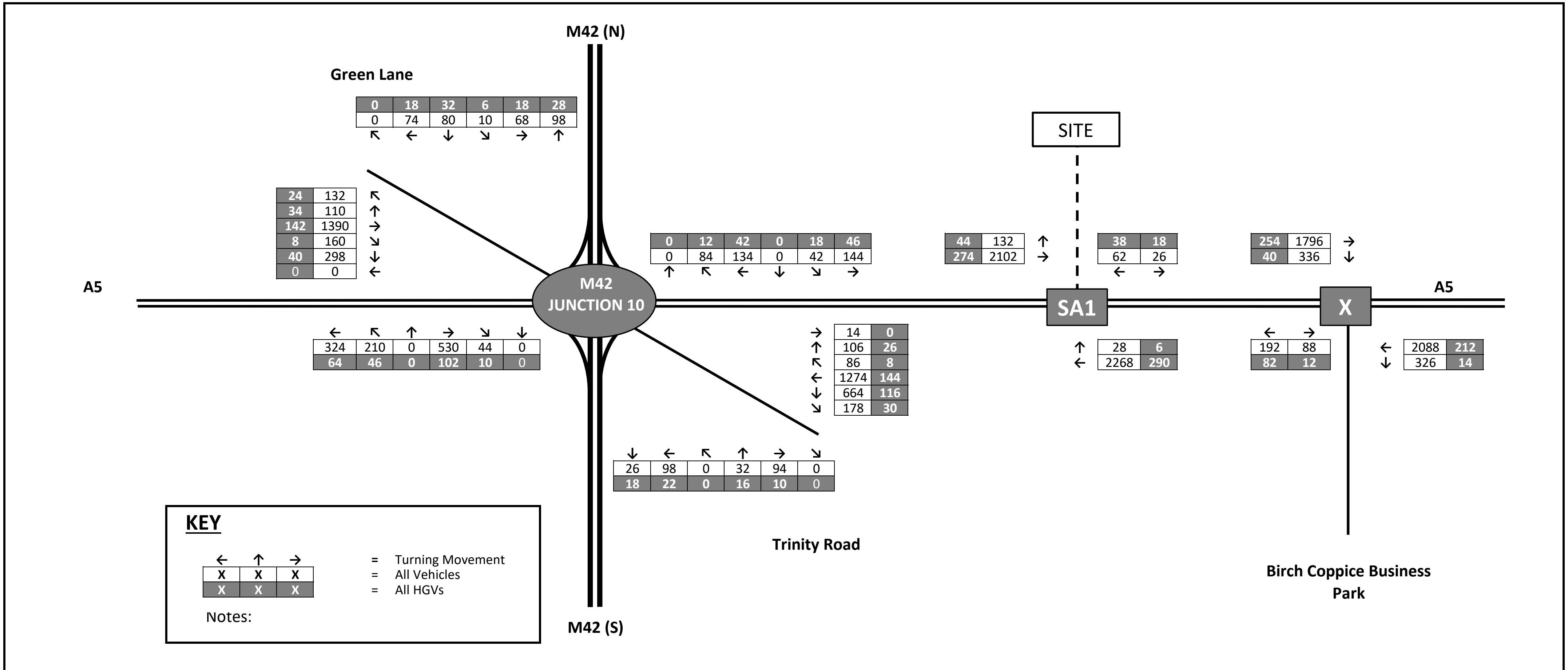


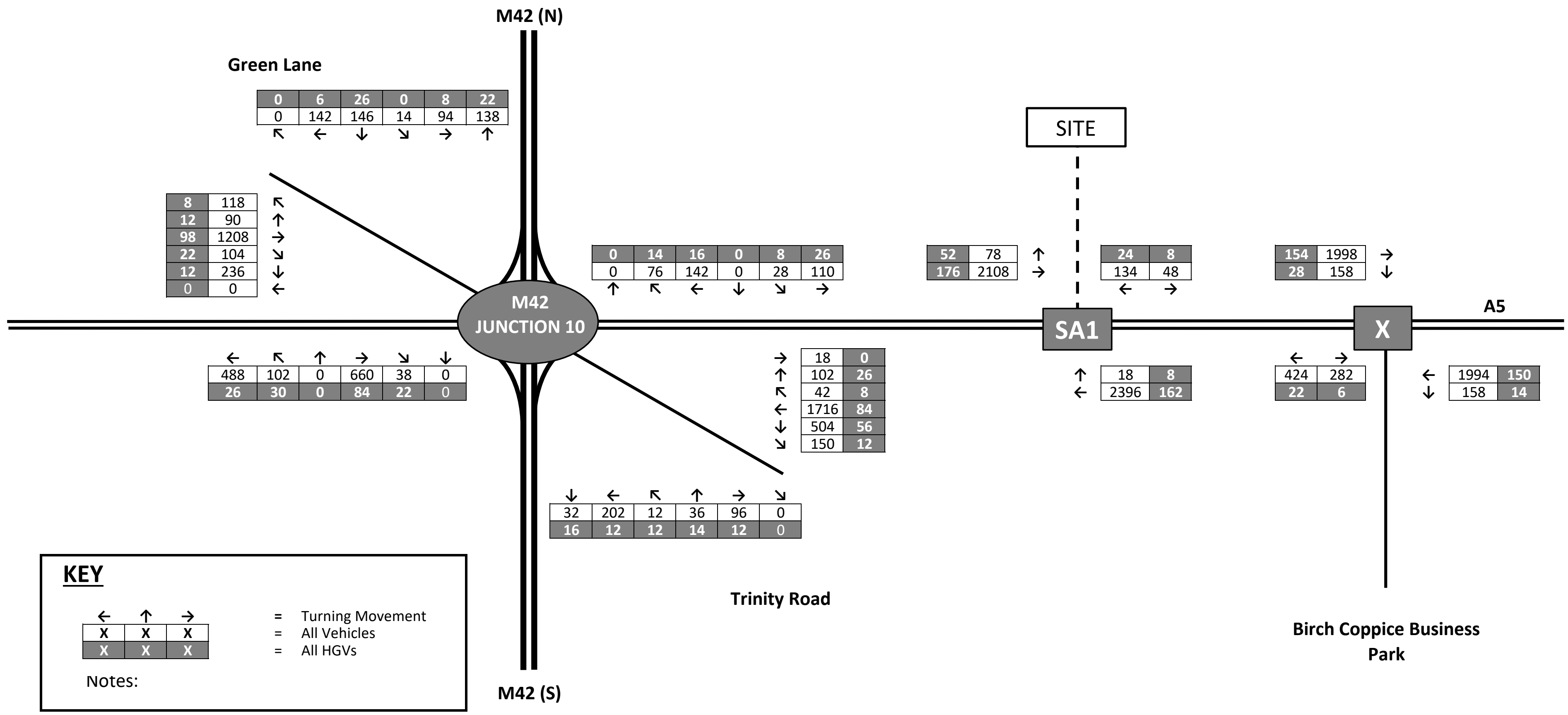
FIGURE 20

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

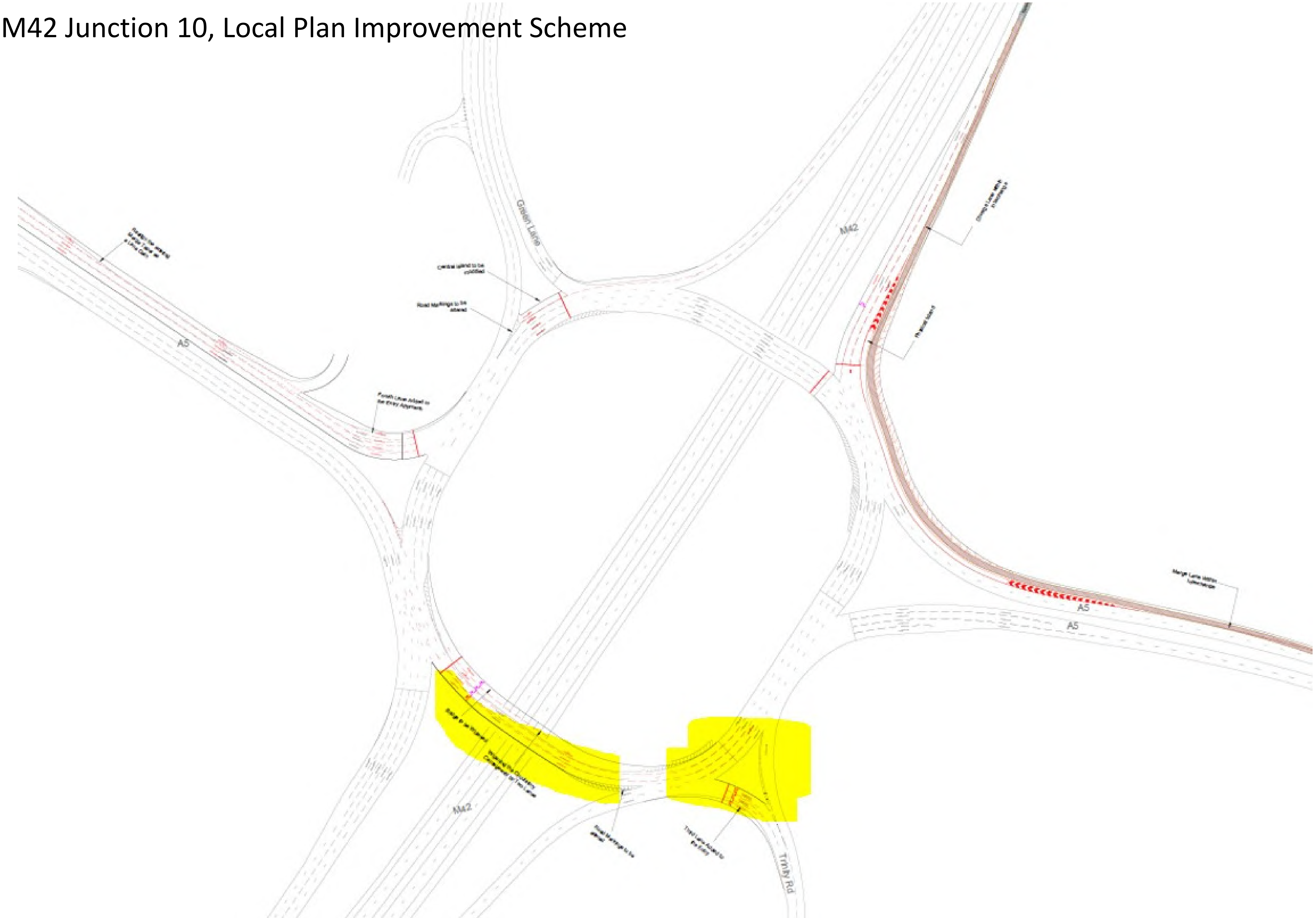
LAND NORTH OF THE A5, DORDON

JOB NUMBER: F19123

DRAWN BY: CAB

APPENDIX 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.

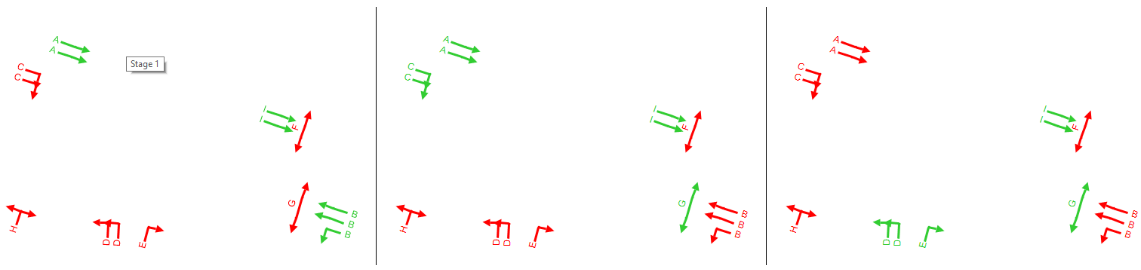
3.9 The model has been set up with the average cycle times and coordination where applicable. In addition, the typical average green splits have been used for each stop line.

