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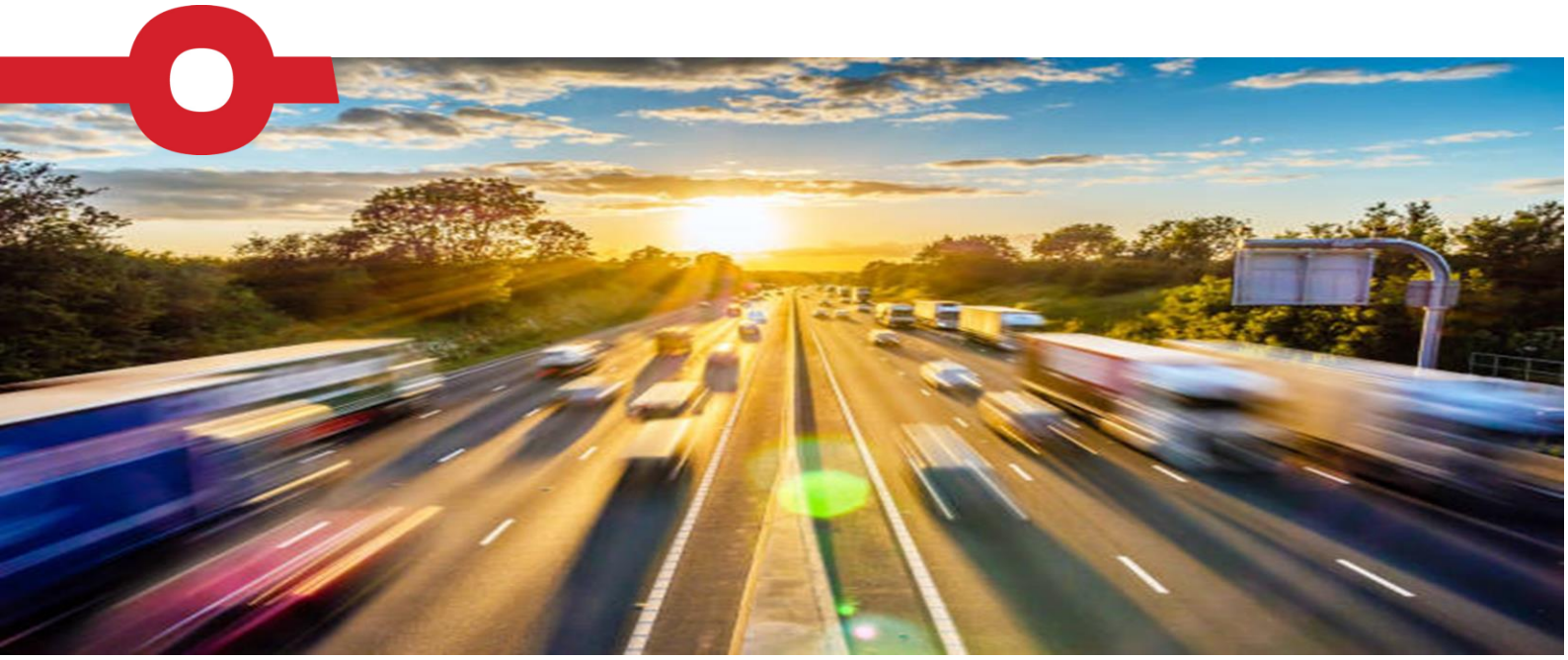
MID SUSSEX DISTRICT PLAN – STRATEGIC TRANSPORT ASSESSMENT



MID SUSSEX DISTRICT COUNCIL

SYSTRA

MID SUSSEX DISTRICT PLAN

STRATEGIC TRANSPORT ASSESSMENT

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APPENDICES

1. INTRODUCTION

1.1.1 SYSTRA have been commissioned by Mid-Sussex District Council (MSDC) to develop the transport evidence base to support the development of the Mid Sussex District Plan (MSDP). This Strategic Transport Assessment (STA) provides an overview of the key assessments that have been undertaken to develop a comprehensive transport mitigation package in order to support the delivery of the targeted level of growth within the district. It has been informed by a combination of strategic modelling through the testing and application of baseline and forecast year assessments within the Mid Sussex Strategic Highway Model (MSSHM) as well as a series of local junction assessments to test the severity of impacts and ensure mitigation is designed to accommodate both capacity and safety needs where relevant, whilst ensuring alignment with the strategy for the MSDP and wider policy.

1.1.2 The key supporting documents which have informed the development of this STA include:

- **Mid Sussex Transport Model Assumptions Note –** Provides justification and agreement on the approach for the MSSHM Scenario 6 modelling and assumptions applied.
- **Scenario 6 Report –** Details the outcome of the Scenario 6 MSSHM Model results
- **MSDC Merge Diverge Assessment Report –** Details the outcomes of the merge/ diverge assessment undertaken for the Strategic Road Network junctions between M23 J9 in the north to A23/A272 in the south.
- **MSDC Safety Study Report –** Details the outcome of a safety study assessment which reviews collision trends, clusters and causation factors to inform a package of safety led mitigations at identified priority junctions.
- **MSDC Mitigation Costings Report –** Provides cost estimates and associated assumptions applied for each physical mitigation proposed as part of the MSDC package of interventions.
- **COVID-19 Assessment Technical Note –** Summarises the outcome of the COVID-19 survey comparison checks to understand the level of traffic flow change between a pre and post COVID transport network in light of the MSSHM having a baseline year of 2019.

1.1.3 It is noted that at the time of undertaking the strategic modelling assessments, a 2039 future year was assessed; however since these assessments were undertaken there has been an extension of the plan period to 2040. No change is applied to the overall growth targets and therefore the magnitude of change associated with one additional year of background growth is not forecast to have a significant impact on conclusions and the overall assessment and mitigation package identified which looks to address the impacts associated with District Plan growth rather than growth associated with the reference case.

1.1.4 The assessments undertaken to inform the transport evidence base have been informed through extensive consultation with key stakeholders including West Sussex County Council (WSCC) who are the Highway authority responsible for the Local Highway Network, National Highways, who are responsible for the Strategic Road Network including the A23 running through and M23 to the north of the district boundary as well as adjacent authorities through the plan development period.

1.1.5 The remainder of this report is structured as follows:

- **Chapter 2: Policy Context –** Summarises the key National, Regional and Local Policy of relevance to the development of the transport evidence base to support the District Plan.
- **Chapter 3: Sustainable Travel and Mobility Strategies** - Provides a summary of the mobility strategies for the key site promoters to encourage sustainable travel interventions and the overall plan policy and wider measures to encourage sustainable and active travel. Detail on how this is linked to the model assumptions is provided.
- **Chapter 4: Scenario 6 Strategic Model Assumptions –** Provides a summary of the modelling assumptions applied in the Scenario 6 Strategic Modelling and gives justification linked to the wider interventions and policy.
- **Chapter 5: Scenario 6 Strategic Modelling Results –** Presents an overview of the Scenario 6 model results including a summary of the significant and severe category junctions.
- **Chapter 6: Local Junction Modelling Results –** Presents the local junction modelling results for the capacity-led interventions at the A23/A2300 Hickstead interchange (Hickstead Lane/ A2300/A23 SB off-slip/Service Station Access/ A23 SB on-slip) and Copthorne Roundabout (A264 Copthorne Way/Brookhill Road/A264 Copthorne Common Road/Copthorne Hotel Access/ A2220 Copthorne Road).
- **Chapter 7: Safety Study Overview and Outcomes –** Presents the proposed mitigation for the identified priority locations following a review of collision clusters and causation factors.
- **Chapter 8: Merge Diverge Assessment Overview and Outcomes –** Presents an overview of the proposed merge or diverge mitigation identified to support the key junction locations associated with District Plan growth and the outcome of feasibility and deliverability checks at priority junctions.
- **Chapter 9: COVID-19 Sensitivity –** Presents a summary of an outcome of the COVID-19 survey comparison checks to understand the level of traffic flow change between a pre and post COVID transport network in light of the MSSHM having a baseline year of 2019.
- **Chapter 10: Summary and Conclusions** – Presents a summary of the outcomes of the assessments and concludes that the impacts of the District Plan are sufficiently mitigated and not considered severe in terms of the requirements of the NPPF.

2. POLICY

2.1 Overview

2.1.1 This section describes the national, regional, and local transport related policies and relevant to this STA.

2.2 National

National Planning Policy Framework (2023)

2.2.1 The National Planning Policy Framework (NPPF) was most recently updated in December 2023. The framework outlines the national planning policies, including those relating to transport, its role in the planning procedure and its impact on advancing sustainable development. It is relevant to this report as it outlines the criteria for the transport evidence base that is required for Local Plans.

2.2.2 Paragraph 108 of the NPPF details the transport issues that should be considered in plan-making and development proposals. These include:

- the potential impacts of development on transport networks;
- opportunities from existing or proposed transport infrastructure, and in changing transport technology and usage;
- opportunities to promote walking, cycling and public transport use;
- the environmental impacts of traffic and transport infrastructure; and
- patterns of movement, streets, parking, and other transport considerations

2.2.3 The NPPF identifies that significant development should be focused on locations which are, or can be made, sustainable. Paragraph 109 states that planning policies should "[limit] the need to travel and [offer] a genuine choice of transport modes" to reduce "congestion and emissions and improve air quality and public health".

2.2.4 To reduce the number and length of journeys, Paragraph 110 encourages a mix of land uses across an area and within larger scale sites.

2.2.5 Regarding local parking standards, Paragraph 111 of the NPPF specifies that policies should consider the accessibility and the type, mix and use of local developments. They should consider the availability of and opportunities for public transport, car ownership levels and anticipate provision for low-emission vehicles.

2.2.6 Paragraph 112 states that the quality of town centre parking facilities should be improved alongside measures to promote safety and accessibility for pedestrians and cyclists.

Infrastructure Act 2015

2.2.7 Parliament introduced the Infrastructure Act in 2015 and transport is one of the main themes covered by this act. This act enabled the creation of Highways England (now National Highways) and sets out measures to streamline the delivery and implementation of highways and transport schemes. It also provided the mandate for new Cycling and Walking Investment Strategies.

The Second DfT Cycling and Walking Investment Strategy (CWIS2) (2023)

2.2.8 DfT's Cycling and Walking Investment Strategy was updated in March 2023. It outlines the Government's ambitions to "make walking and cycling the natural choices for shorter journeys, or as part of a longer journey by 2040." The government aims for 50% of all journeys in towns and cities to be walked or cycled by 2030. The strategy set outs creating people-friendly streets, investing in cycling routes, and promoting active travel, with targets such as 55% of primary school-aged children walking to school by 2025.

2.2.9 The strategy includes substantial government investment for redesigning urban areas to encourage active travel, fostering inclusivity, and establishing Active Travel England to set ambitious standards for infrastructure, development design, and behaviour change. Active Travel England will "play a significant role in the spatial planning system, ensuring that developers, local planning authorities and others involved in, or undertaking, development embed active travel infrastructure in their policies and design from the outset".

DfT Circular 01/2022 (2022)

2.2.10 The DfT Circular 01/2022 'Strategic Road network and the delivery of sustainable development' was published in December 2022 and sets of the policy of the Secretary of State in relation to the Strategic Road Network (SRN). When undertaking any assessment in future as part of the preparation of the Local Plan, the Council should ensure that it accords with the policy advice outlined in this document.

2.2.11 Key points in the policy include, but are not limited to:

- The policy provides a significantly greater emphasis on the principles of sustainable development. Consequently, the Council will be expected to promote development at locations that are or can be made sustainable (in accordance with the long-standing requirements of the National Planning Policy Framework (NPPF)) and where opportunities to maximise walking, wheeling, cycling, public transport and shared travel have been identified;
- The policy is also clear that plan-making and decision-taking should ensure that developments optimise the potential of sites to support local facilities and sustainable transport networks. As such, this thinking should be embedded into site selection and how to develop Local Plan policies; and
- It is the responsibility of the Council to present a robust transport evidence base in support of the Local Plan. Demand forecasting models and cumulative assessment should be undertaken which has been prepared to avoid, or significantly reduce, the need for additional infrastructure on the SRN and where development can be delivered through identified improvements to the local transport network, to include infrastructure that promotes walking, wheeling, cycling and public transport and shared travel.

2.2.12 The Mid Sussex District Plan has ensured that any mitigation measures designed to support the targeted levels of growth will consider a range of sustainable and active travel modes including walking, cycling, public transport and shared travel. Justifiable trip reductions have been applied to certain land uses and development sites within the modelling work in order to ensure mitigation is considered only for residual impacts. Consequently, a robust evidence

base supporting the District Plan is provided, where mitigation balances priorities across all modes of transport.

DfT Transport Investment Strategy (2017)

2.2.13 The government has pledged to establish a Major Road Network (MRN) through England, focusing on the most heavily trafficked and economically significant local authority A roads. In pursuit of this initiative, the Government has outlined five key policy objectives: alleviating congestion, facilitating housing delivery, promoting economic growth, and rebalancing, ensuring support for all road users, and supporting the Strategic Road Network (SRN).

Decarbonising Transport – A Better, Greener, Britain (2021)

2.2.14 The DfT's Decarbonising Transport report, published in July 2021, sets out the commitments and actions required to decarbonise the entirety of the United Kingdom's transport network. The government ambition is to end the sale of all new diesel and petrol cars by 2035, and that all new cars and vans must be fully zero emission at the tailpipe from 2035.

2.2.15 A strategic priority is to accelerate the modal shift to public and active transport, with the target of making sustainable modes the natural first choice of travel for daily activities. Local authorities are to take action to make the best use possible of space to enable active travel through the transformation of local public transport operations.

2.2.16 Buses are identified as being the easiest and quickest way of improving public transport across the country, with £3 billion being invested into reshaping the bus network along public service lines nationwide; with lower and simpler fares, thousands of zero emission buses, and more priority lanes.

2.2.17 Commitments to further the sustainable transport network are outlined, including the exploration of introducing new sustainable travel reward schemes supported by businesses, community organisations and charities.

2.2.18 The report highlights a priority to shift towards an integrated and affordable net-zero public transport network. This is to be enhanced through the greater provision of walking and cycling routes to and from stations, including a greater provision of secure cycle storage and charge points throughout the UK.

Bus Back Better: National Bus Strategy for England (2021)

2.2.19 The DfT's National Bus Strategy report, published in March 2021, sets out the government's strategy to reduce the significant shift caused by COVID-19 from public transport to private car through the improvement of the bus network, primarily by improving service frequency, reliability, and coordination. This strategy follows £3 billion of funding announced in 2020 to improve bus services across the UK to London standards and contribute towards the wider ambitions of achieving net-zero carbon emissions.

2.2.20 It is acknowledged that local bus networks are to be managed by local authorities, and therefore £25 million is initially committed to support partnership and franchising development, including a Bus Centre of Excellence.

2.2.21 Devolution of the Bus Service Operators Grant is to be provided to Local Transport Authorities and Mayoral Combined Authorities who request it. This requires authorities to develop a key route network and include development of bus priority measures and improved bus performance.

Gear Change – A Bold Vision for Cycling and Walking (2020)

2.2.22 The DfT's Cycling & Walking Vision plan, published in July 2020, establishes the government's commitment to improving cycling and walking network throughout the country, by improving the accessibility and safety of active modes. The plan aims for places to be truly walkable, with cycling and walking being the natural first choice and half of all journeys in towns and cities being cycled or walked by 2030.

2.2.23 The shift to active modes will be achieved by funding infrastructure schemes and behaviour change projects; putting cycling and walking at the heart of transport, place-making, and health policy; empowering and encouraging local authorities; and enabling people to cycle and protecting them in doing so.

2.2.24 Cycling is to be put at the centre of future developments, with the report pledging to develop new standards for sufficient secure bike storage in all new residential and non-residential developments. Additionally, all housing and business developments are to provide high-quality cycling and walking networks, green spaces and green routes, and supporting facilities such as cycle parking.

2.2.25 The plan also places importance on the quality of cycle infrastructure being installed along roads, and new cycling design guidance is published alongside the plan setting out the standards expected if schemes are to receive funding, within Local Transport Note 1/20. Cycle routes will be required to be planned holistically as part of a network, as opposed to isolated stretches.

2.3 Regional Policy

West Sussex Transport Plan (2022)

2.3.1 The overarching vision of the West Sussex Travel plan is "to address the spatial economic challenges of the County, level up the coastal economy and provide access to employment and services countywide". The Council hope to achieve this whilst working to "achieve net zero carbon emissions by 2050", by further uptake of electric vehicles, reducing fossil-fuels alongside increased active travel which will overall reduce congestion along major routes (Chapter 3.1).

2.3.2 Strategy 5.6 states the plans specifically for Mid Sussex are (Page 7):

- Improve the performance of the A22, A23, A264, A272 and A2300;
- Facilitate provision of on-street electric vehicle charging infrastructure, initially in East Grinstead, Lindfield, Ardingly and Balcombe followed by other areas;
- Prioritise active travel modes in the towns as development takes place;
- Increase space for active travel increase space for active travel through infrastructure improvements on priority routes such as between Haywards Heath and Burgess Hill;

- Deliver Air Quality Action Plans in Hassocks;
- Deliver improvements largely within existing highway land to provide bus priority where possible and viable including priority at signal controlled junctions;
- Improve interchange facilities at Burgess Hill and Wivelsfield stations;
- Improve public realm in Haywards Heath and Burgess Hill town centres;
- Use on-street parking and traffic management techniques to manage demand, particularly in Burgess Hill, East Grinstead and Haywards Heath;
- Use behavioural initiatives to tackle inappropriate speed and use of unsuitable rural routes; and
- Work with strategic partners to improve rail services to Brighton and London in the long term.

2.3.3 The objectives of the Plan centre around 'Local Living' which sets its focus on reducing the need to travel by car, and prioritising active travel and shared transport for short distance trips. The expected outcome is a decrease in fossil fuel as well as a decrease in the length and frequency of trips.

2.3.4 The Local Living approach also incorporates measures to improve strategic road, rail and bus infrastructure linking to planned strategic growth.

2.3.5 There are 17 objectives outlined in Chapter 5 of the Transport Plan that need to be achieved if the vision for 2036 is to be realised. The objectives centre around the following topics to enable West Sussex to become:

- **Prosperous:** In terms of supporting equal economic prosperity, development and regeneration plans through strategic investments with a particular focus on sustainable modes of transport.
- **Healthy:** By accommodating the aging population, reducing various types of pollution, provide access to green and blue spaces and provide connectivity within rural communities to achieve the 'Live Locally' vision.
- **Protected:** When thinking about the natural environment and the impact transport has on this whether by using up materials or release of carbon emissions during construction. Transport improvement needs to take opportunities to protect habitats and enhance biodiversity.
- **Connected:** Through improved congestion on major routes through more "Local Living" reducing demand for frequent car journeys, improving bus network efficiency and ensure rail network is an attractive option for travel.

2.3.6 Chapter 6 applies these themes to individual strategies and include active travel, shared transport, rail, access to Gatwick Airport and Road Networks.

2.3.7 In Chapter 7, The West Sussex Travel plan outlines short-, medium- and long-term priorities for the Mid Sussex area. The key issues highlighted are how car dominated it is, the perception that public transport is not a viable option for many journeys, and the high levels of pollution and congestion this creates. Their council's approach to this is to improve access to railway facilities, improve attractiveness of active travel and shared transport services, and aid a shift to electric vehicles through increased EV infrastructure. The mitigation schemes proposed as part of the District Plan have considered these overarching objectives for the region within scheme delivery.

2.4 Local Policy

Local Cycling and Walking Implementation Plan (LCWiP)

2.4.1 The Mid Sussex LCWIP sets out a strategic long term approach to identifying cycling and walking improvements required at a local level over a period of 10 years. The LCWIP seeks to identify infrastructure interventions over a short, medium, and long-term horizon that meet the transport and movement objectives of Mid Sussex.

2.4.2 MSDC's current LCWIP, dated March 2023, has been drawn up in the context of the wider aims of the WSCC Active Travel Strategy. In line with an agreed approach across the County, Districts and Boroughs in West Sussex have each commissioned their own LCWIPs which all focus on the main towns in their area. Taken together, the West Sussex and District and Borough LCWIPs will identify a cohesive active travel network for West Sussex.

2.4.3 MSDC's LCWIP focusses on the identification of measures for the district's three main towns of Burgess Hill, East Grinstead and Haywards Heath.

2.4.4 The identification and selection of measures is undertaken using a six-stage process as shown in **Figure 1**.

Figure 1. LCWIP Stages

LCWIP Stage	Name	Description
1	Determining Scope	Establish the geographical extent of the LCWIP, and arrangements for governing and preparing the plan.
2	Gathering Information	Identify existing patterns of walking and cycling and potential new journeys. Review existing conditions and identify barriers to cycling and walking. Review related transport and land use policies and programmes.
3	Network Planning for Cycling	Identify origin and destination points and cycle flows. Convert flows into a network of routes and determine the type of improvements required.
4	Network Planning for Walking	Identify key trip generators, core walking zones and routes, audit existing provision and determine the type of improvements required.
5	Prioritising Improvements	Prioritise improvements to develop a phased programme for future investment.
6	Integration and Application	Integrate outputs into local planning and transport policies, strategies and delivery plans.

2.4.5 This approach has been applied to the three main town centres to identify the most desirable and deliverable of measures for each town centre. The first four stages facilitate the identification, selection and development of suitable routes to be taken forward for prioritisation.

2.4.6 The prioritisation process ranks the selected routes and measures based on six criteria:

- Compliance with LTN 1/20;
- Level of segregation or restriction of motorised traffic;
- Contribution to the wider cycle or walking network;
- Deliverability;
- Value for money; and
- Strength of stakeholder support.

2.4.7 The resulting selection then considered in the context local policies and strategies and the potential for integration with future development sites.

LCWIP Recommendations

2.4.8 The LCWIP has identified a series of seven interventions across each of the three town centres, totalling 21 schemes. These represent a comprehensive set of design measures which would improve conditions for walking and cycling across Burgess Hill, East Grinstead and Haywards Heath and also integrate with future development sites.

2.4.9 The recommended measures have been prioritised to present a clear strategy for delivery over the next ten years.

Infrastructure Delivery Plan (December 2023)

2.4.10 The provision of infrastructure is a key issue for local communities affected by development. Delivering the right level and type of infrastructure is essential to supporting new homes, economic growth and the creation of sustainable communities.

2.4.11 The IDP has been prepared to set out the key infrastructure that will be required to support the objectives, spatial strategy and the delivery of the District Plan over the Plan period to 2039, identify where and when the infrastructure is required, who is responsible for delivering it, the cost of provision (if known) and how these costs are expected to be funded.

2.4.12 Table 6 of the IDP identifies the existing and planned transport infrastructure identified to support the targeted growth within the MSDP and is summarised in **Table 1** below.

Table 1. MSDP IDP Transport Existing and Planned Infrastructure

	EXISTING PROVISION	PLANNED PROVISION
Strategic Road Network	M23 and A23 corridor	WSCC / NH working to deliver capacity improvements to A23 junctions
Major & Local Road Networks	A264 East Grinstead to M23 and Crawley; A22 East Grinstead to Uckfield and Eastbourne; A272 Haywards Heath – Bolney – Billingshurst – Newick; Dualled A2300 – Burgess Hill to A23; A273 Haywards Heath – Burgess Hill – Hassocks – A23	Enhancement of A2300 and Ansty junctions; A22 and A264 improvements including sustainable transport provision and active travel infrastructure
Rail Services	Brighton to London line – 5 stations; East Grinstead to London line	Brighton to London line stations improvements for cycling and bus connectivity to support planned development; Burgess Hill Western Gateway and Stations Improvements schemes to include delivering sustainable

	EXISTING PROVISION	PLANNED PROVISION
		transport and improvement to Burgess Hill and Wivelsfield Stations.
Bus services	Private operator services between MSDC main towns and local villages, Horsham, Crawley and Brighton.	Bus Priority at signal-controlled junctions and in towns; Bus and rail interchange improvements at Burgess Hill and Wivelsfield stations; Flexible shared transport services
Walking, cycling and equestrian	Extensive network of public rights of way totalling around 600km including footpaths, bridleways, byways and restricted byways; Extensive network of footpaths and pedestrian routes; National Cycle Network Route 20 connects London to Brighton; Route 21 East Grinstead to Crawley; Worth Bay connects Crawley and East Grinstead; Forest Way in East Grinstead; Public bridleways or routes otherwise usable by horses within the District are limiting for the significant horse and rider population of the District	Burgess Hill Place and Connectivity Programme (PCP) - 5000 new homes and new commercial space, and through supporting social, education, highway, transport, and public realm infrastructure. The PCP has already delivered approximately 11km of off-highway and Public Rights of Way pedestrian and cycle improvements through the Growth Deal's partnership work with MSDC. Further improvements are being delivered by WSCC.
Parking and EVs	34 Council car parks providing 2200 spaces; 39 EVCP spaces across the district canl accommodate up to 78 EVs	2 further CP sites under construction; Phase 2 car park sites to be proposed by Connected Kerb in consultation with MSDC, WSCC and the Energy Savings Trust.

3. SUSTAINABLE TRAVEL AND MOBILITY STRATEGIES

3.1 Overarching Transport Objectives of the District Plan

3.1.1 The overarching objectives of the District Plan seek to support sustainable communities which are safe, healthy and inclusive, creating environments that are accessible to all and encourage opportunities to walk and cycle to common destinations. The principles align with the National Planning Policy Framework (NPPF) (paragraph 109) which encourages significant growth to 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, helping to reduce congestion and emissions, and improve air quality and public health. The District Plan seeks to limit the impact of car use by applying a sustainable transport movement hierarchy to mitigation scheme development as shown in **Figure 2** below extracted from the MSDC District Plan.

Figure 2. Sustainable Movement Hierarchy

3.1.2 The plan looks to support the principles of 20-minute neighbourhoods, with a strategic aim of increasing walking and cycling with a long-term goal that these should be the first choice for shorter journeys such as those to/from school, college, work or leisure trips. Additionally, the opportunities for travel demand management through home and hybrid working has been considered for allocated sites to ensure they provide sufficient infrastructure and digital connectivity to support home working where plausible. These opportunities for trip reductions have been factored in the overarching modelling assessment to ensure that the residual impacts are understood in line with the requirements identified in the DfT Circular 01/2022 'Strategic Road Network and the Delivery of Sustainable Development'.

3.1.3 DfT Circular 01/2022 requires the application of vision-led development whereby development sites should outline aspirations for how development sites will operate, encouraging the uptake of sustainable and active trip making. Through close working with the Development Site promotors firm commitments have been made to support sustainable trip making through the infrastructure commitments identified at Policy DPSC1 Land to the West of Burgess Hill/ North of Hurstpierpoint Policy, Policy DPSC2 for the Land at Crabbet Park and Policy DPSC3 for the Land to the South of Reeds Lane, Sayers Common as well as further detail provided in the vision documents developed by each of the site promotors. Policy DPT1 of the District Plan outlines that development that is likely to generate significant amounts of movement will be required to provide a Transport Assessment/ Statement, Sustainable

Transport Strategy and Travel Plan to identify appropriate mitigation as well as demonstrating how all relevant sustainable travel interventions will be maximised and taken into account before considering physical highway infrastructure mitigation.

3.2 Sustainable Travel Measures Proposed at Significant Sites

3.2.1 A range of sustainable travel measures are proposed by significant site promoters to support the above-mentioned distance-based reductions and overall levels of mode shift. As defined in the District Plan a significant site is defined as housing/mixed use development delivering over 1,000 homes. Whilst discussions with significant site promoters are ongoing, each have made firm commitments in terms of submissions to support sustainable travel with further detail provided below for each of the sites. It is also noted that the larger sites also provide school facilities as part of the proposed development, resulting in internalization of most education trips.

3.2.2 The measures considered within the three sites emerging mobility strategies include:

Crabbett Park

- A mobility hub, with access to cycle parking and cycle repair stations, parcel drop and storage, access to public transport services as well as car clubs and electric vehicle charging allowing for connected journeys and services;
- A car club offering for the site;
- Folding Brompton cycle hire to facilitate connections with onward rail journeys;
- Improvements to key pedestrian and cycle corridors e.g. to Worth Way, Three Bridges and Copthorne;
- Improved frequency of bus services to be considered targeting increased frequency of connections to Crawley Station and Three Bridges Station from the site;
- Travel Planning measures to encourage behavior change.

Sayers Common

- A mobility hub, including measures such as bus stops, cycle hubs with repair facilities, car/bike share including cargo micromobility, parcel delivery lockers, electric vehicle charging and co-working space to encourage home working;
- Permeable pedestrian network with low-speed environments on site;
- Low parking ratios;
- Improved bus link with bus priority where possible to Burgess Hill Station, linking employment centres enroute;
- Travel Plan to encourage behaviour change and uptake of sustainable and active travel.

Land West of Burgess Hill

- Improvements to public transport services including service diversion and increased frequency to support sustainable trip making;
- Provision of high-quality pedestrian and cycling infrastructure;
- Burgess Bikes cycle hire scheme
- A shared mobility app or Mobility as a Service (MaaS) platform;
- Travel Plan with several measures to encourage sustainable and active behavior change, as well as monitoring and managing the plan to reflect the needs of the end user.

3.2.3 The Significant Site Promotors have mobility strategies which are continuously evolving as the schemes develop however it is evident from the list of measures identified above that there is clear commitment to support the reduction in overall travel demand and mode shift away from the private vehicles. The emerging strategies put forward by the site promoters are comprehensive and support the proposed level of modal shift applied to represent home working identified within the next chapter where the model assumptions are noted.

3.3 Transport Mitigation Scheme Development

3.3.1 The measures identified in the accompanying Infrastructure Delivery Plan and Local Cycling and Walking implementation Plan (LCWiP), support the overarching mobility objectives of the district plan applying a sustainable transport hierarchy to scheme development.

3.3.2 Additionally, the transport improvement measures identified through the safety study, merge/diverge assessments and through hotspots identification from the strategic modelling assessments have focused on safety with consideration of opportunities to encourage the uptake of active modes. For example, provision of improved pedestrian crossing facilities or separation for cyclists alongside vehicle safety schemes to support modal shift particularly of short to medium length journeys.

3.3.3 The following chapter, details the assumptions applied within the strategic modelling and how the aforementioned strategies to encourage sustainable trip making justifies the level of mode shift applied.

4. SCENARIO 6 STRATEGIC MODELLING ASSUMPTIONS

4.1 Introduction

4.1.1 The aim of the Mid Sussex District Plan modelling study was to undertake analysis of the impacts of the selected District Plan scenario on the local and strategic road network. A Mid Sussex Strategic Highway Model (MSSHM) has been developed and has been applied to test five previous iterations of the District Plan scenarios (Scenarios 1, 2, 3, 4 and 5) which in earlier scenarios tested differing levels of growth scenarios and in latter scenarios tested different levels of background growth and modal shift assumptions. In the first half of 2024, MSDC commissioned the 6th round of District Plan modelling referred to as Scenario 6 which reflects the final growth levels targeted. Scenario 6 forms the basis of the transport mitigation package developed in order to support the targeted level of growth to come forwards.

4.1.2 This chapter summarises the key assumptions applied for the Scenario 6 modelling, with further detail provided within the accompanying Scenario 6 Model Assumptions Note.

4.2 Highway Model and Scenarios Assessed

4.2.1 The MSSHM was first developed by SYSTRA in 2018, with a 2017 base year. This has subsequently been updated to a 2019 base year.

4.2.2 The model development and validation is summarised in the 2019 Base LMVR Report which can be found here: https://www.midsussex.gov.uk/media/8669/lmvr-report-with-appendices.pdf

4.2.3 The MSSHM was produced in accordance with standard good practice as set out in the Department for Transport's (DfT) transport analysis guidance (TAG), in particular TAG Unit M3-1 Highway Assignment Modelling. As such, the approaches to data processing, matrices and network production, along with model calibration are consistent with those of similar strategic highways models. The model's base year is 2019.

4.2.4 The model production made appropriate use of existing data and existing models in the area. A small programme of surveys was undertaken to fill in some gaps in data. **Figure 3** below shows the highway model extent.

Figure 3. MSSHM Model Extent

4.2.5 The following model scenarios were tested:

- **2039 Reference Case -** The Reference Case represents the road network in 2039, and includes any committed highway infrastructure, development in the district and background growth to this date. This acts as a baseline when assessing the impacts of the development scenarios.
- **2039 Scenario 6 -** Scenario 6 builds on the Reference Case and assesses the final District Plan development and supporting infrastructure in 2039. This corresponds to the District Plan growth as submitted for examination.
- **2039 Scenario 6m2 -** Building off Scenario 6, Scenario 6m2 tests the potential impact of initial car trip rate reductions as a result of home working, internalisation,

future employment distribution, access and proximity to existing services, and mode share assumptions for trips to and from the scenario's site developments.

- **2039 Scenario 6m5 -** Building off Scenario 6m2, Scenario 6m5 includes testing of an initial Highway Mitigation package.

4.3 2039 Reference Case Preparation

4.3.1 The 2039 Reference Case represents a benchmark against which the development scenarios are tested and compared. This enables separation of impacts resulting from the Scenarios from impacts due to background growth, committed development and infrastructure. The 2039 Reference Case includes the development sites that were in the previously modelled Site Allocations Development Plan Document (Sites DPD) which can be found here : https://www.midsussex.gov.uk/media/3406/mid-sussex-district-plan.pdf. It also includes the proposed mitigation for the Sites DPD Scenario as referenced in Section 4.3.24 to 4.3.26 below.

4.3.2 The following sections describe how the development growth was applied by location (external/non-MSDC or MSDC) and method (from the DfT's National Trip End Model or site specific).

4.3.3 The TEMPro growth factors, land use assumptions, approach to freight and Gatwick Airport expansion, trip rates and committed infrastructure has been agreed with WSCC and NH through acceptance of the MSSHM Model Assumptions Note, which can be viewed as an accompanying report to this Strategic TA.

2019-2039 External/Non-MSDC Development Growth (from TEMPro)

4.3.4 Travel demand matrices contain the forecast trips between origin and destination zones across the model study area. Forecasts are based on information obtained from the DfT's National Trip End Model (NTEM), obtained using the Trip End Model Presentation Program (TEMPro v8.0 Core Economy). This is compliant with guidance set out in TAG (Transport Assessment Guidance, published by the DfT). The forecasts include:

- population
- employment
- households by car ownership
- trip ends

4.3.5 TEMPro is designed to allow analysis of pre-processed data from the NTEM. The pre-processed data is itself the output from a series of models developed and run by DfT's Transport Appraisal and Strategic Modelling (TASM) division. TEMPro can also be used to provide summaries of traffic growth using data from the National Transport Model (NTM).

4.3.6 For the transport study the trip ends data were used in the form of origin and destination growth factors. These were extracted for 2019-2039 for the AM (0700-1000) and PM (1600-1900) periods, for the locations required.

4.3.7 Whilst previously in Scenario 5, Tempro v8.0 High was used, it was found through the greater economic growth and migration assumed in high growth produced amounts of growth which were unlikely to be realistic. It was also recognised that the comparison of housing growth

rates beyond the end of current Local Plans was uncertain and limited in accuracy. The use of Tempro 8 core is considered to better align with the expected growth in vehicular trips in light of socio-economic factors such as the make-up of the workforce at MSDC as set out in section 4.45-4.46 as well as aligning with the principles set out in DfT Circular 01/2022 in relation to the assessment of residual traffic impacts. For Scenario 6 it has been recognised that use of core growth is a more balanced approach to the uncertainty of future growth, growth in numbers of homes not being the only input into forecasted travel demand rates. As such, Tempro v8.0 Core has been applied within the Scenario 6 modelling and agreed with both National Highways and WSCC.

2019-2039 Mid Sussex Development Growth (Site Specific)

4.3.8 Reference Case growth in the District was applied on a site specific basis directly to model zones, in preference to using TEMPro, which was used for growth outside the District only.

Reference Case Housing in Mid Sussex District:

4.3.9 The housing developments listed in **Appendix A1 – Commitments** are included.

4.3.10 In addition, all completions that occurred between the model base year of 2019 and 2023 are included.

Reference Case Employment in Mid Sussex District:

4.3.11 The employment developments included are:

- Northern Arc, Business Park: 1,500 employees
- The Hub, Business Industrial and Storage/Distribution: 50,000 sqm
- Science and Technology Park (including 154 room hotel): 2,500 employees

4.3.12 In addition, the employment sites included in the previous Sites DPD Scenario and listed in **Appendix A2 - Employment Allocations** are included.

2019-2039 External Development Growth (Site Specific)

4.3.13 Some large development sites in neighbouring authorities are included as site specific developments. These are:

Reference Case Housing in Neighbouring Authorities:

- West of Bewbush "Kilnwood Vale" (Horsham District) 2,500 units
- Land North of Horsham "Mowbray" (Horsham District) 2,500 units
- North East Crawley "Forge Wood" (Crawley Borough) 2,000 units

Reference Case Employment in Neighbouring Authorities:

- West of Bewbush "Kilnwood Vale", Industrial Estate: 721 employees

- Land North of Horsham "Mowbray", Industrial Estate: 714 employees
- Horley Business Park (Reigate & Banstead Borough) 8,000 sqm

Freight

4.3.14 Growth in freight traffic was derived from national road traffic forecasts taken from the National Transport Model (NTM) in accordance with DfT guidance in paragraphs 7.3.18 to 7.3.19 of TAG Unit M4: Forecasting and Uncertainty.

Gatwick Airport

4.3.15 Gatwick Airport lies to the north west of the District within Crawley Borough Council's administrative boundary. The airport currently operates as a single runway, two terminal airport, which accommodated 46.6 million passengers during 2019. Gatwick Airport Limited (GAL) has aspirations to increase the number of flights and passenger numbers. Through existing consents and improved operational efficiencies GAL estimate that passenger numbers could increase to 62.7 million per year by 2047.

4.3.16 In addition, GAL are seeking consent to bring the existing Stand-by/Northern runway into routine use. This is a Nationally Significant Infrastructure Project (NSIP). In July 2023, GAL submitted a Development Consent Order (DCO) to the Planning Inspectorate seeking consent to bring the northern runway into routine use along with associated infrastructure including upgrades to the M23 junction 9 spur, new junction layouts at north and south terminals, alterations to Longbridge roundabout at A23/A217 and alterations to Airport Way. The DCO Examination commenced at the end of February 2024, with the Secretary of State for Transport's decision expected in Spring 2025.

4.3.17 Forecasting for Gatwick Airport takes account of the advice provided in paragraphs 7.3.9 to 7.3.11 of TAG Unit M4: Forecasting and Uncertainty. Paragraph 7.3.10 states:

> *The NTEM dataset includes all trip end productions for surface access trips to airports. However, the NTEM trip end attractions* ***exclude*** *surface travel for airline passengers and those escorting them. This may mean that the spatial distribution of the trip end attractions may need to be modified from NTEM levels if there is a major airport within the vicinity of the scheme.*

4.3.18 The airport is in Crawley Borough and so, by default, model growth was applied using TEMPro. Therefore, based on paragraph 7.3.10 of TAG Unit M4 an adjustment was applied to ensure that passenger growth is accounted for. This was based on the trajectories stated above in paragraph 4.3.15 assuming current configuration as a single runway, two terminal airport.

Trip Rates

4.3.19 Trip rates for Scenario 6 have been carried forward from Scenario 5, which have been updated from the previous reported scenarios (1-4) for residential development sites for both the Reference Case and District Plan sites.

4.3.20 The data extracted is for Mixed Use Housing sites for the following location types:

- Town Centre;

- Edge of Town Centre;
- Suburban Area; and
- Edge of Town.

4.3.21 Note that the TRICS trips rates presented exclude any sites within London as these are not considered representative of Mid Sussex and the immediate surrounding area.

4.3.22 For the Reference Case Committed Development, all sites combined for all locations have been included. For the District Plan development, "urban" and "rural" have been separated. As no rural sites were available for extraction in TRICS, "Edge of Town" has been considered as "Rural", and "Town Centre", "Edge of Town Centre", "Suburban Area" as "Urban". The trip rates applied are shown in **Table 2**.

Table 2. General Trip Rates applied per Use Class

		EmploymentDensityGuide		TRICSDatabase	Value	Parameter	AM		PM		
		Use Class	New Class	Use Class			O	D	O	D	
Housing85%ileunit	**Private Houses and Flats**	Housing			**85%ile**	**unit**	**0.397**	**0.191**	**0.143**	**0.486**	Previously used in Sc1-Sc4 (residential)
	Houses Privately Owned	C3		03/A	mean	unit	0.385	0.133	0.190	0.352	not used
		C3			85%ile	unit	0.559	0.265	0.225	0.520	not used
	Private Houses and Flats	C3		03/K	mean	unit	0.297	0.126	0.154	0.257	not used
		C3			85%ile	unit	0.397	0.191	0.143	0.486	Previously used in Sc1-Sc4 (residential)
	Flats Privately Owned	C3		03/C	mean	unit	0.149	0.040	0.058	0.138	not used
		C3			85%ile	unit	0.341	0.047	0.098	0.305	not used
B1a85%ilesqm	**General Office**	B1a	E(g)(i)	02/A	85%ile	sqm	0.269	3.077	2.587	0.425	maintained
B1a85%ileemp		B1a	E(g)(i)		85%ile	emp	0.043	0.511	0.394	0.021	maintained
B1b85%ilesqm	**R&D Space**	B1b	E(g)(ii)	02/B	85%ile	sqm	0.450	1.606	1.933	0.212	maintained
B1b85%ileemp		B1b	E(g)(ii)		85%ile	emp	0.183	0.367	0.465	0.045	maintained
B1c85%ilesqm	**Light Industrial**	B1c	E(g)(iii)	02/C	85%ile	sqm	0.558	0.990	0.671	0.499	maintained
B1c85%ileemp		B1c	E(g)(iii)		85%ile	emp	0.300	0.700	0.844	0.067	maintained
C185%ileemp	**Hotel**	C1		06/A	85%ile	emp	0.284	0.104	0.151	0.252	maintained
C185%ilerooms	**Hotel**	C1		06/A	85%ile	rooms	0.284	0.104	0.151	0.252	maintained
B185%ilesqm	**Office / R&D / Light Industrial**	B1		02/B	85%ile	sqm	0.450	1.606	1.933	0.212	maintained
B185%ileemp		B1			85%ile	emp	0.183	0.367	0.465	0.045	maintained
B285%ilesqm	**Industrial / Manufactuting**	B2		02/D	85%ile	sqm	0.468	1.000	0.737	0.263	maintained
B285%ileemp		B2			85%ile	emp	0.300	0.700	0.844	0.067	maintained
B885%ilesqm	**Storage & Distribution**	B8		02/F	85%ile	sqm	0.136	0.634	0.607	0.102	maintained
B885%ileemp		B8			85%ile	emp	0.171	0.667	0.440	0.100	maintained
E85%ilesqm	**Retail**	E			85%ile	sqm	3.428	3.532	6.281	5.140	maintained
Fp85%ilesqm	**Primary School**	Fp			85%ile	sqm	4.717	5.818	0.903	0.323	maintained
Fp85%ilepupils	**Primary School**	Fp			85%ile	pupils	0.388	0.482	0.060	0.034	maintained
Fs85%ilepupils	**Secondary School**	Fs			85%ile	pupils	0.179	0.237	0.041	0.039	maintained
HousingMeanunit	M - MIXED PRIVATE/AFFORDABLE HOUSING	Housing		03/M	**Mean**	**unit**	**0.367**	**0.134**	**0.162**	**0.315**	Used for Sc5 RefCase Resi Dev
							Updated Sc5 new triprates & mean avg				
UrbanMeanunit	M - MIXED PRIVATE/AFFORDABLE HOUSING	Urban		03/M	Mean	unit	0.340	0.111	0.149	0.307	Local Plan Urban Resi Sites
RuralMeanunit	M - MIXED PRIVATE/AFFORDABLE HOUSING	Rural		03/M	Mean	unit	0.373	0.139	0.164	0.316	Local Plan Rural Resi Sites

Committed Infrastructure in 2039 Reference Case

4.3.23 The reference case schemes from the previous Sites DPD modelling were carried forward to the 2039 Reference Case. These are shown in **Table 3**. The dualling of the A2300 includes the closure of the Bishopstone Lane/A2300 junction for vehicular use.

Table 3. Reference Case Infrastructure

Location			Description	Status
Burgess Hill	A2300		Dualling and junction improvements	Completed
	The Hub	A2300/Cuckfield Rd	Roundabout improvements	Committed
		Gatehouse Lane	Signal controlled crossing	Committed
	East Kings Way	B2113 Keymer Rd/Station Rd/Junction Rd/ Silverdale Rd	Traffic signals	Committed
		Valebridge Rd / Janes Lane / Junction Rd	Traffic signals	Committed
		Kings Way/B2113 Folders Lane	Traffic signals	Committed
		B2113 Station Rd/Church Rd/Mill Rd	Traffic signals	Committed
		B2113 Folders Lane/Keymer Road	Roundabout	Committed
		Junction Rd / Cants Lane	Traffic signals	Committed
		Ditchling Common	Speed restrictions	Committed
Copthorne	A264	A264/ Brookhill Rd /A2220	Roundabout improvements	Completed
		Dukes Head A264/B2028 Roundabout	Roundabout improvements	Committed
Hassocks	Hassocks	A273/B2116 Stonepound Crossroads	Traffic signals improvements	Completed
Haywards Heath	Penland Farm	Hanlye Lane, Borderhill Lane	Roundabout	Committed
	Fox Hill	B2112 Fox Hill south of Hurstwood lane	Extension of 30mph speed limit	Completed
	Relief Road (east)	A272 Rocky Lane/Hurstwood Lane	Traffic Signals	Committed
	Fox Hill	B2112, Colwell Rd	Roundabout improvements	Completed
Crawley	Copthorne	M23 J10	Junction improvements	Committed
	Tinsley	Gatwick road	Roundabout improvements	Committed
	Pound Hill	A2011 to B2036 Link Road and junctions	Link road and junction improvements	Committed
	Tinsley	Radford Road/B2036 Balcombe Road	Traffic signals	Committed
	Tinsley Green	Steers Lane / Radford Rd	Traffic signals	Completed
		Steers Lane / B2036	Traffic signals	Completed
	Hazelwick	A2011/A2004/Gatwick Rd/Hazelwick Ave	Signalised roundabout	Committed
	Fernhill	B2036 Balcombe Road / B2037 Antlands Lane	Roundabout improvements	Committed
	Manor Royal	Gatwick Road	Roundabout improvements	Committed
	Cheals Junction	A23 Crawley Ave/A2220 Horsham Rd	Roundabout slip lane	Completed
	Pease Pottage	M23 J11	Signalised gyrator	Completed
	Smart Motorways	M23	Motorway improvements	Completed

4.3.24 The following mitigation associated with the Sites DPD Scenario was also included.

- Sustainable transport trip reductions for the Sites DPD developments
- Ansty A272/B2036 - minor widening on A272 western and eastern arms

4.3.25 In addition, the following mitigation associated with the Sites DPD Scenario as proposed by the Science and Technology Park was included:

- A2300/A23 Hickstead, Eastern Roundabout - partial signalisation and walking/cycling upgrades
- A23 Southbound upgraded merge and diverge between A2300 and Mill Lane
- A2300/Cuckfield Road roundabout upgrade and new S&T Park access/Cuckfield Road roundabout
- A2300/Northern Arc Roundabout
- Additional Northern Arc Infrastructure including new roads and junctions
- A272 Cowford Road/A23 Slips - Signalisation

4.3.26 One additional scheme was also included:

- New access road from A272/A23 northbound roundabout for Marylands Nursery

4.4 Scenario 6 and 6m2 Preparation

Land Use

4.4.1 **Table 4** details the growth in total housing units across the modelled scenarios.

Table 4. Total Housing units growth Considered in Mid-Sussex in Scenario 6

SCENARIO	TOTAL UNITS CONSIDERED	DIFFERENCE FROM REF
2039 Reference Case	13,884	
2039 Scenario 6	20,505	6,621
2039 Scenario 6 including windfall	21,993	8,109

Mode Shift assumptions for Scenario 6m2

4.4.2 Scenario 6 uses the trip rates detailed in **Table 2**, with no further adjustments considered. Scenario 6m2 takes into account additional mode shift reductions that have been applied to the District Plan development sites. These reductions have been applied on the trip rates, or on an O-D level where appropriate. Only trips to/from District Plan sites have been adjusted and the mode shift assumptions have been agreed with WSCC and National Highways.

4.4.3 The following mode shift adjustments have been applied to Scenario 6m2 to reflect the sustainable mobility strategies and commitments identified within chapter 3 of this report.

Home Working

4.4.4 MSDC has provided Economic Growth Assessment extracts from the *Northern West Sussex Economic Growth Assessment Focused Update for Mid Sussex (Lichfields March 2022)* to inform home working assumptions which are used to consider the reductions.

4.4.5 Paragraph 2.12 states:

> *The District supports a much lower level of out-of-work benefit claimants than other parts of the South East and the United Kingdom. Moreover, Mid Sussex resident occupations are also generally higher skilled, with a greater percentage of residents employed in SOC Major Group 1- 3. Mid Sussex has 64.3% of resident occupations falling within the 3 highest SOC groups, which consist of managers and director jobs, compared to both the South East (50.7%) and the UK (45.6%). Compared to the 2020 EGA (i.e. 2018 data), this portion has increased by 11.9%.*

4.4.6 On the basis of these findings, we expect homeworking during the plan period for allocated sites to become higher than the "average" proportion for the south-east and UK as a whole. Therefore, a 20% reduction on all District Plan sites has been assumed and applied to commuter trips. This differs from the previously run Scenario 5m2, where 20% was only assumed for the more significant District Plan sites, and only 5% for smaller sites. Stakeholder feedback from the Scenario 5 Reg-19 consultation also indicated it would be more consistent to consider similar homeworking patterns for both the smaller and larger District Plan sites.

Internalisation

4.4.7 To account for internalisation for Large District Plan sites, primary schools have been allocated an 80% reduction on overall trip rates. Retail and Employment trips have also been allocated a 5% reduction in trip rates.

Distance Based Trip Reductions

4.4.8 It is proposed to apply distance based car trip reductions based on a similar approach to that used in the Crawley and Horsham Studies. These reductions are consequent of site developers' delivery of travel planning measures and will be applied to non-committed development sites only. Short distance trips are the most likely to switch from car to active modes and therefore this is reflected in this approach. Longer distance trips are more likely to switch to public transport (PT). The proposed trip length reductions are shown in the table below as used in the Crawley/Horsham studies. The underlying data for the Crawley/Horsham study was derived from the DfT Sustainable Travel Towns Study and the National Travel Survey data.

4.4.9 Adjustments have been made at an O-D level to trips to/from the District Plan sites.

4.4.10 The profile banding of O-D trips adjusted are detailed in **Table 5** below.

Table 5. Distance Based Reductions

	Up to 1km	1-3 km	3-5 km	5-10 km	10-50km	Over 50km
Car Trip Reduction	-22%	-14%	-10%	-6%	-3%	0%

Future Employment Distribution and Location and Proximity to Existing Services

4.4.11 An additional 1-2% reduction to trip rates has been applied to large and medium size District Plan sites to account for the changes in the future of employment distribution.

4.4.12 Sites considered as an urban extension (non-rural) have been allocated an additional 1% trip rate reduction as it is expected that existing services will benefit these new District Plan development trips.

Summary

4.4.13 In summary, this chapter has demonstrated how the strategic modeling assessment has factored the mode shift adjustments materialized as a result of the application of a sustainable transport hierarchy to mitigation scheme development, wider policy such as the WSTP and LCWiP and the commitments made by the significant site promotors in line with the approach for assessing development in accordance with DfT Circular 01/2022.

5. SCENARIO 6 STRATEGIC MODELLING RESULTS

5.1 Overview of the Transport Study Assessment

5.1.1 The impacts on the highway network of the agreed development scenarios were assessed based on the National Planning Policy Framework (NPPF). The assessment of impacts were based on criteria agreed by MSDC and WSCC.

5.1.2 The junctions were assessed according to the below criteria for 'severe' and 'significant' impacts.

5.1.3 A **'severe'** impact is defined as a junction with any approach arm experiencing both of the following:

- a junction with an increase in ratio of flow to capacity (RFC) of **3% or more** to an RFC of **95%** or more in any peak, in any Scenario; and
- an increase in average delay of **30 seconds** or more to an average delay of **two minutes** or more in any peak hour, in any Scenario

5.1.4 A **'significant'** impact is a junction with any approach arm experiencing the following:

- a junction with an increase in ratio of flow to capacity (RFC) of **3%** or more to an RFC of **85%** or more in any peak hour, in any Scenario

5.1.5 The criteria for defining and categorising capacity impact into Significant/Severe have been agreed with West Sussex County Council, with the quantum of significant and severe junctions per scenario shown in **Table 6**.

Table 6. Number of Significant/ Severe Junctions per Scenario

MODEL SCENARIO	NUMBER OF SIGNIFICANT IMPACT JUNCTIONS	NUMBER OF SEVERE IMPACT JUNCTIONS
Scenario 6	42	13
Scenario 6m2	32	3
Scenario 6m5*	29	3

5.1.6 ***Scenario 6m5** includes the proposed mitigation at Hickstead Interchange and Copthorne Roundabout but does not include the proposed measures along the A23 corridor as an outcome of the merge/diverge assessments. The adjustment of the strategic model to reflect the proposed improvements is not forecast to fundamentally alter the junctions flagged as severe given the distance from the proposed interventions for on/off-slips.*

5.2 Scenario 6m5 differences to previous Scenario 5m5 modelling

5.2.1 It is noted that the model scenario 5m5 which was included within the Regulation 19 model Results report was based on Tempro NTEM8 High whereas Scenario 6 considers Tempro NTEM8 Core. Additional trip rate adjustments in Scenario 6m2 are considered for smaller District Plan development sites, with an increase in home working from 5% (in scenario 5m2) to 20%, bringing this assumption in line with the larger District Plan sites which are proposed at 20% in both Scenario 5 and Scenario 6.

5.2.2 Scenario 6m5 differs from 5m5 as the northbound A23 on-slip at Sayers Common is no longer flagged as severe. As noted within chapter 7 of this Report, the merge/diverge assessment has resulted in an upgrade to the on-slip in this location being proposed as part of the District Plan measures despite it not being flagged as a 'severe' junction.

5.3 Further Investigations into Route Choice following the 5m2 assessment

5.3.1 Following the previous Scenario 5m2 model runs, further investigation on the route choices within the model was undertaken in order to support the approach to prioritise physical mitigation at junctions along strategic routes in order to encourage re-routing away from the Antsy and Stonepound severe impact junctions. As demonstrated in the Regulation 19 Scenario 5 Reporting, a proportion of vehicles were re-routing away from Hickstead Interchange Junction (A23/A2300) opting for using the A23/Bolney Road junction and B2039/Cuckfield Road when travelling to or from Burgess Hill which was increasing movements through the Ansty severe impact junction. Additionally, some trips were opting to use the A23 Pyecombe junction via the A273 to head southbound on the A23 from Burgess Hill, which was routing movements via the severely impacted Hassocks Stonepound junction.

5.3.2 Similarly, in relation to impacts at the Turners Hill Junction, the B2110/B2028 Turners Hill crossroads already experiences peak period congestion from rat-running traffic. This applies to both east-west traffic using the B2110 in combination with Turners Hill Road from Pound Hill and to north-south traffic using the B2028 in combination with minor roads through Sharpthorne to A22 at Wych Cross. The existing and potential for additional rerouting results from the avoidance of congested locations on A264 and A22, notably the Felbridge junction and A22 London Road into East Grinstead. Potential for highway capacity improvements at Turners Hill are limited with very limited physical space available within the Highway Boundary, as well as the fact that the mitigation should not seek to encourage vehicles to rat-run via local villages and avoid more strategic routes.

5.4 Mitigation Strategy

5.4.1 Following the further investigations presented within the Scenario 5 Report, Mid Sussex District Council, in partnership with West Sussex County Council, have identified an appropriate method to determine mitigation requirements at the junctions identified.

- **Turners Hill Junction** – The aim is to target improvements to the A264 East – West corridor by targeting junction improvements at the Copthorne Hotel Roundabout (A264 Copthorne Way/Brookhill Road/A264 Copthorne Common Road/Copthorne Hotel Access/ A2220 Copthorne Road). Targeted improvements will seek to

generate rerouting away from the B2110 via Turners Hill and onto the A264 Copthorne Road.

- **Ansty Junction and Stonepound (Hassocks) junctions –** The aim is to target improvements for access to the A23 along the A2300 from Burgess Hill through improvements at the A23/A2300 Hickstead Junction (Hickstead Lane/ A2300/A23 SB off-slip/Service Station Access/ A23 SB on-slip)

5.4.2 Targeted improvements seek to encourage rerouting away from the B2036 and A272 for access to the A23, and the A273 via Pycombe access to the A23 /to/from Burgess Hill, and encourage more trips to access the A23 via the A2300 via Hickstead to/from Burgess Hill.

5.4.3 Consequently, the next chapter summarises the results of the proposed mitigation interventions and the local junction modelling undertaken for the Copthorne roundabout and Hickstead Interchange.

Other studies

5.4.4 WSCC in partnership with Surrey County Council (SCC) Highway Authority are undertaking a combined study into the A22/A264 corridor. The aim of the study is to bring forward improvements which would ease traffic flow and/or promote mode shift to more sustainable modes between Crawley and East Grinstead which would in turn reduce rat running through Turners Hill. The study is at an early stage, so analysis is yet to take place of improvement options and their potential benefits.

5.4.5 The development of mitigation in this location to support the district plan development has therefore sought to take account of potential measures on the A264 in the design of any scheme to ensure that mitigation options do not undermine the successful delivery of future corridor study improvement options.

5.5 Next Steps

5.5.1 As identified in **Table 6**, the three junctions of Ansty, Turners Hill and Stonepound remain as severe impact junctions. Whilst some level of re-routing has occurred it has not had a significant enough impact to warrant re-classifying to 'significant' criteria. Ongoing discussions with MSDC and WSCC are taking place including considering whether active mode improvements should be considered in line with wider policy to apply a sustainable transport hierarchy to scheme development to encourage sustainable mode shift in these locations. It is noted however that highway capacity improvements have not been taken forward in these locations due to the constrained nature of the junctions as well as because the District Plan does not want to propose interventions which encourage routing via these villages rather than utilising more strategic routes through the District. It is considered that the impacts at these locations are not considered 'severe' in terms of the definition as per the NPPF.

6. LOCAL JUNCTION MODELLING RESULTS

6.1 Overview

6.1.1 This chapter summarises the outcome of the local junction modelling assessments for the following two junctions:

- **Hickstead Interchange –** Hickstead Lane/ A2300/A23 SB off-slip/Service Station Access/ A23 SB on-slip
- **Copthorne Roundabout -** A264 Copthorne Way/Brookhill Road/A264 Copthorne Common Road/Copthorne Hotel Access/ A2220 Copthorne Road Roundabout

6.1.2 Local Junction Model Output Reports are presented in **Appendix B** for the Baseline, 2039 Reference Case and 2039 Do Minimum Models and the 2039 Do Something with mitigation models.

Model Scenarios

6.1.3 8.2.1 The following Scenarios have been assessed in the local junction models.

- **2019 Baseline –** MSSHM model base year;
- **2039 Reference Case –** Includes any committed development in the district, including the development sites and associated infrastructure modelled in the Site Allocations Development Plan Document (Sites DPD), the committed highway infrastructure and background growth;
- **2039 Do Minimum (Scenario 5m4) –** Includes the full targeted District Plan growth and is informed by submissions made by significant site promotors considering mode shift potential due to LCWiP improvements and site specific sustainable corridor improvements.
  It is noted that the changes between Scenario 5m2 and 5m4 reflect an adjustment to account for LCWiP and specific sustainable corridor improvements, however the impact of this change was negligible and is considered factored within the distance based trip reductions, consequently within Scenario 6 modelling only 6m2 was assessed and not 6m4.
- **2039 Do Something (Scenario 5m4 flows) –** Builds upon the 2039 Do Minimum model run and includes any physical mitigation measures identified as part of the District Plan highway mitigation package.

6.1.4 It is noted that given the ongoing discussions regarding the final package of mitigation measures the updated 6m5 strategic model is not available and therefore the results presented below are informed by the Scenario 5 traffic flows. Given that the difference between Scenario 5 and Scenario 6 equates to reduction of background growth associated with Tempro NTEM8 Core as well as minor trip reductions associated with an increase in home working from 5% (in scenario 5m2) to 20%, bringing this assumption in line with the larger District Plan sites which are proposed at 20% in both Scenario 5 and Scenario 6, the results present a robust case and once Scenario 6m5 is re-run upon agreement of the final mitigation package the local model results can be assessed for this updated scenario showing a further improvement on the results presented below and the impact of re-routing within the strategic

model associated with the impact of the proposed interventions will therefore be reflected in the local modelling assessments.

6.2 Local Junction Modelling Results Output Definitions

Junction 10 Output Definitions

6.2.1 The Junctions 10 modelling software uses empirical formulae based on traffic flows and junction geometries to calculate the capacity of non-priority traffic streams (streams that must give-way to priority traffic). Geometric measurements include lane width available to the non-priority stream, visibility to waiting drivers, and width of the major road. Angles of intercept are also calculated for roundabout junctions.

6.2.2 The key outputs from Junctions 10 are the "ratio of flow to capacity" (RFC), the mean and maximum queue lengths and the average delay in seconds per vehicle arriving at the junction. An RFC of 0.85 or less on all arms indicates that a junction is functioning well without significant delay on any arm. An RFC of 0.85 to 1.0 indicates that the junction will be busy and may experience intermittent delays; different junction arms can have different RFCs so a single arm with an RFC in this range may not present an issue, particularly if this is observed in only a limited period of the modelled time. An RFC of greater than 1.0 indicates that the given arm(s) are operating beyond their nominal capacity, and extended queuing would be expected on a regular basis. Once a junction has reached nominal capacity, the model is more sensitive to small changes to traffic flows and any further increase in traffic flow will cause forecasted queue lengths and delays to increase exponentially.

6.2.3 The second key output from Junctions 10 is the Level of Service (LoS) of the junction. LoS is a qualitative measure used to relate to the quality of traffic service. LoS is used to analyse highways by categorising traffic flow and assigning quality levels of traffic based on performance measures such as speed and density. LoS references include:

- A = Free flow (Traffic flows at or above the posted speed limit and motorists have complete mobility between lanes);
- B = Reasonably free flow (Speeds are maintained, manoeuvrability within the traffic stream is slightly restricted);
- C = Stable flow (The ability to manoeuvre through lanes is noticeably restricted and lane changes require more driver awareness);
- D = Approaching unstable flow (Speeds slightly decrease as traffic volume slightly increases);
- E = Unstable flow (Flow becomes irregular and speed varies rapidly because there are virtually no usable gaps to manoeuvre in the traffic stream and speeds rarely reach the posted limit); and
- F = Forced or Breakdown Flow (Every vehicle moves in lockstep with the vehicle in front of it, with frequent slowing required).

Source - Junctions 10 User Guide and Highways Capacity Manual

LinSig v3 Output Definitions

6.2.4 The outputs of LinSig include the Degree of Saturation (DoS), Mean Maximum Queue (MMQ) and the Practical Reserve Capacity (PRC).

6.2.5 The % DoS is a ratio of demand to capacity for each traffic phase. Although not formally specified within any recognised guidance, it is generally preferred to seek to maintain the overall junction's % DoS below 90% in order to provide a level of confidence that the junction will operate within capacity even if day-to-day traffic flows vary. If the DoS for a given arm of the junction does exceed 100%, then queues will build up during red signal periods which will be unable to fully dissipate within the next green signal period and will therefore gradually become longer and longer during subsequent cycles, until the demand from traffic arriving at that arm of the junction subsides.

6.2.6 The PRC is related to the maximum % DoS, and is a measure of how much additional traffic can pass through a junction, whilst maintaining a maximum saturation of 90% on all lanes. A positive PRC indicates that a junction has spare capacity, whilst a negative PRC indicates that a junction is over capacity.

6.3 Local Junction Model Validation

6.3.1 In the absence of queue length survey data, the local junction models have been validated using the 2019 Baseline outputs from the MSSHM modelling, as the strategic model has undergone an extensive process of model validation across links and cordons using 2019 base survey traffic flow data.

6.3.2 The methodology of the validation exercise is to use the outputs from the validated MSSHM model to ensure that the 2019 baseline results from the strategic model are comparable with the 2019 baseline local junction model outputs. In doing so we can use the validated base local junction models as a suitable baseline from which to forecast the future scenarios.

6.3.3 The following criteria has been used to determine compliant thresholds for validation.

- **For non-signalised junctions**, model validation is required when either the MSSHM outputs or the local junction model initial outputs are reporting a mean maximum queue length of 5PCUs or more. A non-signalised local junction model is considered validated if the queue lengths reported within the local junction model are within ±15% of the comparable SRTM output results.

6.3.4 All of the local junction models are non-signalised in the 2019 baseline scenario and therefore no validation criteria for signalised junctions are required.

6.3.5 The amendments to the Junctions 10 models typically include changes to the percentage capacity adjustment factors as well as slope and intercept adjustments. The particular changes that have been included as part of the model validation are detailed in the subsequent chapter which details the results of the local junction modelling.

6.3.6 By achieving the required model validation criteria, the Baseline models can be used to forecast the future scenarios to assess the impact of local growth and the District Plan development allocations. Where particular discrepancies occur between the MSSHM model and the junction form, for example if a minor arm is not coded in the strategic model or pedestrian crossings are not coded, due to the strategic scale of the MSSHM, this is noted within the relevant junction results.

6.3.7 Details regarding the model calibration and validation changes are provided at the start of the results section for each of the local junction models prepared within the next section of this Report.

6.4 Hickstead Interchange – Hickstead Lane/ A2300/A23 SB off-slip/Service Station Access/ A23 SB on-slip

6.4.1 The A23 Hickstead Interchange is a grade-separated dumbbell arrangement junction providing access between the A23, the A2300 and Hickstead Lane. Vehicles would use this junction to route between the A23 and Burgess Hill, approximately three kilometres east of the junction.

6.4.2 The junction layout is shown in **Figure 4** below.

Figure 4. Hickstead Interchange Junction Layout

Source: Imagery©2024 Maxar Technologies, Map data ©2024

6.4.3 The western roundabout is a four arm non-signalised roundabout with uncontrolled crossings and associated tactiles on the north (A2300) and west arms (Hickstead Lane), with Hickstead Lane just having a dropped kerb and no tactile paving.

6.4.4 The eastern roundabout is a six arm non-signalised roundabout, consisting of the A23 on and off slip roads, the A2300 (east and west arms), a service station access road and a curtailed access road connecting to adjacent farmland. Uncontrolled pedestrian crossings are present on each arm with the exception of the west approach linking to the western roundabout,

some of which provide appropriate tactile paving. An overbridge of approximately 90 metres in length connects the two roundabouts, with footways present on both sides of the carriageway. A shared footway/cycleway is located on the A2300 eastern approach on both sides of the carriageway.

6.4.5 It is noted that the entry/exit arm which connects the eastern roundabout to the adjacent farmland north of the junction is not represented within the MSSHM. It is understood that this access road relates to a historic extant permission that is unlikely to be delivered and the site is not allocated for any purpose in either the adopted or emerging District Plan. Therefore, this access road has not been represented within the local modelling for this junction.

6.4.6 Additionally, the service station access is not accounted for in the strategic model. Based on an estimated parking capacity of 95 spaces a total of 82 inbound and 82 outbound vehicles have been accommodated within the models, which represents the upper limit of circulatory capacity in relation to available stacking space. This is considered a robust estimate of maximum demand and caters for pass- by trips along the A23 who would continue straight on along the A23 in the strategic model given that the model zone does not account for the trip attraction of the service station.

Model Validation

6.4.7 **Table 7** details the amendments which have been made to the western roundabout junction model arms to allow validation to meet the required criteria detailed in Section 6.3.3.

Table 7. A23 Hickstead Interchange Western Roundabout – Local Model Validation Amendments

ARM	PERCENTAGE CAPACITY ADJUSTMENT CHANGES	
	AM	PM
Hickstead Lane	No Change	No Change
A23 NB On Slip	No Change	No Change
A2300 Overbridge	125%	125%
A23 NB Off Slip	No Change	No Change

6.4.8 The capacity adjustments applied result in mean maximum queues which better reflect those in the MSSHM, with queues on all arms being within ±15% threshold or below 5 PCUs within both models. The model is considered appropriately validated.

6.4.9 **Table 8** details the amendments which have been made to the eastern roundabout junction model arms to allow validation to meet the required criteria detailed in Section 6.3.3.

Table 8. A23 Hickstead Interchange Eastern Roundabout – Local Model Validation Amendments

ARM	PERCENTAGE CAPACITY AJUSTMENT CHANGES	
	AM	PM
A2300 Overbridge	No Change	No Change
A23 SB Off Slip	No Change	No Change
A2300 E	48%	No Change
A23 SB ON Slip	No Change	No Change

6.4.10 The capacity amendments applied result in mean maximum queues which better reflect those in the MSSHM, with queues on all arms being within ±15% threshold or below 5 PCUs within both models. The model is considered appropriately validated.

6.5 A23 Hickstead Interchange - Junction Model Results

2019 Baseline Junction Model Results

6.5.1 This junction has been modelled using Junctions 10, with the results presented in **Table 9** below.

Table 9. A23 Hickstead Interchange - 2019 Baseline Junction Model Results

Arm Name	AM Peak				PM Peak			
	RFC	Delay(s)	Queue (pcu)	LOS	RFC	Delay(s)	Queue (pcu)	LOS
2019 Baseline – Western Roundabout								
A2300 Hickstead Lane	0.14	7.49	0.2	A	0.12	5.41	0.1	A
A23 North	0.00	0.00	0.0	A	0.00	0.00	0.0	A
A2300 East	0.79	17.23	4.0	C	0.65	10.48	2.1	B
A23 South	0.64	18.08	1.7	C	0.32	8.48	0.5	A
2019 Baseline – Eastern Roundabout								
A2300 Overbridge	0.28	3.61	0.4	A	0.20	3.19	0.3	A
A23 S/B off-slip	0.56	5.80	1.5	A	0.59	5.51	1.5	A
A2300 East	1.04	124.00	36.3	F	0.41	3.11	0.8	A
Service Station	0.11	4.91	0.1	A	0.10	4.63	0.1	A
A23 S/B on-slip								

6.5.2 The eastern roundabout is operating above capacity in the 2019 Baseline AM peak scenario. The A2300 East arm records a maximum RFC of 1.04 with a resulting maximum queue of 36

PCUs. All remaining arms across both junctions operate within capacity during the AM peak scenario. Both junctions operate within capacity during the PM peak scenario.

2039 Reference Case and Do Minimum Junction Model Results

6.5.3 As part of the Site Allocations Development Plan Document (DPD), allocation SA9 allocated land to the north of the A2300 for a Science and Technology Park. Mitigation was proposed to support this allocation during the DPD plan making process, including improvements to the Hickstead Interchange. The proposed mitigation at the junction included partial signalisation of the Eastern roundabout, realignment of the roundabout circulation to maximise stacking space for the eastbound A2300 overbridge approach as well as improvement on operation at the western roundabout through creation of a tear drop roundabout arrangement and improvements to walking and cycling connections. It is noted that the District Plan Policy DP1 from the current adopted District Plan (2014-2031, adopted 2018) identifies a broad location for a Science and Technology Park to the west of Burgess Hill covering 25 hectares. The proceeding Site allocations DPD document identifies and allocates a specific site, north of the A2300, for a Science and Technology Park within policy SA9. The emerging District Plan (2021-2039) identifies no outstanding residual employment need, identifying that there is a sufficient committed supply from planning permissions and allocations already planned for. **Figure 5** and **Figure 6** below shows the mitigation sketch designs of junction improvements at Hickstead Interchange included within the Reference Case and Do Minimum model runs as part of the Science Park proposals.

Figure 5. Science Park Mitigation, Hickstead Interchange – Eastern Roundabout

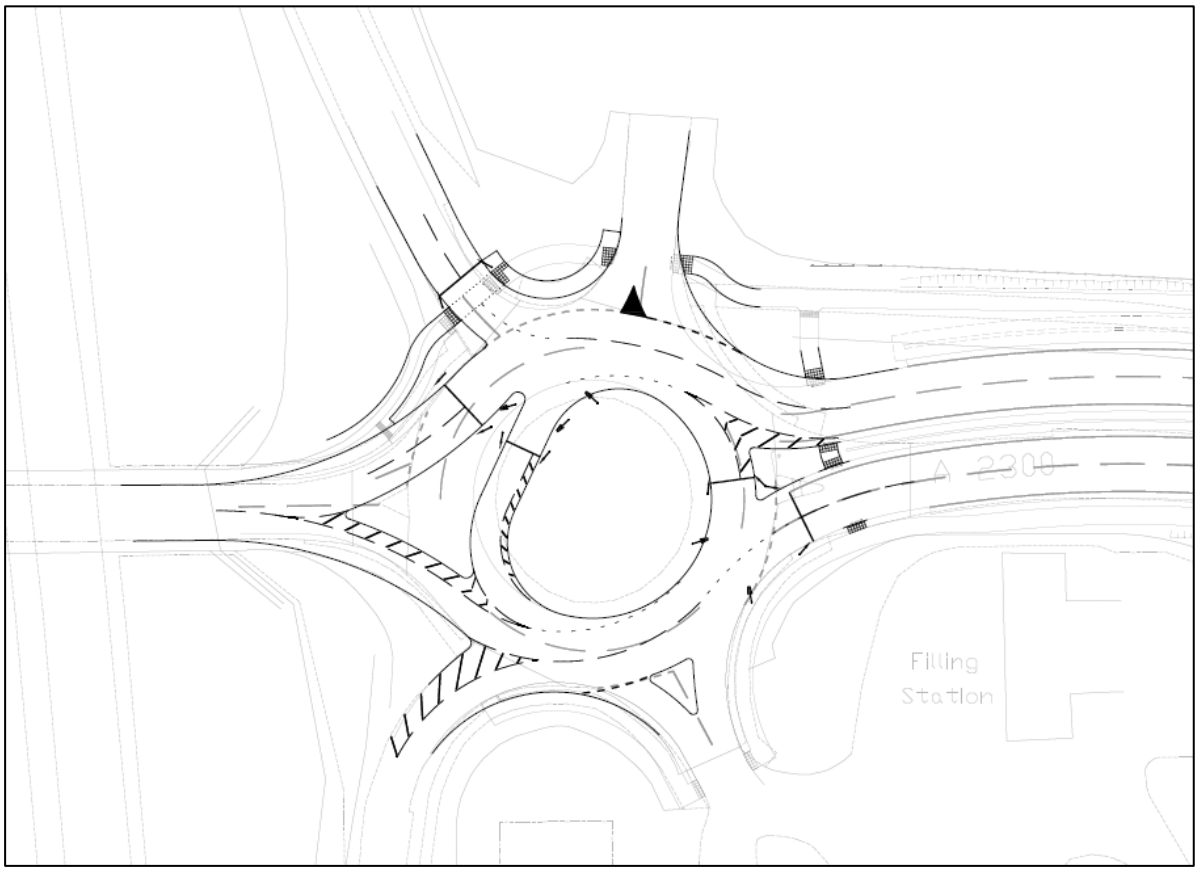
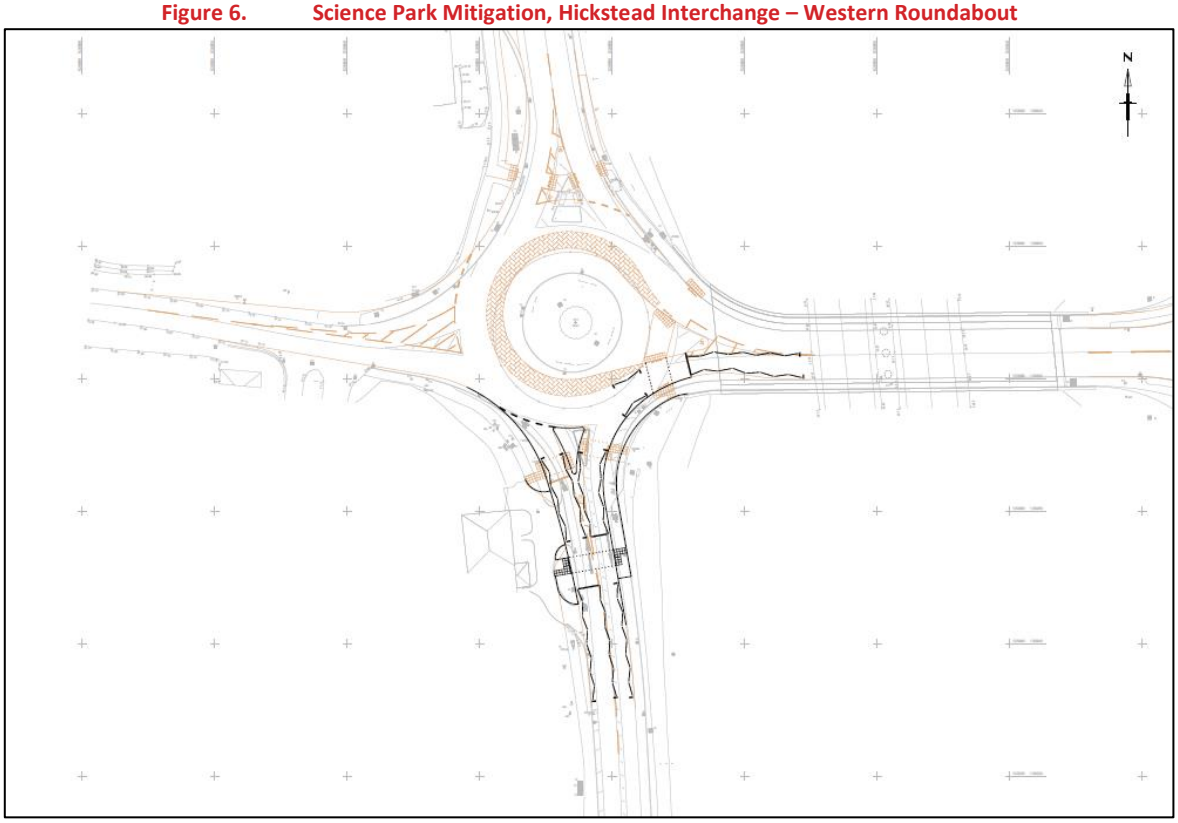


Figure 6. Science Park Mitigation, Hickstead Interchange – Western Roundabout



6.5.4 Given the introduction of partial signalisation associated with the above improvements, this junction has been modelled using a combined network LinSig, with the results presented in **Table 10** below. The Scenario 5m4 flows (2039 Do Minimum) have been used to assess the proposed mitigation.

Table 10. A23 Hickstead Interchange – 2039 Reference Case & 2039 Do Minimum Junction Model Results (Science Park Mitigation)

Lane Name	AM Peak				PM Peak			
	DoS (%)	Total Delay (pcuHr)	Average Delay (s/pcu)	Mean Maximum Queue (pcu)	DoS (%)	Total Delay (pcuHr)	Average Delay (s/pcu)	Mean Maximum Queue (pcu)
2039 Reference Case								
Western Roundabout								
Hickstead Lane	45.1%	0.4	7.8	0.4	27.0%	0.2	5.3	0.2
A2300 North	0.0%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0
A2300 Overbridge	95.7%	10.3	23.7	28.3	98.3%	15.8	35.4	40.7
A2300 South	14.6%	0.2	2.9	1.3	6.0%	0.1	2.7	0.5
Eastern Roundabout								
A2300 Overbridge	82.5%	5.8	51.8	9.4	66.6%	3.0	56.0	3.5
A23 N	72.3%	4.4	19.6	15.8	48.3%	1.7	9.6	8.0
A2300 East	102.5%	38.5	84.8	74.6	110.0%	97.9	200.6	133.2
Service Station	23.6%	0.2	6.8	0.2	24.7%	0.2	7.2	0.2
Central Right Turn Lane	48.0%	1.4	64.2	2.2	21.8%	0.5	56.9	0.9
2039 Do Minimum								
Western Roundabout								

Hickstead Lane	69.9%	1.1	14.7	1.1	22.7%	0.1	5.0	0.1
A2300 North	0.0%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0
A2300 Overbridge	95.6%	10.0	23.2	28.6	98.2%	15.7	35.2	40.0
A2300 South	18.1%	0.2	3.1	1.6	6.2%	0.1	2.7	0.5
Eastern Roundabout								
A2300 Overbridge	86.8%	7.3	50.4	12.9	65.5%	2.7	57.9	3.3
A23 N	79.7%	5.8	26.2	18.1	49.4%	1.7	9.3	8.1
A2300 East	102.0%	35.2	77.8	71.3	108.0%	80.2	167.3	116.6
Service Station	18.6%	0.1	5.0	0.1	27.5%	0.2	8.3	0.2
Central Right Turn Lane	49.5%	1.4	64.7	2.3	22.2%	0.5	50.6	1.0

6.5.5 The western roundabout is shown to operate within capacity across all scenarios. It is noted however that the A2300 Overbridge is nearing capacity in all scenarios. The maximum 2039 Reference Case DoS value for this arm is 98.3% in the PM peak, resulting in a MMQ of 40.7 PCUs. The addition of District Plan traffic flows does not noticeably change the levels of congestion on this arm. Congestion on this arm is being caused by the pedestrian crossing being called every cycle, resulting in queues building up on the overbridge. It is noted that the level of queues on the overbridge from the A2300 Overbridge approach arm would exceed stacking space available for the allocated Science Park mitigation scheme, if it were to be called every cycle.

6.5.6 The eastern roundabout is shown to operate above capacity on the A2300 East arm in both 2039 Reference Case and Do Minimum scenarios, for both AM and PM peaks. The maximum 2039 Reference Case DoS value for this arm is 110% in the PM peak, resulting in a MMQ of 133.2 PCUs. The addition of District Plan traffic flows does not noticeably change the levels of congestion on this arm with only slight reductions in the DoS value. Congestion on this arm is being caused by the signalisation of this arm whereas previously this arm was give way, as well as the lane allocations requiring vehicles accessing the A23 to only use the nearside lane.

2039 Do Minimum with SYSTRA Mitigation Junction Model Results

6.5.7 SYSTRA have reviewed the mitigation associated with the Science and Technology park and considered whether any further junction improvements can be made to support the full development of the District Plan and traffic volumes associated with the targeted levels of growth.

The proposed updates to the Science Park design include:

- Eastern roundabout adjusted to a tear-drop arrangement;
- Removal of the single lane circulatory movement and the resultant traffic green phase;
- Removal of the footway on the southern side of the overbridge to allow for additional carriageway width on approach arms;
- Improvements to footways and tactiles on the northern side of both the eastern and western roundabout;
- Hedges to be trimmed to improve visibility from the A23 off-slip.

The proposed SYSTRA mitigation design (Do Something Mitigation) to support the District Plan growth is shown in **Figure 7** and **Figure 8** below and Drawing GB01T23G40-dwg-100-02 and Drawing GB01T23G40-dwg-100-01 in **Appendix C**

Figure 7. SYSTRA Proposed Mitigation (Do Something Mitigation) – Hickstead Interchange, Eastern Roundabout

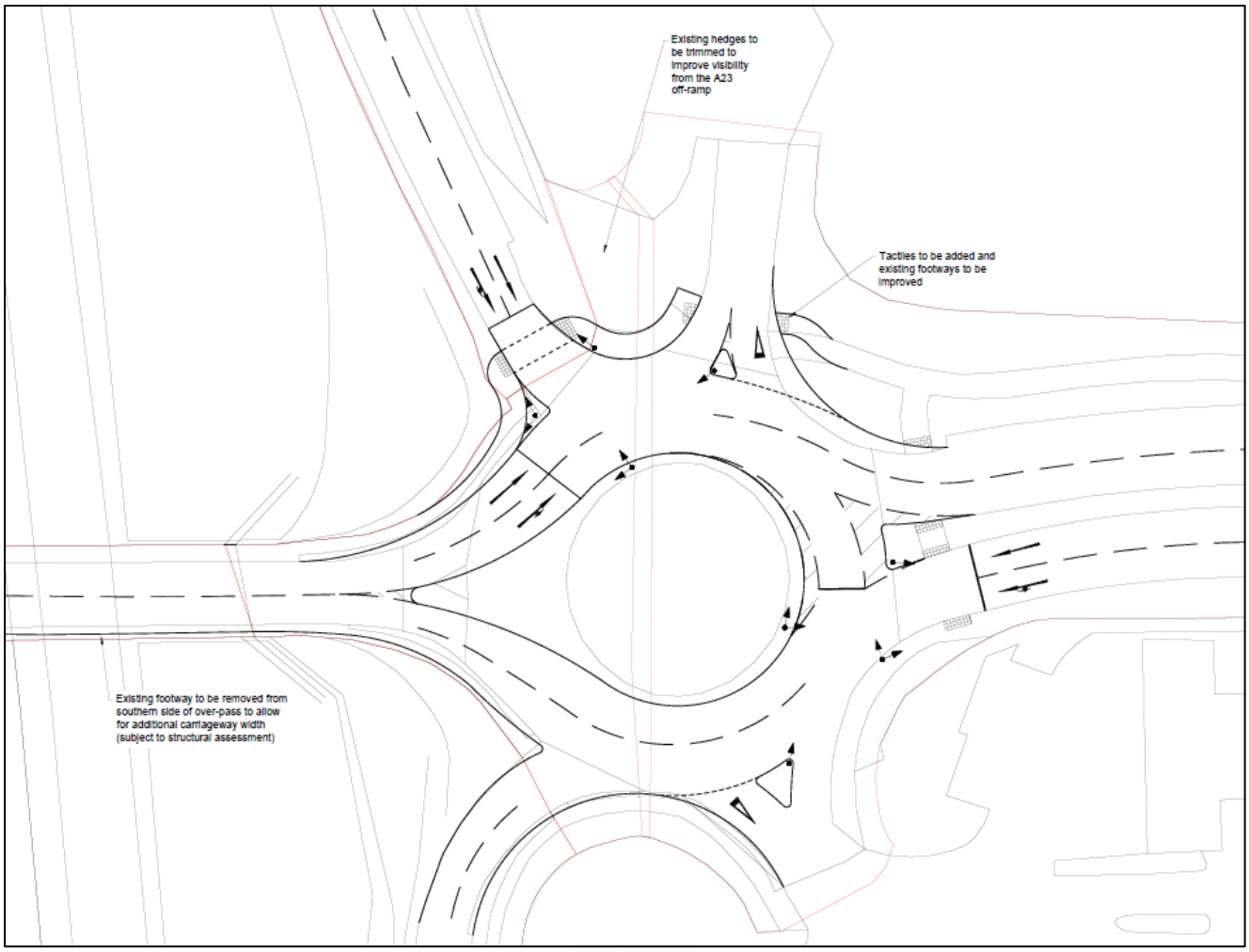
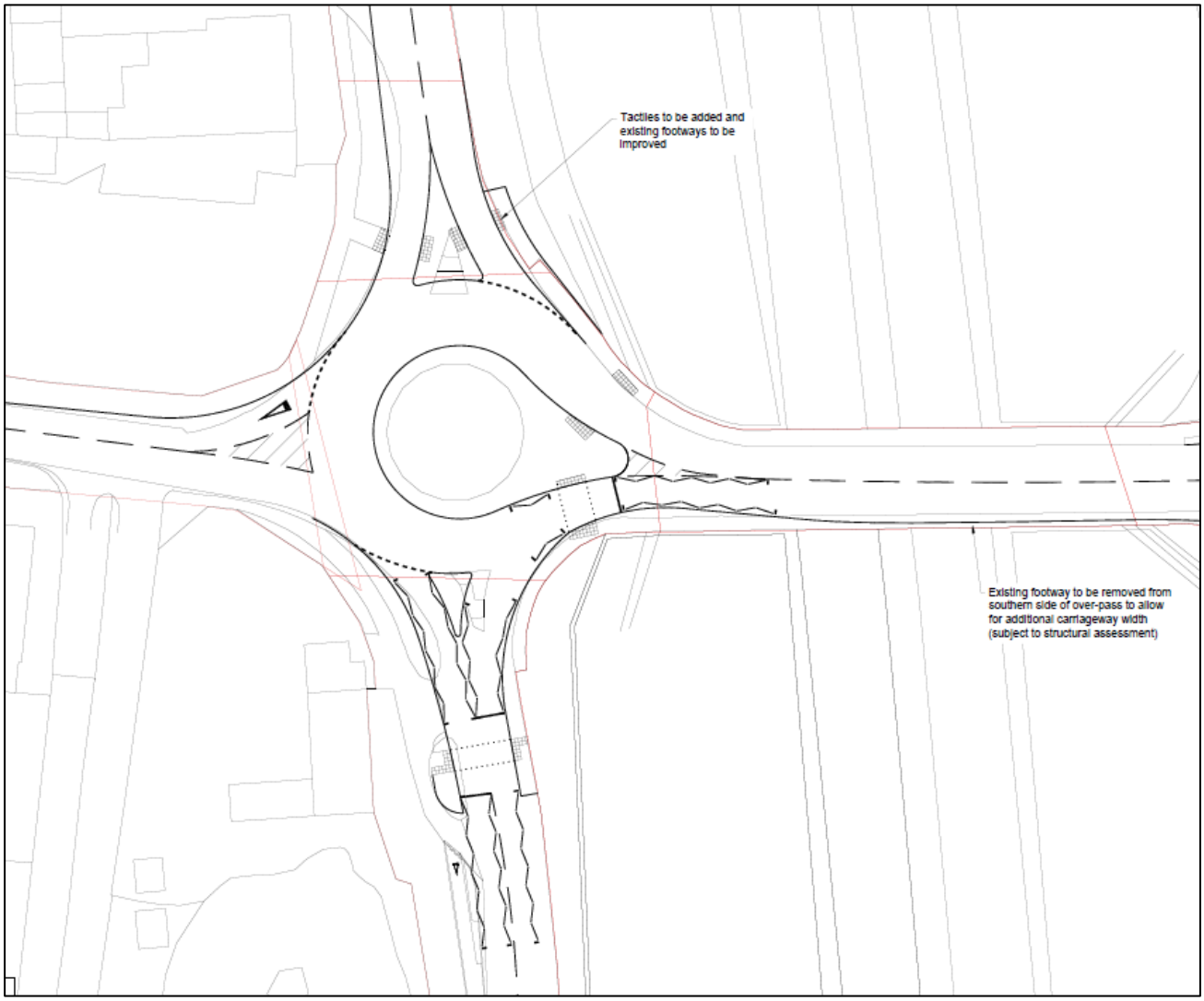


Figure 8. SYSTRA Proposed Mitigation (Do Something Mitigation) – Hickstead Interchange, Eastern Roundabout



6.5.8 In terms of modelling of impacts the key difference between the SYSTRA proposed mitigation and the Science Park scheme is that the removal of the eastern roundabout circulation would result in vehicles turning right from the service station and vehicles who U-turn from the A2300 (includes a proportion of left-turn movements from Pookbourne Lane) making use of the western roundabout to U-turn. As the volume of flows is low, it was deemed beneficial in order to remove a traffic signal phase for circulation.

6.5.9 It is noted that the western roundabout maintains the signalised pedestrian crossing from the Science Park design to support the safety of pedestrians avoiding them having to judge gap acceptance between vehicles.

6.5.10 The junction model results with the SYSTRA proposed mitigation is presented in **Table 11**. The Scenario 5m4 flows (2039 Do Minimum) have been used to assess the proposed mitigation.

Table 11. A23 Hickstead Interchange– 2039 Do Minimum Junction Model Results (with SYSTRA Proposed Mitigation)

Lane Name	AM Peak				PM Peak			
	DoS (%)	Total Delay (pcuHr)	Average Delay (s/pcu)	Mean Maximum Queue (pcu)	DoS (%)	Total Delay (pcuHr)	Average Delay (s/pcu)	Mean Maximum Queue (pcu)
2039 Do Minimum								
Western Roundabout								
Hickstead Lane	64.2%	0.9	11.4	0.9	17.7%	0.1	3.7	0.1
A23 North	0%	0.0	0.0	0.0	0%	0.0	0.0	0.0
A2300 Overbridge	103.8%	45.8	98.6	83.9	109.7%	95.2	190.9	132.1
A23 South	17.8%	0.2	3.0	1.5	6.1%	0.1	2.7	0.5
Eastern Roundabout								
A2300 Overbridge	83.7%	6.8	40.9	12.9	62.0%	2.9	51.1	3.5
A2300 East	68.3%	2.2	7.1	12.6	80.0%	3.6	10.1	19.1
Service Station	16.7%	0.1	5.5	0.5	24.6%	0.3	14.3	1.1
A23 S/B off-slip	74.0%	4.4	19.8	15.8	45.8%	1.0	5.8	6.0

6.5.11 The western roundabout is shown to operate above capacity in both AM and PM peak periods, with a maximum DoS value of 109.7% on the A2300 Overbridge arm in the PM peak. This leads to a Mean Maximum Queue of 132 PCUs, which would extend across the overbridge and beyond the eastern roundabout, as well as an average delay of over three minutes per PCU. Congestion on this arm is caused by the pedestrian crossing being called every cycle, resulting in queues building up on the overbridge.