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

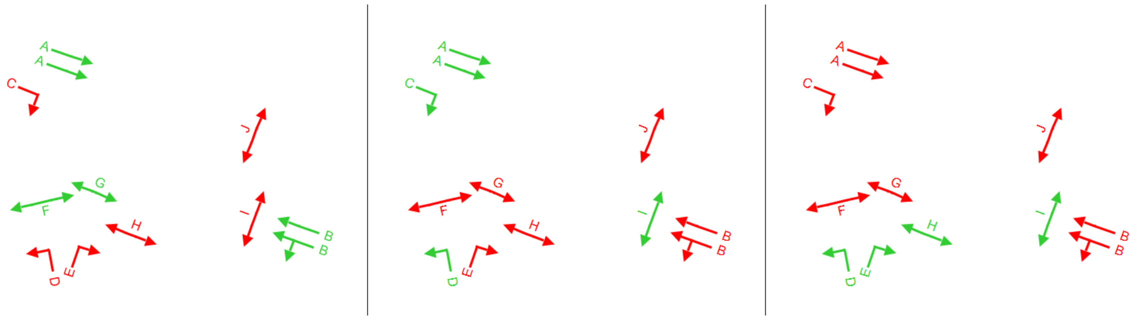


3.12 The typical cycle time in the AM peak hour was 93 secs and in the PM peak it was 99 secs.

- 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.

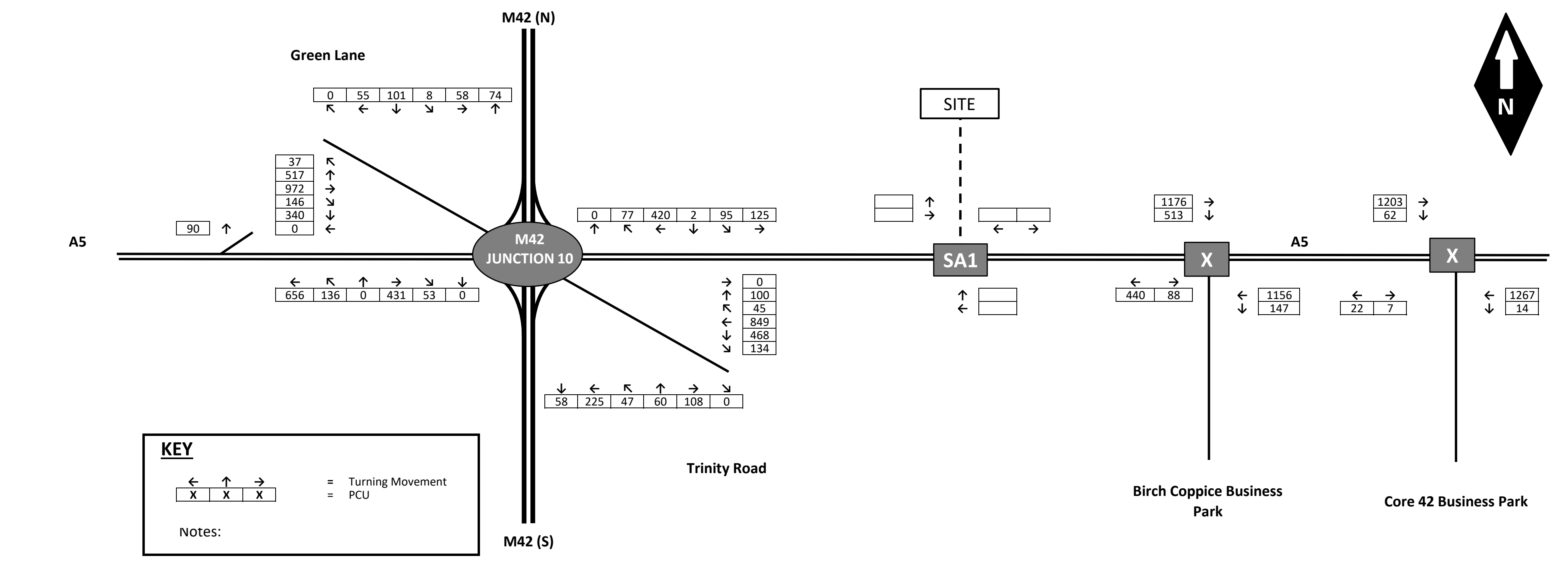
4.10 Similarly, all other approaches and circulatory lanes on Junction 10 operate reasonably well when averaged over the hour and the modelled queues are considered a good match to the observed. There are instances in the model when the queuing does extend back momentarily from one stop line to the previous, 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

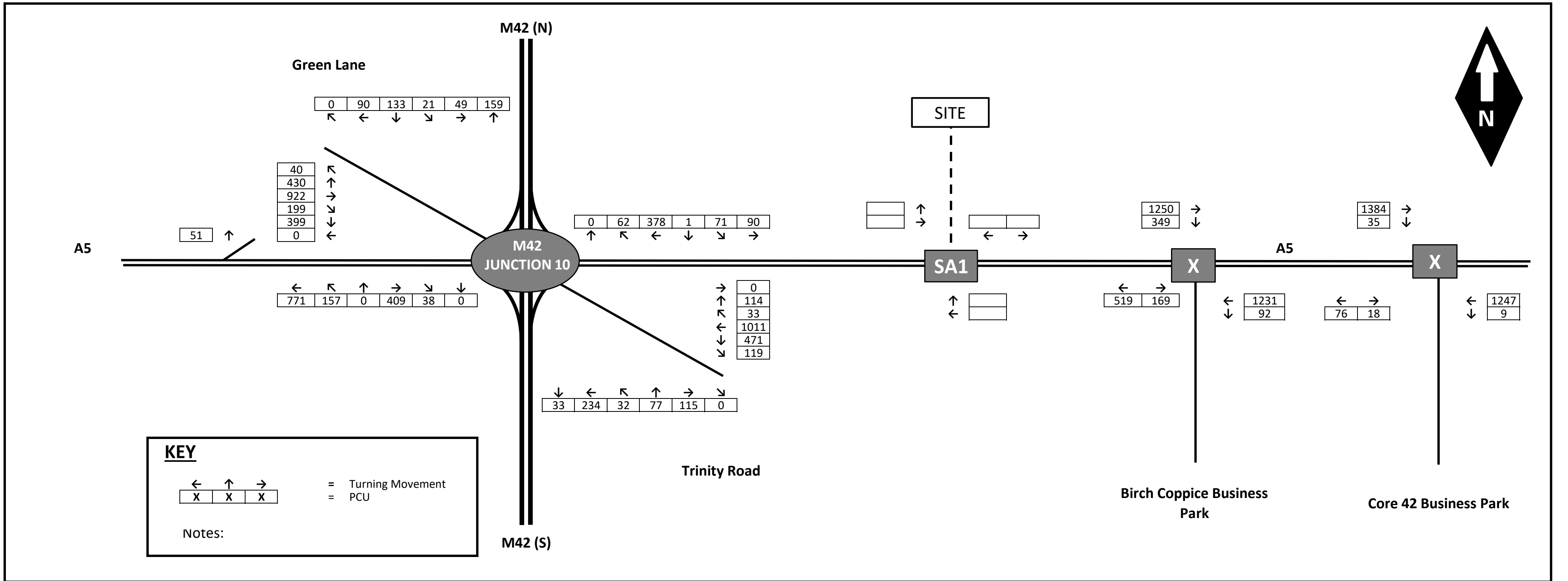


FIGURE 2

2022 PM PEAK (1600 TO 1700) - DEMAND FLOWS

Land North East of M42 Junction 10

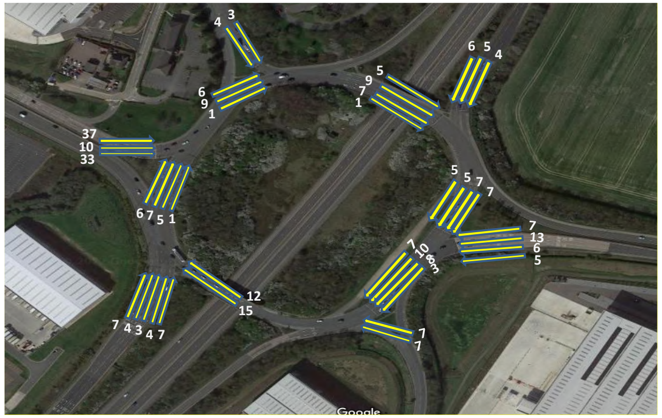
JOB NUMBER: 784-B033920

DRAWN BY: JH

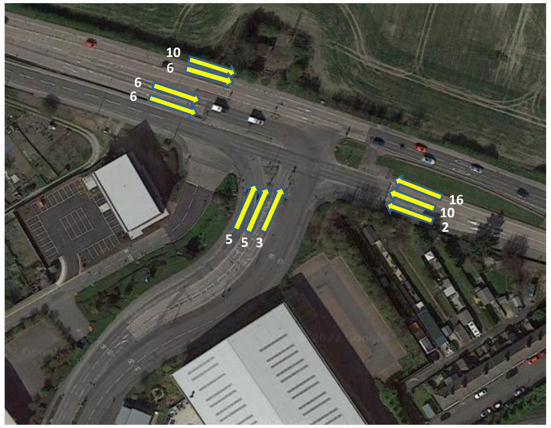
AM Peak Hour (07:30 to 08:30) Average Queue

(Average of the maximum Queue in 5 minute periods)

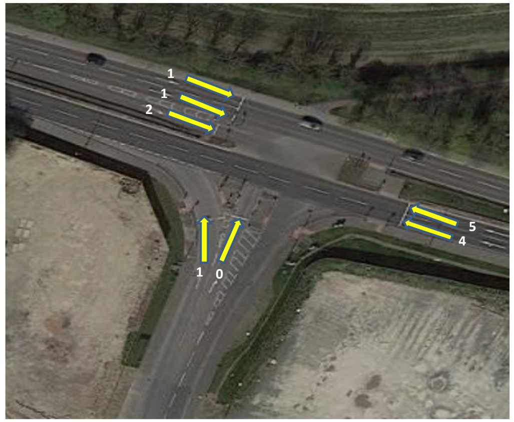
M42 Junction 10 Interchange



A5 Watling Street/ Danny Morson Way (Birch Coppice)



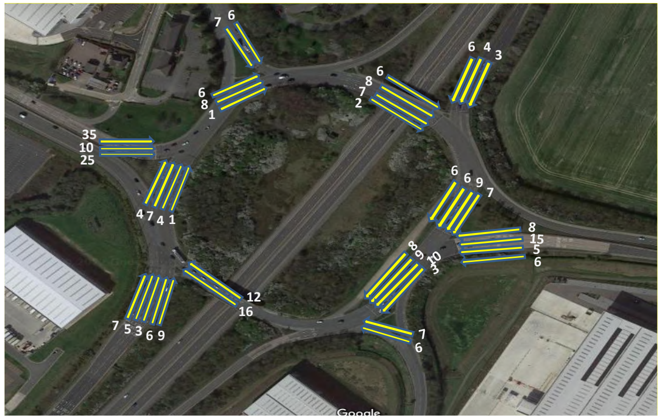
A5 Watling Street/ Meridian Drive (Core 42)



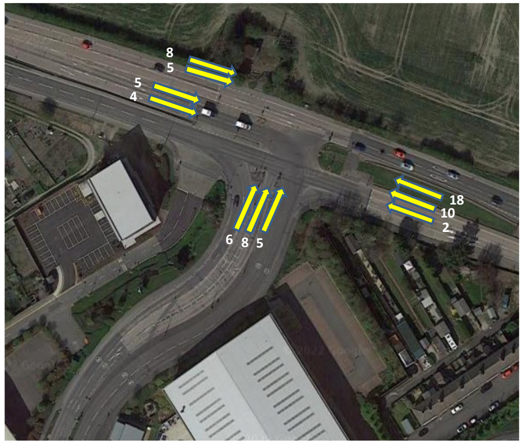
PM Peak Hour (16:00 to 17:00) Average Queue

(Average of the maximum Queue in 5 minute periods)