6.5.12 The eastern roundabout is shown to operate within capacity within both AM and PM peak periods. It is however acknowledged that the queue on the western roundabout east arm as potential to impact the operation of this junction. A sensitivity test has been added to establish if this queue can be mitigated such that it no longer impacts the eastern roundabout operation.

Sensitivity Testing – Pedestrian Crossing Demand

6.5.13 SYSTRA have undertaken a sensitivity test based on the pedestrian crossing on the western roundabout of the junction called every three cycles rather than every cycle. It is considered that this would be more reflective of expected conditions due to the anticipated fairly low frequency of pedestrians using the A23 overbridge. The model output reports in **Appendix B** ending with ST in the file name relate to the sensitivity testing.

2039 Science Park Mitigation (Pedestrian Crossing called every third Cycle)

6.5.14 The results for the Science Park Mitigation with the pedestrian crossing being called every third cycle is shown in **Table 12** below.

Table 12. A23 Hickstead Interchange West – 2039 Do Minimum Junction Model Results with altered pedestrian cycle (Science Park Model)

Lane Name	AM Peak				PM Peak			
	DoS (%)	Total Delay (pcuHr)	Average Delay (s/pcu)	Mean Max Queue (pcu)	DoS (%)	Total Delay (pcuHr)	Average Delay (s/pcu)	Mean Max Queue (pcu)
2039 Do Minimum								
Western Roundabout								
Hickstead Lane	69.9%	1.1	14.7	1.1	22.7%	0.1	5.0	0.1
A2300 North	0.0%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0
A2300 Overbridge	83.2%	2.6	6.0	7.0	85.5%	3.1	7.0	9.0
A2300 South	18.1%	0.2	3.1	1.6	6.2%	0.1	2.7	0.5
Eastern Roundabout								
A2300 Overbridge	86.8%	7.2	49.9	12.9	65.5%	2.7	57.9	3.3
A23 N	79.7%	5.8	26.2	18.1	49.4%	1.7	9.3	8.1
A2300 East	102.0%	35.2	77.8	71.3	108.0%	80.1	167.2	116.6
Service Station	18.6%	0.1	5.0	0.1	27.5%	0.2	8.3	0.2
Central Right Turn Lane	49.5%	1.4	65.3	2.3	22.2%	0.5	49.4	1.0

6.5.15 As is evident from the information in **Table 12**, the proposed alteration of the pedestrian crossing cycle on the western roundabout of the Hickstead Interchange leads to significant improvement on the A2300 overbridge (westbound) in the AM peak, with the Degree of Saturation decreasing from 95.6% to 83.2%, and Mean Max Queues reduce from 29 to 7 PCUs.

6.5.16 Additionally in the PM peak, there is significant improvement on the results of the A2300 overbridge (westbound). Degree of Saturation reduces from 98.2% to 85.5%, and the Mean Max Queue reduces from 40 to 9 PCUs.

6.5.17 The changes to the pedestrian crossing demand have a negligible impact on the results of the Eastern Roundabout.

SYSTRA Proposed Mitigations (Pedestrian Crossing called every third Cycle)

6.5.18 The results for the SYSTRA Mitigation with the altered cycle for the pedestrian crossing is shown in **Table 13** below.

Table 13. A23 Hickstead Interchange – 2039 Do Minimum Junction Model Results with Altered Pedestrian Cycle (SYSTRA Model)

Lane Name	AM Peak				PM Peak			
	DoS (%)	Total Delay (pcuHr)	Average Delay (s/pcu)	Mean Max Queue (pcu)	DoS (%)	Total Delay (pcuHr)	Average Delay (s/pcu)	Mean Max Queue (pcu)
2039 Do Minimum								
Western Roundabout								
A2300 Hickstead Lane	66.8%	1.0	12.8	1.0	19.4%	0.1	4.1	0.1
A23 North	0.0%	0.0	0.0	0.0	0.0%	0.0	0.0	0.0
A2300 Overbridge	89.1%	4.1	8.8	8.4	94.2%	7.6	15.4	33.7
A23 South	17.8%	0.2	3.0	1.5	6.1%	0.1	2.7	0.5

Eastern Roundabout								
A2300 Overbridge	84.1%	6.9	41.1	13.2	63.1%	2.9	50.1	3.6
A2300 East	68.4%	2.2	7.1	12.6	80.0%	3.6	10.1	19.1
Service Station	16.7%	0.1	5.5	0.5	24.6%	0.3	14.3	1.1
A23 S/B on-slip	74.0%	4.4	19.8	15.8	45.9%	1.1	5.8	6.0

6.5.19 As noted in the table above, when the crossing is called every three cycles the operation of the A2300 overbridge (westbound) into the western roundabout improves with DoS decreasing from 103.8% to 89%, and a resultant decrease in Mean Max Queue from 29 to 8 PCUs.

6.5.20 In the PM peak, it is noted that with the alteration of the pedestrian cycle reduces the Degree of Saturation from 109.7% to 94.2%, and the resulting Mean Max Queue from 117 to 34 PCUs.

6.5.21 There is a negligible impact on the operation of the Eastern Roundabout.

Summary

6.5.22 The results of the sensitivity test demonstrate that the level of queues reported substantially reduces in the more reflective scenario whereby the proposed signalised crossing on the western roundabout is called every third cycle. The level of queues reported with the Science Park proposed mitigation are accommodated within the available stacking space of the A2300 overbridge, however greater queues are observed on the A2300 westbound approach to the eastern roundabout when compared to the SYSTRA proposed mitigation.

6.5.23 The level of queues forecast with the SYSTRA mitigation is within the available stacking capacity for the AM however it is still in excess for the PM peak during this single peak period.

6.5.24 It is also noted that the strategic modelling results suggest much lower queues on the A2300 Eastbound entry into the eastern roundabout with the SYSTRA proposed mitigation, due to the removal of the green phase associated with the revised internal circulatory of the eastern roundabout. It is also noted that the A23 off-slip improves in operation within the strategic modelling when comparing the Science Park and SYSTRA developed mitigation, which also suggests the benefits of the SYSTRA scheme due to the off-slip being a key focus of mitigation requirements to ensure safe and efficient operation of the strategic road network.

6.6 Copthorne Roundabout - A264 Copthorne Way/Brookhill Road/A264 Copthorne Common Road/Copthorne Hotel Access/ A2220 Copthorne Road Roundabout

6.6.1 The Copthorne Roundabout is a non-signalised five arm roundabout located at the junction of the A264, A2220 Copthorne Road and Brookhill Road, which provides access to the village of Copthorne. The fifth arm provides access to the Copthorne Hotel complex. Uncontrolled pedestrian crossings are present on the north arm (Brookhill Road), which has recently been upgraded to include tactile paving. Copthorne Way only provides a footway on the northern side of the carriageway.

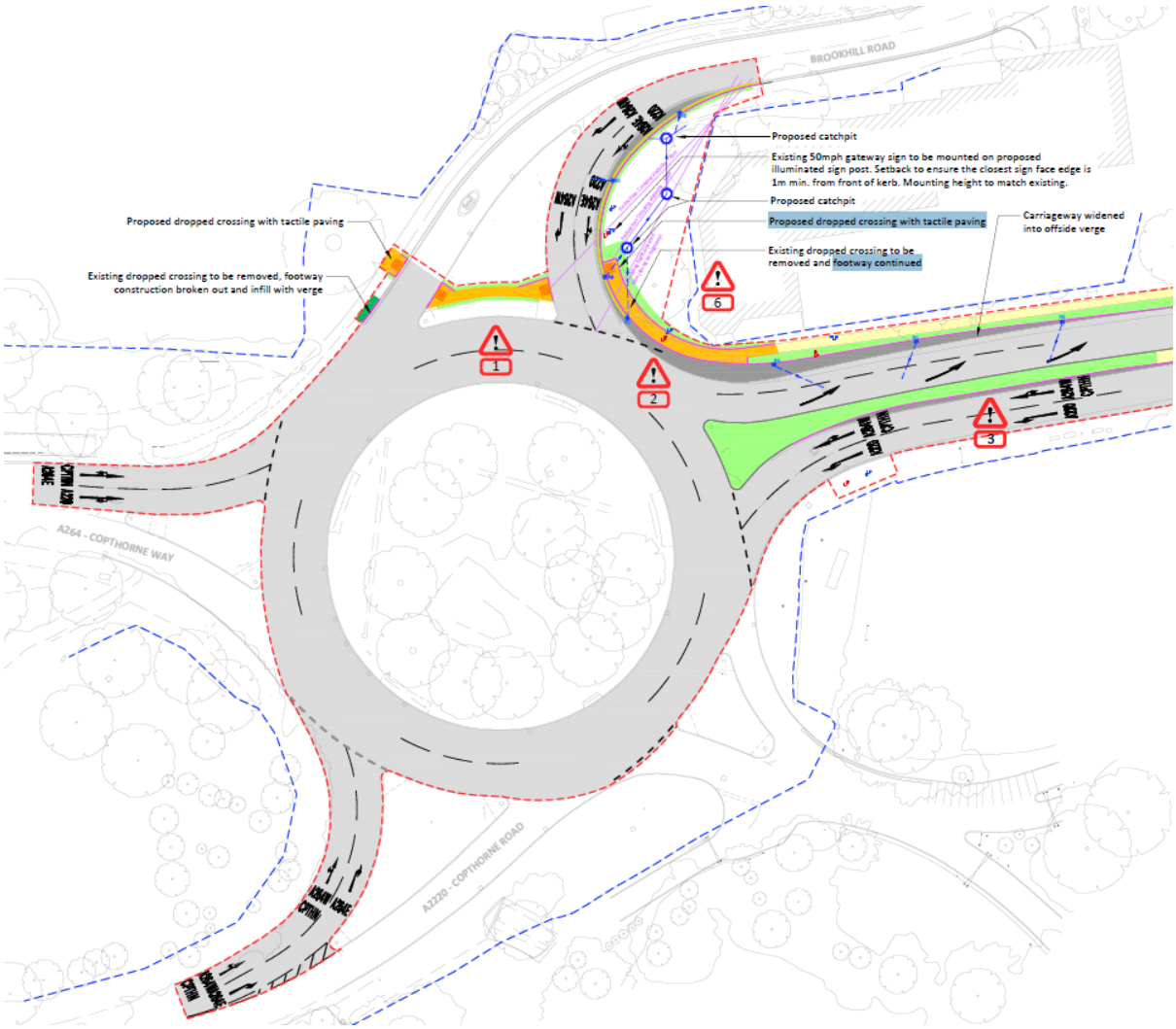
2023 Junction Upgrades

6.6.2 It is noted that Copthorne Roundabout has been subject to recent upgrade works which were completed in Summer 2023. The proposed improvements include widening of Brookhill Road approach arm, widening of the eastbound A264 Copthorne Common Road exit arm and improved pedestrian crossing facilities.

6.6.3 A plan showing the completed 'as-built' layout of these works is shown in **Figure 9**.

6.6.4 Due to the timing of the modelling work, the local junction model results presented in this section have been assessed based on the pre-existing layout (with no improvement works as per Figure 9). A sense check has confirmed that the 2023 completed improvements do not preclude the additional mitigation required for the District Plan as detailed within section 6.7.6-6.7.10 of this report.

Figure 9. Copthorne Roundabout 'as-built' Improvement Scheme (Completed Summer 2023)



Model Validation

6.6.5 **Table 14** details the amendments which have been made to the junction model arms to allow validation to meet the required criteria detailed in Section 6.3.3.

Table 14. Copthorne Roundabout – Local Model Validation Amendments

ARM	Percentage Capacity Adjustment Changes	
	AM	PM
A264 W	115%	115%
Brookhill Rd	No Change	No Change
A264 E	130%	130%
Copthorne Hotel	No Change	No Change
A2220 SW	No Change	No Change

6.6.6 The capacity amendments applied result in maximum queues which better reflect those in the MSSHM, with queues on all arms being within ±15% threshold or below 5 PCUs within both models. The model is considered appropriately validated.

6.7 Copthorne Roundabout – Junction Model Results

Pre-existing Layout Junction Model Results

6.7.1 The junction modelling results for the Copthorne Roundabout are presented in **Table 15**. The modelling was undertaken using the pre-existing junction geometry in all three scenarios prior to the completion of the works shown at **Figure 9**.

Table 15. Copthorne Roundabout – Pre-existing Layout Junction Model Results

	AM (08:00-09:00)				PM (17:00-18:00)			
	Queue (PCU)	Delay (s)	RFC	LoS	Queue (PCU)	Delay (s)	RFC	LoS
2019 Base								
A – A264 Copthorne Way	6.4	15.71	0.86	B	2.0	5.62	0.65	A
B – Brookhill Road	1.0	9.59	0.46	A	1.4	8.33	0.57	A
C – A264 Copthorne Common Road	0.9	4.33	0.46	A	2.4	7.20	0.71	A
D – Copthorne Hotel Access	0.1	4.20	0.06	A	0.1	5.48	0.10	A
E – A2220 Copthorne Road	1.6	6.25	0.61	A	0.9	5.04	0.47	A
2039 Reference Case								
A – A264 Copthorne Way	55.8	113.72	1.05	F	3.2	8.46	0.76	A
B – Brookhill Road	1.7	14.16	0.60	B	13.2	56.65	0.96	F

C – A264 Copthorne Common Road	0.8	4.34	0.44	A	5.4	15.03	0.84	C
D – Copthorne Hotel Access	0.1	4.28	0.08	A	0.2	7.38	0.15	A
E – A2220 Copthorne Road	2.8	8.41	0.74	A	1.9	8.48	0.66	A
2039 Do Minimum								
A – A264 Copthorne Way	80.9	165.93	1.10	F	5.2	13.51	0.84	B
B – Brookhill Road	2.3	17.00	0.67	C	103.5	337.54	1.24	F
C – A264 Copthorne Common Road	1.0	4.87	0.48	A	4.5	13.48	0.82	B
D – Copthorne Hotel Access	0.1	4.63	0.09	A	0.2	7.46	0.15	A
E – A2220 Copthorne Road	24.8	55.69	0.99	F	6.5	21.23	0.88	C

6.7.2 Modelling of the 2019 base case has shown that all roundabout arms operate within their practical capacity (RFC <0.85) in both the AM and PM scenarios, with the exception of the A264 western approach which is slightly above its practical capacity in the AM peak. The busiest approach in the PM peak hour is the A264 eastern arm but this has spare capacity with an RFC of 0.71.

6.7.3 The 2039 reference case shows the roundabout to experience increased congestion in both peak hours. In the AM peak the A264 western arm exceed theoretical capacity, with an RFC of 1.05, forecasting a queue length exceeding 55 PCUs and delay of over 110 seconds. All other arms show increased congestion but operate within their practical capacity. In the PM peak all arms experience increased congestion but operate within theoretical capacity. Brookhill Road is approaching theoretical capacity with an RFC of 0.96 and over a 55 second delay.

6.7.4 The 2039 Do Minimum scenario shows further increases in congestion, albeit the greatest increases are associated with the background growth to 2039 rather than the District Plan growth itself. In the AM peak the A2220 approach has reached theoretical capacity (RFC 0.99) and the A264 western arm is over capacity (1.10), although all other arms operate well within capacity. In the PM peak the Brookhill Road approach has become significantly over capacity (RFC 1.24) and the A2220 approach is approaching capacity (RFC 0.88).

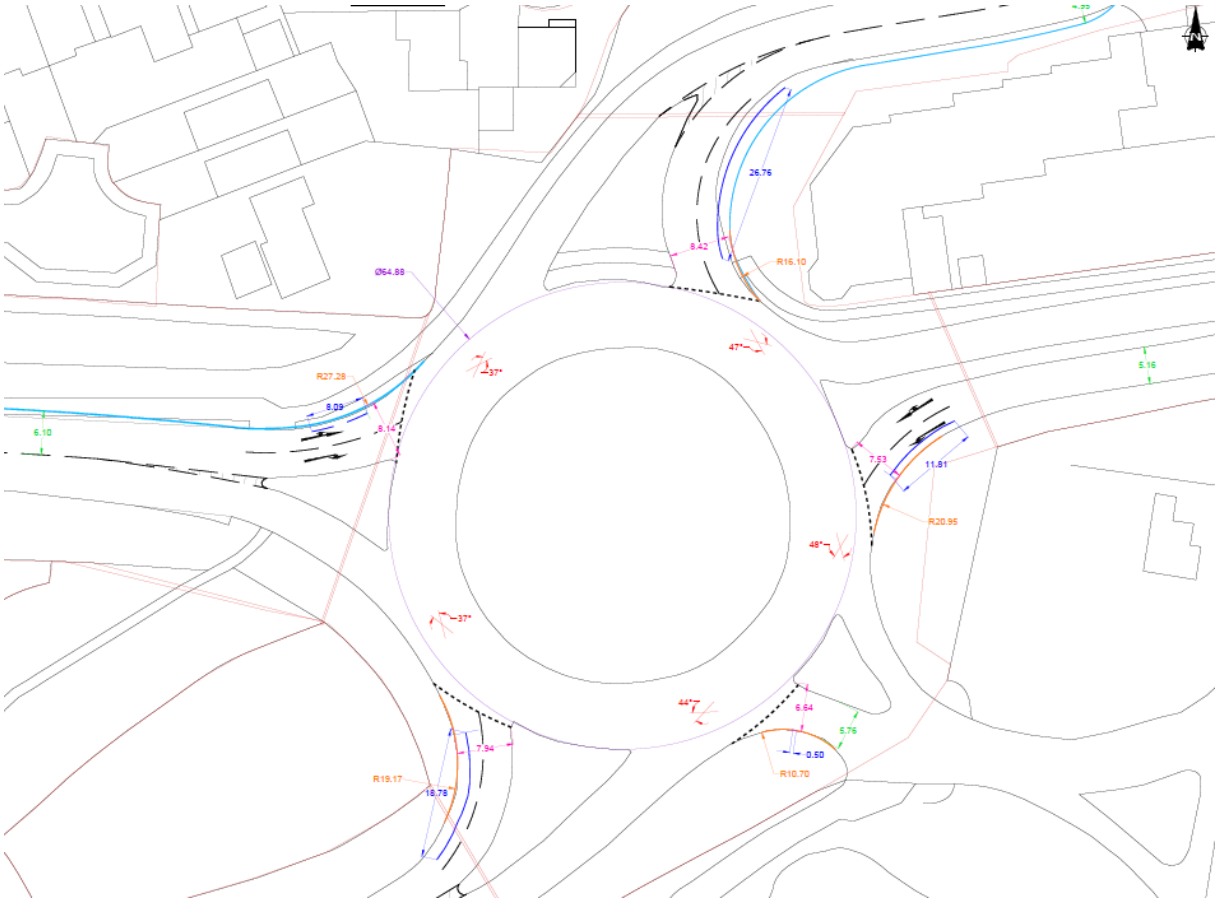
Proposed Mitigation Option and Results

6.7.5 An improvement scheme has been proposed to alleviate congestion forecast on the A264 Copthorne Road and Brookhill Road in both the 2039 Reference Case and Do Minimum Scenario.

6.7.6 The improvement scheme builds on the recently completed scheme shown at **Figure 9** above; the scheme comprises widening of the approach arm on the A264 Copthorne Way, resulting in increased entry width and additional effective flare length associated with this increase to 8.09m on Copthorne Way. Compared to the pre-existing layout the additional effective flare length of Brookhill Road increases by 26.76m. The improvement works can be fully accommodated within the highway boundary and the recently built scheme does not preclude the proposed mitigation scheme from coming forwards.

6.7.7 Drawing GB01T23G40-dwg-100-04 in **Appendix C** and **Figure 10** below highlights the proposed mitigation option.

Figure 10. Copthorne Roundabout Proposed Mitigation



6.7.8 The results of the Do Something assessment using the geometrics as per the proposed mitigation scheme included at **Figure 10** are presented in **Table 16** below.

6.7.9 The Scenario 5m4 flows (2039 Do Minimum) have been used to assess the proposed mitigation.

Table 16. Copthorne Roundabout – With Proposed Mitigation Junction Model Results

	AM (08:00-09:00)				PM (17:00-18:00)			
	Queue (PCU)	Delay (s)	RFC	LoS	Queue (PCU)	Delay (s)	RFC	LoS
2039 Do Minimum								
A – A264 Copthorne Way	31.3	70.35	1.01	F	3.5	8.80	0.77	A
B – Brookhill Road	1.5	11.01	0.57	B	25.5	87.70	1.01	F
C – A264 Copthorne Common Road	1.0	5.04	0.49	A	7.1	21.81	0.89	C
D – Copthorne Hotel Access	0.1	4.70	0.09	A	0.2	8.72	0.18	A
E – A2220 Copthorne Road	24.9	55.82	0.99	F	7.8	25.47	0.90	D

6.7.10 The proposed mitigation has initially been tested in the local junction modelling against the pre-existing junction layout and the model results for the proposed mitigation demonstrate a notable improvement on the junction approaches that are shown to be over capacity with the pre-existing layout. In the AM peak, delays on the A264 western arm are reduced by over 90 seconds and Brookhill Road also shows a reduction in queuing. The delay incurred on A264 Copthorne Way is greater in the 2039 Reference Case under the pre-existing layout, compared to the with mitigation 2039 Do Minimum Scenario, hence mitigating the impacts of the District Plan traffic.

6.7.11 In the PM peak the mitigation reduces delays on Brookhill Road by over four minutes compared to the pre-existing layout and the A264 western arm also sees an improvement. Whilst Brookhill Road operates slightly over capacity the improvement scheme has brought marked improvements to the arm operation and the level of reported queueing is not anticipated to have an impact on adjacent junctions due to the stacking space available. All other arms show a marginal increase in queue and delays but operate within theoretical capacity.

6.7.12 The proposed mitigation is considered to be successful in alleviating the capacity issues at the most congested arms in both peak periods.

6.8 Dukes Head Roundabout

6.8.1 It is noted that an improvement scheme was considered at Dukes Head Roundabout which is a non-signalised four arm roundabout located at the junction of the A264 and Turners Hill Road. Whilst this junction was not flagged a 'severe' junction in terms of the assessment criteria identified in Chapter 5, it was identified to try and alleviate congestion to encourage vehicles to utilise the A264 rather than routing via Turners Hill via the B2110/B2028 crossroads which has been identified as a 'severe' impact junction. The results of the junction modelling and subsequent mitigation scheme impact are presented in the Scenario 5 Report issued for Regulation 19 Consultation.

6.8.2 However, the results of the 5m5 assessment identify that the Dukes Head mitigation is having a negligible impact on re-routing and therefore through agreement with WSCC it was agreed to remove this from the District Plan mitigation package to focus on delivering mitigation where it is observed to have a demonstrable impact to mitigate the impact of District Plan growth.

6.9 Summary and Conclusions

6.9.1 It can be seen from the junction model results presented in this chapter that the two identified junctions are already approaching and on certain arms already exceeding theoretical capacity in the 2019 Base Year Scenario. Congestion and delay incurred are forecast to increase associated with background growth and committed developments (2039 Reference Case) and then further with the introduction of traffic associated with growth targets set out in the District Plan (2039 Do Minimum – using Scenario 5m4 flows).

6.9.2 Consequently, capacity and safety improvement schemes have been developed to support the target levels of growth identified in the Mid-Sussex District Plan. The Do Something with mitigation model results have shown that the mitigation proposed by SYSTRA for the two locations would be beneficial in managing the traffic impacts of this growth going forward.

6.9.3 In all instances, implementation of the proposed mitigation would provide junction performance at a level that would either improve on or broadly align with the 2039 Reference Case scenario with the existing junction layouts. The proposed mitigation has had a significant positive benefit on junction performance when comparing the 2039 Do Minimum results based on the existing junction layout, compared to the results with the proposed mitigation schemes developed. Therefore, the proposed mitigation is successful to support the level of targeted growth identified in the Mid-Sussex District Plan at these two locations.

7. SAFETY STUDY OVERVIEW AND OUTCOMES

7.1 Introduction

7.1.1 As part of the transport evidence base for the Mid-Sussex District Plan, a Safety Study has been undertaken, considering the collision trends, clusters and causation factors across the district.

7.1.2 STATS-19 Data has been extracted for the period 2017-2023, which includes the collision records for the last full five year period plus an additional two years to account for 2020-2021 being impacted by the COVID-19 pandemic. This data has been mapped in GIS and all collisions are assigned to either a "node" - the junctions throughout the region, or "links" - stretches of highway between nodes to allow correlation with forecast flows from the MSSHM.

7.1.3 A junction/link "scoring" methodology to allow for filtering of the top priority locations has been developed by SYSTRA and agreed with MSDC. This has involved consideration of frequency of collisions in addition to the traffic flow uplift between the 2039 Reference Case (includes committed development and infrastructure up to 2039) and the 6m2 District Plan scenario (includes committed development/infrastructure as well as District Plan growth and associated mode shift assumptions up to 2039).

7.1.4 Analysis was undertaken at the district level, assessing each junction and link to create an accident prevalence rate for all locations having at least one recorded accident. For those locations where only a single accident was recorded, the increase in traffic growth had to be greater than a 30% increase in either peak to warrant consideration to be taken forward to a priority assessment. Additionally, where the increase in traffic flow growth was only 1%, five accidents had to be recorded to warrant consideration to be taken forward for a priority assessment. Following this prioritisation exercise; the 20 highest ranked junctions and links have been analysed and the assessment details covered within the Report.

7.1.5 For those junctions ranked below 20 generally the level of traffic flow increase was typically below 5% (or had low absolute flow value change) or the number of accidents was three or below where the percentage of traffic flow increase was above 5%. It was therefore considered that the prioritisation exercise following the wider analysis at district level targeted those locations whereby the District Plan growth was forecast to have the largest impact on safety.

7.2 Junction/Link Assessment

7.2.1 The 20 junctions/links which were taken forward to further investigation after the initial review process were:

- Borde Hill Lane / Balcombe Road / Hanlye Lane (junction);
- Cuckfield Road / Gatehouse Lane / Bishopstone Lane (junction);
- A23 NB Between B2115 and B2110 (link);
- A23 / A272 Southbound Off-Slip (junction);
- A2300 / Bishopstone Lane (junction);
- A23 / A281 Eastbound On-Slip (junction);

- A23 NB to A264 Off-Slip (link);
- A281 / B2117 / Shaves Wood Lane (junction);
- A2220 / Old Hollow (junction);
- A23 / A273, Pyecombe (junction);
- Sydney Road / Perrymount Road / Market Place / Mill Green Road Roundabout (junction);
- B2110 / B2028 Turners Hill (junction);
- A272 / B2036 Ansty Mini-Roundabout (junction);
- Sussex Road / Franklynn Road / South Road / Hazelgrove Road / Caxton Way Roundabout (junction);
- B2036 London Road / Victoria Way (junction);
- London Road / Henfield Road (junction);
- B2112 / Lodge Lane (junction);
- B2116 / Twineham Lane (junction);
- Gander Hill / Portsmouth Lane / Summerhill Lane;
- A23 from A23 / B2210 NB On-Slip to A23 (link).

7.2.2 After a detailed sift of the 20 junctions/links, five junctions were identified as requiring further mitigation. These were:

- Cuckfield Road/Gatehouse Lane/Bishopstone Lane;
- A23 / A272 Southbound Off-Slip;
- A281/B2117/Shaves Wood Lane;
- Sussex Road/Franklynn Road/South Road/Hazelgrove Road; and
- London Road/Victoria Way.

7.3 Cuckfield Road/Gatehouse Lane/Bishopstone Lane

7.3.1 Cuckfield Road/Gatehouse Lane/Bishopstone Lane is a four-arm unsignalized cross roads located to the west of Abbotsford. The location and layout of the junction is indicated in **Figure 11** below.

Figure 11. Cuckfield Road/Gatehouse Lane/Bishopstone Lane Location/Layout

Source: Imagery © 2024 Maxar Technologies, Map Data © 2024

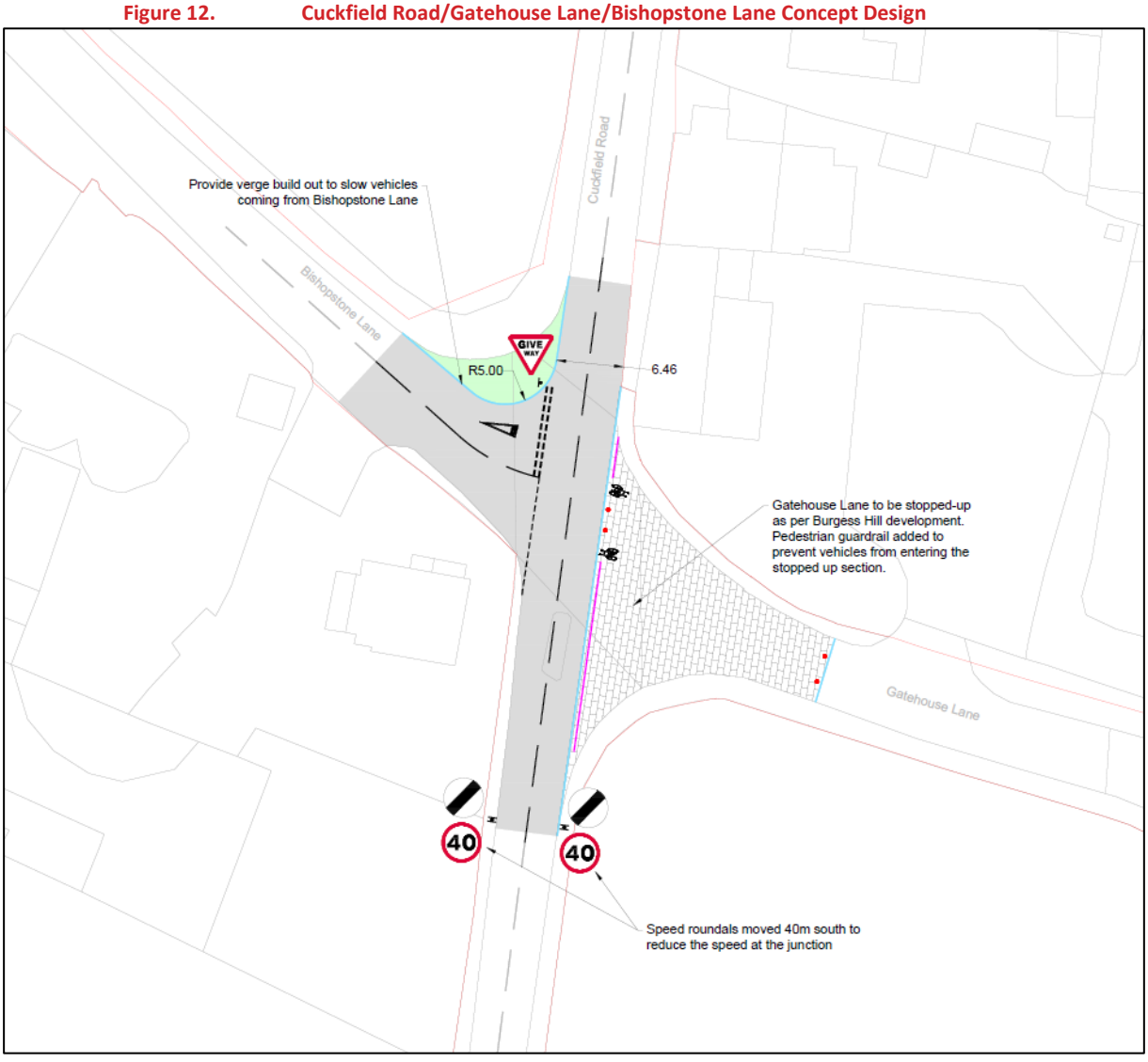
7.3.2 Seven collisions (Four Serious, Three Slight) were recorded at the junction within the seven-year period. Additionally, an uplift in traffic flows between the Reference Case and SC6M2

scenarios of 50% (+493 vehicles) is seen in the AM peak, and 67% (+449 vehicles) is seen in the PM peak.

7.3.3 All recorded collisions are noted to have occurred between the north and western arms of the junction. Through analysis of the specific collision data, three of the collisions are noted to be the result of vehicles travelling along Cuckfield Road failing to give way or see oncoming vehicles travelling east-west along Gatehouse Lane/Bishopstone Lane.

7.3.4 Due to the number of collisions associated with a failure to see oncoming vehicles, it is determined that this junction should be taken forward for further mitigation. The design concept for the mitigation is indicated in **Figure 12** below.

Figure 12. Cuckfield Road/Gatehouse Lane/Bishopstone Lane Concept Design



7.3.5 The proposed design features include:

- **40 mph speed limit roundels have been moved 40 metres south of their existing location to include the entirety of the junction within the speed limit area.** It is

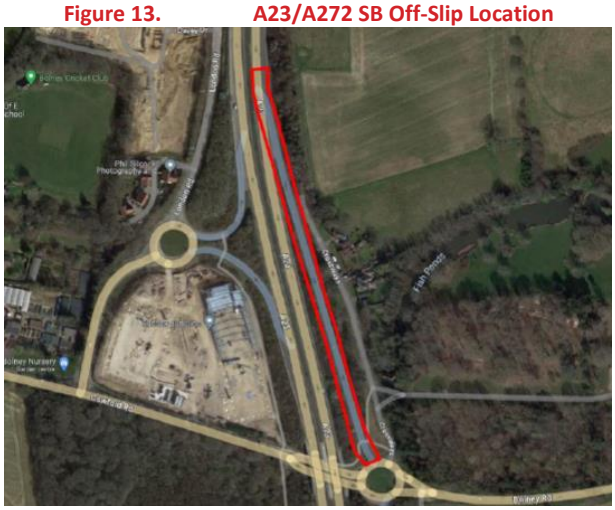
intended with this mitigation that vehicle speeds entering the junction will be reduced, subsequently increasing the safety.

- **Advanced cycling warning signage is to be introduced for vehicles on the approach to the junction from both the north and south.** It is intended this is to increase awareness surrounding cyclist movement.
- **The priority movement has been altered from east-west as the main movement to north-south. Give way signage has also been implemented on the Bishopstone Lane/Cuckfield Road junction.** This is due to the direct routing to the A2300 Cuckfield Roundabout along Cuckfield Road to the north of the junction whereas Bishopstone Lane does not provide any through access and the east to west traffic flow is no longer the dominant traffic flow movement.
- **Gatehouse Lane has been stopped-up as shown in the adjacent Burgess Hill development. Pedestrian guardrails and bollards have been introduced on both sides off the stopped-up section.** These measure have been introduced to improve safety for active travel users, whilst also preventing car usage through the arm.
- **Bishopstone Lane and Cuckfield Road junction northwestern corner has been built-out to narrow the junction bell mouth.** This measure is to encourage vehicular slowdown when exiting Bishopstone Lane.

7.4 A23/A272 Southbound Off-Slip

7.4.1 The A23/A272 Southbound Off-Slip is located to the south of Bolney and to the northwest of Burgess Hill. The location and layout of the off-slip is indicated in **Figure 13** below.

Figure 13. A23/A272 SB Off-Slip Location



Source: Imagery © 2024 Maxar Technologies, Map Data © 2024

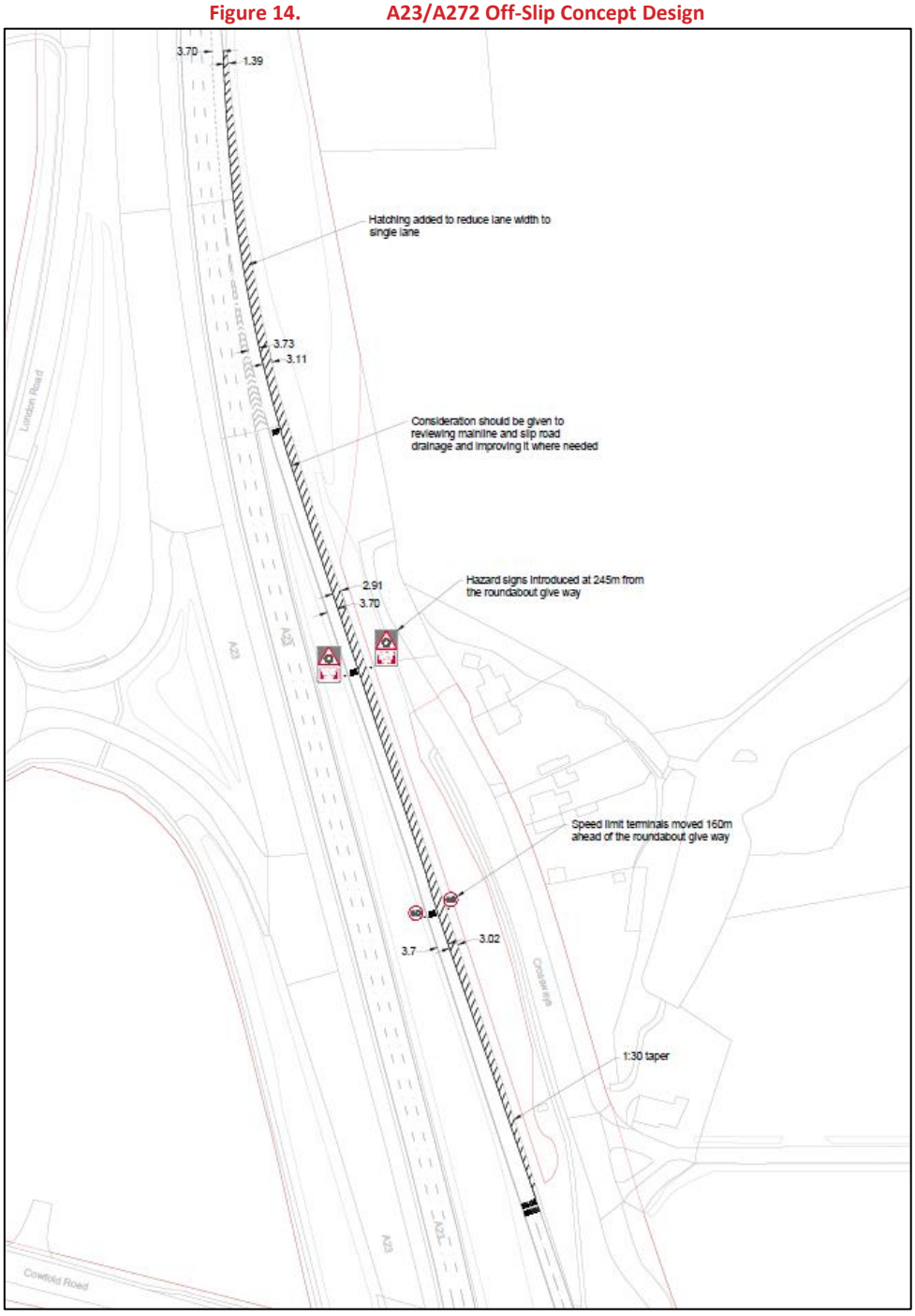
7.4.2 There are 12 collisions recorded within the seven-year study period; with three collisions being serious in severity, and nine slight. The traffic flow uplift between the Reference Case and SC6M2 scenarios is 3% (+102 vehicles) in the AM peak and 5% (+247 vehicles) in the PM peak.

7.4.3 Seven of the twelve collisions are noted to occur within proximity of the point of diverge from the A23, with the remainder largely occurring at the northern end of the off-slip with one collision slight in severity occurring in close proximity to the roundabout at the southern end of the slip road. The majority of collisions were caused by reckless driving, whilst two collisions

were caused by drivers failing to notice stationary cars in front of them when accessing the off-slip.

7.4.4 Due to the high number of collisions, it is determined that the off-slip should be taken forward for further mitigation development. SYSTRA's development option for the mitigation is indicated in **Figure 14** below.

Figure 14. A23/A272 Off-Slip Concept Design



7.4.5 The proposed design features include:

- **The existing wide slip road (6.7m wide) is to be reduced to a single lane (3.7m wide), with continuous white line hatching (~3 m wide).** This is to prevent two vehicles exiting and travelling through the slip lane which could lead to collisions.
- **Advanced warning signs of the roundabout are to be introduced approximately 245 metres from the roundabout to raise awareness of the approaching roundabout.**
- **50 mph speed limit roundels are to be moved 160 metres from the roundabout give way.** This is to be in accordance with Design Manual for Roads and Bridges (DMRB) Stopping Sight Distance (SSD) for a 50mph road.
- **1:30 hatching taper is to be introduced.** This is to enable a two-lane approach closer to the roundabout.
- **"SLOW" marking is to be added throughout the slip road and destination markings introduced.** This is to delineate movements at the roundabout and avoid conflicts between vehicles.

7.5 A281/B2117/Shaves Wood Lane

7.5.1 The A281/B2117/Shaves Wood Lane junction is located towards the south of the Mid-Sussex region, to the east of Woodmancote and to the west of Muddleswood.

7.5.2 The location/layout of the junction is indicated in **Figure 15** below.

Figure 15. A281/B2117/Shaves Wood Lane Junction Layout/Location

Source: Imagery © 2024 Maxar Technologies, Map Data © 2024

7.5.3 A total of 13 collisions were recorded at the junction within the seven study years; 6 serious and 7 slight in severity. Additionally, there is an uplift in vehicular flow of 9% (an increase of 91 vehicles) from the Reference Case to Scenario 6M2C in the AM peak, and of 12% (an increase of 150 vehicles) in the PM peak.

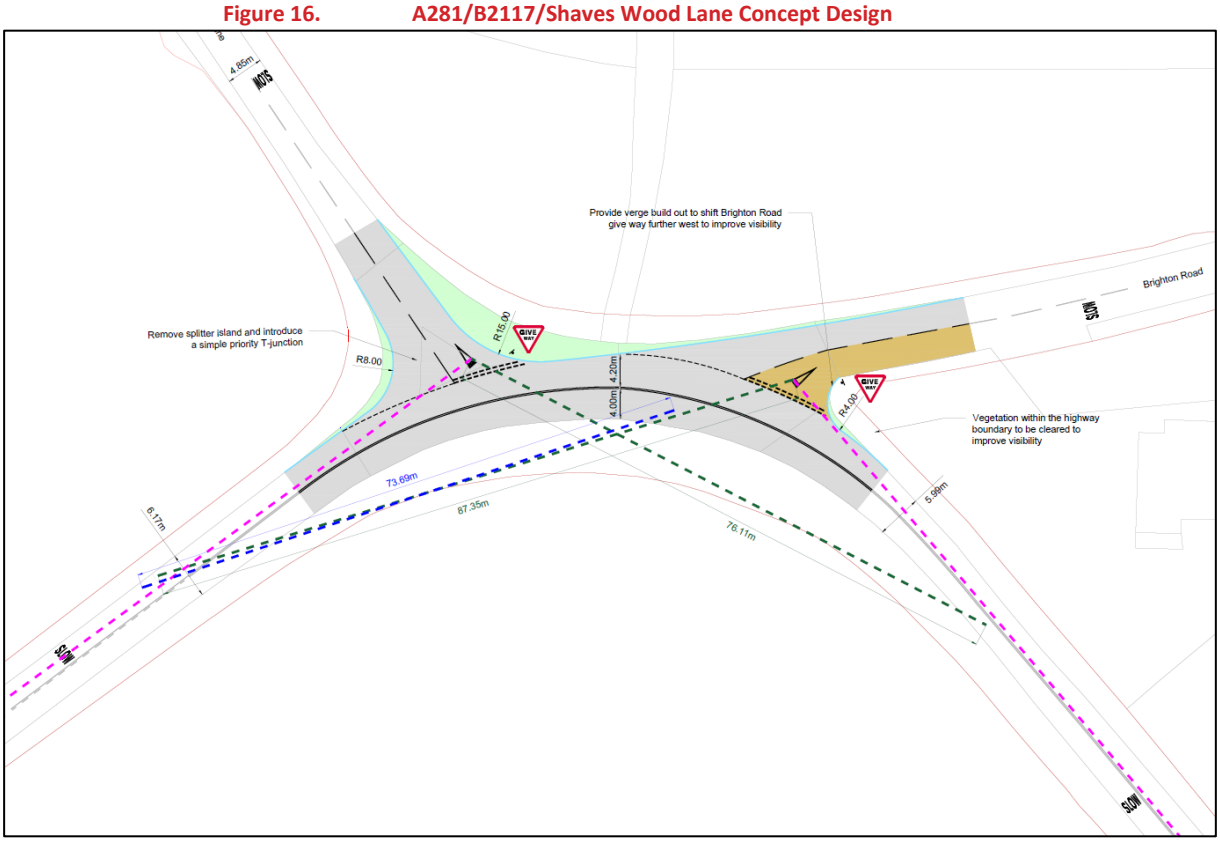
7.5.4 A majority of the collisions occur to the east of the junction, with six collisions (three serious, three slight) occurring at the B2117/A281, three collisions (two serious, one slight) occurring to the west at the Shaves Wood Lane/A281, and three collisions (one serious, two slight) occurring within the centre of the junction.

7.5.5 Visibility surrounding the junction is poor, with tall and dense trees surrounding the B2117, leading to difficulty in seeing oncoming vehicles from the southeast of the junction. Whilst

the cutting back/ removal of the trees would improve junction visibility, it is unlikely that this will fully resolve the visibility issues given the narrow buffer to the highway boundary extent.

7.5.6 It is determined that the junction should be taken forward for mitigation, due to the high number of collisions and lack of visibility surrounding the junction. SYSTRA's concept design is indicated in **Figure 16** below.

Figure 16. A281/B2117/Shaves Wood Lane Concept Design



7.5.7 The proposed design features include:

- **Shaves Wood Lane arm has been simplified to a priority T-junction, and narrowed by the removal of the splitter island.** This intervention will have the benefit of providing a clearer layout, reducing vehicle speeds and improving visibility for those entering the A281 from Shaves Wood Lane.
- **Brighton Road/A281 junction southeastern corner has been built-out along with A281 centre line being shifted south.** This will allow the Brighton Road give way line to be shifted further west, so as to improve sightlines for drivers exiting Brighton Road.
- **Anti- skid surface at Brighton Road has been maintained and junction warning signage and road markings has been introduced.** This is to enhance safety through awareness surrounding the approach to the junction.

7.6 Sussex Road/Franklynn Road/South Road/Hazelgrove Road Roundabout

7.6.1 The Sussex Road/Franklynn Road/South Road/Hazelgrove Road junction is a five-arm unsignalized roundabout located within Haywards Heath town centre. The location and layout of the junction is indicated in **Figure 17** below.