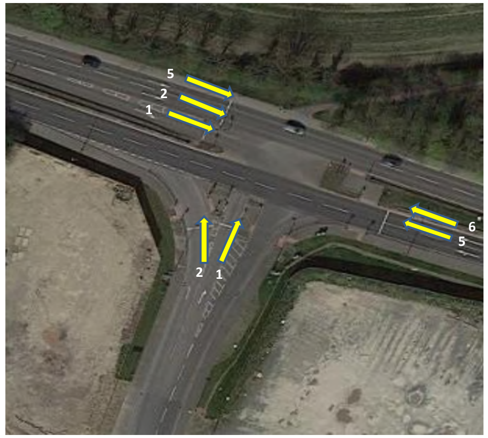
M42 Junction 10 Interchange



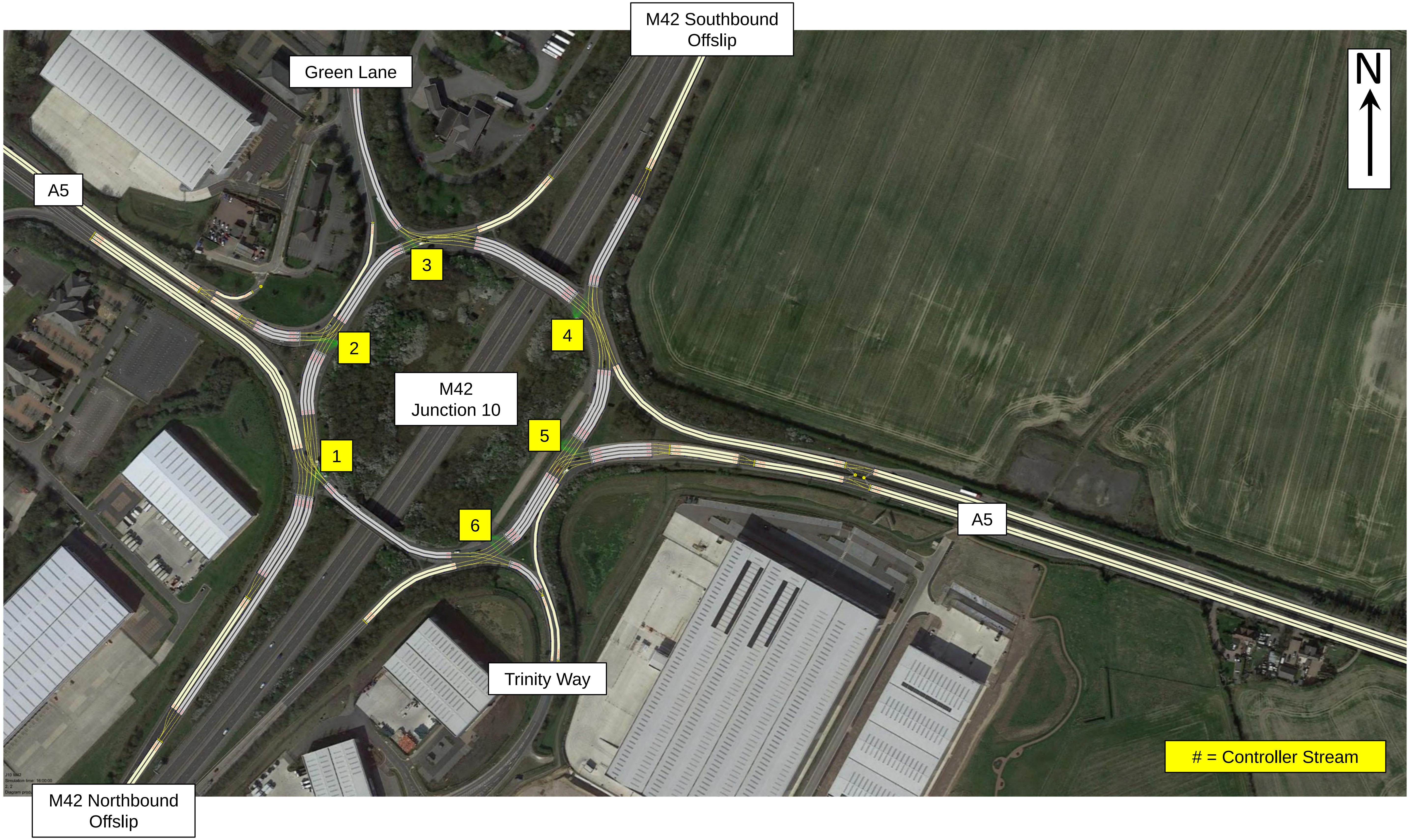
A5 Watling Street/ Danny Morson Way (Birch Coppice)



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

							Detector set					Green extension(s)		
Det. name	Det. type	Dummy	Vis. unit no.	Active state	Count det.	Self reset	Gap period	Gap count	Self confirm	Latched phase demand(s)	Unlatched phase demand(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			Latched phase demand(s)	Unlatched phase demand(s)	Green extension(s)		Varimax phases
							Gap period	Gap count	Self confirm			Phase	Taper %	
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

	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									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 type	Appearance assoc'ted phase(s)	Termination assoc'ted type	Termination assoc'ted phase(s)	Restart allowed	App. in man
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		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	30.0	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 1	2	3	4	5	6	7	8	Street name(s)
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	Stream 2	Stream 3	Stream 4	Stream 5	Stream 6	Stream 7	Stream 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						
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.	Push 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	T800	Firmware Type and Issue	PB800 ISS 19	Other Options	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	Date Created 25/09/02
Average Lamp Power	2048	Watts					
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
  - ◉ 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

- ☑ Manual Control
- ☐ Manual Step On Mode
- ☑ CLF (Base Time)
- ☐ CLF (non-Base Time)
- ☑ UTC Facility
- ☑ Hurry Call Mode
- ☐ Priority
- ☐ Emergency Vehicles
- ☐ Part Time
- ☑ Master Time Clock
- ☑ RED Lamp Monitoring
- ☑ Lamp Monitoring
- ☐ Linked Fixed Time
- ☑ FT To Current MAX
- ☐ Speed Measurement
- ☐ Download To Level 3
- ☐ London IMU
- ☐ Extend All Red
- ☐ Fail To Hardware Flashing
- ☐ Ripple Change
- ☐ Non-UK
- ☑ Pelican/Puffin/Toucan Facilities
- ☐ Standalone Manual
- ☐ Holiday Clock
- ☐ Fail to Part Time
- ☑ Serial MOVA
- ☑
- ☐ 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.