Figure 17. Sussex Road/Franklynn Road/Hazelgrove Road Layout/Location

Source: Imagery © 2024 Maxar Technologies, Map Data © 2024

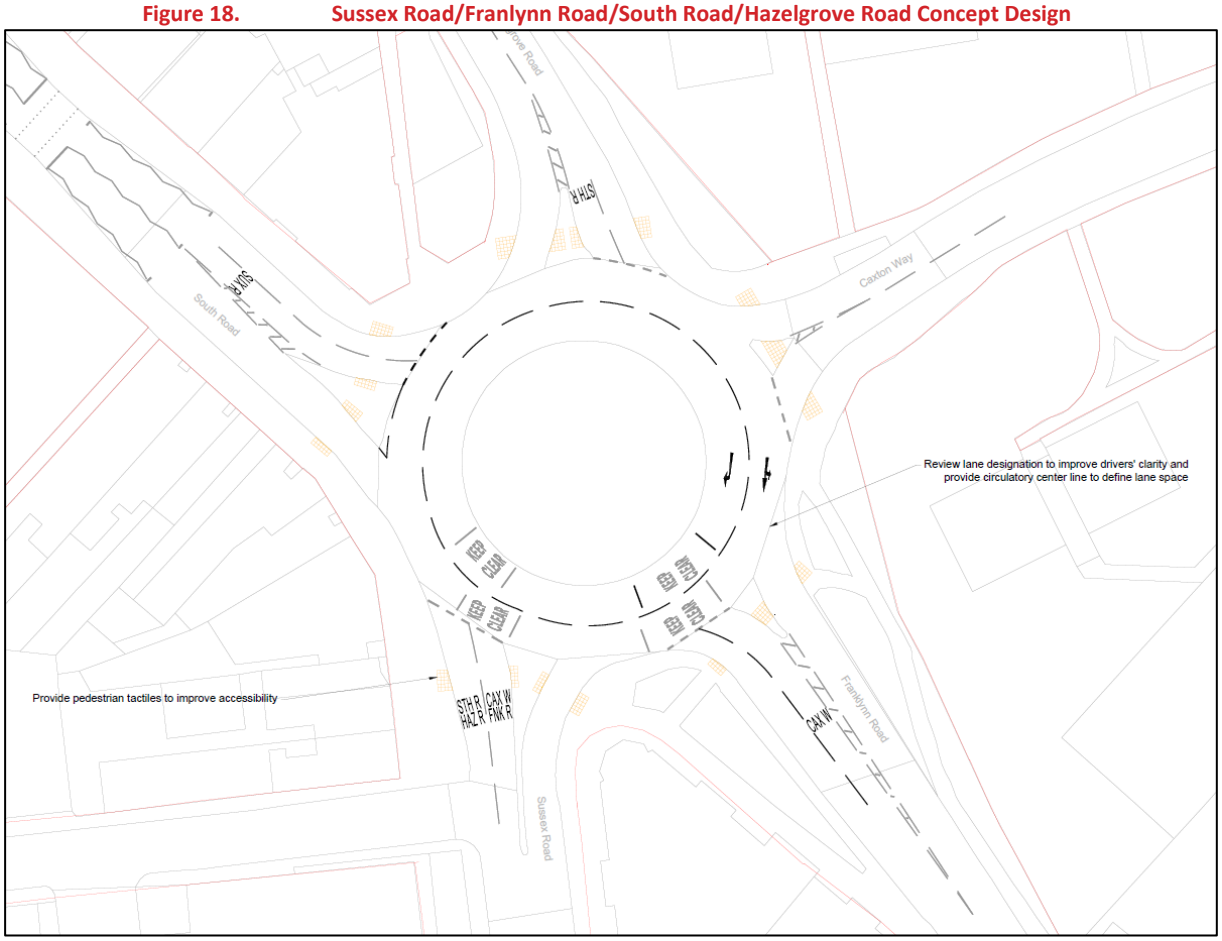
7.6.2 A total of 14 collisions (13 Slight and 1 Serious in severity) occurred within the seven-year study period, and the uplift between the Reference Case and SMC62 scenarios of 5% in the AM peak (+122 vehicles) and 2% in the PM peak (+48 vehicles).

7.6.3 11 of the slight collisions occurred within the southern region of the circulatory, whereas two slight and one serious collisions occur to the north side of the roundabout.

7.6.4 It is determined that the junction should be taken forward for future mitigation, due to the high number of collisions, several of which involved cyclists and vehicles colliding.

7.6.5 SYSTRA's concept design is indicated in **Figure 18** below.

Figure 18. Sussex Road/Franlynn Road/South Road/Hazelgrove Road Concept Design



7.6.6 The proposed design features include:

- **The implementing of tactile paving at all existing uncontrolled pedestrian crossings surrounding the junction.** This is to improve inclusivity and provide improved crossing facilities to all users including those with visual impairments.
- **Lane delineation and lane destination arrow markings added to the roundabout.** This is to improve clarity for users and to avoid lane changing of vehicles which could result in collisions.

7.7 B2036 London Road/Victoria Way

7.7.1 The B2036 London Road/Victoria Way junction is an unsignalized three-arm roundabout located centrally within the town of Burgess Hill. The location and layout of the junction is indicated in **Figure 19** below.

Figure 19. B2036 London Road/Victoria Way Junction Layout/Location

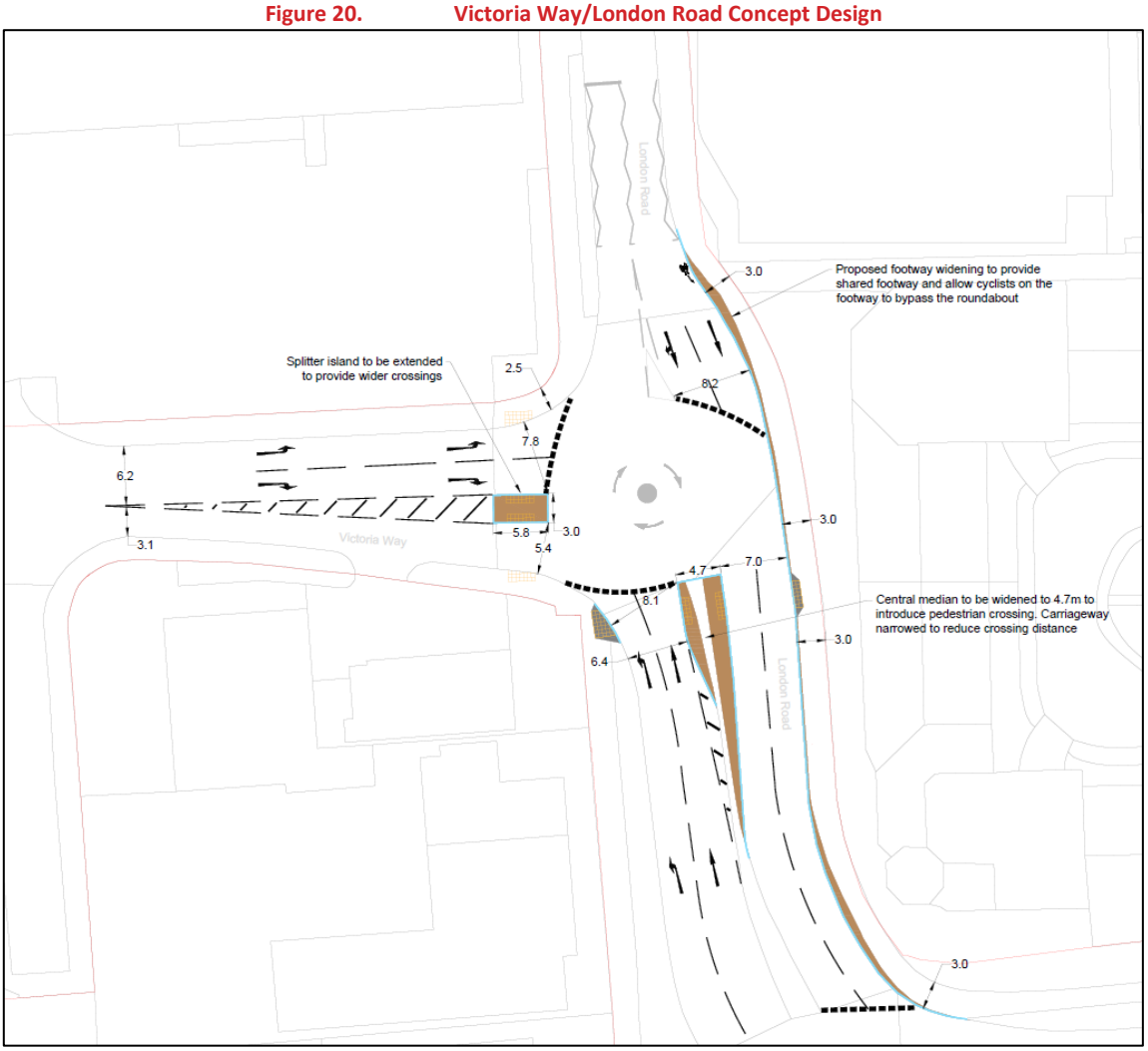
Source: Imagery © 2024 Maxar Technologies, Map Data © 2024

7.7.2 Seven collisions (One Serious, Six Slight) were recorded within the seven-year study period surrounding the junction. Additionally, there is an uplift of 3% in the AM peak (+57 vehicles) and 4% (+80 vehicles in the PM peak) between the Reference Case and SC6M2 scenarios.

7.7.3 A majority of the collisions occurred within the circulatory (Five Slight and One Serious). One slight collision occurs on the B2036 southern arm, and one on the Victoria Way western arm.

7.7.4 Due to the high number of recorded collisions, including conflict with vehicles and cyclists, this junction has been taken forward for mitigation development. SYSTRA's proposed concept design is shown in **Figure 20** below.

Figure 20. Victoria Way/London Road Concept Design



7.7.5 The proposed design features include:

- **The central median has been widened on the southern arm of the London Road roundabout, to provide an uncontrolled pedestrian crossing on this arm. This crossing will incorporate tactile paving as required.** This mitigation is to improve accessibility across the junction along an existing desire line.
- **Lane designation arrow markings are to be implemented.** This is to improve safety, with the reduction in likelihood of vehicles colliding as a result of lane changing.
- **Victoria Way splitter island has been extended to accommodate pedestrians crossing north/south, incorporating tactile paving as required.** This is to improve pedestrian safety, and improve accessibility for those with visual impairments.
- **Footway widening proposed along the eastern side of London Road, to provide a 3m shared footway which would tie into the existing shared footway on Queen Elizabeth Avenue. A dropped kerb has also been introduced north of the roundabout.** These mitigations have been introduced to improve pedestrian safety, and enable cyclists to bypass the roundabout hence avoiding interaction and conflict with vehicles.

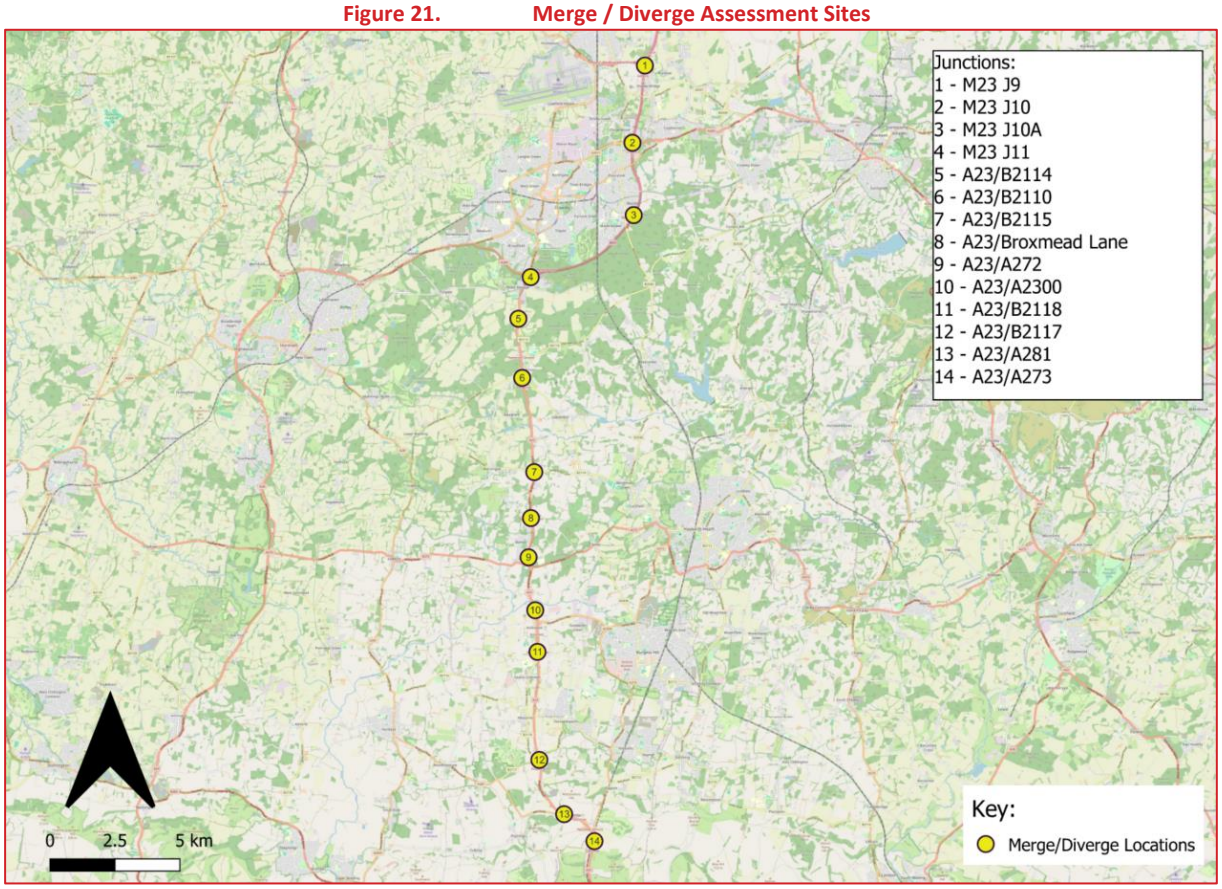
7.7.6 The Safety Study proposed mitigation drawings are included for reference at **Appendix D**.

8. MERGE/DIVERGE ASSESSMENT OVERVIEW AND OUTCOMES

8.1 Background

8.1.1 The main strategic route through Mid Sussex is the A23 which leads into the M23 to the north outside of the district boundary. Following consultation with National Highways, it was agreed to undertake an assessment of the capacity and layout of the slip road merge and diverge arrangements at fourteen locations along the M23 / A23 corridor. The assessment included four M23 junctions and ten junctions along the A23 as shown in **Figure 21**.

Figure 21. Merge / Diverge Assessment Sites



8.1.2 The purpose of the assessment is to establish the continued suitability or otherwise of the existing slip road layouts in three different scenarios:

- 2019 Baseline scenario;
- 2039 Reference Case scenario; and
- 2039 District Plan (6m2) Scenario.

8.1.3 The assessments sought to determine where physical alterations to slip road layouts would be required as a direct result of additional traffic flows generated by the District Plan development allocations.

8.1.4 As such, improvements that would be required to meet forecast traffic growth in the 2039 Reference Case would not be considered attributable to the District Plan and would not require mitigation through District Plan proposals.

8.1.5 Where improvements are shown to be required as a direct result of District Plan traffic growth, mitigation schemes have been drawn up for inclusion as District Plan proposals.

8.2 Methodology

8.2.1 The assessments have identified how the traffic growth forecasts impact on the merge/ diverge and mainline layout type requirements, in accordance with Design Manual for Roads and Bridges (DMRB) CD 122 Geometric design of grade separated junctions. Consideration has been given to the following elements:

- Existing conditions including the current layout type and the number of mainline lanes upstream and downstream;
- The number of vehicles forecast on the mainline and merge/diverges for the three traffic scenarios;
- The differences between the three scenarios to identify traffic flow uplifts or reductions;
- DMRB CD122 merge/ diverge diagrams to demonstrate the layout types required for each of the three scenarios assessed;
- Commentary on the trigger points for layout upgrades; and
- Assessment of feasibility/ deliverability of upgrade where relevant.

8.2.2 The full merge/ diverge assessment is presented in the accompanying SYSTRA document 'Mid Sussex M23 and A23 Merge Diverge Assessment', dated 20 September 2024.

8.3 Results Summary

8.3.1 In order to assess the impact of District Plan growth on the merge/ diverge assessments at the fourteen junctions, a comparison has been made between the 2039 Reference Case and District Plan (6m2) Scenario layout type and mainline requirements.

8.3.2 This revealed that a total of five slip road merges/diverges which trigger an upgrade between the flows assessed for the Reference Case compared to District Plan Scenario, as detailed below:

- A23 B2115 – Southbound On-Slip Merge (deliverability check – upgrade not feasible due to limited highway boundary space due to proximity to parallel Brighton Road)
- A23 A272 – Northbound Off-Slip Diverge (deliverability check – proportionate upgrade not feasible as diverge commences on a bridge overpass)
- A23 A272 – Southbound On-Slip Merge (mitigation proposed)
- A23 B2118 – Northbound On-Slip Merge (mitigation proposed)
- A23 B2117 – Southbound On-Slip Merge (mitigation proposed)

8.3.3 A feasibility and deliverability check was undertaken for these five merge/ diverges and it was initially identified that two locations could be taken forward for a physical upgrade. The deliverability checks were based on highway boundary land, existing constraints such as nearby bridge structures, weaving distances from adjacent junction and interaction with other proposed mitigation schemes.

8.3.4 The proposed mitigation scheme drawings are shown in **Figure 22** and **Figure 23** below.

Figure 22. A23/B2118 NB On-slip Merge Proposed Mitigation Drawing

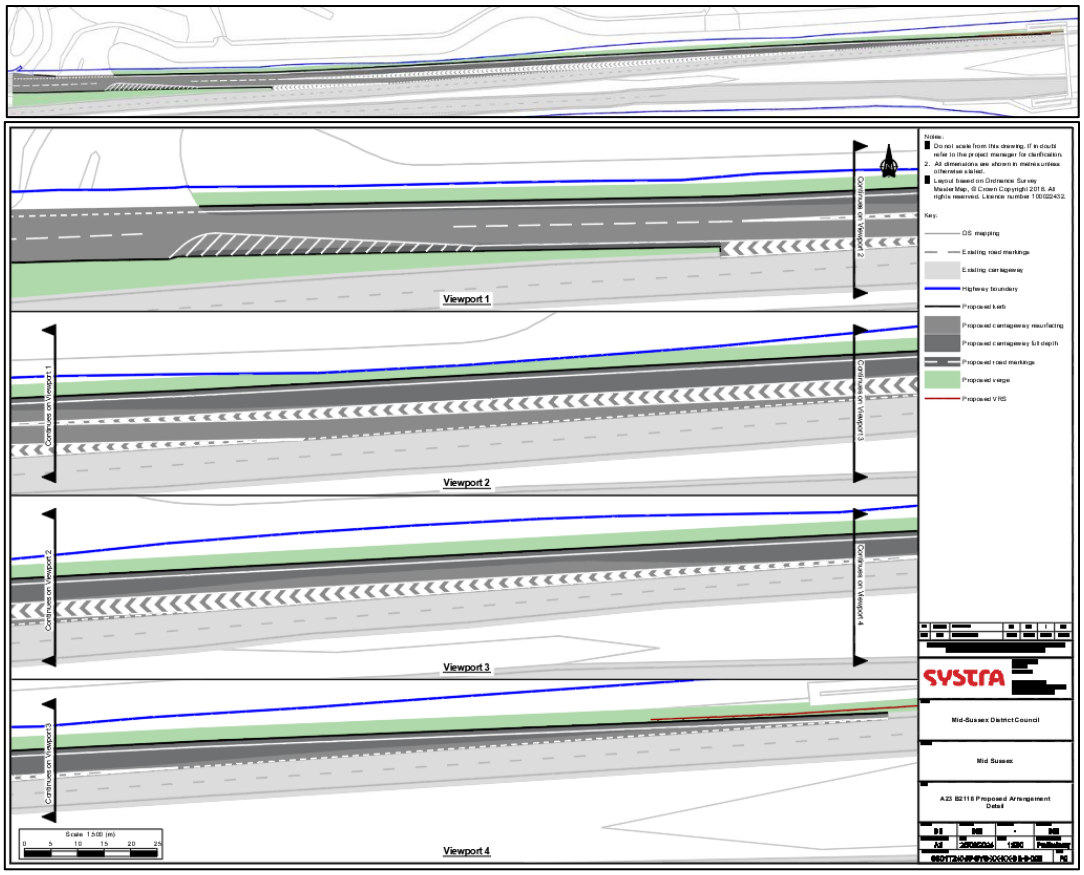
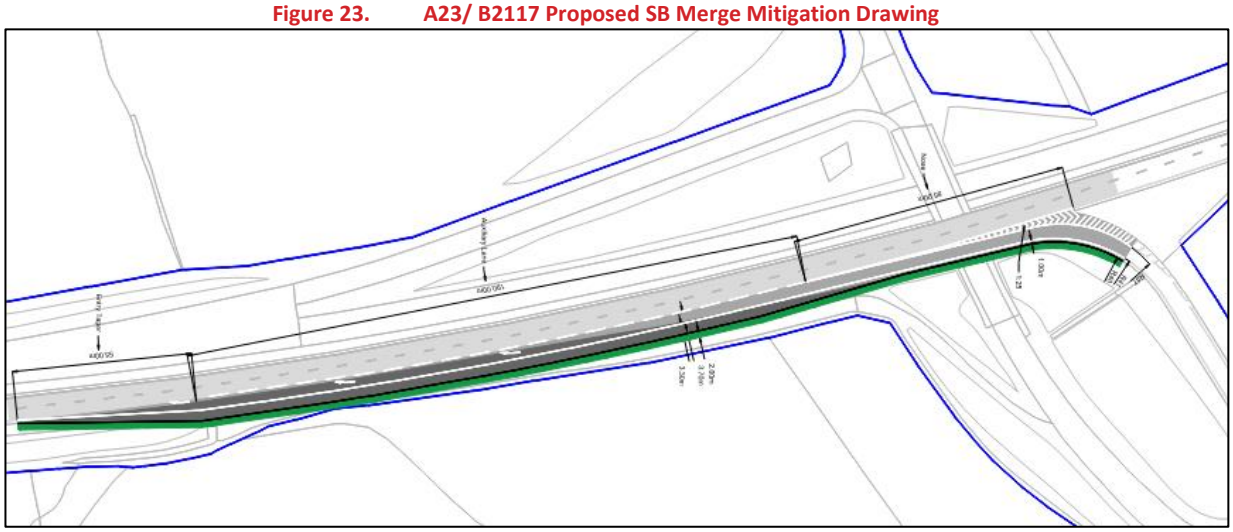


Figure 23. A23/ B2117 Proposed SB Merge Mitigation Drawing

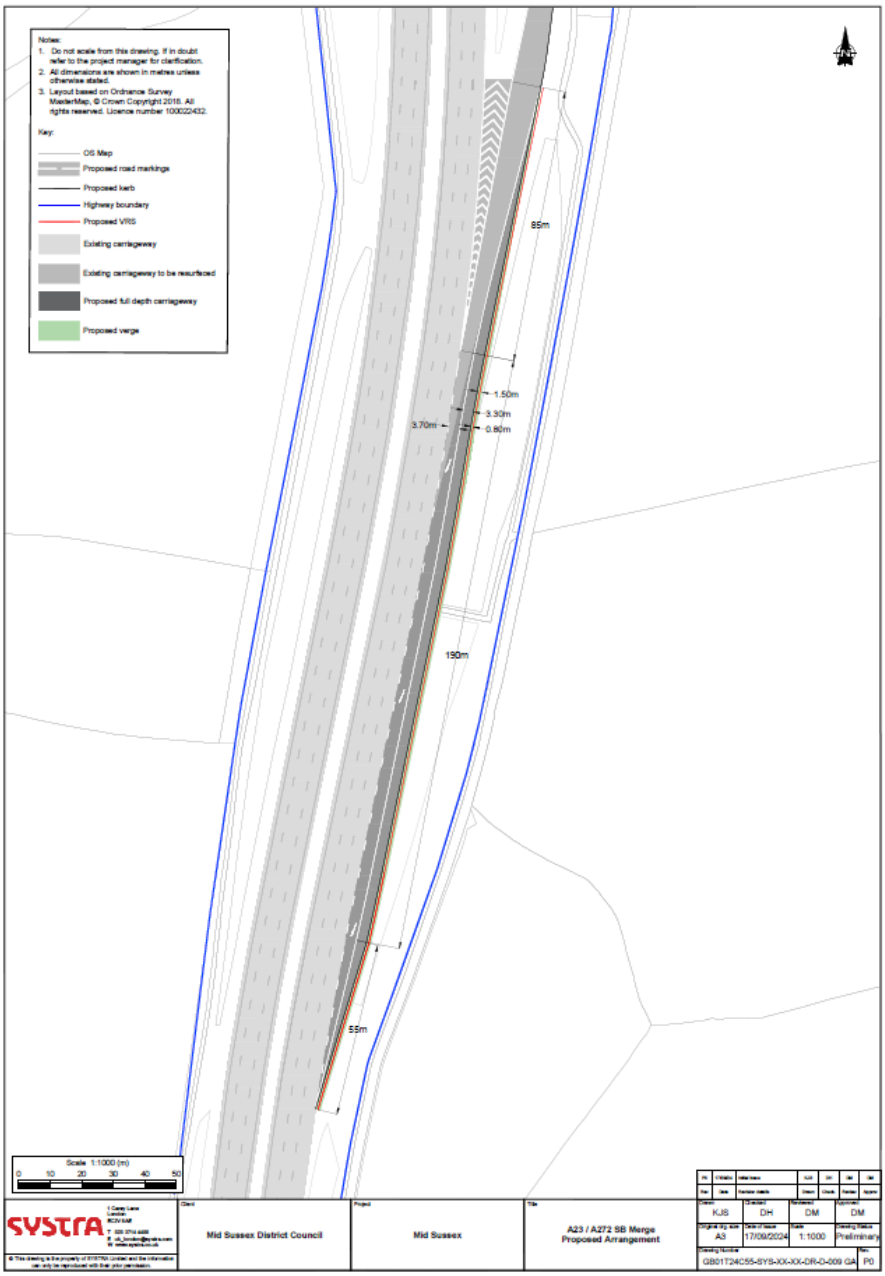


8.3.5 These findings and interventions were submitted to National Highways for their consideration and comment. As a response, written feedback received in July and August 2024 detailed further key locations where National Highways required additional investigation to ensure that the impacts of the District Plan would be mitigated. An additional manual assessment to account for the impacts of COVID-19 was undertaken to assess high level impacts at identified

locations where National Highways requested additional evidence to demonstrate mitigation of impacts, the outcomes are presented in Chapter 9 of this Report.

8.3.6 Following this feedback received and further deliverability checks at wider locations identified an additional mitigation scheme was developed at A23/A272 SB Merge Proposed mitigation as shown in **Figure 24**.

Figure 24. A23/A272 SB Merge Proposed Mitigation



8.3.7 Agreement of the physical mitigation proposed has been reached with National Highways for the A23/B2118 NB merge, A23/B2117 SB merge, A23/A272 SB merge. Ongoing discussions are continuing at the A23 A272 – Northbound Off-Slip Diverge as well as the nine further merge/ diverge slips detailed within Chapter 4 (para 4.1.3) of the merge/diverge report

accompanying this Strategic Transport Assessment, where there is no layout type change required between the 2039 Reference Case and 2039 Do Minimum scenario but National Highways have requested for additional feasibility checks and evidence to be presented to assess impacts at these locations.

8.3.8 The proposed mitigation drawings which have been developed following the outcomes of the merge/ diverge assessments are included for reference at **Appendix E**.

8.4 Conclusion

8.4.1 Overall, the merge/ diverge assessments detailed in the accompanying Merge Diverge Assessment Report detail how the targeted growth within the District Plan and the impacts on merge/diverge assessments have been assessed and mitigated accordingly where proportionate and reasonable. Proposed mitigation designs have been developed with deliverability in mind by ensuring the proposals are designed within available highway boundary space. The highway mitigation package to support the District Plan ensures that no impacts remain which would be considered “severe” in terms of the definition set out within NPPF.

9. COVID-19 SENSITIVITY

9.1 Background

9.1.1 As noted in the preceding chapter, National Highways requested that the merge/ diverge assessments included further evidence to capture COVID- 19 impacts on travel demand to demonstrate that impacts associated with District Plan growth on the strategic road network were sufficiently mitigated.

9.1.2 As part of the scoping for this exercise, it was agreed that the assessment should be undertaken in the context of changes in travel patterns resulting from the COVID 19 pandemic of 2020-2022 and continued changes in travel behaviour in subsequent years. Whilst traffic levels have risen over more recent years, they are still recognized to be lower than pre-pandemic levels as a result of home working.

9.2 Methodology

9.2.1 A reduction factor to account for these changes was calculated by comparing WSCC and WebTRIS traffic count data from 2019 and 2023, with some data from late 2022 being used where 2023 data was unavailable. The calculations were based on data from a total of 55 sites from within the MSDC area or within a 10-mile buffer zone around the district. A full description of the methodology used can be found in SYSTRA's Technical Note 'Impacts of COVID Assessment', dated 2 August 2024.

9.2.2 The comparison revealed that a reduction factor of 11% would be appropriate for use in the AM peak hour and 10% in the PM peak hour. These reduction factors were applied to the 2039 Reference Case scenario traffic flows, with the difference between the 6M2 and Reference Case then added to the revised Reference Case flows to generate a COVID 6M2 scenario. The merge/ diverge assessments were then re-evaluated to determine whether the reduced traffic levels would lead to a reduced requirement for mitigation measures.

9.3 Results Summary

9.3.1 National Highways requested that a total of ten slip road locations be reassessed using the COVID-reduced traffic flows. Each of the ten locations had been identified as requiring revised merge or diverge layouts in the unadjusted District Plan (6m2) scenario.

9.3.2 The results of the revised COVID 19 assessment are shown in **Table 17**. As can be seen from the table, the reduction in traffic levels is such that two of the assessed junctions would not require District Plan interventions in this COVID-19 scenario where COVID-19 impacts on and that three further junctions would require a reduced level of intervention.

Table 17. COVID Assessment Results Summary

		Scenario 6m2 Traffic Flows		Scenario 6m2 COVID Adjusted Traffic Flows		Difference		Scenario 6m2 Intervention Required	COVID Scenario Intervention Required
		AM	PM	AM	PM	AM	PM		
M23 J11	N/B Intermain	3488	2369	3113	2137	-375	-232	Yes	Yes - as 6m2
	N/B Diverge	1883	1619	1691	1458	-192	-161		
A23 / B2110	N/B Intermain	4380	3404	3924	3072	-456	-332	Yes	Yes - reduced requirement
	N/B Merge	991	584	880	523	-111	-61		
A23 / A272	N/B Intermain	4511	3336	4046	3019	-465	-317	Yes	No
	N/B Diverge	556	590	489	541	-67	-49		
	S/B Intermain	3176	4241	2834	3827	-342	-414	Yes	Yes - reduced requirement
	S/B Merge	490	760	440	691	-50	-69		
A23 / A2300	N/B Intermain	3578	2337	3203	2125	-375	-212	Yes	Yes - as 6m2
	N/B Diverge	309	77	282	70	-27	-7		
	N/B Intermain	3578	2337	3203	2125	-375	-212	Yes	Yes - reduced requirement
	N/B Merge	1489	1588	1333	1429	-156	-159		
	S/B Intermain	2197	3792	1966	3425	-231	-367	Yes	No
	S/B Diverge	1470	1209	1288	1093	-182	-116		
	S/B Intermain	2197	3792	1966	3425	-231	-367	Yes	Yes - as 6m2
	S/B Merge	786	809	704	736	-82	-73		
A23 / B2118	Intermain	2249	3642	1992	3257	-257	-385	Yes	Yes - as 6m2
	S/B Diverge	736	960	680	904	-56	-56		
A23 / A281	Intermain	3092	4027	2545	3632	-547	-395	Yes	Yes - as 6m2
	S/B Merge	352	13	284	12	-68	-1		

10. SUMMARY AND CONCLUSION

10.1.1 SYSTRA have been commissioned by Mid-Sussex District Council (MSDC) to develop the transport evidence base to support the development of the Mid Sussex District Plan (MSDP). This Strategic Transport Assessment (STA) provides an overview of the key assessments that have been undertaken to develop a comprehensive transport mitigation package in order to support the delivery of the targeted level of growth within the district. It has been informed by a combination of strategic modelling through the testing and application of baseline and forecast year assessments within the Mid Sussex Strategic Highway Model (MSSHM) as well as a series of local junction assessments to test the severity of impacts and ensure mitigation is designed to accommodate both capacity and safety needs where relevant, whilst ensuring alignment with the strategy for the MSDP and wider policy.

10.1.2 The assessments undertaken to inform the transport evidence base have been informed through extensive consultation with key stakeholders including West Sussex County Council (WSCC) who are the Highway authority responsible for the Local Highway Network, National Highways, who are responsible for the Strategic Road Network including the A23 running through and M23 to the north of the district boundary as well as adjacent authorities through the plan development period.

10.1.3 The key supporting documents which have informed the development of this Strategic Transport Assessment include:

- **Mid Sussex Transport Model Assumptions Note –** Provides justification and agreement on the approach for the MSSHM Scenario 6 modelling and assumptions applied.
- **Scenario 6 Report –** Details the outcome of the Scenario 6 MSSHM Model results
- **MSDC Merge Diverge Assessment Report –** Details the outcomes of the merge/ diverge assessment undertaken for the Strategic Road Network junctions between M23 J9 in the north to A23/A272 in the south.
- **MSDC Safety Study Report –** Details the outcome of a safety study assessment which reviews collision trends, clusters and causation factors to inform a package of safety led mitigations at identified priority junctions.
- **MSDC Mitigation Costings Report –** Provides cost estimates and associated assumptions applied for each physical mitigation proposed as part of the MSDC package of interventions.
- **COVID-19 Assessment Technical Note –** Summarises the outcome of the COVID-19 survey comparison checks to understand the level of traffic flow change between a pre and post COVID transport network in light of the MSSHM having a baseline year of 2019.

10.1.4 The proposed approach to the delivery of transport mitigation and assessments to support the development of the transport evidence base has given due consideration to the overarching aims of National, Regional and Local policy.

10.1.5 The development of mitigation has considered the application of a sustainable transport hierarchy to mitigation scheme development, looking at maximising the potential to encourage modal shift for active and sustainable journeys.

10.1.6 The District plan looks to support the principles of 20-minute neighbourhoods, with a strategic aim of increasing walking and cycling with a long-term goal that these should be the first choice for shorter journeys such as those to/from school, college, work or leisure trips. Additionally, the opportunities for travel demand management through home and hybrid working has been considered for allocated sites to ensure they provide sufficient infrastructure and digital connectivity to support home working where plausible. These opportunities for trip reductions have been factored in the overarching modelling assessment to ensure that the residual impacts are understood in line with the requirements identified in the DfT Circular 01/2022 'Strategic Road Network and the Delivery of Sustainable Development'.

10.1.7 The aim of the Mid Sussex District Plan modelling study was to undertake analysis of the impacts of the selected District Plan scenario on the local and strategic road network. A Mid Sussex Strategic Highway Model (MSSHM) was developed in order to assess the impact of the targeted levels of growth defined in the District Plan. The model assumptions have been agreed with WSCC and NH through the various Scenarios tested.

10.1.8 The impacts on the highway network of the agreed development scenarios were assessed based on the National Planning Policy Framework (NPPF). The assessment of impacts were based on criteria agreed by MSDC and WSCC to determine severe or significant impact junctions.

10.1.9 The modelling results have identified three 'severe' impact junctions and route choice assessment has looked at targeted interventions to discourage vehicles from routing via the severe impact junctions.

10.1.10 Local Junction modelling assessments have been undertaken at Hickstead Interchange (Hickstead Lane/ A2300/A23 SB off-slip/Service Station Access/ A23 SB on-slip) and Copthorne Roundabout (A264 Copthorne Way/Brookhill Road/A264 Copthorne Common Road/Copthorne Hotel Access/ A2220 Copthorne Road Roundabout). A proposed mitigation scheme has been developed for each of these two locations with the model results demonstrating the success of the mitigation in support the level of targeted growth identified in the Mid-Sussex District Plan.

10.1.11 A safety study has been undertaken to consider locations whereby there is a high prevalence of accidents as well as a forecast of traffic flow growth associated with District Plan growth. These location have been subject to a safety audit whereby existing trends in accidents are reviewed as well as highway conditions which could contribute to safety impacts. A total of five interventions have been proposed to mitigate safety impacts at the following locations:

- Cuckfield Road/Gatehouse Lane/Bishopstone Lane;
- A23 / A272 Southbound Off-Slip;
- A281/B2117/Shaves Wood Lane;
- Sussex Road/Franklynn Road/South Road/Hazelgrove Road; and
- London Road/Victoria Way.

10.1.12 Through consultation with National Highways it was agreed to undertake merge and diverge assessments for 14 junctions along the A23 and M23. These assessments have been undertaken in accordance with Design Manual for Roads and Bridges (DMRB) CD 122

Geometric design of grade separated junctions. Consideration has been given to the following elements:

- Existing conditions including the current layout type and the number of mainline lanes upstream and downstream;
- The number of vehicles forecast on the mainline and merge/diverges for the three traffic scenarios;
- The differences between the three scenarios to identify traffic flow uplifts or reductions;
- DMRB CD122 merge/ diverge diagrams to demonstrate the layout types required for each of the three scenarios assessed;
- Commentary on the trigger points for layout upgrades; and
- Assessment of feasibility/ deliverability of upgrade where relevant.

10.1.13 In order to assess the impact of District Plan growth on the merge/ diverge assessments at the fourteen junctions, a comparison has been made between the 2039 Reference Case and District Plan (6m2) Scenario layout type and mainline requirements.

10.1.14 This revealed that a total of five slip road merges/diverges which trigger an upgrade between the flows assessed for the Reference Case compared to District Plan Scenario, as detailed below:

- A23 B2115 – Southbound On-Slip Merge (deliverability check – upgrade not feasible due to limited highway boundary space due to proximity to parallel Brighton Road)
- A23 A272 – Northbound Off-Slip Diverge (deliverability check – proportionate upgrade not feasible as diverge commences on a bridge overpass)
- A23 A272 – Southbound On-Slip Merge (mitigation proposed)
- A23 B2118 – Northbound On-Slip Merge (mitigation proposed)
- A23 B2117 – Southbound On-Slip Merge (mitigation proposed)

10.1.15 As detailed above, mitigation is proposed at three locations along the A23 and agreement has been reached with National Highways on the above interventions. Ongoing discussions are continuing at the A23 A272 – Northbound Off-Slip Diverge as well as the nine further merge/ diverge slips detailed within Chapter 4 (para 4.1.3) of the merge/diverge report accompanying this Strategic Transport Assessment, where there is no layout type change required between the 2039 Reference Case and 2039 Do Minimum scenario but National Highways have requested for additional feasibility checks and evidence to be presented to assess impacts at these locations.

10.1.16 A COVID-19 assessment to consider impacts of a reduction factor on the outcomes of the merge/ diverge assessments has shown that based on the reduction in traffic levels is such that two of the assessed junctions do not require an update from the existing layout type and three result in a lesser level of intervention.

10.1.17 Overall, the merge/ diverge assessments detail how the targeted growth within the District Plan and the impacts on merge/diverge assessments have been assessed and mitigated accordingly where proportionate and reasonable. Proposed mitigation designs have been developed with deliverability in mind by ensuring the proposals are designed within available highway boundary space.

10.1.18 Overall, through the various assessments presented, it is concluded that the resultant highway mitigation package to support the District Plan ensures that no impacts remain which would be considered “severe” in terms of the definition set out within NPPF.