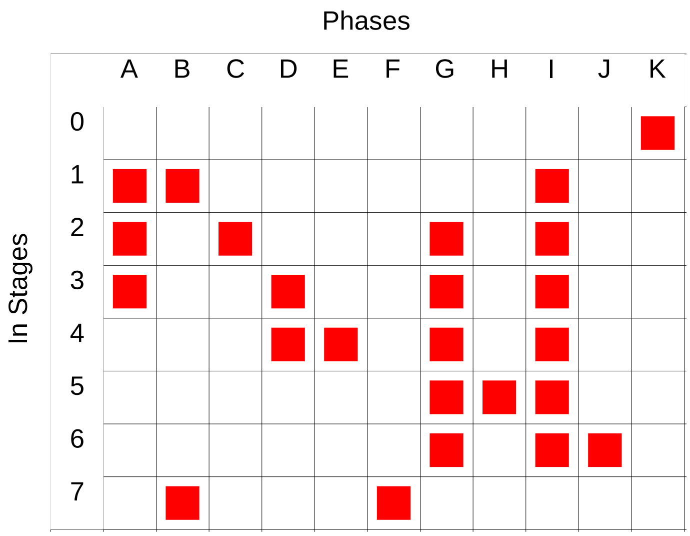
- ☐ Reds
- ☐ Ambers
- ☐ Switched Signs
- ☐ Ignore Reds and Ambers during Fail to Part Time

Flash Rate (ms)

400 Off 400 On

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

Phases in Stages



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	Max A	Max B	Max C	Max D	Max E	Max F	Max G	Max 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	

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

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		

Parameter	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	Demands				Extensions			
A	AX2	AX4			AX2	AX4		
B	BX6	BX8	BX9		BX6	BX8	BX9	
C	CX11	CSL12	CX13	CSL14	CX11	CX13		
D	DX16	DX18	DSL19		DX16	DX18		
E	EX20	ESL21			EX20			
F	PBUF							
G	PBUG							
H	HSL24							
I								
J	JSL25							
K								

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

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

Phase - OnCrossing and Kerbside Detector Definitions

On Crossing and Kerbside Input Definitions

(•) Phases A to P ( )

On Crossing

Phase				
A				
B				
C				
D				
E				
F	ONC3F	ONC16F		
G	ONC6G	ONC7G		
H				
I				
J				
K				

Kerbside

Phase				
A				
B				
C				
D				
E				
F				
G				
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

Phase - Pelican Puffin and Toucan Times

Phase - Pelican Puffin and Toucan Times

(•) Phases A to P ( )

Phase	PDD Ped Dem Del	PDX Demand Hold	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

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

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

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

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

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

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

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

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	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

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								

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

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.

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

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
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

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

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

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																																
UnUsed																																
UnUsed																																
UnUsed																																
UnUsed																																
UnUsed																																
UnUsed																																
UnUsed																																
UnUsed																																
UnUsed																																
UnUsed																																
UnUsed																																
UnUsed																																
UnUsed																																
UnUsed																																
UnUsed																																
UnUsed																																
UnUsed																																
UnUsed																																
UnUsed																																
UnUsed																																
UnUsed																																

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				On-Board Sensors				External Sensors			
Sensor\ Phase	Sensor Type	Bulb Watts	NLM CLS	Sensor\ Phase	Sensor Type	Bulb Watts	NLM CLS	Sensor\ Pin	Drive	Sensor Type	Bulb Watts
1 \ A	As Seq.	40	☐	17 \ Q			☐	33 \ b14		Reg. Sign	7
2 \ B	As Seq.	40	☐	18 \ R			☐	34 \ z16		Reg. Sign	7
3 \ C	As Seq.	40	☐	19 \ S			☐	35 \ z14		Reg. Sign	7
4 \ D	As Seq.	40	☐	20 \ T			☐	36 \ z12		Reg. Sign	7
5 \ E	As Seq.	40	☐	21 \ U			☐	37 \ b14		Reg. Sign	7
6 \ F	None	40	☐	22 \ V			☐	38 \ z16		Reg. Sign	7
7 \ G	None	40	☐	23 \ W			☐	39 \ z14		Reg. Sign	7
8 \ H	As Seq.	40	☐	24 \ X			☐	40 \ z12		Reg. Sign	7
9 \ I	As Seq.	40	☐	25 \ Y			☐	41 \ b14			
10 \ J	As Seq.	40	☐	26 \ Z			☐	42 \ z16			
11 \ K	As Seq.	40	☐	27 \ A2			☐	43 \ z14			
12 \ L	As Seq.	40	☐	28 \ B2			☐	44 \ z12			
13 \ M	As Seq.	40	☐	29 \ C2			☐	45 \ b14			
14 \ N	As Seq.	40	☐	30 \ D2			☐	46 \ z16			
15 \ O	As Seq.	40	☐	31 \ E2			☐	47 \ z14			
16 \ P	As Seq.	40	☐	32 \ F2			☐	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
Engineer : E DUFFY / S DEAKIN
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											

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

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

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

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]

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 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.

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 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

[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 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

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]

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

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	Used By 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

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: 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			

Works Order : 199069
EM Number : E63476
Engineer : E DUFFY / S DEAKIN
Intersection : A5 / BIRCH COPPICE DEVELOPMENT TAMWORTH

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

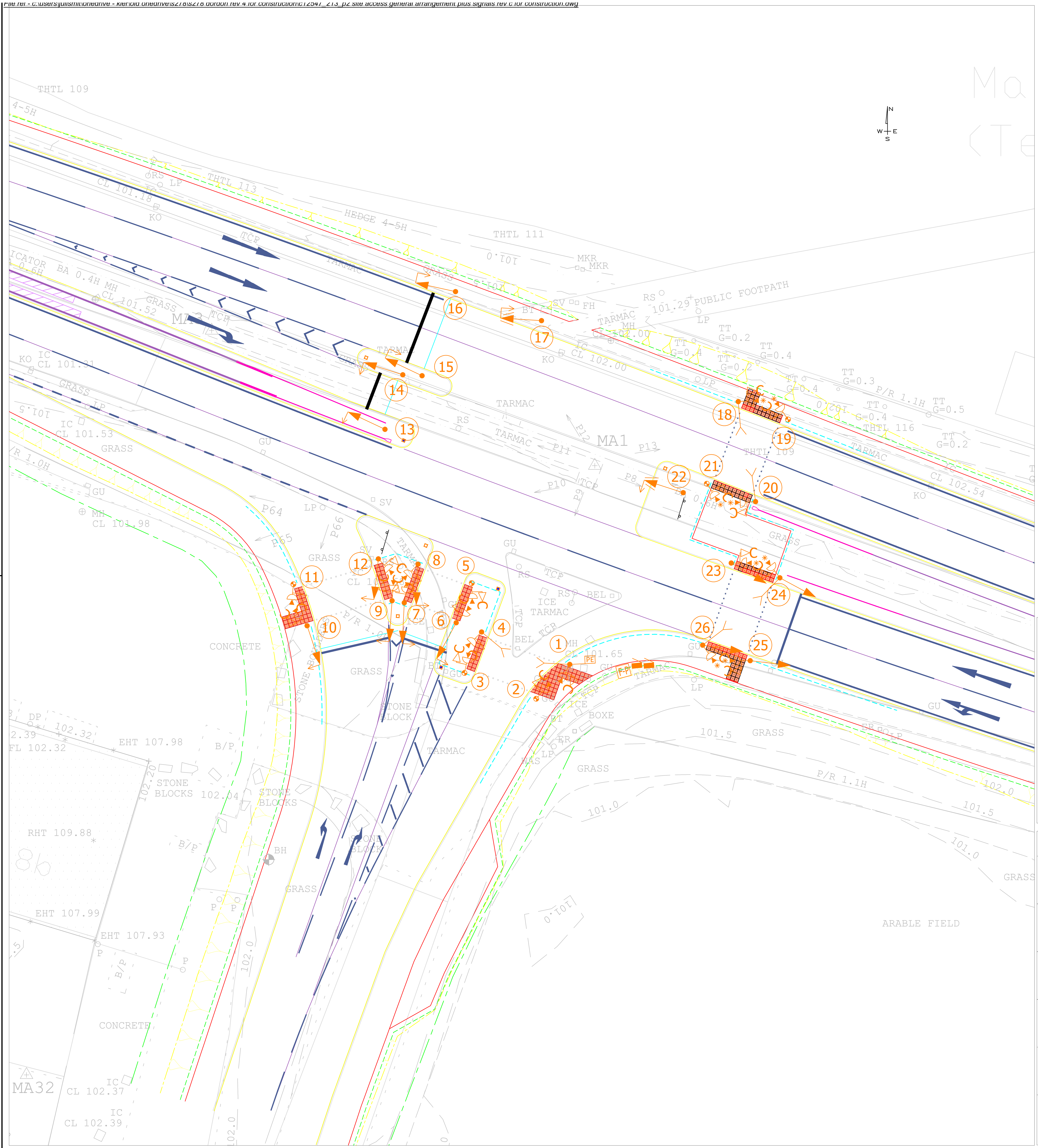
Note - 255 or blank disables DFM monitoring of that state (active or inactive) during that timeset (/

Handset Limiting Values

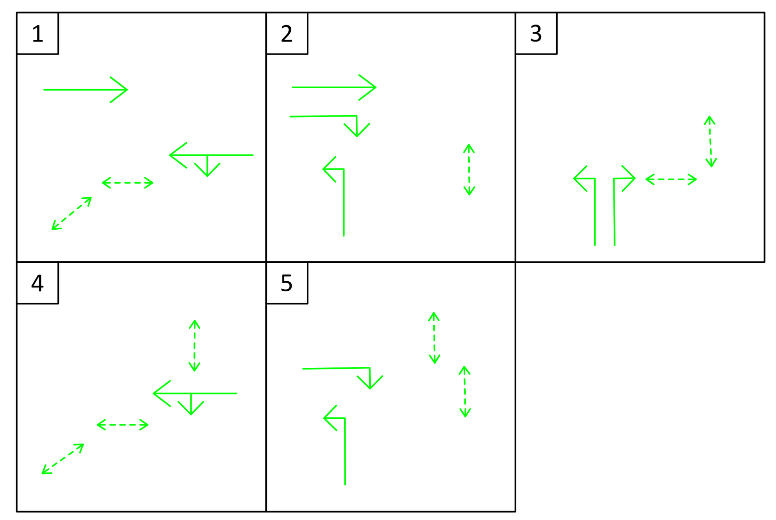
State	Min	Max
Active (Mins)	0	254
InActive (Hrs)	0	254

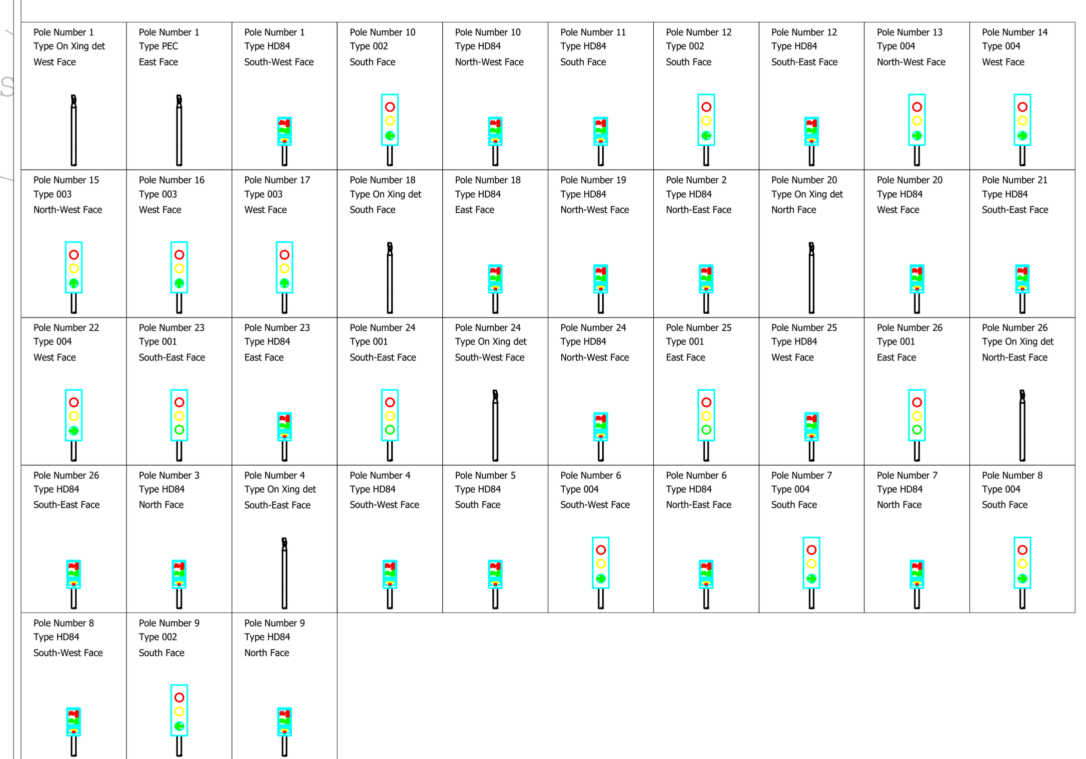
Index

File ref - c:\users\julsmit\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	