Appendix A – A1 Commitments, A2 Employment Allocations

Mid Sussex District Council: Commitment Schedule as at 1st April 2023 large sites (5+ units) over Plan Period

Town / Parish (NP Area)	Ward	Site Address (sites of 6+ units)	Overall Total (Gross)	Overall Losses (Gross)	Overall Cmpltns (Net)	Total Remaining (Net)	PP Ref #	Expiry Date	SHLAA ID#
Albourne		Former Hazelden Nursery London Road Albourne (Care/not communal)	84	0	0	84	DM/22/2485	01/03/2024	58
Ansty & Staplefield		Bridge Hall, Cuckfield Road, Burgess Hill	35	0	0	35	DM/21/1524	commenced	570
Ansty & Staplefield		Woodfield House, Isaacs Lane Burgess Hill	30	1	0	29	SA allocation		840
Ansty & Staplefield		Ansty Cross Garage Ansty	12	0	0	12	SA allocation		644
Ardingly		Land west of Selsfield Road Ardingly	35	0	0	35	DM/22/1575	Pending s106	832
Ashurst Wood		Wealden House, Lewes Road, Ashurst Wood	54	0	0	54	DM/19/1025	11/11/2023	470
Ashurst Wood		LIC, Wealden House, Lewes Road, Ashurst Wood	25	0	0	25	NP allocation		757
Ashurst Wood		Mount Pleasant Nursery Cansiron Lane Ashurst Wood	6	1	0	5	DM/18/3242	REM submitted	208
Ashurst Wood		Land south of Hammerwood Road Ashurst Wood	12	0	0	12	SA allocation		138
Balcombe		Land adjacent Balcombe House Haywards Heath Road Balcombe	17	0	0	17	DM/21/4235	04/08/2025	150
Balcombe		Land opposite Newlands, London Road, Balcombe	14	0	0	14	NP allocation		188
Bolney	Bolney	G&W Motors London Road Bolney	10	0	0	10	NP allocation		82
Bolney		Land opposite Queens Head (near cricket club), Bolney	30	0	8	22	DM/17/4392	commenced	953
Bolney		Bolney House, Cowfold Road, Bolney	5	0	0	5	NP allocation		711
Burgess Hill		Northern Arc, Burgess Hill	2731	0	0	2731	DM/18/5114	04/10/2022	493
Burgess Hill		Northern Arc, Burgess Hill (Care/not communal)	60	0	0	60	DM/18/5114	04/10/2022	1125
Burgess Hill		Northern Arc, Burgess Hill (Bellway, P1.5 and P1.6)	249	0	0	249	DM/21/3870	24/05/2025	493
Burgess Hill		Land west of Freeks Lane Burgess Hill (countryside/Vistry)	460	0	50	410	DM/19/3845	commenced	969
Burgess Hill	Chanctonbury Ward	Station yard/car park Burgess Hill	150	0	0	0	NP allocation*		83
Burgess Hill	Franklands Ward	The Oaks Centre Junction Road Burgess Hill	12	0	0	12	LP Allocated		84
Burgess Hill	Leylands Ward	North of Faulkners Way Burgess Hill	20	0	0	20	NP allocation		88
Burgess Hill	Leylands Ward	Aberville Park Fairbridge Way Burgess Hill	307	0	7	300	DM/19/1895	Commenced	45
Burgess Hill		Keymer Tile Works Nye Road Burgess Hill phase 2	170	0	161	9	DM/16/2718	Commenced	91
Burgess Hill	St Andrews Ward	Land East of Kingsway Burgess Hill, Phase 1	78	0	76	2	14/03208/REM	Commenced	233
Burgess Hill	St Andrews Ward	Land East of Kingsway Burgess Hill, Phase 4	237	0	0	237	DM/20/0886	Pending s106	233
Burgess Hill	Town Ward	Open air market Burgess Hill	25	0	0	25	LP Allocated		92
Burgess Hill		Land at Victoria Road (north), Burgess Hill	51	0	0	51	NP allocation		544
Burgess Hill		Burgess Hill Town Centre, Civic Way, Burgress Hill	172	0	0	172	DM/19/3331	02/07/2025	528
Burgess Hill		The Brow, Burgess Hill	100	0	0	100	NP allocation		756
Burgess Hill		1 Cyprus Road Burgess Hill	10	0	0	10	DM/20/2740	Commenced	447
Burgess Hill		Prospect House 1 -11 Junction Road Burgess Hill (Part GF - part overlap)	2	0	0	2	DM/19/4670	Commenced	117
Burgess Hill		Prospect House 1 -11 Junction Road Burgess Hill (GF)	3	0	0	3	DM/20/2157	Commenced	117
Burgess Hill		Prospect House 1 -11 Junction Road Burgess Hill (2nd floor extension)	3	0	0	3	DM/21/0338	Commenced	117
Burgess Hill		Flat 5 and Flat 12 subdivision Prospect House 1 -11 Junction Road Burgess Hill	4	2	0	2	DM/21/3487	Commenced	117
Burgess Hill		Victoria House 66 Victoria Road Burgess Hill	7	0	0	7	DM/21/1991	07/04/2025	544
Burgess Hill		Amercias House 273 London Road Burgess Hill	6	0	0	6	DM/21/0688	commenced	1089
Burgess Hill		66 Church Walk Burgess Hill	8	0	0	8	DM/21/3503	10/05/2025	1108
Burgess Hill		60 - 64 Church Walk Burgess Hill	15	0	0	15	DM/19/4077	20/09/2024	1109
Burgess Hill		Rear Of 62 - 64 Folders Lane Burgess Hill	18	1	0	17	DM/22/0732	16/11/2025	1143
Burgess Hill		Land At Wintons And Wintons Fishery Folders Lane Burgess Hill	8	0	0	8	DM/21/3311	14/11/2025	4
Burgess Hill		96 Folders Lane, Burgess Hill	40	0	0	40	SA allocation		827
Burgess Hill		Land south of Folders lane and East Keymer Road Burgess Hill	300	0	0	300	SA allocation		976
Burgess Hill		Land south of Selby Close Burgess Hill	12	0	0	12	SA allocation		904
Burgess Hill		St Wilfirds School Burgess Hill	200	0	0	200	SA allocation		345
Burgess Hill		Little Abbotsford Isaacs Lane Burgess Hill	9	1	0	8	DM/19/3234	19/07/2025	1144
Burgess Hill		Land south of Southway Burgess Hill	30	0	0	30	SA allocation		594
Cuckfield		Land at Hanlye Lane east of Ardingly Road Cuckfield	55	0	0	55	SA allocation		479
Cuckfield	Cuckfield	The Manor House, 14 Manor Drive, Cuckfield	15	0	0	5	NP allocation		177
Cuckfield	Cuckfield	Courtmeadow School, Hanlye Lane, Cuckfield	13	0	0	13	DM/21/3755	15/06/2025	480
Cuckfield		Horsgate House, Hanlye Lane, Cuckfield	5	0	0	0	NP allocation		649
East Grinstead	North Ward	Stonequarry Woods East Grinstead	30	0	0	30	LP Allocated		96
East Grinstead		5 - 8A Whitehall Parade London Road East Grinstead	7	0	0	7	DM/21/4105	17/10/2025	1145
East Grinstead	West Ward	Junction of Windmill Lane/London Road East Grinstead	40	5	0	0	Allocated		102
East Grinstead		Imberhorne School, Windmill Lane, East Grinstead	200	0	0	200	NP allocation		81
East Grinstead		67 - 69 Railway Approach, East Grinstead	7	0	0	0	NP allocation		441
East Grinstead		Imberhorne Lane Car Park, Imberhorne Lane, East Grinstead	18	0	0	18	NP allocation		510
East Grinstead		Delivery Office, 76 London Road, East Grinstead	12	0	0	12	NP allocation		559
East Grinstead		Phoenix House, 53 -59 Lingfield Road, East Grinstead	9	0	0	9	DM/20/3640	commenced	369
East Grinstead		Queensmere House, 49 Queens Road, East Grinstead	14	0	0	14	DM/17/2725	Commenced	923
East Grinstead		Hill Place Farm, Turners Hill Road, East Grinstead	200	98	0	102	DM/19/1067	commenced	562
East Grinstead		Sussex House London Road East Grinstead	8	0	0	8	13/04040/FUL	Commenced	409
East Grinstead		Tower Car Sales Tower Close East Grinstead	9	0	0	9	DM/21/3534	07/03/2022	759
East Grinstead		11a Crawley Down Road Felbridge	32	1	0	31	DM/18/3022	Commenced	21
East Grinstead		Vacant plot 70 - 72 London Road East Grinstead	6	0	0	6	DM/19/0303	13/10/2023	1084
East Grinstead		Brookhurst Furze Lane East Grinstead	7	0	3	4	DM/19/5211	29/09/2023	595
East Grinstead		Oakhurst Maypole Road East Grinstead	10	0	0	10	DM/20/0015	Commenced	980
East Grinstead		Block B East Grinstead House Wood Street East Grinstead West Sussex RH19 1UU	60	0	0	60	DM/20/1369	03/06/2023	872
East Grinstead		Block F And G East Grinstead House Wood Street East Grinstead West Sussex	67	0	0	67	DM/20/1370	03/06/2023	872
East Grinstead		Block E Fifth Floor East Grinstead House Wood Street	15	0	0	15	DM/21/0386	17/03/2024	872
East Grinstead		Pikfield Engineering factory Durkins road EG	8	0	0	8	DM/20/1516	19/05/2024	1110
East Grinstead		Former East Grinstead Police Station East Grinstead	22	0	0	22	SA Allocation		847
East Grinstead		Land south Crawley Down Road Felbridge	200	2	0	198	SA Allocation		196
East Grinstead		Land south and west of Imberhorne Upper School East Grinstead	550	0	0	550	SA Allocation		770
East Grinstead		Blackwell Farm Road East Grinstead	10	0	0	10	DM/20/1333	04/03/2025	513
Hassocks	Hassocks Stonepound	Station Goods Yard Hassocks	54	0	0	54	SCHAD Allocated		106
Hassocks		Land adjacent to Station Goods Yard Hassocks	16	0	0	16	SCHAD Allocated		36
Hassocks		Hassocks Golf Club, London Road, Hassocks	165	0	155	10	DM/18/2616	Commenced	690
Hassocks		Land north of Clayton Mills, Hassocks	500	0	4	496	DM/21/2841	Commenced	753
Hassocks		land to rear of Friars Oak London Road Hassocks	130	0	0	130	DM/21/2628	Commenced	221
Hassocks		4 Hassocks Road Hassocks	9	0	0	9	DM/22/2188	Commenced	1111
Haywards Heath	Ansty and Staplefield	Rookery Farm Rocky Lane Haywards Heath (phase 1)	234	0	215	19	DM/17/4190	Commenced	94+496
Haywards Heath		Rookery Farm Rocky Lane Haywards Heath (phase 2)	109	0	0	109	DM/19/5207	Commenced	94+497
Haywards Heath	Franklands Ward	North of 99 Reed Pond Walk Franklands Village Haywards Heath	24	0	0	24	DM/22/1371	22/12/2025	531
Haywards Heath		Hurst Farm, Hurstwood Lane, Haywards Heath	350	0	0	350	NP allocation		246
Haywards Heath		Caru Hall, Bolnore Road, Haywards Heath	12	0	0	0	NP allocation		507
Haywards Heath		Land rear of Devon Villas (The Courtyard), Western Road, Haywards Heath	9	0	0	9	DM/20/0840	commenced	597
Haywards Heath		NCP Car Park, Harlands Road, Haywards Heath	40	0	0	40	DM/17/2384	14/02/2023	744
Haywards Heath		The Priory, Syresham Gardens, Haywards Heath	9	0	0	9	DM/18/2237	Commenced	732
Haywards Heath		The Priory, Syresham Gardens, Haywards Heath	2	0	0	2	DM/18/2251	Commenced	732
Haywards Heath		Chester House Harlands Road Haywards Heath	76	0	0	76	DM/21/0187	04/03/2023	1092
Haywards Heath		Maxwelton House 41 - 43 Boltro Road Haywards Heath West Sussex	54	0	0	54	DM/20/3516	20/12/2024	1090
Haywards Heath		Red Cross Hall 29 Paddockhall Road Haywards Heath West Sussex RH16 1HH	8	0	0	8	DM/18/4841	Commenced	618
Haywards Heath		25 Boltro Road Haywards Heath	7	1	0	6	DM/20/2998	Commenced	1102
Haywards Heath		Workshop and Garges North Road Haywards Heath	6	0	0	6	DM/20/1470	13/01/2025	1112
Haywards Heath		Linden House Southdowns Park Haywards Heath	14	0	0	14	DM/18/0421	02/06/2024	1113
Haywards Heath		2 - 6 The Broadway Haywards Heath	19	0	0	19	DM/20/1388	commenced	1114
Haywards Heath		Lloyds Bank 31-33 Perrymount Road Haywards Heath (PDOFF - roof extension)	30	0	0	30	DM/22/0245	11/03/2025	1115
Haywards Heath		Lloyds Bank 31-33 Perrymount Road Haywards Heath (PDOFF)	38	0	0	38	DM/21/2679	13/09/2024	1115
Haywards Heath		1 and 2 Heath Square Boltro Road Haywards Heath	15	0	0	15	DM/21/3676	13/12/2024	1116
Haywards Heath		14 - 16 Sussex Road Haywards Heath	8	0	0	8	DM/20/1881	17/12/2024	1118
Haywards Heath		Land at Rogers Farm Haywards Heath	20	0	0	20	DM/22/0733	21/10/2025	783
Haywards Heath		Downlands Park, Isaacs Lane, Haywards Heath (Care/not communal)	81	0	0	81	DM/20/4159	05/05/2025	750
Horsted Keynes		Land south of The Old Police House Horsted Keynes	25	0	0	25	SA Allocation		807
Horsted Keynes		Land south of St Stephens Church Horsted Keynes	30	0	0	30	SA Allocation		184
Hurstpierpoint and Sayers Common		Kingsland Laines Reeds Lane Sayers Common Hassocks Phase1	93	0	85	8	DM/20/3927	Commenced	220
Hurstpierpoint and Sayers Common		Kingsland Laines Reeds Lane Sayers Common Hassocks Phase 2	40	0	31	9	DM/20/3927	Commenced	220
Hurstpierpoint and Sayers Common		Land to north of Lyndon Reeds Lane Sayers Common	36	0	0	36	DM/22/0640	15/12/2022	829
Hurstpierpoint and Sayers Common		Land to north of Lyndon Reeds Lane Sayers Common (custom plots)	2	0	0	2	DM/22/0640	15/12/2022	829
Lindfield Rural		Land east of High Beech Lane Lindfield	43	0	40	3	DM/19/2845	Commenced	151
Lindfield Rural		Land east of High Beech Lane Lindfield (custom plots)	2	0	0	2	DM/17/2271		151
Lindfield Rural		Land east of High Beech Lane Lindfield (custom plot A) (37 Town Wood Close)	1	0	0	1	DM/22/3504	11/01/2026	151
Lindfield Rural		Buxshalls Ardingly Road Lindfield	35	19	0	16	DM/20/0979	commenced	586
Lindfield Rural		Land south of Scamps Hill Lindfield	200	0	0	200	DM/20/2763	Commenced	483
Lindfield Rural		Springfield Farm Lewes Road Scaynes Hill	6	0	3	0	14/03160/PDOFF	Commenced	761
Lindfield Rural		Land to the rear of Firlands, Church Road Scaynes Hill	20	0	0	20	SA Allocation		897
Slaugham		Slaugham Manor, Slaugham Place, Slaugham	25	0	18	7	DM/16/2531	Commenced	765
Slaugham		Land east of Brighton Road, Phase 1	156	0	149	7	DM/17/2534	commenced	666
Slaugham		Land east of Brighton Road, Pease Pottage phase 3	186	0	177	9	DM/19/3549	Commenced	666
Slaugham		Land east of Brighton Road, Pease Pottage phase 4	136	0	29	107	DM/19/4636	commenced	666
Slaugham		Land east of Brighton Road, Pease Pottage phase 5	141	0	58	83	DM/19/4637	commenced	666
Slaugham		Land at St Martins Close (East) Handcross	30	0	0	30	NP allocation		1010
Slaugham		Land at St Martins Close (West) Handcross	35	0	0	35	SA Allocation		127
Turners Hill		Old Vicarage Field, Church Road, Turners Hill	44	0	0	44	NP allocation		492+533
Turners Hill		Withypitts Farm Selsfield Road Turners Hill	20	0	0	20	SA Allocation		854
Twineham		Twineham Grange Farm, Bob Lane, Twineham	6	0	0	6	DM/17/1374	01/05/2021	924
West Hoathly	Sharpthorne	Land north of Top Road, Sharpthorne	24	0	0	24	NP allocation		148
West Hoathly	Sharpthorne	Land adjacent to Cookhams, south of Top Road, Sharpthorne	16	0	0	16	NP allocation		477
West Hoathly	Sharpthorne	Station Goods Yard, Station Yard, Sharpthorne	5	0	0	5	11/04102/FUL	Commenced	147
Worth		Land north of Burleigh Lane Crawley Down	50	0	0	50	SA Allocation		519
Worth		Regency Hotel Old Hollow, Copthorne	10	0	0	10	DM/19/4549	28/01/2024	1103
Worth		Land parcel west of Turners Hill Road, Crawley Down	44	0	29	15	DM/19/2242	23/01/2022	271
Worth		Land west of Copthorne, Phase 3 and 4 Copthorne Way (TW)	197	0	38	159	DM/21/0644	Commenced	38
Worth		Land west of Copthorne, Phase 1, Copthorne Way (St Mod)	303	0	219	84	DM/18/4321	Commenced	38
Worth	Crawley Down & Turne	Palmers Autocentre Turners Hill Road Crawley Down	8	0	0	8	DM/17/1660	Commenced	488

Communal Accommodation

	Type		Overall Total (Gross)	Overall Losses (Gross)	Overall Cmpltns (Net)	Total Remaining (Net)	Ratio applied	Site Total completions with ratio applied	Permission Ref	SHELAA			Expiry
Burgess Hill	Care Accommodation	Land To The South Of Kings Way Burgess Hill	68	0	0	68	2	34	DM/21/3385	1042			05/09/2025
Haywards Heath	Care Accommodation	Oakwood Amberley Close Haywards Heath	31	4	0	27	2	16	DM/20/1503	1127	########		12.03.2024
Hayward Heath	Care Accommodation	23 - 25 Bolnore Road Haywards Heath	67	0	0	67	2	34	DM/20/3310	970			14.12.2024
							2						
Slaugham	Care Accommodation	Land East Of Brighton Road Pease Pottage	24	0	0	24	2	12	DM/17/2534	1129	########		
East Grinstead	Care Accommodation	Acorn Lodge Turners Hill Road Nursing home	7	0	0	7	2	4	DM/21/4377	1130			1.03.2025
Worth	Care Accommodation	Rowan Turners Hill Road Crawley Down	17	0	0	17	2	9	DM/21/0028	1131			18.0.224
Worth	Care Accommodation	Land Adjacent To Rowan East Of Turners Hill Road Crawley Down	64	0	0	64	2	32	DM/20/3081	269			12/04/2025

Hurstpierpoint	Care Accommodation	Land To West Of Goldcrest Drive Sayers Meadow Sayers Common	66	0	0	66	2	33	DM/22/2012	1126			24/01/2026
		Care Accommodation Total	**344**					**172**					
Hurstpierpoint	EDucation	Hurstpierpoint College, College Lane 8 boardinf rooms and 2 flats							DM/22/3789	1132			
Hustpierpoint	Education	St Johns House Hurstpierpoint College	2				2.5	1	DM/21/4020	1132			12/06/2025
		Education Accommodation Total	**2**					**1**					

	Overall Total (Gross)	Overall Losses (Gross)	Overall Cmpltns (Net)	Total Remaining (Net)
Total (from large sites)	**11419**	**132**	**1555**	**9594**
Total (from small sites)				178
Total from Communal Accommodation (ratio applied)				173
Total Commitments (all sites)				**9945**

Employment Allocations - December 2019

					Revised Usage Split				Revised Area			
SHLAAID	Address	Settlement	Area	Location	B1 %	B2 %	B8 %		B1	B2	B8	
24	Land at Stairbridge Lane (South of Bolney Grange), Bolney	Bolney	5.5	BolneyGrange	33.33	33.33	33.33		1.83	1.83	1.83	
906	Undeveloped land (south) at Bolney Grange Business Park Stairbridge Lane Bolney	Bolney	0.6	BolneyGrange	33.33	33.33	33.33		0.20	0.20	0.20	
907	Undeveloped land (east) at Bolney Grange Business Park Stairbridge Lane Bolney	Bolney	0.2	BolneyGrange	33.33	33.33	33.33		0.07	0.07	0.07	
931	Extension (east) to Bolney Grange Business Park Stairbridge Lane Bolney	Bolney	0.7	BolneyGrange	33.33	33.33	33.33		0.23	0.23	0.23	
192	Pease Pottage Nurseries, Brighton Road, Pease Pottage	Pease Pottage	1	Other	33.33	33.33	33.33		0.33	0.33	0.33	
826	Burnside Centre, Victoria Road, Burgess Hill	Burgess Hill	0.96	Other	50	50	0		0.48	0.48	0.00	
864	Marylands Nursery, Cowfold Road, Bolney	Bolney	2.4	Other	0	0	100		0.00	0.00	2.40	
888	Cedars (Former Crawley Forest School) Brighton Road Pease Pottage	Slaugham	2.3	Other	33.33	33.33	33.33		0.77	0.77	0.77	
912	Site of Former KDG Victoria Road Burgess Hill	Burgess Hill	1.1	Other	50	50	0		0.55	0.55	0.00	
940	Land north of the A264 at Junction 10 of M23 (Employment Area)	Copthorne	2.7	Other	50	0	50		1.35	0.00	1.35	
								USE (ha)	5.81	4.46	7.18	17.46

Appendix B – Junction Model Output Results

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Hickstead Junction (Right) Validation (Service Station Update) AM.j10
Path: \\systra.info\UK_DFS\LONDONFILE\ProjectData\GB01T24C55 Mid Sussex LP\5. Technical\5. Modelling\Hickstead Junction\East Junction\Models Re-run with only 2019 Base Scenario
Report generation date: 10/10/2024 10:06:56

Summary of junction performance

	AM			
	Queue (PCU)	Delay (s)	RFC	LOS
	2019 Base			
Arm A	0.4	3.61	0.28	A
Arm B	1.5	5.80	0.56	A
Arm C	36.3	124.00	1.04	F
Arm D	0.1	4.91	0.11	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

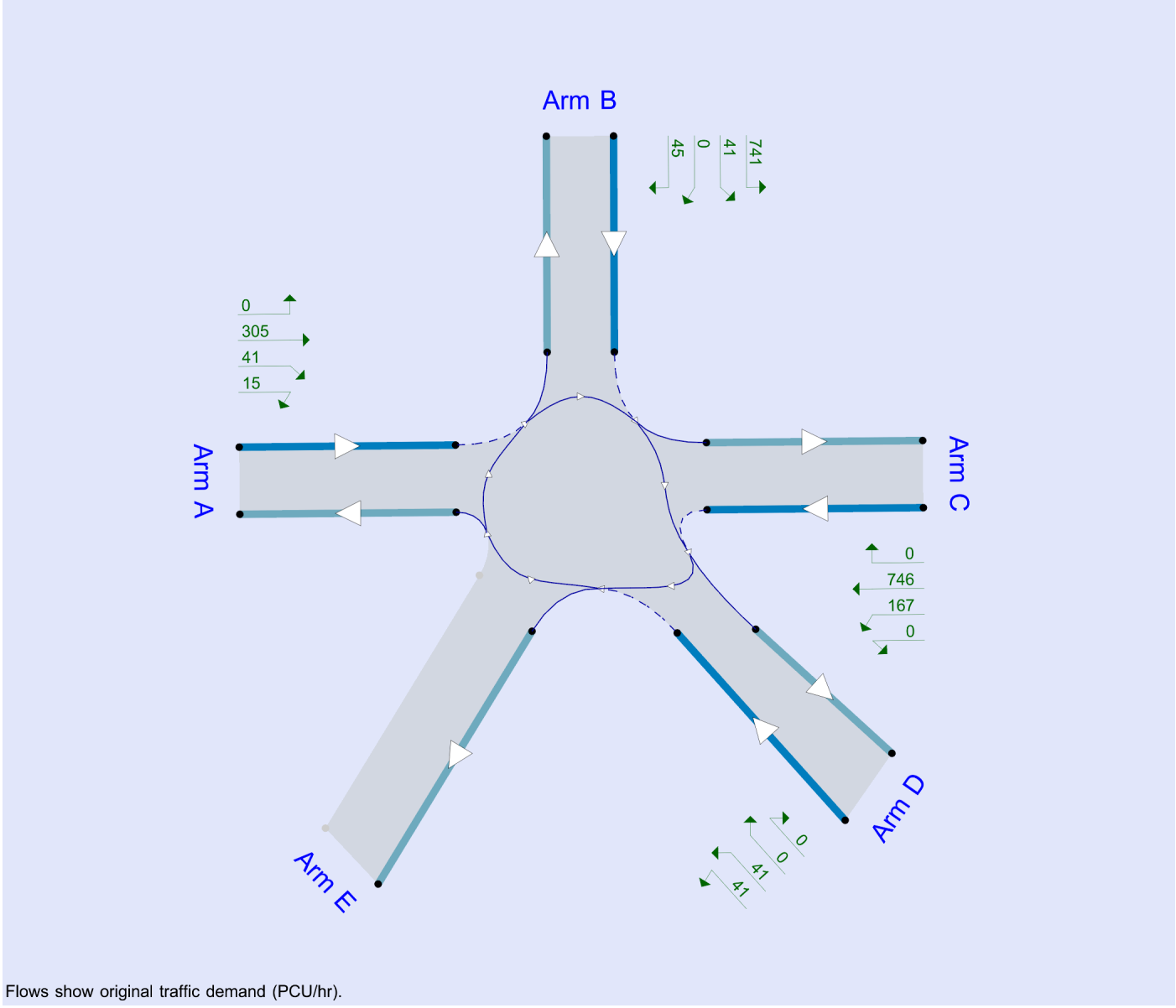
File summary

File Description

Title	
Location	
Site number	
Date	30/11/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ADSYSTRA\thodgson
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



Flows show original traffic demand (PCU/hr).

The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use simulation for HCM roundabouts	Use iterations for HCM roundabouts
5.75						0.85	36.00	20.00		

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2019 Base, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	54.86	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	54.86	F

Arms

Arms

Arm	Name	Description	No give-way line
A	A2300 (W)		
B	A23 Slip (N)		
C	A3200 (E)		
D	Service Station		
E	A23 Slip (S)		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
A	3.72	5.41	6.6	20.9	49.6	28.0		
B	6.56	9.56	1.7	13.1	49.6	55.0		
C	7.97	7.97	0.0	19.6	49.6	52.0		
D	4.94	4.94	0.0	13.9	40.6	44.0		
E								✓

Slope / Intercept / Capacity

Arm Intercept Adjustments

Arm	Type	Reason	Percentage intercept adjustment (%)
A	None		
B	None		
C	Percentage		48.10
D	None		
E			

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.560	1422
B	0.612	1882
C	0.688	1072
D	0.558	1392
E		

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2019 Base	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	361	100.000
B		ONE HOUR	✓	826	100.000
C		ONE HOUR	✓	913	100.000
D		ONE HOUR	✓	82	100.000
E					

Origin-Destination Data

Demand (PCU/hr)

		To				
		A	B	C	D	E
From	A	0	0	305	41	15
	B	45	0	741	41	0
	C	746	0	0	0	167
	D	41	0	0	0	41
	E	0	0	0	0	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To				
		A	B	C	D	E
From	A	0	0	3	0	0
	B	72	0	16	0	0
	C	12	0	0	0	0
	D	0	0	0	0	0
	E	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.28	3.61	0.4	A	331	497
B	0.56	5.80	1.5	A	758	1138
C	1.04	124.00	36.3	F	838	1257
D	0.11	4.91	0.1	A	75	113
E						

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	272	68	0	1422	0.191	271	619	0.0	0.2	3.206	A
B	622	156	271	1716	0.363	620	0	0.0	0.7	3.847	A
C	688	172	106	999	0.689	678	784	0.0	2.3	11.973	B
D	62	15	723	988	0.062	61	61	0.0	0.1	3.882	A
E			619				166				

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	325	81	0	1422	0.228	325	740	0.2	0.3	3.365	A
B	743	186	325	1683	0.441	742	0	0.7	0.9	4.487	A
C	821	205	127	984	0.834	811	939	2.3	4.8	21.528	C
D	74	18	865	910	0.081	74	74	0.1	0.1	4.306	A
E			740				199				

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	398	99	0	1422	0.280	397	856	0.3	0.4	3.605	A
B	910	227	397	1639	0.555	908	0	0.9	1.4	5.770	A
C	1006	251	156	964	1.043	933	1149	4.8	23.1	68.242	F
D	90	23	998	835	0.108	90	90	0.1	0.1	4.834	A
E			856				232				

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	398	99	0	1422	0.280	398	873	0.4	0.4	3.605	A
B	910	227	398	1638	0.555	910	0	1.4	1.5	5.804	A
C	1006	251	156	964	1.043	953	1151	23.1	36.3	124.003	F
D	90	23	1019	824	0.110	90	90	0.1	0.1	4.908	A
E			873				236				

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	325	81	0	1422	0.228	325	843	0.4	0.3	3.368	A
B	743	186	325	1683	0.442	745	0	1.5	0.9	4.518	A
C	821	205	128	984	0.835	937	942	36.3	7.3	83.708	F
D	74	18	991	839	0.088	74	74	0.1	0.1	4.704	A
E			843				222				

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	272	68	0	1422	0.191	272	642	0.3	0.2	3.215	A
B	622	156	272	1715	0.363	623	0	0.9	0.7	3.875	A
C	688	172	107	998	0.689	707	789	7.3	2.5	14.306	B
D	62	15	752	972	0.063	62	62	0.1	0.1	3.955	A
E			642				171				

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Hickstead Junction (Right) Validation (Service Station Update) PM.j10
Path: \\systra.info\UK_DFS\LONDONFILE\ProjectData\GB01T24C55 Mid Sussex LP\5. Technical\5. Modelling\Hickstead Junction\East Junction\Models Re-run with only 2019 Base Scenario
Report generation date: 10/10/2024 10:08:28

Summary of junction performance

	PM			
	Queue (PCU)	Delay (s)	RFC	LOS
	2019 Base			
Arm A	0.3	3.19	0.20	A
Arm B	1.5	5.51	0.59	A
Arm C	0.8	3.11	0.41	A
Arm D	0.1	4.63	0.10	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

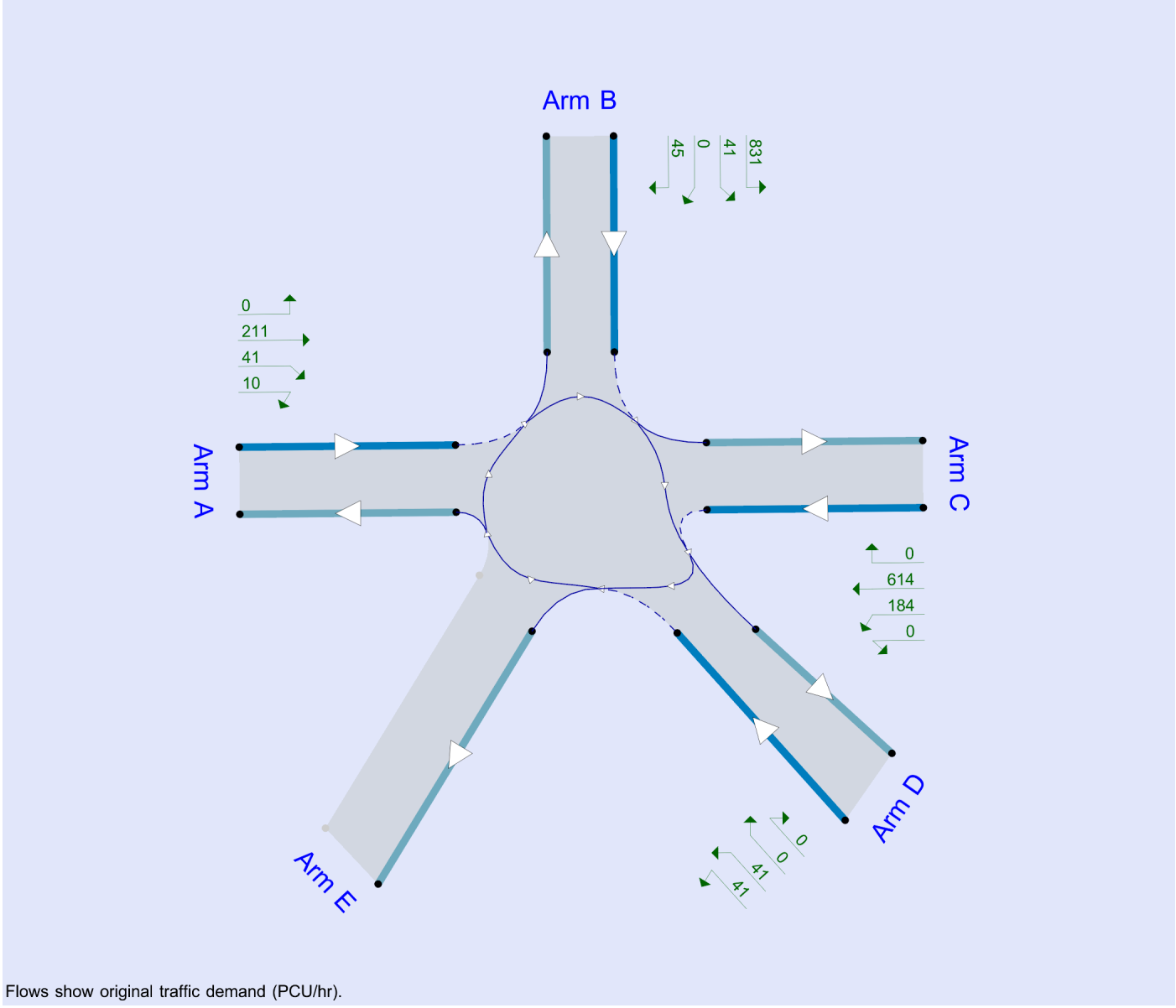
File summary

File Description

Title	
Location	
Site number	
Date	30/11/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ADSYSTRA\thodgson
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



Flows show original traffic demand (PCU/hr).

The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use simulation for HCM roundabouts	Use iterations for HCM roundabouts
5.75						0.85	36.00	20.00		

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2019 Base, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	4.25	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	4.25	A

Arms

Arms

Arm	Name	Description	No give-way line
A	A2300 (W)		
B	A23 Slip (N)		
C	A3200 (E)		
D	Service Station		
E	A23 Slip (S)		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
A	3.72	5.41	6.6	20.9	49.6	28.0		
B	6.56	9.56	1.7	13.1	49.6	55.0		
C	7.97	7.97	0.0	19.6	49.6	52.0		
D	4.94	4.94	0.0	13.9	40.6	44.0		
E								✓

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.560	1422
B	0.612	1882
C	0.688	2228
D	0.558	1392
E		

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2019 Base	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	263	100.000
B		ONE HOUR	✓	917	100.000
C		ONE HOUR	✓	798	100.000
D		ONE HOUR	✓	82	100.000
E					

Origin-Destination Data

Demand (PCU/hr)

		To				
		A	B	C	D	E
From	A	0	0	211	41	10
	B	45	0	831	41	0.01
	C	614	0	0	0	184
	D	41	0	0	0	41
	E	0	0	0	0	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To				
		A	B	C	D	E
From	A	0	0	1	0	0
	B	34	0	6	0	0
	C	10	0	0	0	0
	D	0	0	0	0	0
	E	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.20	3.19	0.3	A	241	362
B	0.59	5.51	1.5	A	841	1262
C	0.41	3.11	0.8	A	732	1099
D	0.10	4.63	0.1	A	75	113
E						

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	198	49	0	1422	0.139	197	525	0.0	0.2	2.951	A
B	690	173	197	1761	0.392	687	0	0.0	0.7	3.559	A
C	601	150	103	2157	0.279	599	781	0.0	0.4	2.486	A
D	62	15	641	1034	0.060	61	62	0.0	0.1	3.700	A
E			525				177				

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	236	59	0	1422	0.166	236	629	0.2	0.2	3.049	A
B	824	206	236	1737	0.474	823	0	0.7	1.0	4.184	A
C	718	179	123	2143	0.335	717	936	0.4	0.5	2.718	A
D	74	18	767	964	0.076	74	74	0.1	0.1	4.042	A
E			629				212				

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	289	72	0	1422	0.203	289	770	0.2	0.3	3.192	A
B	1009	252	289	1705	0.592	1007	0	1.0	1.5	5.472	A
C	879	220	151	2124	0.414	878	1145	0.5	0.8	3.109	A
D	90	23	939	868	0.104	90	90	0.1	0.1	4.627	A
E			770				259				

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	289	72	0	1422	0.203	289	771	0.3	0.3	3.192	A
B	1009	252	289	1705	0.592	1009	0	1.5	1.5	5.507	A
C	879	220	151	2124	0.414	879	1147	0.8	0.8	3.112	A
D	90	23	940	868	0.104	90	90	0.1	0.1	4.630	A
E			771				259				

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	236	59	0	1422	0.166	236	630	0.3	0.2	3.050	A
B	824	206	236	1737	0.474	826	0	1.5	1.0	4.216	A
C	718	179	124	2143	0.335	718	939	0.8	0.5	2.722	A
D	74	18	768	963	0.077	74	74	0.1	0.1	4.049	A
E			630				212				

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	198	49	0	1422	0.139	198	527	0.2	0.2	2.954	A
B	690	173	198	1761	0.392	691	0	1.0	0.7	3.585	A
C	601	150	104	2157	0.279	601	786	0.5	0.4	2.492	A
D	62	15	643	1033	0.060	62	62	0.1	0.1	3.705	A
E			527				178				

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Hickstead Junction (Left) Validation (Service Station Update).j10
Path: \\systra.info\UK_DFS\LONDONFILE\ProjectData\GB01T24C55 Mid Sussex LP\5. Technical\5. Modelling\Hickstead Junction\West Junction\Models Re-run with only 2019 Base Scenario
Report generation date: 10/10/2024 09:53:53

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2019 Base									
Arm A	D1	0.2	7.49	0.14	A	D2	0.1	5.41	0.12	A
Arm B		0.0	0.00	0.00	A		0.0	0.00	0.00	A
Arm C		4.0	17.23	0.79	C		2.1	10.48	0.65	B
Arm D		1.7	18.08	0.64	C		0.5	8.48	0.32	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

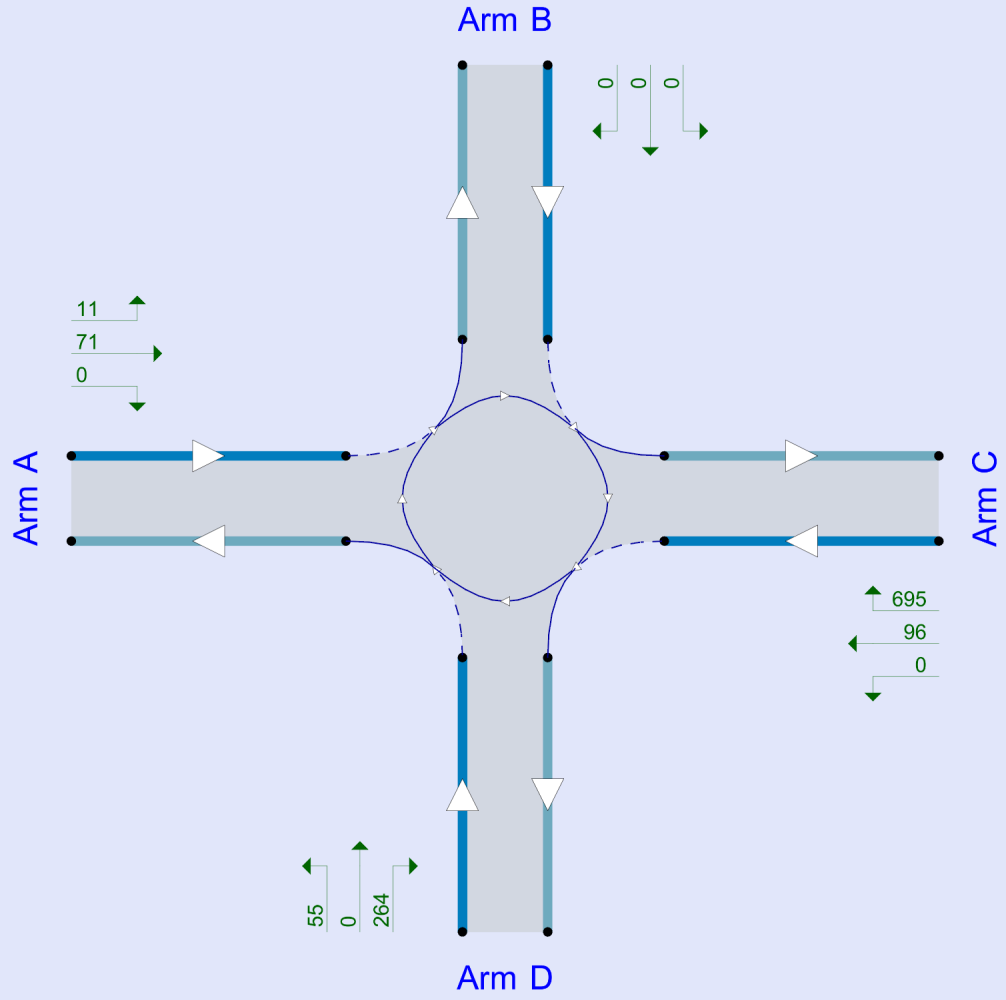
File summary

File Description

Title	
Location	
Site number	
Date	30/11/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ADSYSTRA\thodgson
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



Flows show original traffic demand (PCU/hr).

The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use simulation for HCM roundabouts	Use iterations for HCM roundabouts
5.75						0.85	36.00	20.00		

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2019 Base	AM	ONE HOUR	07:45	09:15	15	✓
D2	2019 Base	PM	ONE HOUR	16:45	18:15	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2019 Base, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D	16.79	C

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	16.79	C

Arms

Arms

Arm	Name	Description	No give-way line
A	Hickstead Lane (W)		
B	A2300 (N)		
C	A2300 (E)		
D	A2300 (S)		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
A	3.07	5.09	6.2	33.8	30.0	42.0		
B	3.18	3.50	14.3	38.1	30.0	41.0		
C	3.22	3.22	0.0	13.1	30.0	49.0		
D	2.60	3.93	6.4	18.9	30.0	42.0		

Slope / Intercept / Capacity

Arm Intercept Adjustments

Arm	Type	Reason	Percentage intercept adjustment (%)
A	None		
B	None		
C	Percentage		125.00
D	None		

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.550	1204
B	0.518	1038
C	0.463	1108
D	0.498	984

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2019 Base	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	82	100.000
B		ONE HOUR	✓	0	100.000
C		ONE HOUR	✓	791	100.000
D		ONE HOUR	✓	319	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	11	71	0
	B	0	0	0	0
	C	96	695	0	0
	D	55	0	264	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		A	B	C	D
From	A	0	0	13	0
	B	0	0	0	0
	C	33	12	0	0
	D	3	4	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.14	7.49	0.2	A	75	113
B	0.00	0.00	0.0	A	0	0
C	0.79	17.23	4.0	C	726	1089
D	0.64	18.08	1.7	C	293	439

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	62	15	715	811	0.076	61	113	0.0	0.1	5.334	A
B	0	0	250	909	0.000	0	527	0.0	0.0	0.000	A
C	595	149	0	1108	0.537	590	250	0.0	1.3	7.889	A
D	240	60	590	691	0.348	238	0	0.0	0.5	7.977	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	74	18	858	732	0.100	73	136	0.1	0.1	6.069	A
B	0	0	300	883	0.000	0	632	0.0	0.0	0.000	A
C	711	178	0	1108	0.642	708	300	1.3	2.0	10.244	B
D	287	72	708	632	0.454	286	0	0.5	0.8	10.442	B

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	90	23	1046	629	0.143	90	165	0.1	0.2	7.413	A
B	0	0	366	849	0.000	0	770	0.0	0.0	0.000	A
C	871	218	0	1108	0.786	863	366	2.0	3.9	16.343	C
D	352	88	863	555	0.634	348	0	0.8	1.7	17.274	C

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	90	23	1055	624	0.144	90	167	0.2	0.2	7.486	A
B	0	0	368	848	0.000	0	776	0.0	0.0	0.000	A
C	871	218	0	1108	0.786	870	368	3.9	4.0	17.231	C
D	352	88	870	551	0.638	351	0	1.7	1.7	18.078	C

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	74	18	871	725	0.101	74	138	0.2	0.1	6.145	A
B	0	0	304	881	0.000	0	641	0.0	0.0	0.000	A
C	711	178	0	1108	0.642	719	304	4.0	2.1	10.794	B
D	287	72	719	627	0.458	290	0	1.7	0.9	10.888	B

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	62	15	725	805	0.076	62	115	0.1	0.1	5.381	A
B	0	0	253	907	0.000	0	534	0.0	0.0	0.000	A
C	595	149	0	1108	0.537	598	253	2.1	1.4	8.142	A
D	240	60	598	686	0.350	242	0	0.9	0.5	8.171	A

2019 Base, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D	9.62	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	9.62	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2019 Base	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	85	100.000
B		ONE HOUR	✓	0	100.000
C		ONE HOUR	✓	658	100.000
D		ONE HOUR	✓	181	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	16	70	0
	B	0	0	0	0
	C	92	566	0	0
	D	26	0.00	155	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To			
		A	B	C	D
From	A	0	0	2	0
	B	0	0	0	0
	C	17	11	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.12	5.41	0.1	A	78	118
B	0.00	0.00	0.0	A	0	0
C	0.65	10.48	2.1	B	604	906
D	0.32	8.48	0.5	A	166	249

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	64	16	539	908	0.071	64	88	0.0	0.1	4.323	A
B	0	0	168	951	0.000	0	435	0.0	0.0	0.000	A
C	495	124	0	1108	0.447	492	168	0.0	0.9	6.495	A
D	136	34	492	740	0.184	135	0	0.0	0.2	5.955	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	77	19	647	849	0.091	77	105	0.1	0.1	4.726	A
B	0	0	202	934	0.000	0	522	0.0	0.0	0.000	A
C	591	148	0	1108	0.534	590	202	0.9	1.3	7.748	A
D	162	41	590	691	0.235	162	0	0.2	0.3	6.814	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	94	24	791	769	0.122	94	129	0.1	0.1	5.399	A
B	0	0	247	910	0.000	0	638	0.0	0.0	0.000	A
C	724	181	0	1108	0.654	721	247	1.3	2.0	10.320	B
D	199	50	721	625	0.318	198	0	0.3	0.5	8.428	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	94	24	794	768	0.123	94	129	0.1	0.1	5.415	A
B	0	0	248	910	0.000	0	640	0.0	0.0	0.000	A
C	724	181	0	1108	0.654	724	248	2.0	2.1	10.480	B
D	199	50	724	624	0.319	199	0	0.5	0.5	8.482	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	77	19	652	846	0.091	77	106	0.1	0.1	4.746	A
B	0	0	203	933	0.000	0	526	0.0	0.0	0.000	A
C	591	148	0	1108	0.534	595	203	2.1	1.3	7.886	A
D	162	41	595	688	0.236	163	0	0.5	0.3	6.870	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	64	16	545	905	0.071	64	89	0.1	0.1	4.341	A
B	0	0	170	950	0.000	0	439	0.0	0.0	0.000	A
C	495	124	0	1108	0.447	497	170	1.3	0.9	6.603	A
D	136	34	497	737	0.185	136	0	0.3	0.2	6.006	A

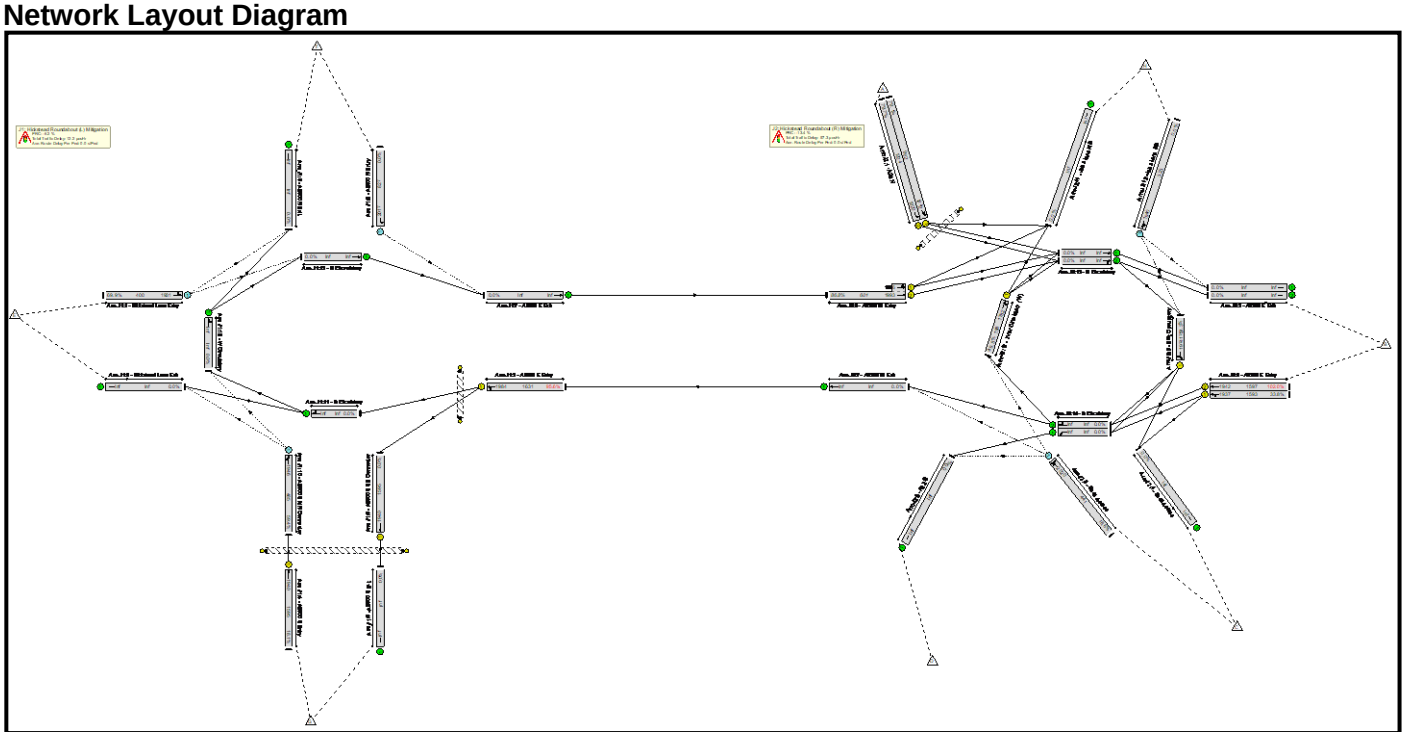
Basic Results Summary

User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	Hickstead Junction Mitigation - Science Park Model - Combined.lsg3x
Author:	
Company:	
Address:	

Scenario 1: '2039 DM AM' (FG1: '2039 DM AM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Basic Results Summary

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)	Item
Network	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**102.0%**	**650**	**0**	**0**	**69.5**	**-**	**-**	**Network**
J1: Hickstead Roundabout (L) Mitigation	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**95.6%**	**568**	**0**	**0**	**12.2**	**-**	**-**	**J1: Hickstead Roundabout (L) Mitigation**
1/1	Hickstead Lane Entry Left Ahead	O	-		-	-	-	280	1931	400	69.9%	280	0	0	1.1	14.7	1.1	1/1
2/1	A2300 N Entry Left	O	-		-	-	-	0	2017	827	0.0%	0	0	0	0.0	0.0	0.0	2/1
3/1	A2300 E Entry Left Ahead	U	D		1	73	-	1590	1984	1631	95.6%	-	-	-	10.0	23.2	28.6	3/1
4/1	A2300 S Entry Ahead	U	H		1	73	-	288	1940	1595	18.1%	-	-	-	0.2	3.1	1.6	4/1
9/1	A2300 S SB Connector Ahead	U	F		1	73	-	0	1940	1595	0.0%	-	-	-	0.0	0.0	0.0	9/1
10/1	A2300 S MN Connector Left Ahead	O	-		-	-	-	288	1946	485	59.4%	288	0	0	0.8	9.4	2.7	10/1
Ped Link: P1	A2300 E Ped Crossing	-	E		1	7	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P1
Ped Link: P2	A2300 S Ped Crossing	-	G		1	7	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P2
J2: Hickstead Roundabout (R) Mitigation	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**102.0%**	**82**	**0**	**0**	**57.3**	**-**	**-**	**J2: Hickstead Roundabout (R) Mitigation**
1/1	A23 N U-Turn Left	U	B		1	46	-	761	1842	962	79.1%	-	-	-	5.6	26.3	17.3	1/1
1/2	A23 N Left	U	B		1	46	-	800	1923	1004	79.7%	-	-	-	5.8	26.2	18.1	1/2

Basic Results Summary

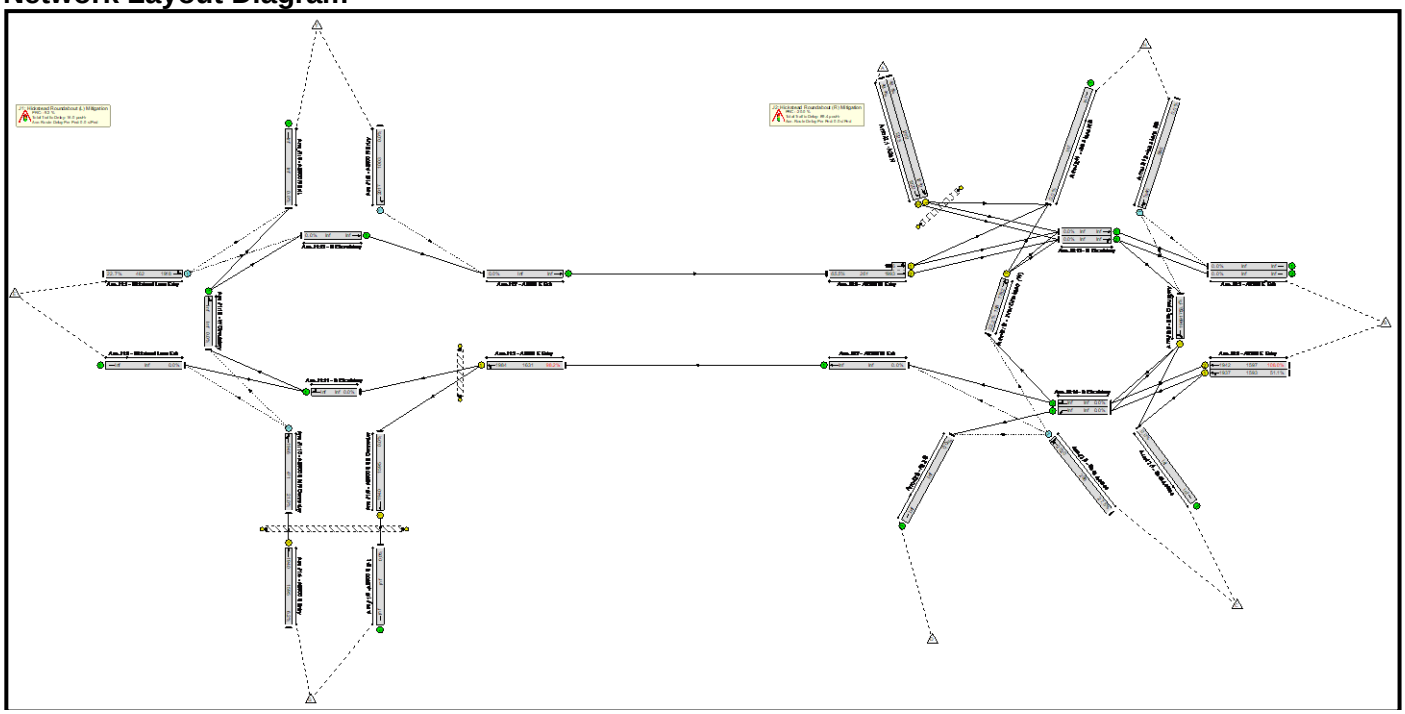
2/1	A2300 E Entry Left Ahead	U	C		1	73	-	539	1937	1593	33.8%	-	-	-	0.6	3.7	3.5	2/1
2/2	A2300 E Entry Ahead	U	C		1	73	-	1629	1942	1597	102.0%	-	-	-	35.2	77.8	71.3	2/2
5/1	Shell Access Left Left2 Right	O	-		-	-	-	82	2020	441	18.6%	82	0	0	0.1	5.0	0.1	5/1
8/2+8/1	A2300 W Entry Left Ahead	U	A		1	22	-	522	1993:1896	601	86.8%	-	-	-	7.3	50.4	12.9	8/2+8/1
9/1	East Circulatory Ahead Right	U	K		1	7	-	90	1974	175	51.3%	-	-	-	1.3	51.9	2.6	9/1
10/1	Inner Circulatory (W) Ahead Right	U	J		1	7	-	80	1782	158	49.5%	-	-	-	1.4	64.7	2.3	10/1
12/1	Jobs Lane SB Left Ahead	O	-		-	-	-	0	1940	323	0.0%	0	0	0	0.0	0.0	0.0	12/1
Ped Link: P1	A3 N Ped Crossing	-	I		1	22	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P1

C1	Stream: 1 PRC for Signalled Lanes (%):	3.6	Total Delay for Signalled Lanes (pcuHr):	20.10	Cycle Time (s): 90
C1	Stream: 2 PRC for Signalled Lanes (%):	-6.2	Total Delay for Signalled Lanes (pcuHr):	10.05	Cycle Time (s): 90
C1	Stream: 3 PRC for Signalled Lanes (%):	398.5	Total Delay for Signalled Lanes (pcuHr):	0.24	Cycle Time (s): 90
C1	Stream: 4 PRC for Signalled Lanes (%):	-13.4	Total Delay for Signalled Lanes (pcuHr):	37.08	Cycle Time (s): 90
	PRC Over All Lanes (%):	-13.4	Total Delay Over All Lanes(pcuHr):	69.48	

Basic Results Summary

Scenario 2: '2039 DM PM' (FG2: '2039 DM PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Basic Results Summary

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)	Item
Network	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**108.0%**	**286**	**0**	**0**	**105.4**	**-**	**-**	**Network**
J1: Hickstead Roundabout (L) Mitigation	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**98.2%**	**204**	**0**	**0**	**16.0**	**-**	**-**	**J1: Hickstead Roundabout (L) Mitigation**
1/1	Hickstead Lane Entry Left Ahead	O	-		-	-	-	105	1918	462	22.7%	105	0	0	0.1	5.0	0.1	1/1
2/1	A2300 N Entry Left	O	-		-	-	-	0	2017	1003	0.0%	0	0	0	0.0	0.0	0.0	2/1
3/1	A2300 E Entry Left Ahead	U	D		1	73	-	1728	1984	1631	98.2%	-	-	-	15.7	35.2	40.0	3/1
4/1	A2300 S Entry Ahead	U	H		1	73	-	99	1940	1595	6.2%	-	-	-	0.1	2.7	0.5	4/1
9/1	A2300 S SB Connector Ahead	U	F		1	73	-	0	1940	1595	0.0%	-	-	-	0.0	0.0	0.0	9/1
10/1	A2300 S MN Connector Left Ahead	O	-		-	-	-	99	1946	471	21.0%	99	0	0	0.1	4.9	0.5	10/1
Ped Link: P1	A2300 E Ped Crossing	-	E		1	7	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P1
Ped Link: P2	A2300 S Ped Crossing	-	G		1	7	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P2
J2: Hickstead Roundabout (R) Mitigation	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**108.0%**	**82**	**0**	**0**	**89.4**	**-**	**-**	**J2: Hickstead Roundabout (R) Mitigation**
1/1	A23 N U-Turn Left	U	B		1	61	-	616	1842	1269	48.5%	-	-	-	1.6	9.3	7.7	1/1
1/2	A23 N Left	U	B		1	61	-	655	1923	1325	49.4%	-	-	-	1.7	9.3	8.1	1/2

Basic Results Summary

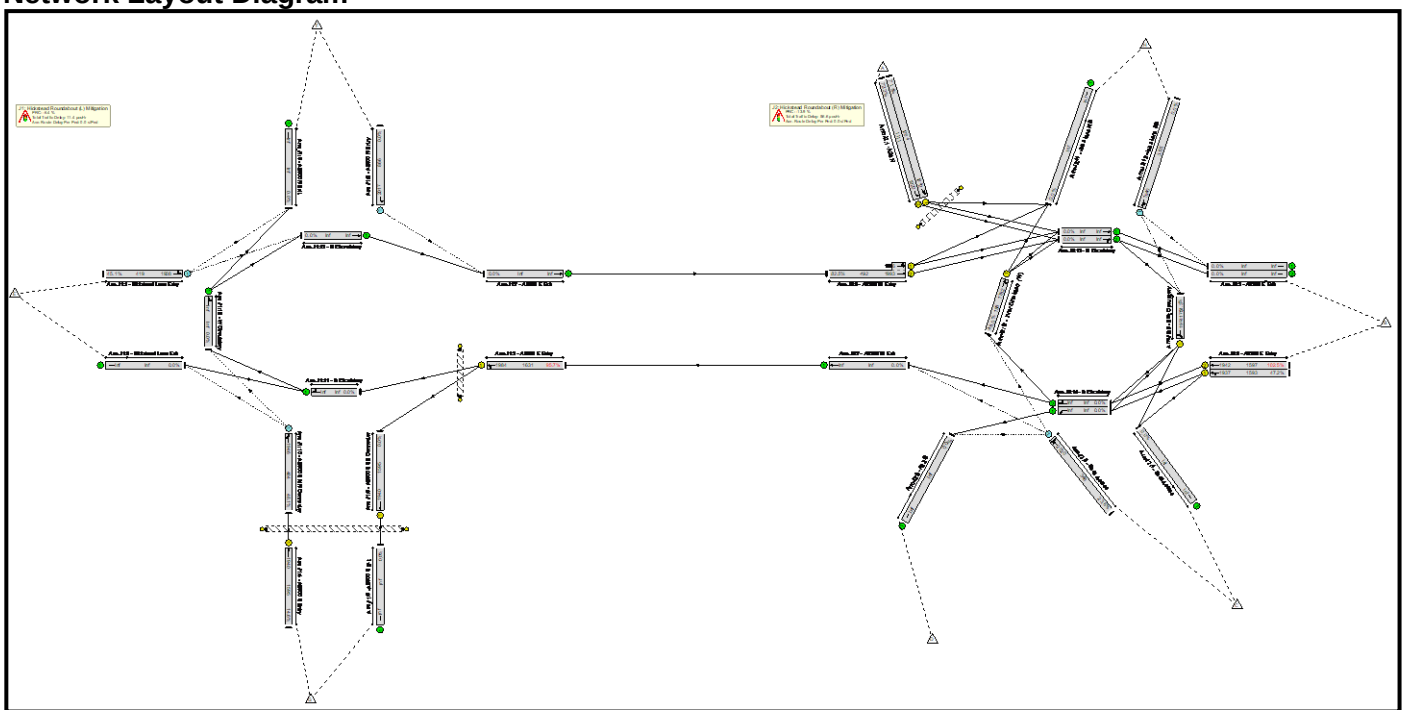
2/1	A2300 E Entry Left Ahead	U	C		1	73	-	814	1937	1593	51.1%	-	-	-	1.1	4.8	6.6	2/1
2/2	A2300 E Entry Ahead	U	C		1	73	-	1725	1942	1597	108.0%	-	-	-	80.2	167.3	116.6	2/2
5/1	Shell Access Left Left2 Right	O	-		-	-	-	82	2020	298	27.5%	82	0	0	0.2	8.3	0.2	5/1
8/2+8/1	A2300 W Entry Left Ahead	U	A		1	7	-	171	1993:1896	261	65.5%	-	-	-	2.7	57.9	3.3	8/2+8/1
9/1	East Circulatory Ahead Right	U	K		1	7	-	93	1969	175	53.1%	-	-	-	1.4	54.4	2.8	9/1
10/1	Inner Circulatory (W) Ahead Right	U	J		1	7	-	38	1782	158	22.2%	-	-	-	0.5	50.6	1.0	10/1
12/1	Jobs Lane SB Left Ahead	O	-		-	-	-	0	1940	586	0.0%	0	0	0	0.0	0.0	0.0	12/1
Ped Link: P1	A3 N Ped Crossing	-	I		1	7	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P1

C1	Stream: 1 PRC for Signalled Lanes (%):	37.3	Total Delay for Signalled Lanes (pcuHr):	6.52	Cycle Time (s): 90
C1	Stream: 2 PRC for Signalled Lanes (%):	-9.2	Total Delay for Signalled Lanes (pcuHr):	15.67	Cycle Time (s): 90
C1	Stream: 3 PRC for Signalled Lanes (%):	1350.1	Total Delay for Signalled Lanes (pcuHr):	0.07	Cycle Time (s): 90
C1	Stream: 4 PRC for Signalled Lanes (%):	-20.0	Total Delay for Signalled Lanes (pcuHr):	82.65	Cycle Time (s): 90
	PRC Over All Lanes (%):	-20.0	Total Delay Over All Lanes(pcuHr):	105.39	

Basic Results Summary

Scenario 3: '2039 Ref Case AM' (FG3: '2939 Ref Case AM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Basic Results Summary

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)	Item
Network	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**102.5%**	**504**	**0**	**0**	**68.0**	**-**	**-**	**Network**
J1: Hickstead Roundabout (L) Mitigation	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**95.7%**	**422**	**0**	**0**	**11.4**	**-**	**-**	**J1: Hickstead Roundabout (L) Mitigation**
1/1	Hickstead Lane Entry Left Ahead	O	-		-	-	-	189	1938	419	45.1%	189	0	0	0.4	7.8	0.4	1/1
2/1	A2300 N Entry Left	O	-		-	-	-	0	2017	866	0.0%	0	0	0	0.0	0.0	0.0	2/1
3/1	A2300 E Entry Left Ahead	U	D		1	73	-	1600	1984	1631	95.7%	-	-	-	10.3	23.7	28.3	3/1
4/1	A2300 S Entry Ahead	U	H		1	73	-	233	1940	1595	14.6%	-	-	-	0.2	2.9	1.3	4/1
9/1	A2300 S SB Connector Ahead	U	F		1	73	-	0	1940	1595	0.0%	-	-	-	0.0	0.0	0.0	9/1
10/1	A2300 S MN Connector Left Ahead	O	-		-	-	-	233	1946	484	48.1%	233	0	0	0.5	7.4	1.8	10/1
Ped Link: P1	A2300 E Ped Crossing	-	E		1	7	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P1
Ped Link: P2	A2300 S Ped Crossing	-	G		1	7	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P2
J2: Hickstead Roundabout (R) Mitigation	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**102.5%**	**82**	**0**	**0**	**56.6**	**-**	**-**	**J2: Hickstead Roundabout (R) Mitigation**
1/1	A23 N U-Turn Left	U	B		1	51	-	761	1842	1064	71.5%	-	-	-	4.1	19.6	14.8	1/1
1/2	A23 N Left	U	B		1	51	-	803	1923	1111	72.3%	-	-	-	4.4	19.6	15.8	1/2

Basic Results Summary

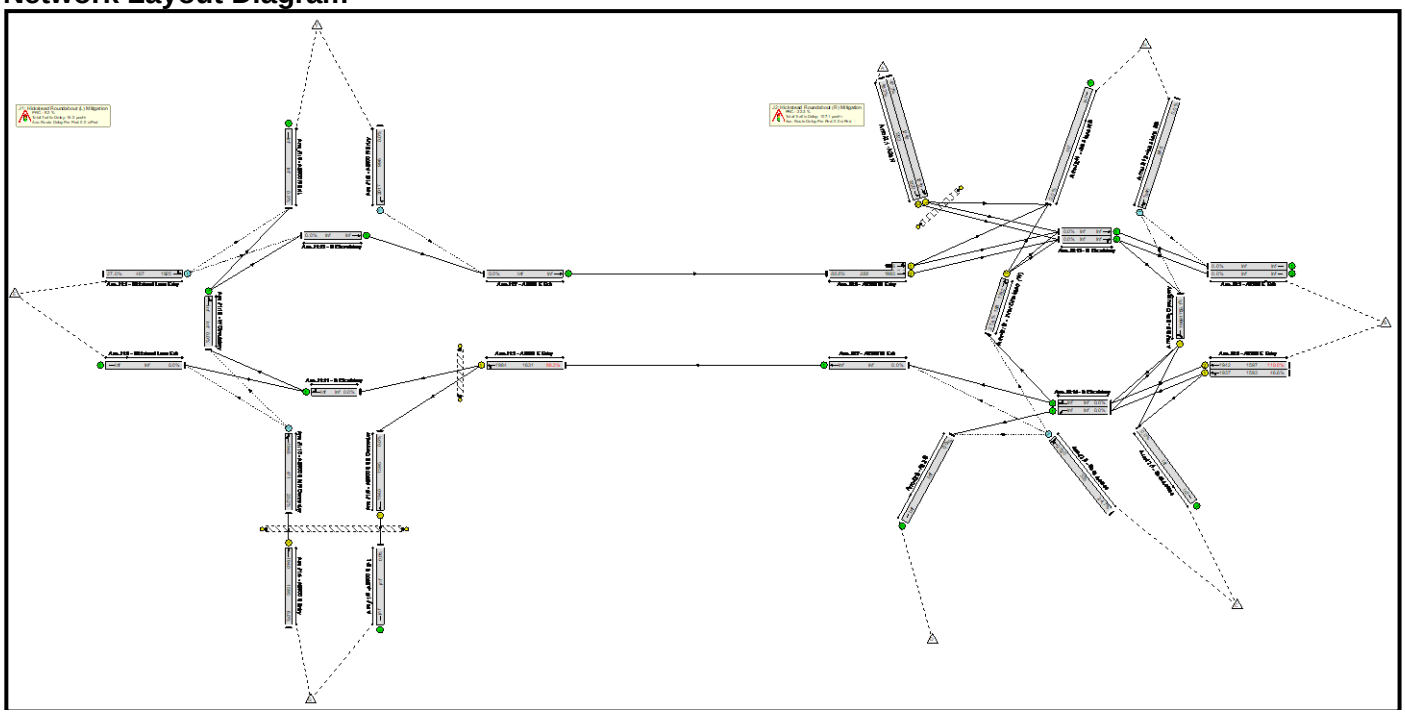
2/1	A2300 E Entry Left Ahead	U	C		1	73	-	751	1937	1593	47.2%	-	-	-	0.9	4.5	5.9	2/1
2/2	A2300 E Entry Ahead	U	C		1	73	-	1637	1942	1597	102.5%	-	-	-	38.5	84.8	74.6	2/2
5/1	Shell Access Left Left2 Right	O	-		-	-	-	82	2020	348	23.6%	82	0	0	0.2	6.8	0.2	5/1
8/2+8/1	A2300 W Entry Left Ahead	U	A		1	17	-	406	1993:1896	492	82.5%	-	-	-	5.8	51.8	9.4	8/2+8/1
9/1	East Circulatory Ahead Right	U	K		1	7	-	90	1974	175	51.3%	-	-	-	1.3	52.1	2.6	9/1
10/1	Inner Circulatory (W) Ahead Right	U	J		1	7	-	78	1782	158	48.0%	-	-	-	1.4	64.2	2.2	10/1
12/1	Jobs Lane SB Left Ahead	O	-		-	-	-	0	1940	355	0.0%	0	0	0	0.0	0.0	0.0	12/1
Ped Link: P1	A3 N Ped Crossing	-	I		1	17	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P1

C1	Stream: 1 PRC for Signalled Lanes (%):	9.1	Total Delay for Signalled Lanes (pcuHr):	15.70	Cycle Time (s): 90
C1	Stream: 2 PRC for Signalled Lanes (%):	-6.4	Total Delay for Signalled Lanes (pcuHr):	10.30	Cycle Time (s): 90
C1	Stream: 3 PRC for Signalled Lanes (%):	516.1	Total Delay for Signalled Lanes (pcuHr):	0.19	Cycle Time (s): 90
C1	Stream: 4 PRC for Signalled Lanes (%):	-13.9	Total Delay for Signalled Lanes (pcuHr):	40.78	Cycle Time (s): 90
	PRC Over All Lanes (%):	-13.9	Total Delay Over All Lanes(pcuHr):	68.00	

Basic Results Summary

Scenario 4: '2039 Ref Case PM' (FG4: '2039 Ref Case PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Basic Results Summary

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)	Item
Network	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**110.0%**	**303**	**0**	**0**	**123.3**	**-**	**-**	**Network**
J1: Hickstead Roundabout (L) Mitigation	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**98.3%**	**221**	**0**	**0**	**16.2**	**-**	**-**	**J1: Hickstead Roundabout (L) Mitigation**
1/1	Hickstead Lane Entry Left Ahead	O	-		-	-	-	126	1925	467	27.0%	126	0	0	0.2	5.3	0.2	1/1
2/1	A2300 N Entry Left	O	-		-	-	-	0	2017	996	0.0%	0	0	0	0.0	0.0	0.0	2/1
3/1	A2300 E Entry Left Ahead	U	D		1	73	-	1760	1984	1631	98.3%	-	-	-	15.8	35.4	40.7	3/1
4/1	A2300 S Entry Ahead	U	H		1	73	-	95	1940	1595	6.0%	-	-	-	0.1	2.7	0.5	4/1
9/1	A2300 S SB Connector Ahead	U	F		1	73	-	0	1940	1595	0.0%	-	-	-	0.0	0.0	0.0	9/1
10/1	A2300 S MN Connector Left Ahead	O	-		-	-	-	95	1946	471	20.2%	95	0	0	0.1	4.8	0.4	10/1
Ped Link: P1	A2300 E Ped Crossing	-	E		1	7	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P1
Ped Link: P2	A2300 S Ped Crossing	-	G		1	7	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P2
J2: Hickstead Roundabout (R) Mitigation	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**110.0%**	**82**	**0**	**0**	**107.1**	**-**	**-**	**J2: Hickstead Roundabout (R) Mitigation**
1/1	A23 N U-Turn Left	U	B		1	60	-	591	1842	1248	47.3%	-	-	-	1.6	9.6	7.3	1/1
1/2	A23 N Left	U	B		1	60	-	629	1923	1303	48.3%	-	-	-	1.7	9.6	8.0	1/2

Basic Results Summary

2/1	A2300 E Entry Left Ahead	U	C		1	73	-	742	1937	1593	46.6%	-	-	-	0.9	4.4	5.6	2/1
2/2	A2300 E Entry Ahead	U	C		1	73	-	1757	1942	1597	110.0%	-	-	-	97.9	200.6	133.2	2/2
5/1	Shell Access Left Left2 Right	O	-		-	-	-	82	2020	333	24.7%	82	0	0	0.2	7.2	0.2	5/1
8/2+8/1	A2300 W Entry Left Ahead	U	A		1	8	-	192	1993:1896	288	66.6%	-	-	-	3.0	56.0	3.5	8/2+8/1
9/1	East Circulatory Ahead Right	U	K		1	7	-	93	1969	175	53.1%	-	-	-	1.4	53.4	2.7	9/1
10/1	Inner Circulatory (W) Ahead Right	U	J		1	7	-	38	1782	158	21.8%	-	-	-	0.5	56.9	0.9	10/1
12/1	Jobs Lane SB Left Ahead	O	-		-	-	-	0	1940	545	0.0%	0	0	0	0.0	0.0	0.0	12/1
Ped Link: P1	A3 N Ped Crossing	-	I		1	8	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P1

C1	Stream: 1 PRC for Signalled Lanes (%):	35.1	Total Delay for Signalled Lanes (pcuHr):	6.79	Cycle Time (s): 90
C1	Stream: 2 PRC for Signalled Lanes (%):	-9.2	Total Delay for Signalled Lanes (pcuHr):	15.78	Cycle Time (s): 90
C1	Stream: 3 PRC for Signalled Lanes (%):	1411.2	Total Delay for Signalled Lanes (pcuHr):	0.07	Cycle Time (s): 90
C1	Stream: 4 PRC for Signalled Lanes (%):	-22.3	Total Delay for Signalled Lanes (pcuHr):	100.17	Cycle Time (s): 90
	PRC Over All Lanes (%):	-22.3	Total Delay Over All Lanes(pcuHr):	123.29	

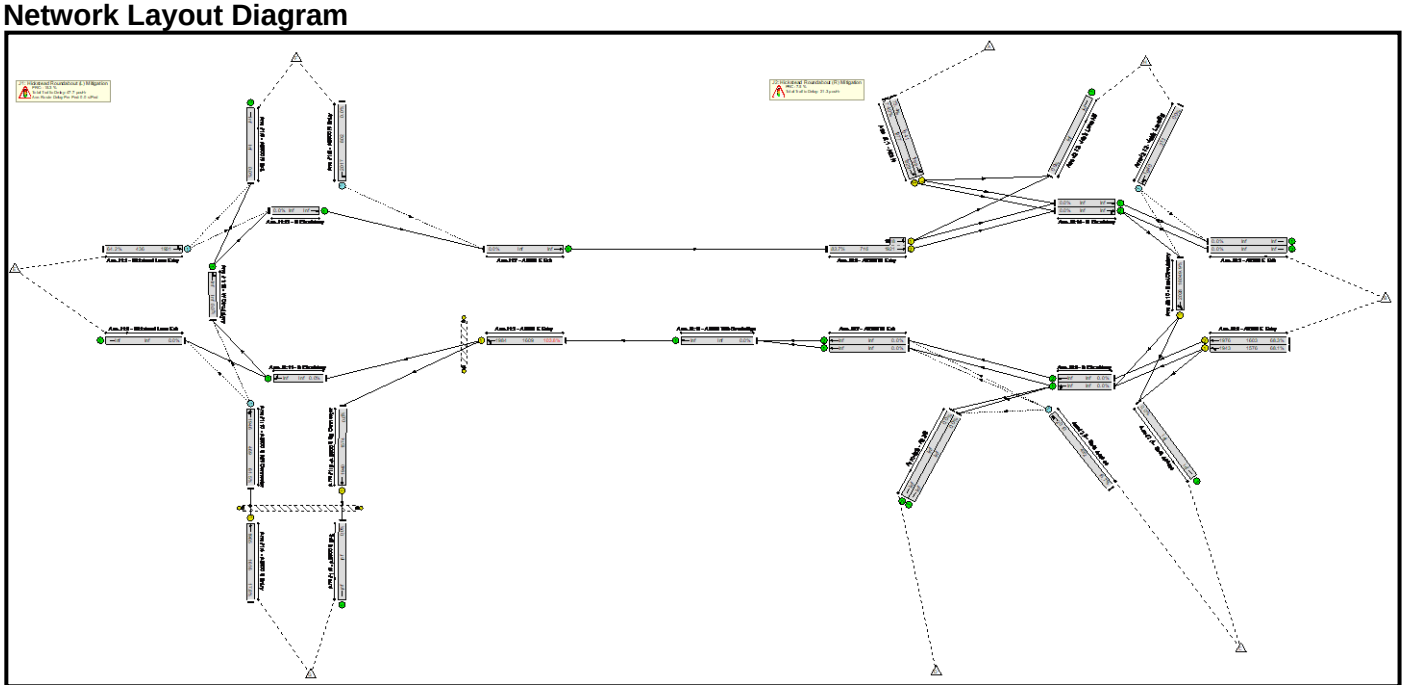
Basic Results Summary

User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	Hickstead Junction Mitigation - SYSTRA Mitigation Model - Combined.lsg3x
Author:	
Company:	
Address:	

Scenario 1: '2039 DM AM' (FG3: '2039 DM AM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Basic Results Summary

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)	Item
Network	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**103.8%**	**604**	**46**	**0**	**69.0**	**-**	**-**	**Network**
J1: Hickstead Roundabout (L) Mitigation	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**103.8%**	**522**	**46**	**0**	**47.7**	**-**	**-**	**J1: Hickstead Roundabout (L) Mitigation**
1/1	Hickstead Lane Entry Left Ahead	O	-		-	-	-	280	1931	436	64.2%	234	46	0	0.9	11.4	0.9	1/1
2/1	A2300 N Entry Left	O	-		-	-	-	0	2017	802	0.0%	0	0	0	0.0	0.0	0.0	2/1
3/1	A2300 E Entry Left Ahead	U	E		1	72	-	1670	1984	1609	103.8%	-	-	-	45.8	98.6	83.9	3/1
4/1	A2300 S Entry Ahead	U	I		1	73	-	288	1965	1616	17.8%	-	-	-	0.2	3.0	1.5	4/1
9/1	A2300 S SB Connector Ahead	U	G		1	72	-	0	1940	1574	0.0%	-	-	-	0.0	0.0	0.0	9/1
10/1	A2300 S MN Connector Left Ahead	O	-		-	-	-	288	1946	469	61.5%	288	0	0	0.8	10.0	2.5	10/1
Ped Link: P1	A2300 E Ped Crossing	-	F		1	7	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P1
Ped Link: P2	A2300 S Ped Crossing	-	H		1	7	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P2
J2: Hickstead Roundabout (R) Mitigation	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**83.7%**	**82**	**0**	**0**	**21.3**	**-**	**-**	**J2: Hickstead Roundabout (R) Mitigation**
1/1	A23 N Left Left2	U	B		1	52	-	764	1768	1041	73.4%	-	-	-	4.2	19.8	15.2	1/1
1/2	A23 N Left	U	B		1	52	-	797	1829	1077	74.0%	-	-	-	4.4	19.8	15.8	1/2

Basic Results Summary

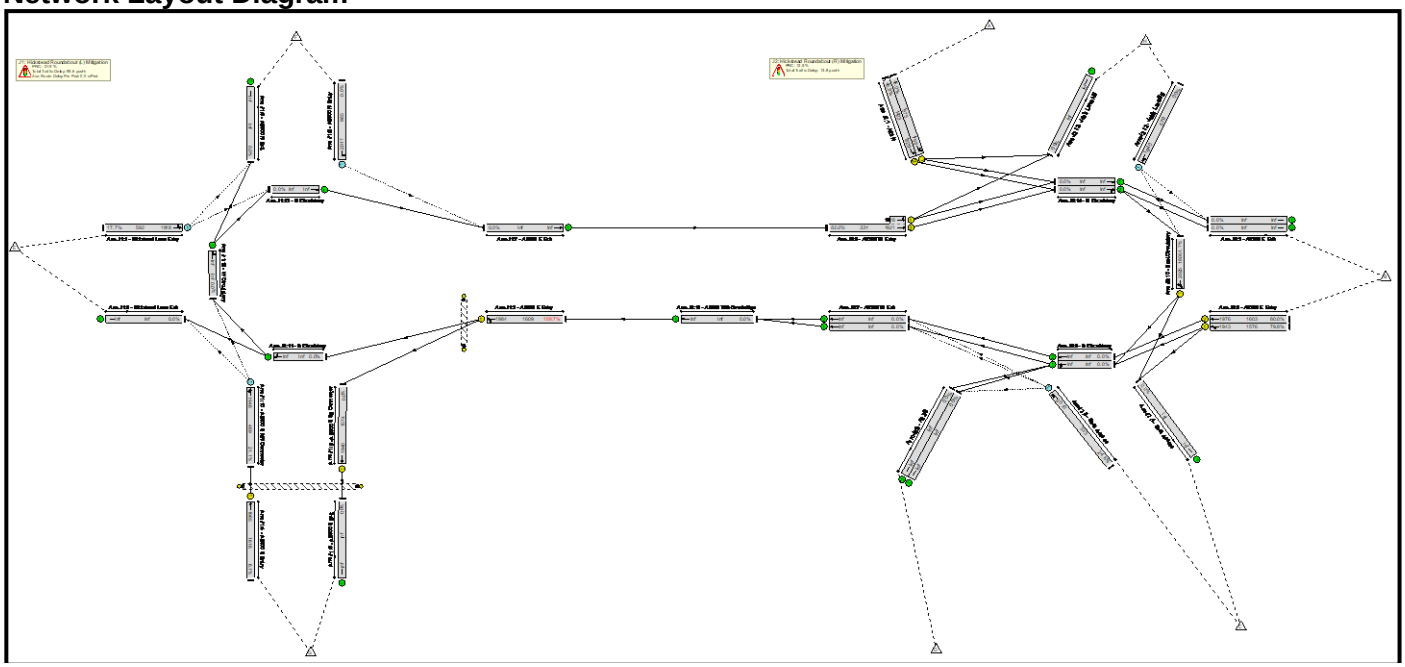
2/1	A2300 E Entry Left Ahead	U	C		1	72	-	1073	1943	1576	68.1%	-	-	-	2.1	7.1	12.1	2/1
2/2	A2300 E Entry Ahead	U	C		1	72	-	1095	1976	1603	68.3%	-	-	-	2.2	7.1	12.6	2/2
5/1	Shell Access Left Left2	O	-		-	-	-	82	2010	492	16.7%	82	0	0	0.1	5.5	0.5	5/1
8/2+8/1	A2300 W Entry Left Ahead	U	A		1	27	-	602	1921:1948	716	83.7%	-	-	-	6.8	40.9	12.9	8/2+8/1
10/1	East Circulatory Ahead Right	U	D		1	7	-	90	2028	180	49.9%	-	-	-	1.4	57.5	2.6	10/1
13/1	Job's Lane SB Left Ahead	O	-		-	-	-	0	1940	313	0.0%	0	0	0	0.0	0.0	0.0	13/1

C1	Stream: 1 PRC for Signalled Lanes (%):	7.5	Total Delay for Signalled Lanes (pcuHr):	15.40	Cycle Time (s): 90
C1	Stream: 2 PRC for Signalled Lanes (%):	31.7	Total Delay for Signalled Lanes (pcuHr):	5.74	Cycle Time (s): 90
C1	Stream: 3 PRC for Signalled Lanes (%):	-15.3	Total Delay for Signalled Lanes (pcuHr):	45.76	Cycle Time (s): 90
C1	Stream: 4 PRC for Signalled Lanes (%):	404.9	Total Delay for Signalled Lanes (pcuHr):	0.24	Cycle Time (s): 90
	PRC Over All Lanes (%):	-15.3	Total Delay Over All Lanes(pcuHr):	68.96	

Basic Results Summary

Scenario 2: '2039 DM PM' (FG4: '2039 DM PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Basic Results Summary

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)	Item
Network	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**109.7%**	**253**	**33**	**0**	**109.3**	**-**	**-**	**Network**
J1: Hickstead Roundabout (L) Mitigation	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**109.7%**	**171**	**33**	**0**	**95.6**	**-**	**-**	**J1: Hickstead Roundabout (L) Mitigation**
1/1	Hickstead Lane Entry Left Ahead	O	-		-	-	-	105	1918	592	17.7%	72	33	0	0.1	3.7	0.1	1/1
2/1	A2300 N Entry Left	O	-		-	-	-	0	2017	985	0.0%	0	0	0	0.0	0.0	0.0	2/1
3/1	A2300 E Entry Left Ahead	U	E		1	72	-	1766	1984	1609	109.7%	-	-	-	95.2	194.2	131.7	3/1
4/1	A2300 S Entry Ahead	U	I		1	73	-	99	1965	1616	6.1%	-	-	-	0.1	2.7	0.5	4/1
9/1	A2300 S SB Connector Ahead	U	G		1	72	-	0	1940	1574	0.0%	-	-	-	0.0	0.0	0.0	9/1
10/1	A2300 S MN Connector Left Ahead	O	-		-	-	-	99	1946	469	21.1%	99	0	0	0.1	4.9	0.1	10/1
Ped Link: P1	A2300 E Ped Crossing	-	F		1	7	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P1
Ped Link: P2	A2300 S Ped Crossing	-	H		1	7	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P2
J2: Hickstead Roundabout (R) Mitigation	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**80.0%**	**82**	**0**	**0**	**13.8**	**-**	**-**	**J2: Hickstead Roundabout (R) Mitigation**
1/1	A23 N Left Left2	U	B		1	69	-	619	1768	1375	45.0%	-	-	-	1.0	5.8	5.6	1/1
1/2	A23 N Left	U	B		1	69	-	652	1829	1423	45.8%	-	-	-	1.0	5.8	6.0	1/2

Basic Results Summary

2/1	A2300 E Entry Left Ahead	U	C		1	72	-	1257	1943	1576	79.8%	-	-	-	3.5	10.1	18.7	2/1
2/2	A2300 E Entry Ahead	U	C		1	72	-	1282	1976	1603	80.0%	-	-	-	3.6	10.1	19.1	2/2
5/1	Shell Access Left Left2	O	-		-	-	-	82	2010	333	24.6%	82	0	0	0.3	14.3	1.1	5/1
8/2+8/1	A2300 W Entry Left Ahead	U	A		1	10	-	209	1921:1948	331	62.0%	-	-	-	2.9	51.1	3.5	8/2+8/1
10/1	East Circulatory Ahead Right	U	D		1	7	-	93	2025	180	51.7%	-	-	-	1.3	52.0	2.7	10/1
13/1	Job's Lane SB Left Ahead	O	-		-	-	-	0	1940	579	0.0%	0	0	0	0.0	0.0	0.0	13/1

C1	Stream: 1 PRC for Signalled Lanes (%):	45.1	Total Delay for Signalled Lanes (pcuHr):	4.96	Cycle Time (s): 90
C1	Stream: 2 PRC for Signalled Lanes (%):	12.5	Total Delay for Signalled Lanes (pcuHr):	8.48	Cycle Time (s): 90
C1	Stream: 3 PRC for Signalled Lanes (%):	-21.9	Total Delay for Signalled Lanes (pcuHr):	95.25	Cycle Time (s): 90
C1	Stream: 4 PRC for Signalled Lanes (%):	1368.8	Total Delay for Signalled Lanes (pcuHr):	0.07	Cycle Time (s): 90
	PRC Over All Lanes (%):	-21.9	Total Delay Over All Lanes(pcuHr):	109.33	

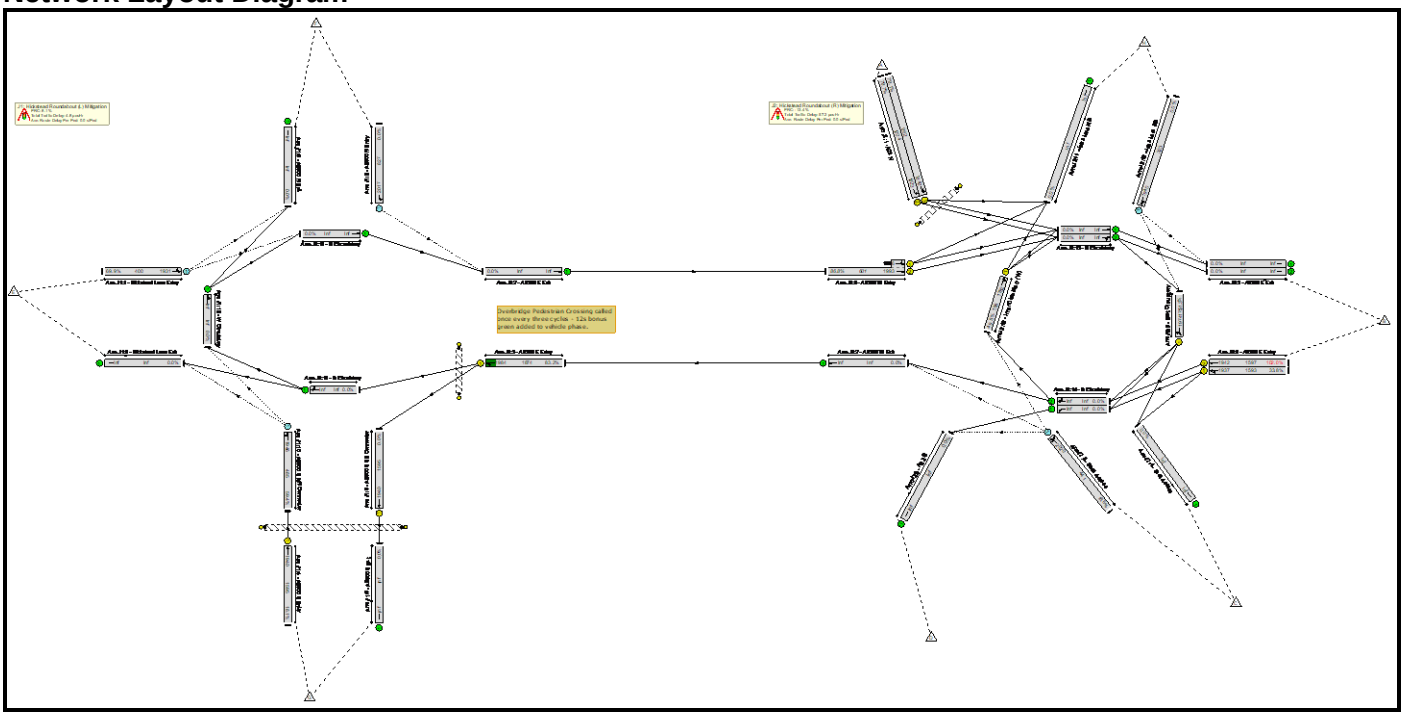
Basic Results Summary

User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	Hickstead Junction Mitigation - Science Park Model - ST.lsg3x
Author:	
Company:	
Address:	

Scenario 1: '2039 DM AM' (FG1: '2039 DM AM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**102.0%**	**650**	**0**	**0**	**62.0**	**-**	**-**
J1: Hickstead Roundabout (L) Mitigation	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**83.2%**	**568**	**0**	**0**	**4.8**	**-**	**-**
1/1	Hickstead Lane Entry Left Ahead	O	-		-	-	-	280	1931	400	69.9%	280	0	0	1.1	14.7	1.1
2/1	A2300 N Entry Left	O	-		-	-	-	0	2017	827	0.0%	0	0	0	0.0	0.0	0.0
3/1	A2300 E Entry Left Ahead	U	D		1	72	-	1590	1984	1874	83.2%	-	-	-	2.6	6.0	7.0
4/1	A2300 S Entry Ahead	U	H		1	73	-	288	1940	1595	18.1%	-	-	-	0.2	3.1	1.6
9/1	A2300 S SB Connector Ahead	U	F		1	73	-	0	1940	1595	0.0%	-	-	-	0.0	0.0	0.0
10/1	A2300 S MN Connector Left Ahead	O	-		-	-	-	288	1946	485	59.4%	288	0	0	0.8	10.2	3.2
Ped Link: P1	A2300 E Ped Crossing	-	E		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	A2300 S Ped Crossing	-	G		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
J2: Hickstead Roundabout (R) Mitigation	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**102.0%**	**82**	**0**	**0**	**57.2**	**-**	**-**
1/1	A23 N U-Turn Left	U	B		1	46	-	761	1842	962	79.1%	-	-	-	5.6	26.3	17.3
1/2	A23 N Left	U	B		1	46	-	800	1923	1004	79.7%	-	-	-	5.8	26.2	18.1
2/1	A2300 E Entry Left Ahead	U	C		1	73	-	539	1937	1593	33.8%	-	-	-	0.6	3.7	3.5
2/2	A2300 E Entry Ahead	U	C		1	73	-	1629	1942	1597	102.0%	-	-	-	35.2	77.8	71.3

Basic Results Summary

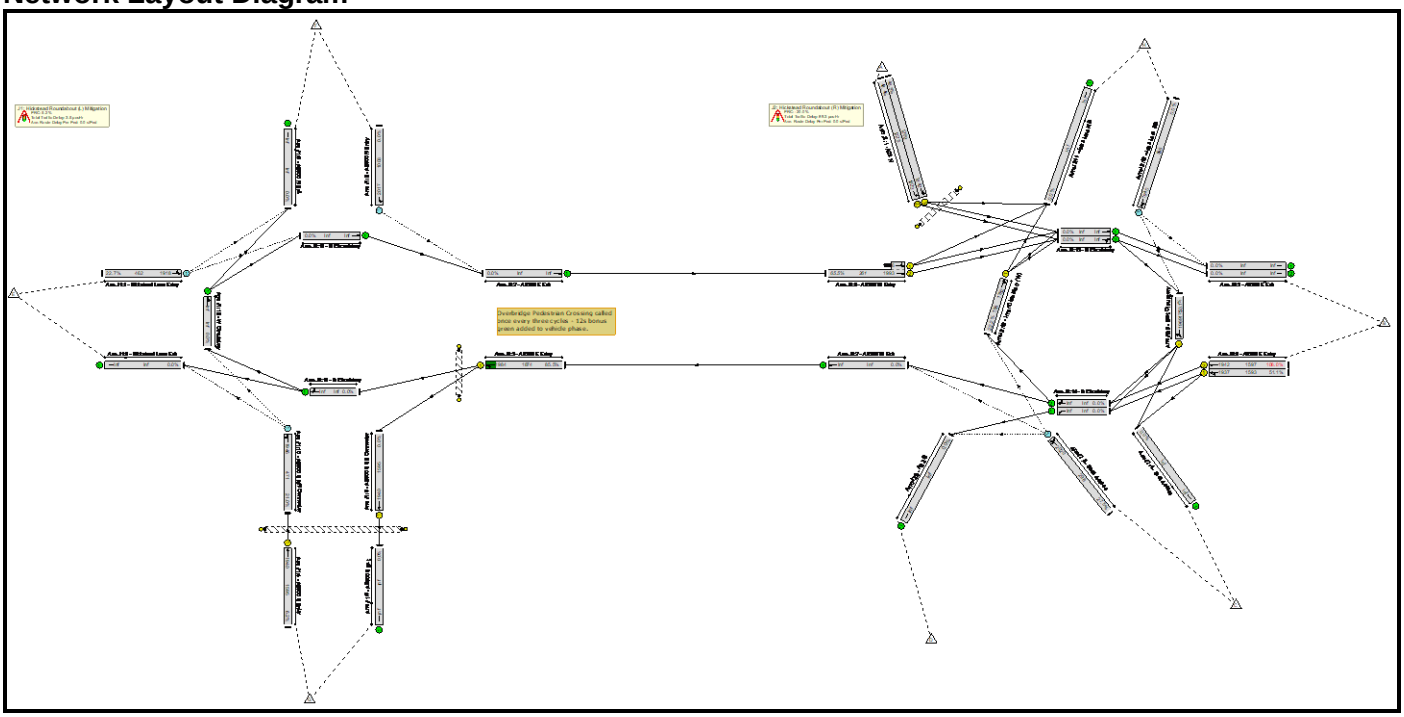
5/1	Shell Access Left Left2 Right	O	-		-	-	-	82	2020	441	18.6%	82	0	0	0.1	5.0	0.1
8/2+8/1	A2300 W Entry Left Ahead	U	A		1	22	-	522	1993:1896	601	86.8%	-	-	-	7.2	49.9	12.9
9/1	East Circulatory Ahead Right	U	K		1	7	-	90	1974	175	51.3%	-	-	-	1.3	52.1	2.6
10/1	Inner Circulatory (W) Ahead Right	U	J		1	7	-	80	1782	158	49.5%	-	-	-	1.4	65.3	2.3
12/1	Jobs Lane SB Left Ahead	O	-		-	-	-	0	1940	323	0.0%	0	0	0	0.0	0.0	0.0
Ped Link: P1	A3 N Ped Crossing	-	I		1	22	-	0	-	0	0.0%	-	-	-	-	-	-