em — 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	Copyright© EMHighways

Drawing No	Rev
M9/2210011 DR 1200 005	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 Unit Addr * ======= ==== ==============	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	MTS4E
ED316 Unit Addr * ======= ==== ==============	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-OUTPUT
FLIR-ZONE Unit Addr * ======= ==== ==============	FLIR-OUTPUT Unit Addr * ======= ==== ==============

IOT State - IO1616, RIO

IN	OUT

IN			OUT		
IO1616-IN			IO1616-OUT		
Unit	Addr	*	Unit	Addr	*
=======	====	==============	=======	====	==============
01	001	UTC_I1	01	001	UTC_O1
01	002	UTC_I2	01	002	UTC_O2
01	003	UTC_I3	01	003	UTC_O3
01	004	UTC_I4	01	004	UTC_O4
01	005	UTC_I5	01	005	UTC_O5
01	006	UTC_I6	01	006	UTC_O6
01	007	UTC_I7	01	007	UTC_O7
01	008	sispwr	01	008	UTC_O8
01	009	sisflt	01	009	UTC_O9
01	010	UTC_I10	01	010	UTC_O10
01	011	UTC_I11	01	011	UTC_O11
01	012	UTC_I12	01	012	UTC_O12
01	013	UTC_I13	01	013	UTC_O13
01	014	UTC_I14	01	014	UTC_O14
01	015	UTC_I15	01	015	UTC_O15
01	016	UTC_I16	01	016	UTC_O16
02	001	PBFU1	02	001	MDET1
02	002	PBUF2	02	002	MDET2
02	003	PBUF3	02	003	MDET3
02	004	PBUF4	02	004	MDET4
02	005	PBUG1	02	005	MDET5
02	006	PBUG2	02	006	MDET6
02	007	PBUG3	02	007	MDET7
02	008	PBUG4	02	008	MDET11
02	009	PBUH1	02	009	MDET12
02	010	PBUH2	02	010	MDET13
02	011	PBUH3	02	011	MDET14
02	012	PBUH4	02	012	MDET15
02	013	PBUI1	02	013	MDET16
02	014	PBUI2	02	014	MDET20
02	015	PBUI3	02	015	MDET21
02	016	PBUI4	02	016	MDET22
03	001	PBUJ1	03	001	MDET23
03	002	PBUJ2	03	002	MDET24
03	003	PBUJ3	03	003	MDET25
03	004	PBUJ4	03	004	MDET26
03	005	ONXH1	03	005	MDET27
03	006	ONXH2	03	006	SISPWR
03	007	ONXI1	03	007	SISFLT
03	008	ONXI2			
03	009	ONXJ1			
03	010	ONXJ2			

IOT State - Controller connections (KOPMV)

KOPMV-IN			KOPMV-OUT		
KOPMV-IN			KOPMV-OUT		
Unit	Addr	*	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**	"=" traffic flow not included in saturation flow calculation
TOTAL TIME	**54**	Additional Green time
SAT FLOW	**1813**	

Saturation Flows **23-Mar-22** **West Bound A5 (Site 1 Location 14) 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	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 (grey)

Additional Green time (red)

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	Seconds of Saturated Flow - Stop Line														
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	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**	"=" traffic flow not included in saturation flow calculation
TOTAL TIME	**90**	Additional Green time
SAT FLOW	**1740**	

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**	"=" traffic flow not included in saturation flow calculation
TOTAL TIME	**102**	Additional Green time
SAT FLOW	**1849**	

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**	"=" traffic flow not included in saturation flow calculation
TOTAL TIME	**234**	Additional Green time
SAT FLOW	**1828**	

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													
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	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

23-Mar-22 **Trinity Road (Site 1 Location 25) 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	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**

"=" traffic flow not included in saturation flow calculation

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													
		6	12	18	24	30	36	42	48	54	1m	1m 6	TOTAL	TIME PERIODS	TIME
	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**	"=" traffic flow not included in saturation flow calculation
TOTAL TIME	**240**	Additional Green time
SAT FLOW	**1950**	

Saturation Flows **23-Mar-22** **Green Lane Circulatory (Site 1 Location 12) on Junction 10**

Jack H **AM** **Lane 2 Middle**

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	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**	"=" traffic flow not included in saturation flow calculation
TOTAL TIME	**150**	Additional Green time
SAT FLOW	**1745**	

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	6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
		Seconds of Saturated Flow - Stop Line														
	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**	"=" traffic flow not included in saturation flow calculation
TOTAL TIME	**144**	Additional Green time
SAT FLOW	**1840**	

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	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	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 | **23-Mar-22** | **A5 Westbound Circulating (Site 1 Location 8) on Junction 10**

Jack H | **AM** | **Lane 3 offside 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	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	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	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**
TOTAL TIME	**120**
SAT FLOW	**1695**

"=" 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 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	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 (grey)
Additional Green time (red)

Saturation Flows **23-Mar-22** **A5 Eastbound right turn to Birch Coppice (Site 2 Location 6)**

Jack H **AM** **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 (grey)
Additional Green time (red)

Saturation Flows 23-Mar-22 **A5 Westbound ahead and left turn at Core 42 (Site 3 Location 4)**

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	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**	"=" traffic flow not included in saturation flow calculation
TOTAL TIME	**138**	Additional Green time
SAT FLOW	**1957**	

Saturation Flows **23-Mar-22** **A5 Westbound ahead at Core 42 (Site 3 Location 4)**

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	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													
		6	12	18	24	30	36	42	48	54	1m	1m 6		TOTAL	TIME PERIODS	TIME
	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	