C1	Stream: 1 PRC for Signalled Lanes (%):	3.6	Total Delay for Signalled Lanes (pcuHr):	20.05	Cycle Time (s): 90
C1	Stream: 2 PRC for Signalled Lanes (%):	8.1	Total Delay for Signalled Lanes (pcuHr):	2.60	Cycle Time (s): 90
C1	Stream: 3 PRC for Signalled Lanes (%):	398.5	Total Delay for Signalled Lanes (pcuHr):	0.24	Cycle Time (s): 90
C1	Stream: 4 PRC for Signalled Lanes (%):	-13.4	Total Delay for Signalled Lanes (pcuHr):	37.04	Cycle Time (s): 90
	PRC Over All Lanes (%):	-13.4	Total Delay Over All Lanes(pcuHr):	62.01	

Basic Results Summary

Scenario 2: '2039 DM PM' (FG2: '2039 DM PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**108.0%**	**286**	**0**	**0**	**92.8**	**-**	**-**
J1: Hickstead Roundabout (L) Mitigation	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**85.5%**	**204**	**0**	**0**	**3.5**	**-**	**-**
1/1	Hickstead Lane Entry Left Ahead	O	-		-	-	-	105	1918	462	22.7%	105	0	0	0.1	5.0	0.1
2/1	A2300 N Entry Left	O	-		-	-	-	0	2017	1003	0.0%	0	0	0	0.0	0.0	0.0
3/1	A2300 E Entry Left Ahead	U	D		1	72	-	1728	1984	1874	85.5%	-	-	-	3.1	7.0	9.0
4/1	A2300 S Entry Ahead	U	H		1	73	-	99	1940	1595	6.2%	-	-	-	0.1	2.7	0.5
9/1	A2300 S SB Connector Ahead	U	F		1	73	-	0	1940	1595	0.0%	-	-	-	0.0	0.0	0.0
10/1	A2300 S MN Connector Left Ahead	O	-		-	-	-	99	1946	471	21.0%	99	0	0	0.1	5.0	0.6
Ped Link: P1	A2300 E Ped Crossing	-	E		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	A2300 S Ped Crossing	-	G		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
J2: Hickstead Roundabout (R) Mitigation	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**108.0%**	**82**	**0**	**0**	**89.3**	**-**	**-**
1/1	A23 N U-Turn Left	U	B		1	61	-	616	1842	1269	48.5%	-	-	-	1.6	9.3	7.7
1/2	A23 N Left	U	B		1	61	-	655	1923	1325	49.4%	-	-	-	1.7	9.3	8.1
2/1	A2300 E Entry Left Ahead	U	C		1	73	-	814	1937	1593	51.1%	-	-	-	1.1	4.8	6.6
2/2	A2300 E Entry Ahead	U	C		1	73	-	1725	1942	1597	108.0%	-	-	-	80.1	167.2	116.6

Basic Results Summary

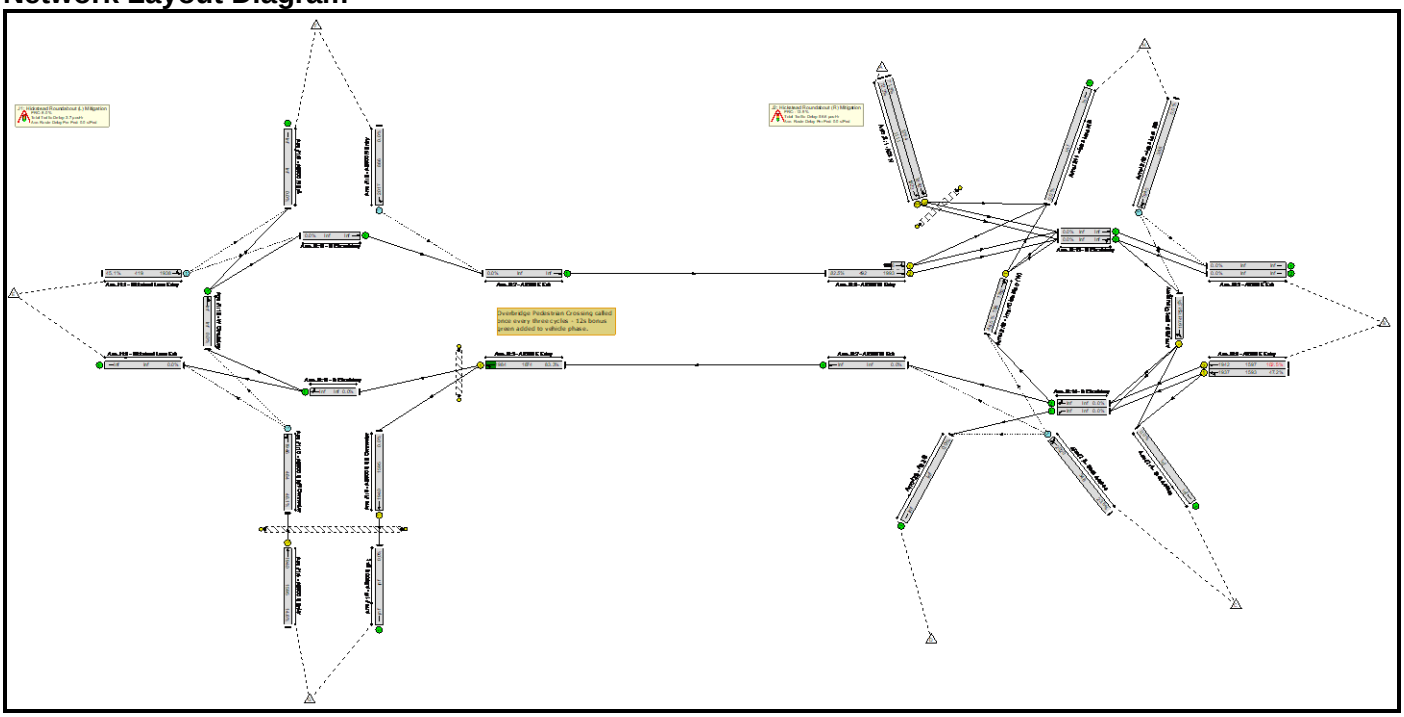
5/1	Shell Access Left Left2 Right	O	-		-	-	-	82	2020	298	27.5%	82	0	0	0.2	8.3	0.2
8/2+8/1	A2300 W Entry Left Ahead	U	A		1	7	-	171	1993:1896	261	65.5%	-	-	-	2.7	57.9	3.3
9/1	East Circulatory Ahead Right	U	K		1	7	-	93	1969	175	53.1%	-	-	-	1.4	54.7	2.8
10/1	Inner Circulatory (W) Ahead Right	U	J		1	7	-	38	1782	158	22.2%	-	-	-	0.5	49.4	1.0
12/1	Jobs Lane SB Left Ahead	O	-		-	-	-	0	1940	586	0.0%	0	0	0	0.0	0.0	0.0
Ped Link: P1	A3 N Ped Crossing	-	I		1	7	-	0	-	0	0.0%	-	-	-	-	-	-

C1	Stream: 1 PRC for Signalled Lanes (%):	37.3	Total Delay for Signalled Lanes (pcuHr):	6.51	Cycle Time (s):	90
C1	Stream: 2 PRC for Signalled Lanes (%):	5.2	Total Delay for Signalled Lanes (pcuHr):	3.12	Cycle Time (s):	90
C1	Stream: 3 PRC for Signalled Lanes (%):	1350.1	Total Delay for Signalled Lanes (pcuHr):	0.07	Cycle Time (s):	90
C1	Stream: 4 PRC for Signalled Lanes (%):	-20.0	Total Delay for Signalled Lanes (pcuHr):	82.59	Cycle Time (s):	90
	PRC Over All Lanes (%):	-20.0	Total Delay Over All Lanes(pcuHr):	92.76		

Basic Results Summary

Scenario 3: '2039 Ref Case AM' (FG3: '2939 Ref Case AM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**102.5%**	**504**	**0**	**0**	**60.3**	**-**	**-**
J1: Hickstead Roundabout (L) Mitigation	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**83.3%**	**422**	**0**	**0**	**3.7**	**-**	**-**
1/1	Hickstead Lane Entry Left Ahead	O	-		-	-	-	189	1938	419	45.1%	189	0	0	0.4	7.8	0.4
2/1	A2300 N Entry Left	O	-		-	-	-	0	2017	866	0.0%	0	0	0	0.0	0.0	0.0
3/1	A2300 E Entry Left Ahead	U	D		1	72	-	1600	1984	1874	83.3%	-	-	-	2.6	6.0	7.0
4/1	A2300 S Entry Ahead	U	H		1	73	-	233	1940	1595	14.6%	-	-	-	0.2	2.9	1.3
9/1	A2300 S SB Connector Ahead	U	F		1	73	-	0	1940	1595	0.0%	-	-	-	0.0	0.0	0.0
10/1	A2300 S MN Connector Left Ahead	O	-		-	-	-	233	1946	484	48.1%	233	0	0	0.5	7.8	2.2
Ped Link: P1	A2300 E Ped Crossing	-	E		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	A2300 S Ped Crossing	-	G		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
J2: Hickstead Roundabout (R) Mitigation	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**102.5%**	**82**	**0**	**0**	**56.6**	**-**	**-**
1/1	A23 N U-Turn Left	U	B		1	51	-	761	1842	1064	71.5%	-	-	-	4.1	19.6	14.8
1/2	A23 N Left	U	B		1	51	-	803	1923	1111	72.3%	-	-	-	4.4	19.6	15.8
2/1	A2300 E Entry Left Ahead	U	C		1	73	-	751	1937	1593	47.2%	-	-	-	0.9	4.5	5.9
2/2	A2300 E Entry Ahead	U	C		1	73	-	1637	1942	1597	102.5%	-	-	-	38.5	84.7	74.6

Basic Results Summary

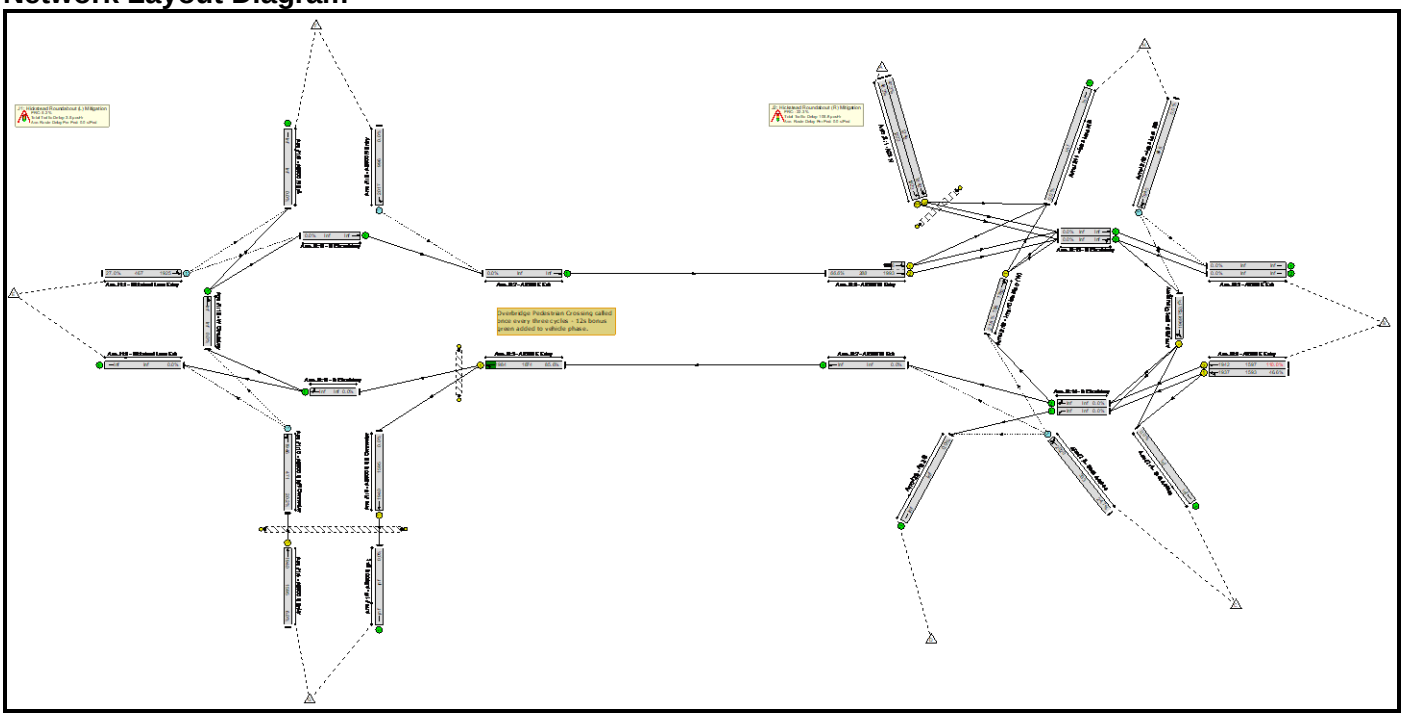
5/1	Shell Access Left Left2 Right	O	-		-	-	-	82	2020	348	23.6%	82	0	0	0.2	6.8	0.2
8/2+8/1	A2300 W Entry Left Ahead	U	A		1	17	-	406	1993:1896	492	82.5%	-	-	-	5.8	51.5	9.4
9/1	East Circulatory Ahead Right	U	K		1	7	-	90	1974	175	51.3%	-	-	-	1.3	51.9	2.6
10/1	Inner Circulatory (W) Ahead Right	U	J		1	7	-	78	1782	158	48.0%	-	-	-	1.4	64.4	2.2
12/1	Jobs Lane SB Left Ahead	O	-		-	-	-	0	1940	355	0.0%	0	0	0	0.0	0.0	0.0
Ped Link: P1	A3 N Ped Crossing	-	I		1	17	-	0	-	0	0.0%	-	-	-	-	-	-

C1	Stream: 1 PRC for Signalled Lanes (%):	9.1	Total Delay for Signalled Lanes (pcuHr):	15.67	Cycle Time (s): 90
C1	Stream: 2 PRC for Signalled Lanes (%):	8.0	Total Delay for Signalled Lanes (pcuHr):	2.62	Cycle Time (s): 90
C1	Stream: 3 PRC for Signalled Lanes (%):	516.1	Total Delay for Signalled Lanes (pcuHr):	0.19	Cycle Time (s): 90
C1	Stream: 4 PRC for Signalled Lanes (%):	-13.9	Total Delay for Signalled Lanes (pcuHr):	40.76	Cycle Time (s): 90
	PRC Over All Lanes (%):	-13.9	Total Delay Over All Lanes(pcuHr):	60.32	

Basic Results Summary

Scenario 4: '2039 Ref Case PM' (FG4: '2039 Ref Case PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**110.0%**	**303**	**0**	**0**	**109.3**	**-**	**-**
J1: Hickstead Roundabout (L) Mitigation	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**85.6%**	**221**	**0**	**0**	**3.5**	**-**	**-**
1/1	Hickstead Lane Entry Left Ahead	O	-		-	-	-	126	1925	467	27.0%	126	0	0	0.2	5.3	0.2
2/1	A2300 N Entry Left	O	-		-	-	-	0	2017	996	0.0%	0	0	0	0.0	0.0	0.0
3/1	A2300 E Entry Left Ahead	U	D		1	72	-	1760	1984	1874	85.6%	-	-	-	3.1	6.9	8.0
4/1	A2300 S Entry Ahead	U	H		1	73	-	95	1940	1595	6.0%	-	-	-	0.1	2.7	0.5
9/1	A2300 S SB Connector Ahead	U	F		1	73	-	0	1940	1595	0.0%	-	-	-	0.0	0.0	0.0
10/1	A2300 S MN Connector Left Ahead	O	-		-	-	-	95	1946	471	20.2%	95	0	0	0.1	4.9	0.6
Ped Link: P1	A2300 E Ped Crossing	-	E		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	A2300 S Ped Crossing	-	G		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
J2: Hickstead Roundabout (R) Mitigation	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**110.0%**	**82**	**0**	**0**	**105.8**	**-**	**-**
1/1	A23 N U-Turn Left	U	B		1	60	-	591	1842	1248	47.3%	-	-	-	1.6	9.6	7.3
1/2	A23 N Left	U	B		1	60	-	629	1923	1303	48.3%	-	-	-	1.7	9.6	8.0
2/1	A2300 E Entry Left Ahead	U	C		1	73	-	742	1937	1593	46.6%	-	-	-	0.9	4.4	5.6
2/2	A2300 E Entry Ahead	U	C		1	73	-	1757	1942	1597	110.0%	-	-	-	96.6	198.0	133.2

Basic Results Summary

5/1	Shell Access Left Left2 Right	O	-		-	-	-	82	2020	333	24.7%	82	0	0	0.2	7.2	0.2
8/2+8/1	A2300 W Entry Left Ahead	U	A		1	8	-	192	1993:1896	288	66.6%	-	-	-	3.0	56.0	3.5
9/1	East Circulatory Ahead Right	U	K		1	7	-	93	1969	175	53.1%	-	-	-	1.4	55.1	2.8
10/1	Inner Circulatory (W) Ahead Right	U	J		1	7	-	38	1782	158	21.8%	-	-	-	0.5	48.9	1.0
12/1	Jobs Lane SB Left Ahead	O	-		-	-	-	0	1940	545	0.0%	0	0	0	0.0	0.0	0.0
Ped Link: P1	A3 N Ped Crossing	-	I		1	8	-	0	-	0	0.0%	-	-	-	-	-	-

C1	Stream: 1 PRC for Signalled Lanes (%):	35.1	Total Delay for Signalled Lanes (pcuHr):	6.71	Cycle Time (s): 90
C1	Stream: 2 PRC for Signalled Lanes (%):	5.2	Total Delay for Signalled Lanes (pcuHr):	3.09	Cycle Time (s): 90
C1	Stream: 3 PRC for Signalled Lanes (%):	1411.2	Total Delay for Signalled Lanes (pcuHr):	0.07	Cycle Time (s): 90
C1	Stream: 4 PRC for Signalled Lanes (%):	-22.3	Total Delay for Signalled Lanes (pcuHr):	98.97	Cycle Time (s): 90
	PRC Over All Lanes (%):	-22.3	Total Delay Over All Lanes(pcuHr):	109.32	

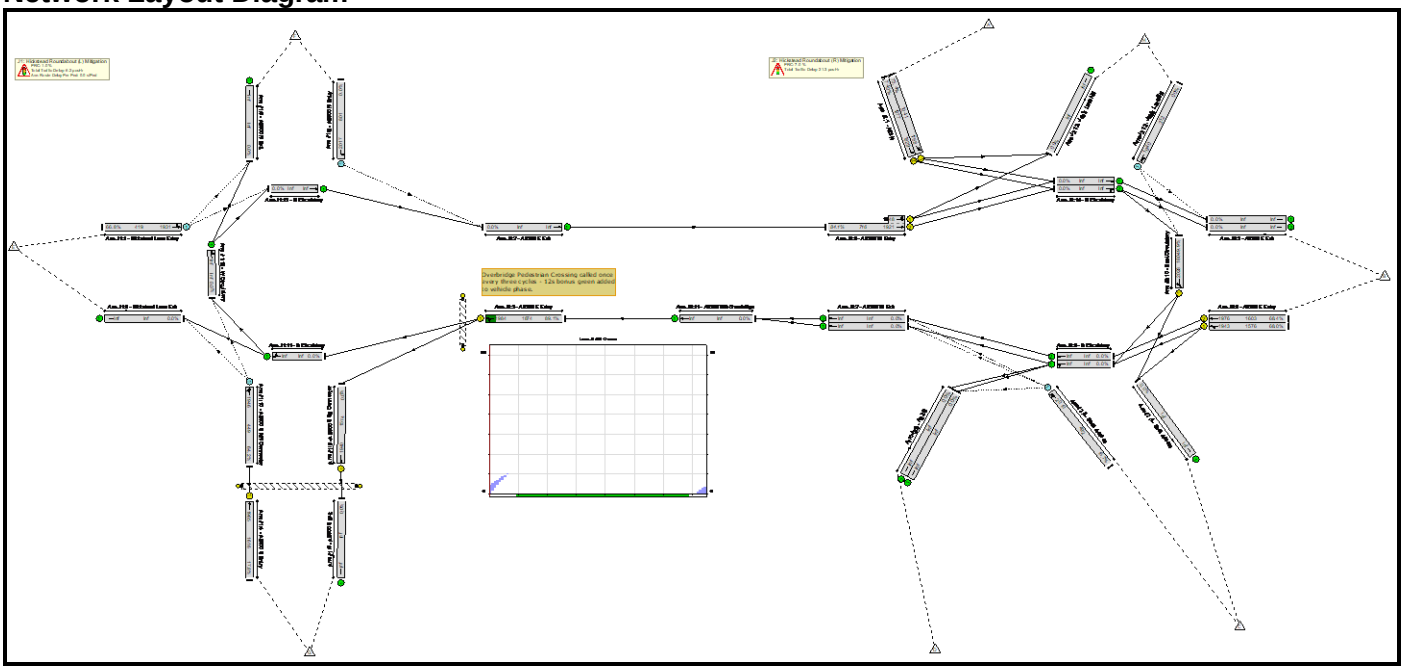
Basic Results Summary

User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	Hickstead Junction Mitigation - SYSTRA Mitigation Model - ST.lsg3x
Author:	
Company:	
Address:	

Scenario 1: '2039 DM AM' (FG3: '2039 DM AM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**89.1%**	**604**	**46**	**0**	**27.6**	**-**	**-**
J1: Hickstead Roundabout (L) Mitigation	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**89.1%**	**522**	**46**	**0**	**6.2**	**-**	**-**
1/1	Hickstead Lane Entry Left Ahead	O	-		-	-	-	280	1931	419	66.8%	234	46	0	1.0	12.8	1.0
2/1	A2300 N Entry Left	O	-		-	-	-	0	2017	801	0.0%	0	0	0	0.0	0.0	0.0
3/1	A2300 E Entry Left Ahead	U	E		1	72	-	1670	1984	1874	89.1%	-	-	-	4.1	8.8	8.4
4/1	A2300 S Entry Ahead	U	I		1	73	-	288	1965	1616	17.8%	-	-	-	0.2	3.0	1.5
9/1	A2300 S SB Connector Ahead	U	G		1	72	-	0	1940	1574	0.0%	-	-	-	0.0	0.0	0.0
10/1	A2300 S MN Connector Left Ahead	O	-		-	-	-	288	1946	449	64.2%	288	0	0	0.9	11.7	2.8
Ped Link: P1	A2300 E Ped Crossing	-	F		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	A2300 S Ped Crossing	-	H		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
J2: Hickstead Roundabout (R) Mitigation	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**84.1%**	**82**	**0**	**0**	**21.3**	**-**	**-**
1/1	A23 N Left Left2	U	B		1	52	-	764	1768	1041	73.4%	-	-	-	4.2	19.8	15.2
1/2	A23 N Left	U	B		1	52	-	797	1829	1077	74.0%	-	-	-	4.4	19.8	15.8
2/1	A2300 E Entry Left Ahead	U	C		1	72	-	1072	1943	1576	68.0%	-	-	-	2.1	7.1	12.1
2/2	A2300 E Entry Ahead	U	C		1	72	-	1096	1976	1603	68.4%	-	-	-	2.2	7.1	12.6
5/1	Shell Access Left Left2	O	-		-	-	-	82	2010	492	16.7%	82	0	0	0.1	5.5	0.5

Basic Results Summary

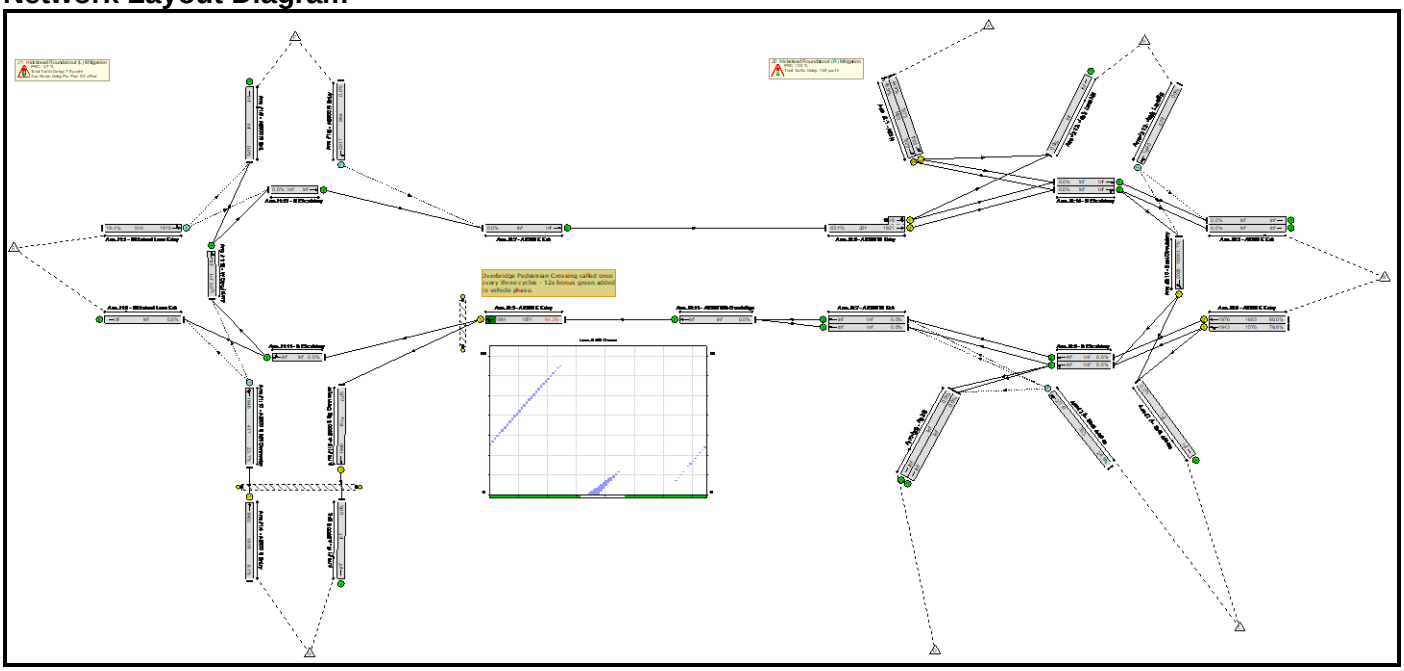
8/2+8/1	A2300 W Entry Left Ahead	U	A		1	27	-	602	1921:1948	716	84.1%	-	-	-	6.9	41.1	13.2
10/1	East Circulatory Ahead Right	U	D		1	7	-	90	2028	180	49.9%	-	-	-	1.4	57.6	2.6
13/1	Job's Lane SB Left Ahead	O	-		-	-	-	0	1940	312	0.0%	0	0	0	0.0	0.0	0.0

C1	Stream: 1 PRC for Signalled Lanes (%):	7.0	Total Delay for Signalled Lanes (pcuHr):	15.48	Cycle Time (s): 90
C1	Stream: 2 PRC for Signalled Lanes (%):	31.6	Total Delay for Signalled Lanes (pcuHr):	5.74	Cycle Time (s): 90
C1	Stream: 3 PRC for Signalled Lanes (%):	1.0	Total Delay for Signalled Lanes (pcuHr):	4.07	Cycle Time (s): 90
C1	Stream: 4 PRC for Signalled Lanes (%):	404.9	Total Delay for Signalled Lanes (pcuHr):	0.24	Cycle Time (s): 90
	PRC Over All Lanes (%):	1.0	Total Delay Over All Lanes(pcuHr):	27.59	

Basic Results Summary

Scenario 2: '2039 DM PM' (FG4: '2039 DM PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**94.2%**	**253**	**33**	**0**	**21.7**	**-**	**-**
J1: Hickstead Roundabout (L) Mitigation	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**94.2%**	**171**	**33**	**0**	**7.9**	**-**	**-**
1/1	Hickstead Lane Entry Left Ahead	O	-		-	-	-	105	1918	540	19.4%	72	33	0	0.1	4.1	0.1
2/1	A2300 N Entry Left	O	-		-	-	-	0	2017	984	0.0%	0	0	0	0.0	0.0	0.0
3/1	A2300 E Entry Left Ahead	U	E		1	72	-	1766	1984	1874	94.2%	-	-	-	7.6	15.4	33.7
4/1	A2300 S Entry Ahead	U	I		1	73	-	99	1965	1616	6.1%	-	-	-	0.1	2.7	0.5
9/1	A2300 S SB Connector Ahead	U	G		1	72	-	0	1940	1574	0.0%	-	-	-	0.0	0.0	0.0
10/1	A2300 S MN Connector Left Ahead	O	-		-	-	-	99	1946	417	23.7%	99	0	0	0.2	5.9	0.7
Ped Link: P1	A2300 E Ped Crossing	-	F		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	A2300 S Ped Crossing	-	H		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
J2: Hickstead Roundabout (R) Mitigation	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**80.0%**	**82**	**0**	**0**	**13.8**	**-**	**-**
1/1	A23 N Left Left2	U	B		1	69	-	618	1768	1375	44.9%	-	-	-	1.0	5.8	5.6
1/2	A23 N Left	U	B		1	69	-	653	1829	1423	45.9%	-	-	-	1.1	5.8	6.0
2/1	A2300 E Entry Left Ahead	U	C		1	72	-	1257	1943	1576	79.8%	-	-	-	3.5	10.1	18.7
2/2	A2300 E Entry Ahead	U	C		1	72	-	1282	1976	1603	80.0%	-	-	-	3.6	10.1	19.1
5/1	Shell Access Left Left2	O	-		-	-	-	82	2010	333	24.6%	82	0	0	0.3	14.3	1.1

Basic Results Summary

8/2+8/1	A2300 W Entry Left Ahead	U	A		1	10	-	209	1921:1948	331	63.1%	-	-	-	2.9	50.1	3.6
10/1	East Circulatory Ahead Right	U	D		1	7	-	93	2025	180	51.7%	-	-	-	1.4	53.6	2.8
13/1	Job's Lane SB Left Ahead	O	-		-	-	-	0	1940	578	0.0%	0	0	0	0.0	0.0	0.0

C1	Stream: 1 PRC for Signalled Lanes (%):	42.7	Total Delay for Signalled Lanes (pcuHr):	4.96	Cycle Time (s): 90
C1	Stream: 2 PRC for Signalled Lanes (%):	12.5	Total Delay for Signalled Lanes (pcuHr):	8.52	Cycle Time (s): 90
C1	Stream: 3 PRC for Signalled Lanes (%):	-4.7	Total Delay for Signalled Lanes (pcuHr):	7.56	Cycle Time (s): 90
C1	Stream: 4 PRC for Signalled Lanes (%):	1368.8	Total Delay for Signalled Lanes (pcuHr):	0.07	Cycle Time (s): 90
	PRC Over All Lanes (%):	-4.7	Total Delay Over All Lanes(pcuHr):	21.72	

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.1.0.1820

Filename: Copthorne Common Existing Validation.j10
Path: \\Londonfile\ProjectData\## Mid Sussex LP\5. Technical\5. Modelling\Copthorne Common Roundabout
Report generation date: 20/12/2023 12:09:20

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Copthorne Roundabout - 2019 Base									
Arm A	D1	6.4	15.71	0.86	C	D2	2.0	5.62	0.65	A
Arm B		1.0	9.59	0.46	A		1.4	8.33	0.57	A
Arm C		0.9	4.33	0.46	A		2.4	7.20	0.71	A
Arm D		0.1	4.20	0.06	A		0.1	5.48	0.10	A
Arm E		1.6	6.25	0.61	A		0.9	5.04	0.47	A
	Copthorne Roundabout - 2039 Reference Case									
Arm A	D3	55.8	113.72	1.05	F	D4	3.2	8.46	0.76	A
Arm B		1.7	14.16	0.60	B		13.2	56.65	0.96	F
Arm C		0.8	4.34	0.44	A		5.2	15.03	0.84	C
Arm D		0.1	4.28	0.08	A		0.2	7.38	0.15	A
Arm E		2.8	8.41	0.74	A		1.9	8.48	0.66	A
	Copthorne Roundabout - 2039 Do Minimum									
Arm A	D5	80.9	165.93	1.10	F	D6	5.2	13.51	0.84	B
Arm B		2.3	17.00	0.67	C		103.5	337.54	1.24	F
Arm C		1.0	4.87	0.48	A		4.5	13.48	0.82	B
Arm D		0.1	4.63	0.09	A		0.2	7.46	0.15	A
Arm E		24.8	55.69	0.99	F		6.5	21.23	0.88	C

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

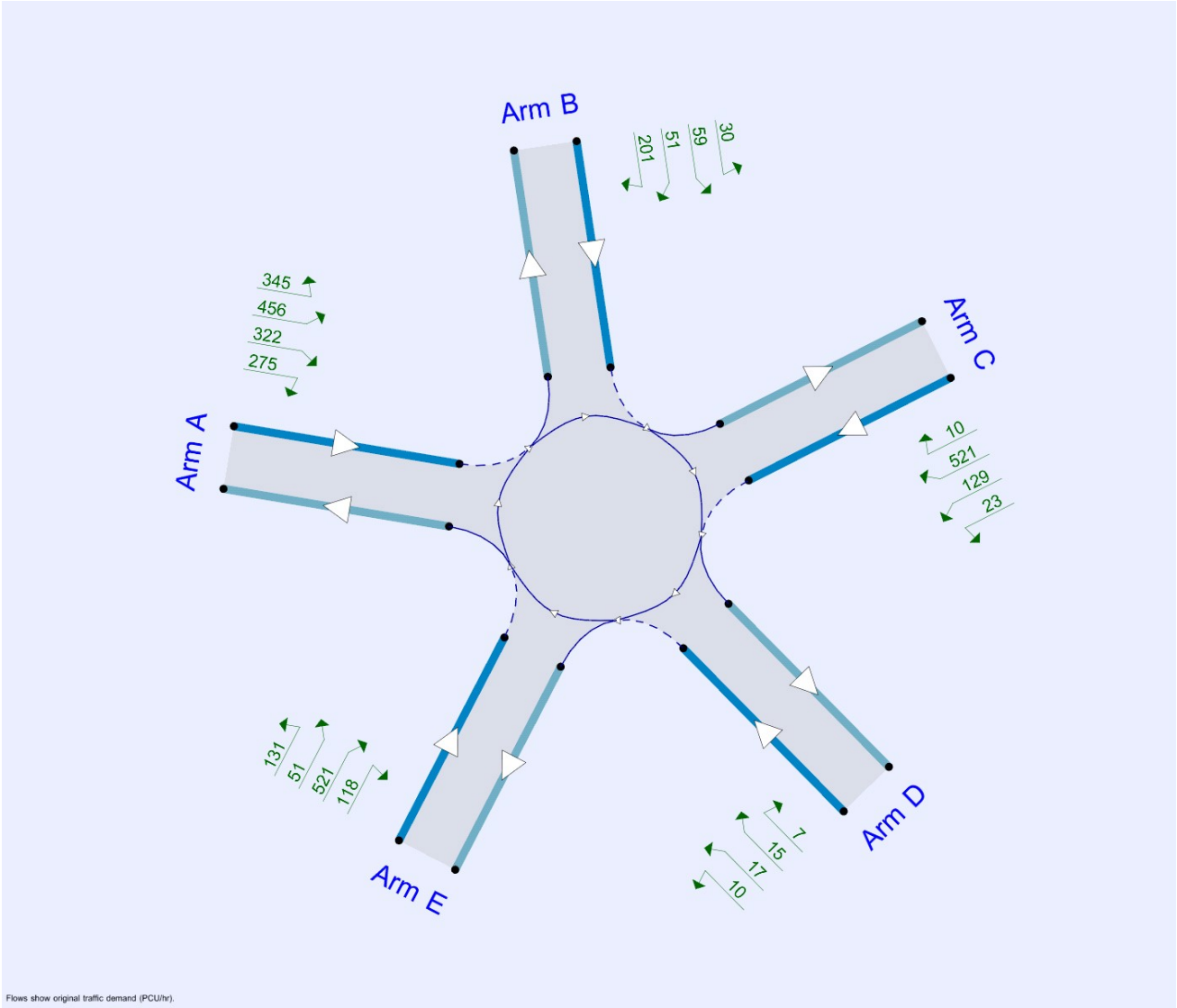
File summary

File Description

Title	
Location	
Site number	
Date	30/11/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ADSYSTRA\thodgson
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75						0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2019 Base	AM	ONE HOUR	07:45	09:15	15	✓
D2	2019 Base	PM	ONE HOUR	16:45	18:15	15	✓
D3	2039 Reference Case	AM	ONE HOUR	07:45	09:15	15	✓
D4	2039 Reference Case	PM	ONE HOUR	16:45	18:15	15	✓
D5	2039 Do Minimum	AM	ONE HOUR	07:45	09:15	15	✓
D6	2039 Do Minimum	PM	ONE HOUR	16:45	18:15	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Copthorne Roundabout	✓	100.000	100.000

Copthorne Roundabout - 2019 Base, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	10.18	B

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	10.18	B

Arms

Arms

Arm	Name	Description	No give-way line
A	A264 (W)		
B	Brookhill Road		
C	A264 (E)		
D	Copthorne Way (SE)		
E	A2220 (SW)		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
A	5.21	7.93	11.3	25.9	64.9	37.0		
B	3.79	7.84	22.8	23.3	64.9	47.0		
C	5.16	7.53	11.8	21.0	64.9	48.0		
D	5.76	6.64	0.5	10.7	64.9	44.0		
E	4.53	7.94	18.8	19.2	64.9	37.0		

Slope / Intercept / Capacity

Arm Intercept Adjustments

Arm	Type	Reason	Percentage intercept adjustment (%)
A	None		
B	None		
C	None		
D	Percentage		100.00
E	None		

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.579	2017
B	0.539	1831
C	0.545	1880
D	0.495	1623
E	0.569	1973

The slope and intercept shown above include any corrections and adjustments.

Arm Capacity Adjustments

Arm	Type	Reason	Percentage capacity adjustment (%)
A	Percentage		115.00
C	Percentage		130.00

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2019 Base	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1398	100.000
B		ONE HOUR	✓	340	100.000
C		ONE HOUR	✓	683	100.000
D		ONE HOUR	✓	49	100.000
E		ONE HOUR	✓	821	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		A	B	C	D	E
From	A	0	345	456	322	275
	B	201	0	30	59	51
	C	521	10	0	23	129
	D	17	15	7	0	10
	E	131	51	521	118	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To				
		A	B	C	D	E
From	A	0	12	17	11	4
	B	27	0	3	17	7
	C	8	7	0	6	4
	D	13	6	5	0	3
	E	0	8	1	4	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.86	15.71	6.4	C	1283	1925
B	0.46	9.59	1.0	A	312	468
C	0.46	4.33	0.9	A	627	940
D	0.06	4.20	0.1	A	45	68
E	0.61	6.25	1.6	A	753	1130

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1053	263	541	1959	0.537	1048	653	0.0	1.3	4.377	A
B	256	64	1274	1144	0.224	255	315	0.0	0.3	4.828	A
C	514	129	768	1900	0.271	513	760	0.0	0.4	2.784	A
D	37	9	890	1183	0.031	37	391	0.0	0.0	3.384	A
E	618	155	578	1644	0.376	616	348	0.0	0.6	3.551	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1257	314	647	1888	0.666	1253	781	1.3	2.2	6.288	A
B	306	76	1524	1009	0.303	305	377	0.3	0.5	6.100	A
C	614	154	920	1793	0.343	614	910	0.4	0.6	3.275	A
D	44	11	1065	1096	0.040	44	468	0.0	0.0	3.686	A
E	738	184	692	1579	0.467	737	417	0.6	0.9	4.344	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1540	385	792	1792	0.859	1524	956	2.2	6.1	14.207	B
B	375	94	1857	830	0.451	373	458	0.5	1.0	9.371	A
C	752	188	1120	1650	0.456	751	1110	0.6	0.9	4.290	A
D	54	14	1301	979	0.055	54	571	0.0	0.1	4.192	A
E	904	226	846	1491	0.606	901	508	0.9	1.5	6.182	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1540	385	794	1790	0.860	1538	958	6.1	6.4	15.713	C
B	375	94	1870	823	0.455	374	462	1.0	1.0	9.588	A
C	752	188	1128	1645	0.457	752	1116	0.9	0.9	4.330	A
D	54	14	1306	977	0.056	54	575	0.1	0.1	4.204	A
E	904	226	849	1490	0.607	904	512	1.5	1.6	6.248	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1257	314	651	1886	0.667	1274	785	6.4	2.3	6.725	A
B	306	76	1542	999	0.306	308	382	1.0	0.5	6.231	A
C	614	154	931	1785	0.344	616	919	0.9	0.6	3.311	A
D	44	11	1073	1092	0.041	44	474	0.1	0.0	3.700	A
E	738	184	695	1577	0.468	741	422	1.6	0.9	4.392	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1053	263	544	1957	0.538	1057	656	2.3	1.3	4.474	A
B	256	64	1283	1139	0.225	257	317	0.5	0.3	4.879	A
C	514	129	774	1896	0.271	515	766	0.6	0.4	2.802	A
D	37	9	895	1180	0.031	37	394	0.0	0.0	3.395	A
E	618	155	581	1642	0.376	619	351	0.9	0.6	3.587	A

Copthorne Roundabout - 2019 Base, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	6.46	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	6.46	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2019 Base	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1152	100.000
B		ONE HOUR	✓	549	100.000
C		ONE HOUR	✓	1127	100.000
D		ONE HOUR	✓	66	100.000
E		ONE HOUR	✓	577	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		A	B	C	D	E
From	A	0	223	702	189	38
	B	282	0	18	27	223
	C	625	13	0	30	459
	D	37	15	7	0	7
	E	99	113	239	127	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To				
		A	B	C	D	E
From	A	0	13	2	10	3
	B	7	0	4	12	2
	C	4	3	0	1	1
	D	0	0	0	0	0
	E	3	2	0	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.65	5.62	2.0	A	1057	1585
B	0.57	8.33	1.4	A	504	756
C	0.71	7.20	2.4	A	1034	1551
D	0.10	5.48	0.1	A	61	91
E	0.47	5.04	0.9	A	530	795

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	867	217	385	2063	0.420	864	782	0.0	0.8	3.156	A
B	414	103	976	1304	0.317	412	273	0.0	0.5	4.222	A
C	848	212	664	1974	0.430	845	725	0.0	0.8	3.269	A
D	50	12	1229	1014	0.049	50	279	0.0	0.1	3.731	A
E	435	109	734	1555	0.279	433	545	0.0	0.4	3.249	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1035	259	461	2012	0.515	1034	935	0.8	1.1	3.872	A
B	494	123	1169	1201	0.411	493	326	0.5	0.7	5.328	A
C	1013	253	794	1881	0.538	1011	867	0.8	1.2	4.243	A
D	60	15	1471	895	0.067	60	334	0.1	0.1	4.310	A
E	519	130	878	1473	0.352	518	653	0.4	0.5	3.821	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1268	317	564	1943	0.652	1265	1143	1.1	1.9	5.560	A
B	605	151	1429	1060	0.571	602	399	0.7	1.4	8.204	A
C	1240	310	971	1756	0.706	1235	1061	1.2	2.4	7.038	A
D	73	18	1798	733	0.100	73	409	0.1	0.1	5.450	A
E	636	159	1073	1362	0.467	634	798	0.5	0.9	5.005	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1268	317	565	1943	0.653	1268	1148	1.9	2.0	5.619	A
B	605	151	1433	1058	0.572	605	400	1.4	1.4	8.327	A
C	1240	310	974	1754	0.707	1240	1063	2.4	2.4	7.197	A
D	73	18	1805	730	0.100	73	410	0.1	0.1	5.481	A
E	636	159	1077	1360	0.467	636	801	0.9	0.9	5.039	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1035	259	463	2011	0.515	1039	941	2.0	1.1	3.914	A
B	494	123	1174	1198	0.412	496	328	1.4	0.7	5.405	A
C	1013	253	799	1878	0.539	1018	871	2.4	1.2	4.323	A
D	60	15	1481	890	0.067	60	336	0.1	0.1	4.338	A
E	519	130	884	1470	0.353	520	657	0.9	0.6	3.849	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	867	217	387	2061	0.421	868	786	1.1	0.8	3.185	A
B	414	103	981	1302	0.318	415	274	0.7	0.5	4.264	A
C	848	212	668	1971	0.430	850	728	1.2	0.8	3.303	A
D	50	12	1237	1011	0.049	50	281	0.1	0.1	3.746	A
E	435	109	738	1553	0.280	435	549	0.6	0.4	3.267	A

Copthorne Roundabout - 2039 Reference Case, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	50.42	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	50.42	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2039 Reference Case	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1463	100.000
B		ONE HOUR	✓	401	100.000
C		ONE HOUR	✓	625	100.000
D		ONE HOUR	✓	71	100.000
E		ONE HOUR	✓	1095	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		A	B	C	D	E
From	A	0	403	463	280	317
	B	190	0	27	58	126
	C	274	16	0	38	297
	D	20	21	10	0	19
	E	67	201	643	184	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To				
		A	B	C	D	E
From	A	0	12	18	15	3
	B	32	0	4	19	3
	C	12	7	0	4	2
	D	12	4	4	0	2
	E	5	2	1	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	1.05	113.72	55.8	F	1342	2014
B	0.60	14.16	1.7	B	368	552
C	0.44	4.34	0.8	A	574	860
D	0.08	4.28	0.1	A	65	97
E	0.74	8.41	2.8	A	1005	1507

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1101	275	806	1782	0.618	1094	413	0.0	1.8	5.819	A
B	302	76	1420	1065	0.284	300	480	0.0	0.5	5.522	A
C	471	118	864	1832	0.257	469	857	0.0	0.4	2.807	A
D	53	13	914	1171	0.046	53	419	0.0	0.1	3.408	A
E	824	206	398	1746	0.472	821	569	0.0	0.9	3.938	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1315	329	965	1676	0.785	1307	494	1.8	3.9	10.706	B
B	361	90	1698	915	0.394	359	574	0.5	0.8	7.601	A
C	562	140	1033	1712	0.328	561	1024	0.4	0.5	3.324	A
D	64	16	1093	1082	0.059	64	501	0.1	0.1	3.740	A
E	984	246	477	1701	0.579	982	680	0.9	1.4	5.074	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1611	403	1179	1533	1.050	1494	604	3.9	33.1	55.742	F
B	442	110	2000	753	0.587	438	673	0.8	1.6	13.324	B
C	688	172	1220	1580	0.435	687	1219	0.5	0.8	4.281	A
D	78	19	1314	973	0.080	78	593	0.1	0.1	4.257	A
E	1206	301	583	1641	0.735	1200	809	1.4	2.7	8.196	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1611	403	1184	1530	1.053	1520	606	33.1	55.8	113.722	F
B	442	110	2023	740	0.597	441	681	1.6	1.7	14.160	B
C	688	172	1234	1570	0.438	688	1231	0.8	0.8	4.341	A
D	78	19	1323	968	0.081	78	599	0.1	0.1	4.279	A
E	1206	301	585	1640	0.735	1205	816	2.7	2.8	8.407	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1315	329	972	1671	0.787	1520	497	55.8	4.6	48.884	E
B	361	90	1858	829	0.435	364	634	1.7	0.9	9.153	A
C	562	140	1125	1647	0.341	563	1096	0.8	0.6	3.534	A
D	64	16	1144	1057	0.060	64	544	0.1	0.1	3.839	A
E	984	246	480	1700	0.579	990	728	2.8	1.4	5.189	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1101	275	812	1778	0.619	1112	416	4.6	1.9	6.166	A
B	302	76	1438	1056	0.286	304	486	0.9	0.5	5.644	A
C	471	118	876	1824	0.258	471	866	0.6	0.4	2.831	A
D	53	13	923	1166	0.046	53	424	0.1	0.1	3.422	A
E	824	206	401	1744	0.473	826	575	1.4	0.9	3.993	A

Copthorne Roundabout - 2039 Reference Case, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	19.85	C

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	19.85	C

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2039 Reference Case	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1247	100.000
B		ONE HOUR	✓	802	100.000
C		ONE HOUR	✓	1191	100.000
D		ONE HOUR	✓	76	100.000
E		ONE HOUR	✓	760	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		A	B	C	D	E
From	A	0	201	812	167	67
	B	306	0	23	68	405
	C	747	12	0	29	403
	D	48	6	8	0	14
	E	102	182	336	140	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To				
		A	B	C	D	E
From	A	0	12	2	11	4
	B	6	0	3	4	2
	C	4	3	0	2	1
	D	0	0	0	0	0
	E	0	6	0	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.76	8.46	3.2	A	1144	1716
B	0.96	56.65	13.2	F	736	1104
C	0.84	15.03	5.2	C	1093	1639
D	0.15	7.38	0.2	A	70	105
E	0.66	8.48	1.9	A	697	1046

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	939	235	513	1978	0.475	935	901	0.0	0.9	3.601	A
B	604	151	1147	1212	0.498	600	301	0.0	1.0	6.045	A
C	897	224	863	1833	0.489	893	884	0.0	1.0	3.924	A
D	57	14	1453	904	0.063	57	303	0.0	0.1	4.250	A
E	572	143	844	1492	0.383	570	666	0.0	0.6	3.979	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1121	280	614	1910	0.587	1119	1078	0.9	1.5	4.749	A
B	721	180	1373	1091	0.661	717	360	1.0	2.0	9.879	A
C	1071	268	1032	1713	0.625	1068	1058	1.0	1.7	5.718	A
D	68	17	1738	763	0.090	68	362	0.1	0.1	5.183	A
E	683	171	1010	1398	0.489	682	796	0.6	1.0	5.128	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1373	343	750	1820	0.755	1366	1303	1.5	3.1	8.197	A
B	883	221	1677	927	0.953	849	439	2.0	10.4	37.956	E
C	1311	328	1235	1569	0.836	1299	1291	1.7	4.8	13.135	B
D	84	21	2094	587	0.143	83	440	0.1	0.2	7.150	A
E	837	209	1220	1279	0.654	833	957	1.0	1.9	8.191	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1373	343	753	1818	0.755	1373	1319	3.1	3.2	8.459	A
B	883	221	1684	923	0.957	872	441	10.4	13.2	56.652	F
C	1311	328	1258	1553	0.845	1310	1298	4.8	5.2	15.027	C
D	84	21	2124	572	0.146	84	444	0.2	0.2	7.377	A
E	837	209	1235	1270	0.659	837	972	1.9	1.9	8.484	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1121	280	618	1907	0.588	1128	1108	3.2	1.5	4.875	A
B	721	180	1383	1085	0.664	765	363	13.2	2.1	13.217	B
C	1071	268	1081	1678	0.638	1084	1067	5.2	1.8	6.377	A
D	68	17	1797	734	0.093	69	369	0.2	0.1	5.415	A
E	683	171	1039	1382	0.494	687	827	1.9	1.0	5.327	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	939	235	516	1975	0.475	941	910	1.5	1.0	3.653	A
B	604	151	1155	1208	0.500	608	303	2.1	1.0	6.255	A
C	897	224	873	1826	0.491	900	890	1.8	1.0	4.016	A
D	57	14	1468	896	0.064	57	305	0.1	0.1	4.292	A
E	572	143	852	1488	0.385	574	673	1.0	0.6	4.032	A

Copthorne Roundabout - 2039 Do Minimum, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	80.47	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	80.47	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2039 Do Minimum	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1415	100.000
B		ONE HOUR	✓	449	100.000
C		ONE HOUR	✓	664	100.000
D		ONE HOUR	✓	74	100.000
E		ONE HOUR	✓	1480	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		A	B	C	D	E
From	A	0	379	402	268	366
	B	190	0	27	57	174
	C	270	11	0	39	344
	D	21	21	10	0	22
	E	264	305	708	203	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To				
		A	B	C	D	E
From	A	0	12	18	15	3
	B	32	0	4	19	3
	C	12	7	0	4	2
	D	12	4	4	0	2
	E	5	2	1	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	1.10	165.93	80.9	F	1298	1947
B	0.67	17.00	2.3	C	412	617
C	0.48	4.87	1.0	A	609	913
D	0.09	4.63	0.1	A	68	102
E	0.99	55.69	24.8	F	1358	2037

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1065	266	942	1692	0.630	1058	557	0.0	1.9	6.267	A
B	338	84	1464	1042	0.324	335	536	0.0	0.6	5.890	A
C	500	125	941	1778	0.281	498	859	0.0	0.4	2.977	A
D	56	14	1015	1121	0.050	55	424	0.0	0.1	3.573	A
E	1114	279	392	1750	0.637	1107	678	0.0	1.8	5.653	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1272	318	1126	1569	0.811	1261	667	1.9	4.5	12.657	B
B	403	101	1748	889	0.454	402	640	0.6	0.9	8.537	A
C	596	149	1124	1648	0.362	596	1026	0.4	0.6	3.625	A
D	66	17	1213	1022	0.065	66	506	0.1	0.1	3.981	A
E	1330	333	469	1706	0.780	1324	811	1.8	3.5	9.439	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1558	389	1337	1428	1.091	1403	806	4.5	43.1	72.407	F
B	494	123	2005	750	0.659	489	735	0.9	2.1	15.719	C
C	731	183	1303	1521	0.480	729	1191	0.6	1.0	4.810	A
D	81	20	1446	907	0.090	81	586	0.1	0.1	4.610	A
E	1629	407	573	1647	0.990	1570	955	3.5	18.2	34.316	D

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1558	389	1364	1410	1.104	1407	814	43.1	80.9	165.927	F
B	494	123	2028	738	0.669	493	743	2.1	2.3	17.004	C
C	731	183	1313	1514	0.483	731	1208	1.0	1.0	4.871	A
D	81	20	1452	904	0.090	81	592	0.1	0.1	4.626	A
E	1629	407	575	1645	0.990	1603	958	18.2	24.8	55.690	F

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1272	318	1201	1519	0.837	1499	686	80.9	24.2	129.899	F
B	403	101	1977	765	0.527	407	722	2.3	1.3	11.772	B
C	596	149	1247	1560	0.382	598	1137	1.0	0.7	3.969	A
D	66	17	1281	989	0.067	67	564	0.1	0.1	4.127	A
E	1330	333	472	1704	0.781	1414	875	24.8	3.8	16.111	C

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1065	266	954	1683	0.633	1154	563	24.2	2.0	8.945	A
B	338	84	1544	999	0.338	341	565	1.3	0.6	6.368	A
C	500	125	991	1742	0.287	500	894	0.7	0.4	3.076	A
D	56	14	1046	1105	0.050	56	445	0.1	0.1	3.629	A
E	1114	279	395	1748	0.638	1122	707	3.8	1.8	5.941	A

Copthorne Roundabout - 2039 Do Minimum, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	81.95	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	81.95	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2039 Do Minimum	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1305	100.000
B		ONE HOUR	✓	927	100.000
C		ONE HOUR	✓	1129	100.000
D		ONE HOUR	✓	80	100.000
E		ONE HOUR	✓	1059	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		A	B	C	D	E
From	A	0	192	781	162	169
	B	345	0	25	89	468
	C	670	12	0	20	427
	D	40	14	9	0	17
	E	265	214	446	134	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To				
		A	B	C	D	E
From	A	0	12	2	11	4
	B	6	0	3	4	2
	C	4	3	0	2	1
	D	0	0	0	0	0
	E	0	6	0	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.84	13.51	5.2	B	1197	1796
B	1.24	337.54	103.5	F	850	1276
C	0.82	13.48	4.5	B	1036	1554
D	0.15	7.46	0.2	A	73	110
E	0.88	21.23	6.5	C	972	1458

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	982	246	621	1905	0.516	978	988	0.0	1.1	4.035	A
B	698	174	1275	1144	0.610	691	324	0.0	1.6	8.132	A
C	850	212	1022	1720	0.494	846	944	0.0	1.0	4.214	A
D	60	15	1564	849	0.071	60	304	0.0	0.1	4.564	A
E	797	199	816	1509	0.529	793	808	0.0	1.1	5.090	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1173	293	743	1824	0.643	1170	1179	1.1	1.9	5.730	A
B	833	208	1525	1009	0.826	822	388	1.6	4.4	18.915	C
C	1015	254	1217	1582	0.642	1012	1130	1.0	1.8	6.453	A
D	72	18	1866	699	0.103	72	363	0.1	0.1	5.735	A
E	952	238	974	1419	0.671	949	964	1.1	2.0	7.734	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1437	359	901	1719	0.836	1425	1369	1.9	4.9	12.308	B
B	1020	255	1854	831	1.227	823	471	4.4	53.8	140.454	F
C	1243	311	1308	1517	0.819	1233	1368	1.8	4.3	12.585	B
D	88	22	2117	575	0.153	88	424	0.1	0.2	7.387	A
E	1166	292	1120	1335	0.873	1150	1085	2.0	6.0	18.379	C

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1437	359	912	1712	0.839	1436	1378	4.9	5.2	13.514	B
B	1020	255	1871	822	1.241	821	476	53.8	103.5	337.544	F
C	1243	311	1312	1515	0.820	1242	1381	4.3	4.5	13.477	B
D	88	22	2127	570	0.155	88	427	0.2	0.2	7.464	A
E	1166	292	1126	1332	0.875	1164	1089	6.0	6.5	21.233	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1173	293	758	1814	0.647	1186	1252	5.2	1.9	6.116	A
B	833	208	1550	995	0.837	986	395	103.5	65.4	305.483	F
C	1015	254	1383	1464	0.693	1023	1152	4.5	2.4	8.549	A
D	72	18	2023	622	0.116	72	383	0.2	0.1	6.556	A
E	952	238	1042	1380	0.690	969	1054	6.5	2.3	9.258	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	982	246	628	1901	0.517	986	1092	1.9	1.1	4.128	A
B	698	174	1286	1138	0.613	953	327	65.4	1.7	60.662	F
C	850	212	1279	1538	0.553	854	960	2.4	1.3	5.448	A
D	60	15	1802	731	0.082	60	331	0.1	0.1	5.372	A
E	797	199	918	1450	0.550	802	945	2.3	1.3	5.687	A

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Copthorne Common Mitigation.j10
Path: \\Londonfile\ProjectData\## Mid Sussex LP\5. Technical\5. Modelling\Copthorne Common Roundabout
Report generation date: 20/12/2023 11:24:09

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2039 DM									
Arm A	D1	31.3	70.35	1.01	F	D2	3.5	8.89	0.77	A
Arm B		1.5	11.01	0.57	B		25.5	87.70	1.01	F
Arm C		1.0	5.04	0.49	A		7.1	21.81	0.89	C
Arm D		0.1	4.70	0.09	A		0.2	8.72	0.18	A
Arm E		24.9	55.82	0.99	F		7.8	25.47	0.90	D

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

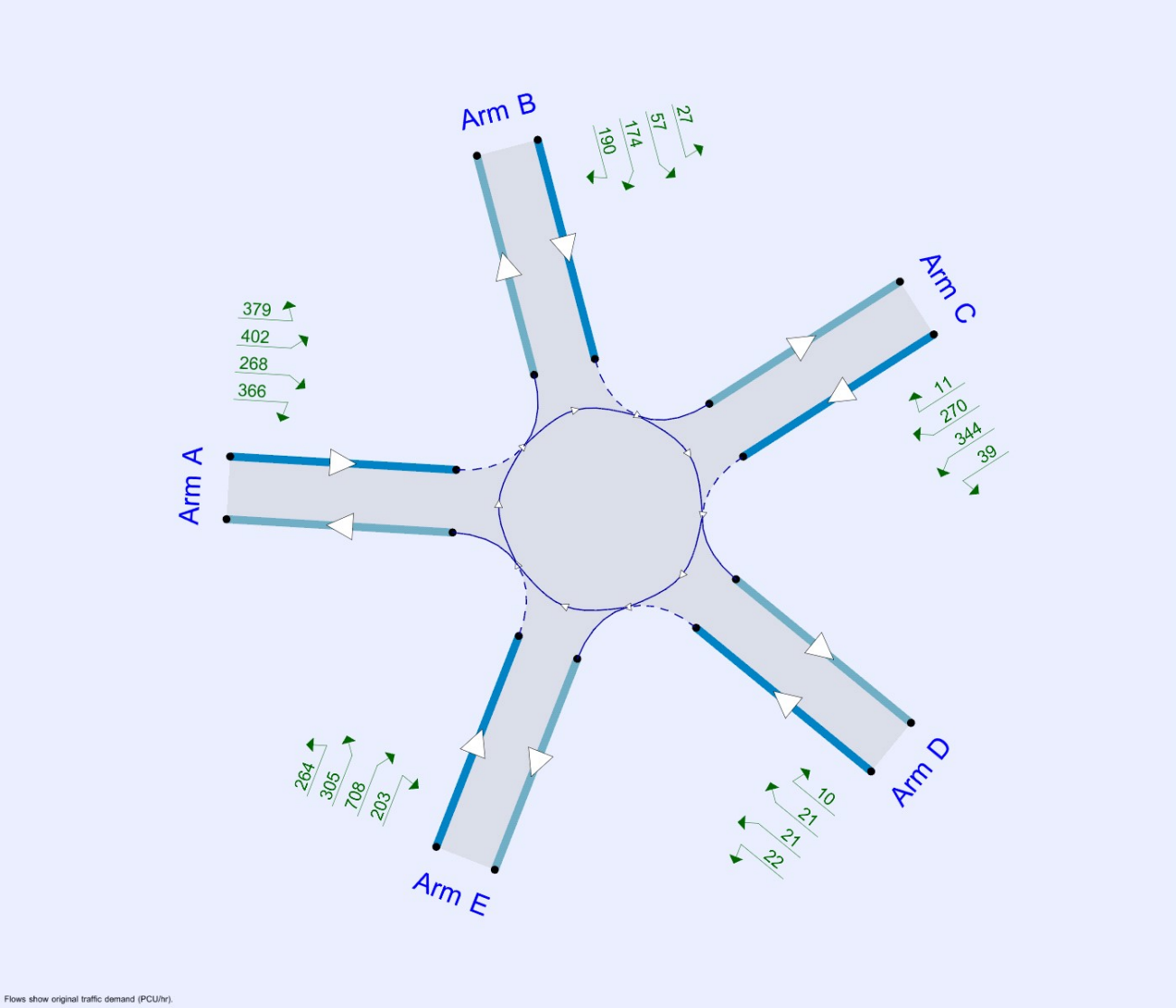
File summary

File Description

Title	
Location	
Site number	
Date	15/12/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ADSYSTRA\thodgson
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75						0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2039 DM	AM	ONE HOUR	07:45	09:15	15	✓
D2	2039 DM	PM	ONE HOUR	16:45	18:15	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2039 DM, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	46.75	E

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	46.75	E

Arms

Arms

Arm	Name	Description	No give-way line
A	A264 W		
B	Brookhill Road		
C	Copthorne Common Rd		
D	Copthorne Way SE		
E	A2220 SW		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
A	6.10	8.14	8.1	27.3	64.9	37.0		
B	4.95	8.42	26.8	16.1	64.9	47.0		
C	5.16	7.53	11.8	21.0	64.9	48.0		
D	5.76	6.64	0.5	10.7	64.9	44.0		
E	4.53	7.94	18.8	19.2	64.9	37.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.604	2166
B	0.576	2084
C	0.545	1880
D	0.495	1623
E	0.569	1973

The slope and intercept shown above include any corrections and adjustments.

Arm Capacity Adjustments

Arm	Type	Reason	Percentage capacity adjustment (%)
A	Percentage		115.00
C	Percentage		130.00

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2039 DM	AM	ONE HOUR	07:45	09:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1415	100.000
B		ONE HOUR	✓	448	100.000
C		ONE HOUR	✓	664	100.000
D		ONE HOUR	✓	74	100.000
E		ONE HOUR	✓	1480	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		A	B	C	D	E
From	A	0	379	402	268	366
	B	190	0	27	57	174
	C	270	11	0	39	344
	D	21	21	10	0	22
	E	264	305	708	203	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To				
		A	B	C	D	E
From	A	0	12	18	15	3
	B	32	0	4	19	3
	C	12	7	0	4	0
	D	12	4	4	0	2
	E	5	2	1	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	1.01	70.35	31.3	F	1298	1948
B	0.57	11.01	1.5	B	411	617
C	0.49	5.04	1.0	A	609	914
D	0.09	4.70	0.1	A	68	102
E	0.99	55.82	24.9	F	1358	2037

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1065	266	941	1836	0.580	1059	558	0.0	1.5	5.132	A
B	337	84	1465	1240	0.272	336	536	0.0	0.4	4.600	A
C	500	125	942	1777	0.281	498	858	0.0	0.4	2.950	A
D	56	14	1016	1120	0.050	55	424	0.0	0.1	3.567	A
E	1114	279	392	1750	0.637	1107	679	0.0	1.8	5.658	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1272	318	1125	1708	0.745	1266	668	1.5	3.1	8.946	A
B	403	101	1750	1076	0.374	402	641	0.4	0.7	6.179	A
C	597	149	1126	1646	0.363	596	1026	0.4	0.6	3.595	A
D	67	17	1215	1022	0.065	66	507	0.1	0.1	3.977	A
E	1330	333	469	1706	0.780	1324	812	1.8	3.5	9.449	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1558	389	1336	1562	0.998	1490	808	3.1	20.1	38.675	E
B	493	123	2068	893	0.553	490	758	0.7	1.4	10.298	B
C	731	183	1344	1492	0.490	729	1215	0.6	1.0	4.943	A
D	81	20	1470	895	0.091	81	603	0.1	0.1	4.668	A
E	1630	407	574	1646	0.990	1570	978	3.5	18.3	34.405	D

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1558	389	1363	1543	1.010	1513	815	20.1	31.3	70.348	F
B	493	123	2106	871	0.566	493	771	1.4	1.5	11.014	B
C	731	183	1361	1480	0.494	731	1238	1.0	1.0	5.044	A
D	81	20	1480	890	0.092	81	612	0.1	0.1	4.695	A
E	1630	407	576	1645	0.990	1603	986	18.3	24.9	55.818	F

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1272	318	1200	1656	0.768	1382	687	31.3	3.9	20.177	C
B	403	101	1891	995	0.405	405	690	1.5	0.8	7.110	A
C	597	149	1194	1598	0.374	598	1103	1.0	0.6	3.786	A
D	67	17	1250	1004	0.066	67	542	0.1	0.1	4.053	A
E	1330	333	472	1704	0.781	1415	845	24.9	3.8	16.135	C

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1065	266	954	1828	0.583	1075	563	3.9	1.6	5.401	A
B	337	84	1485	1229	0.275	339	543	0.8	0.4	4.693	A
C	500	125	954	1768	0.283	501	870	0.6	0.4	2.980	A
D	56	14	1025	1116	0.050	56	430	0.1	0.1	3.583	A
E	1114	279	395	1748	0.637	1122	686	3.8	1.8	5.945	A

2039 DM, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	32.27	D

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	32.27	D

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2039 DM	PM	ONE HOUR	16:45	18:15	15	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1304	100.000
B		ONE HOUR	✓	927	100.000
C		ONE HOUR	✓	1129	100.000
D		ONE HOUR	✓	80	100.000
E		ONE HOUR	✓	1059	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		A	B	C	D	E
From	A	0	192	781	162	169
	B	345	0	25	89	468
	C	670	12	0	20	427
	D	40	14	9	0	17
	E	265	214	446	134	0

Vehicle Mix

HV data entry mode	PCU Factor for a HV (PCU)
HV Percentages	2.00

Heavy Vehicle %

		To				
		A	B	C	D	E
From	A	0	12	2	11	4
	B	6	0	3	4	2
	C	4	3	0	2	1
	D	0	0	0	0	0
	E	0	6	0	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.77	8.89	3.5	A	1197	1795
B	1.01	87.70	25.5	F	851	1276
C	0.89	21.81	7.1	C	1036	1554
D	0.18	8.72	0.2	A	73	110
E	0.90	25.47	7.8	D	972	1458

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	982	245	621	2059	0.477	978	988	0.0	0.9	3.475	A
B	698	174	1275	1350	0.517	694	324	0.0	1.1	5.652	A
C	850	212	1023	1719	0.494	846	945	0.0	1.0	4.219	A
D	60	15	1566	848	0.071	60	303	0.0	0.1	4.569	A
E	797	199	816	1508	0.529	793	810	0.0	1.1	5.077	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1172	293	742	1975	0.594	1170	1182	0.9	1.5	4.671	A
B	833	208	1525	1205	0.691	829	387	1.1	2.2	9.789	A
C	1015	254	1223	1577	0.643	1012	1131	1.0	1.8	6.504	A
D	72	18	1872	696	0.103	72	363	0.1	0.1	5.762	A
E	952	238	976	1417	0.672	948	968	1.1	2.0	7.733	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1436	359	898	1866	0.769	1428	1416	1.5	3.4	8.463	A
B	1021	255	1856	1015	1.006	963	470	2.2	16.7	48.399	E
C	1243	311	1445	1421	0.875	1226	1374	1.8	6.2	17.587	C
D	88	22	2233	518	0.170	88	437	0.1	0.2	8.368	A
E	1166	291	1168	1308	0.891	1147	1153	2.0	6.8	20.546	C

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1436	359	910	1858	0.773	1435	1437	3.4	3.5	8.890	A
B	1021	255	1870	1007	1.014	985	475	16.7	25.5	87.695	F
C	1243	311	1470	1403	0.886	1239	1386	6.2	7.1	21.810	C
D	88	22	2268	501	0.176	88	442	0.2	0.2	8.724	A
E	1166	291	1185	1299	0.898	1162	1171	6.8	7.8	25.475	D

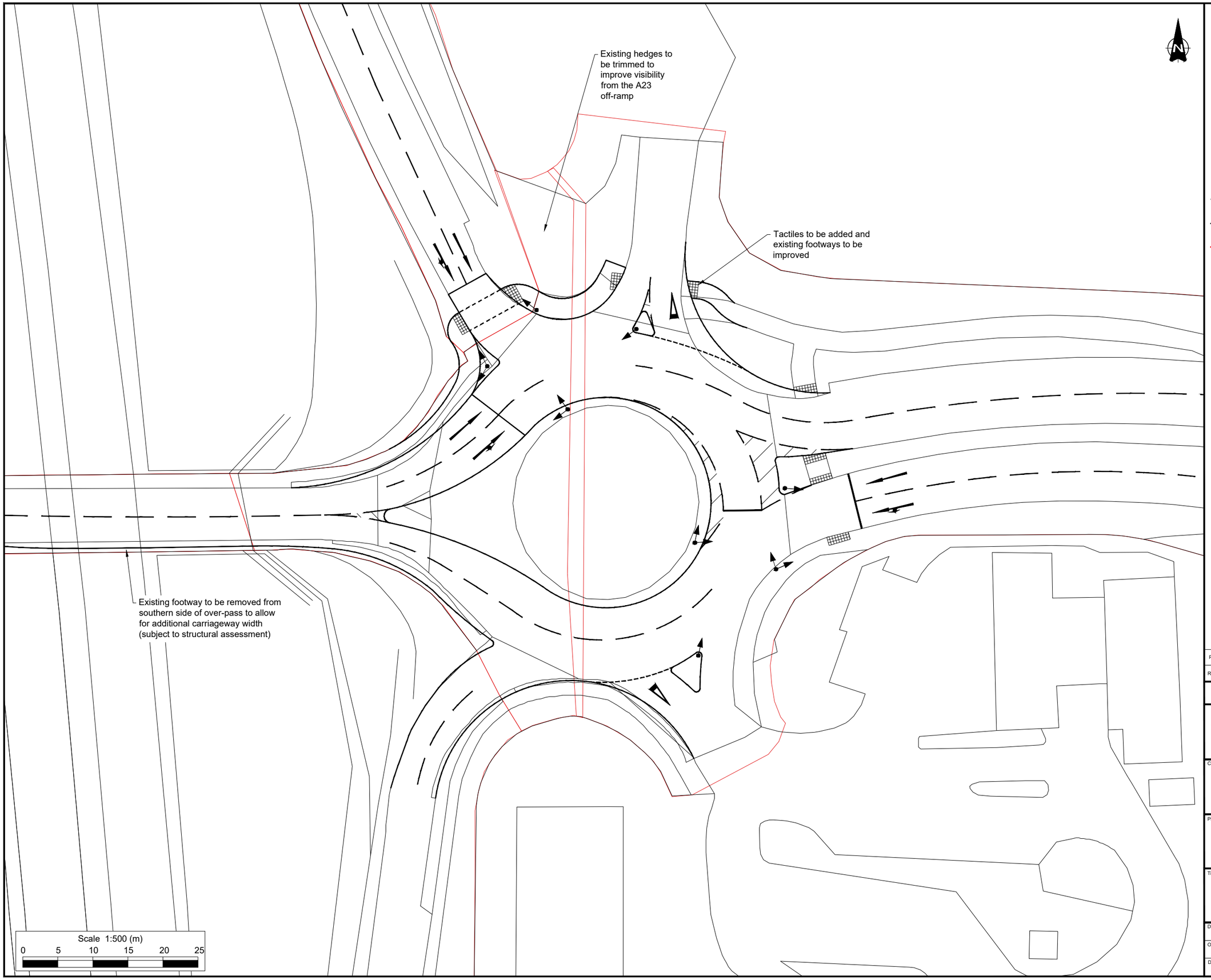
17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	1172	293	762	1961	0.598	1180	1238	3.5	1.6	4.870	A
B	833	208	1548	1193	0.699	925	394	25.5	2.5	18.971	C
C	1015	254	1323	1507	0.674	1035	1150	7.1	2.2	8.153	A
D	72	18	1981	642	0.112	72	377	0.2	0.1	6.316	A
E	952	238	1026	1389	0.685	974	1027	7.8	2.3	9.249	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A	982	245	628	2054	0.478	984	1000	1.6	1.0	3.531	A
B	698	174	1285	1344	0.519	703	327	2.5	1.1	5.879	A
C	850	212	1036	1710	0.497	855	953	2.2	1.0	4.348	A
D	60	15	1584	839	0.072	60	306	0.1	0.1	4.624	A
E	797	199	826	1503	0.530	802	819	2.3	1.2	5.246	A

Appendix C – Hickstead Interchange and Copthorne Roundabout Mitigations



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Key:

- OS survey
- Proposed Road Markings
- Highway Boundary

Rev	Date	Revision details	Drawn	Check.	Review	Approv
P0	20/12/23	Initial issue	BG	CS	NL	NL

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Client

Mid Sussex District Council

Project

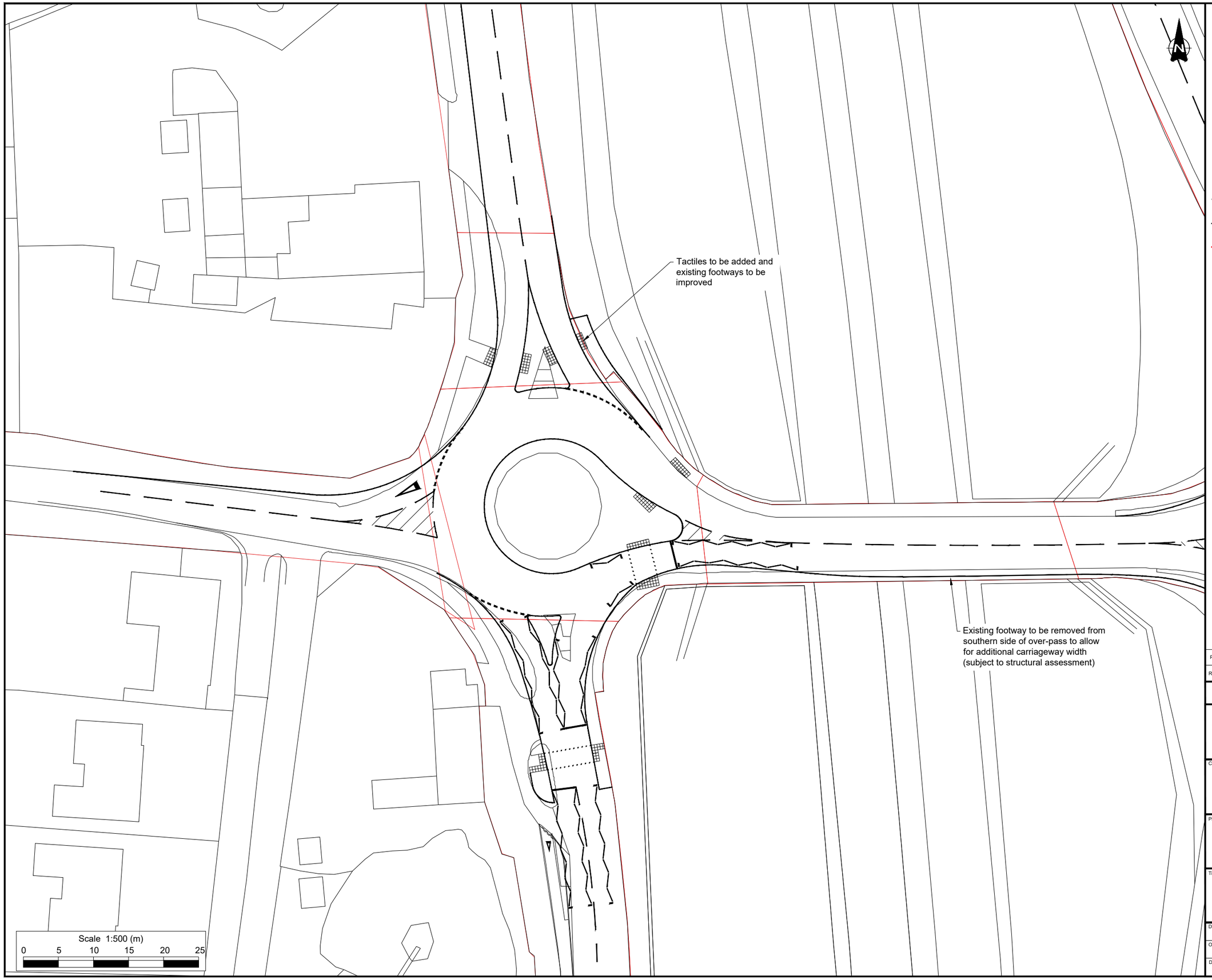
Mid Sussex Local Strategic Transport Plan

Title

Junction 1 - Hickstead Eastern Junction

Drawn	Checked	Reviewed	Approved
BG	CS	NL	NL
Original drg. size	**Date**	**Scale**	**Drawing Status**
A3	20/12/2023	1:500	Preliminary

Drawing Number: GB01T23G40-dwg-100-02 Rev. P0



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Key:

- OS survey
- Proposed Road Markings
- Highway Boundary

Rev	Date	Revision details	Drawn	Check.	Review	Approv
P0	20/12/23	Initial issue	BG	CS	NL	NL

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Client

Mid Sussex District Council

Project

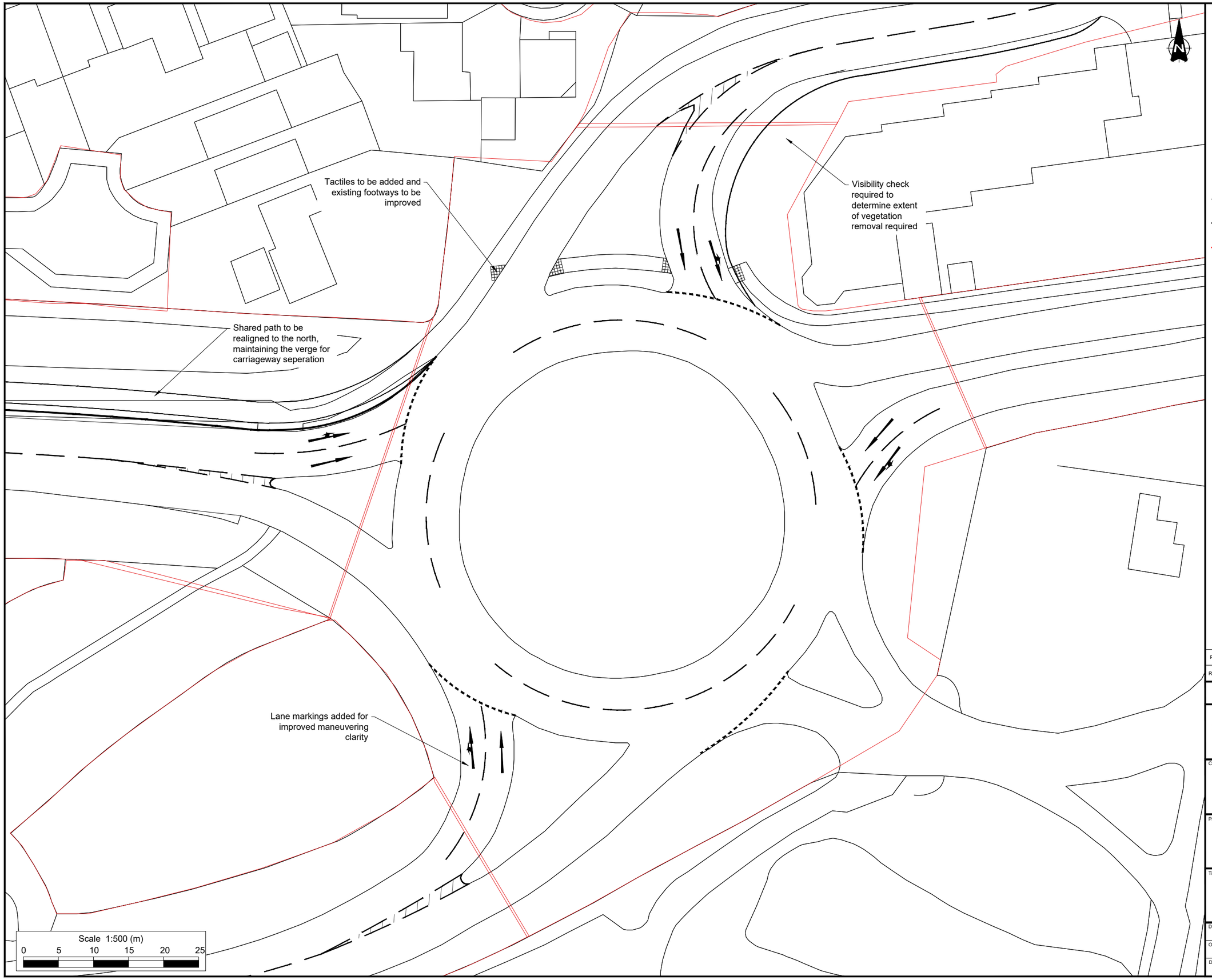
Mid Sussex Local Strategic Transport Plan

Title

Junction 1 - Hickstead Western Junction

Drawn	Checked	Reviewed	Approved
BG	CS	NL	NL
Original drg. size	**Date**	**Scale**	**Drawing Status**
A3	20/12/2023	1:500	Preliminary

Drawing Number: GB01T23G40-dwg-100-01 Rev: P0



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Key:

- OS survey
- Proposed Road Markings
- Highway Boundary

Rev	Date	Revision details	Drawn	Check.	Review	Approv
P0	20/12/23	Initial issue	BG	CS	NL	NL

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Client

Mid Sussex District Council

Project

Mid Sussex Local Strategic Transport Plan

Title

Junction 2 - Copthorne

Drawn	Checked	Reviewed	Approved
BG	CS	NL	NL
Original drg. size	**Date**	**Scale**	**Drawing Status**
A3	20/12/2023	1:500	Preliminary

Drawing Number: GB01T23G40-dwg-100-03 Rev: P0

Appendix D – Safety Study Mitigations

Notes:

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Key:

- OS mapping
- Highway boundary
- Existing road markings
- Proposed road markings
- Proposed road sign

3.70
1.39
Hatching added to reduce lane width to single lane
3.73
3.11
Consideration should be given to reviewing mainline and slip road drainage and improving it where needed
2.91
3.70
Hazard signs introduced at 245m from the roundabout give way
Speed limit terminals moved 160m ahead of the roundabout give way
3.7
3.02
1:30 taper

London Road
A23
Crossways
Cowfold Road
Bolney Road

Scale 1:1000 (m)
0 10 20 30 40 50

Rev	Date	Revision details	Drawn	Check.	Review	Approv
P0	14/08/24	Initial issue	MIE	ARM	ARM	DM

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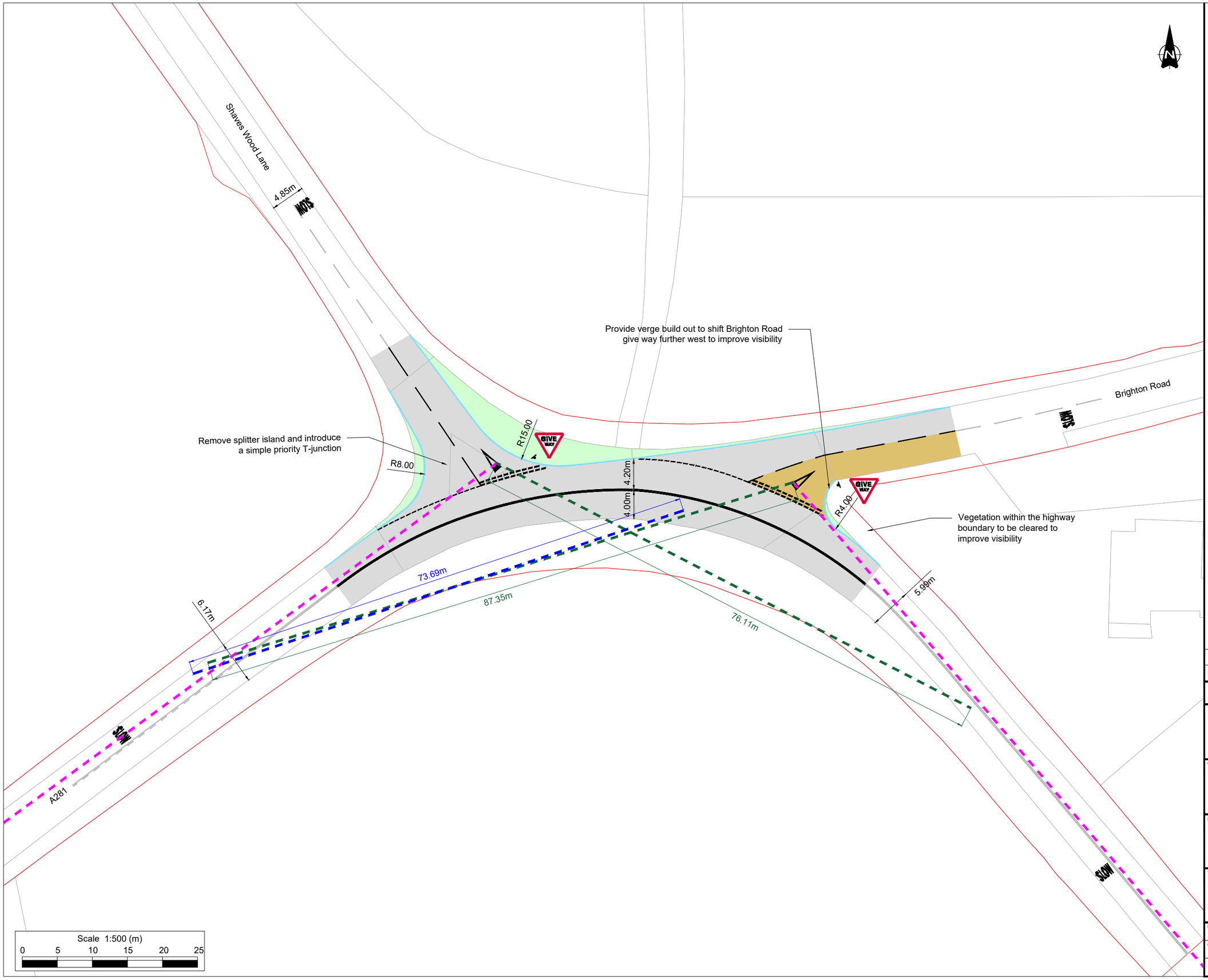
Client
Mid-Sussex District Council

Project
Mid-Sussex Safety Study

Title
A23 Bolney Junction - Southbound off-slip

Drawn	Checked	Reviewed	Approved
MIE	ARM	ARM	DM
Original drg. size	Date	Scale	Drawing Status
A1	14/08/2024	1:1000	Preliminary
Drawing Number			Rev.
GB01T24C55-SYS-XX-XX-DR-D-002			P0



Notes:

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Key:

- OS Mapping
- Highway Boundary
- Existing road marking
- Proposed road markings
- Proposed kerbs
- Proposed verge
- Proposed carriageway resurfacing
- Junction visibility splay (2.4m x 215m - DMRB SSD for 60mph)
- Achieved junction visibility splay not to DMRB standards for 60mph - see drawing for exact achievable visibility
- Achieved forward visibility for northbound traffic wishing to turn right into Brighton Road
- Proposed road sign
- Proposed Anti-skid surface as per existing

Rev	Date	Revision details	Drawn	Check	Review	Approv
P0	19/08/24	Initial issue	KJS	ARM	ARM	DM

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Client: **Mid-Sussex District Council**

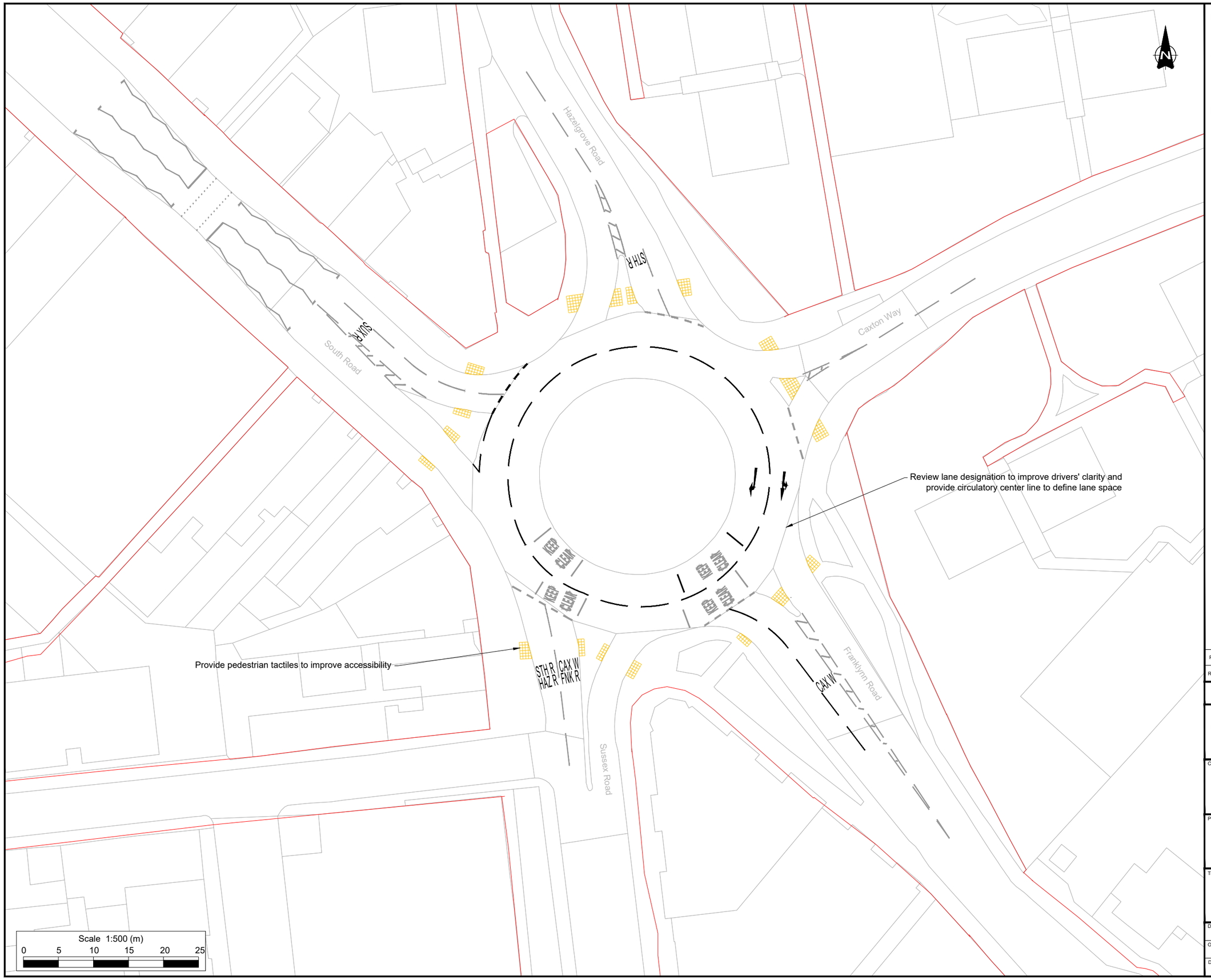
Project: **Mid-Sussex Safety Study**

Title: **A281/B2117/Shaves Wood Lane**

Drawn	Checked	Reviewed	Approved
KJS	ARM	ARM	DM

Original drg. size	Date	Scale	Drawing Status
A3	19/08/24	1:500	Preliminary

Drawing Number	Rev.
GB01T24C55-SYS-XX-XX-DR-D-003	P0



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Key:

- OS mapping
- Highway boundary
- Existing road markings
- Proposed road markings
- Proposed uncontrolled tactiles

Rev	Date	Revision details	Drawn	Check.	Review	Approv
P0	14/08/24	Initial issue	MIE	ARM	ARM	DM

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Client: **Mid-Sussex District Council**

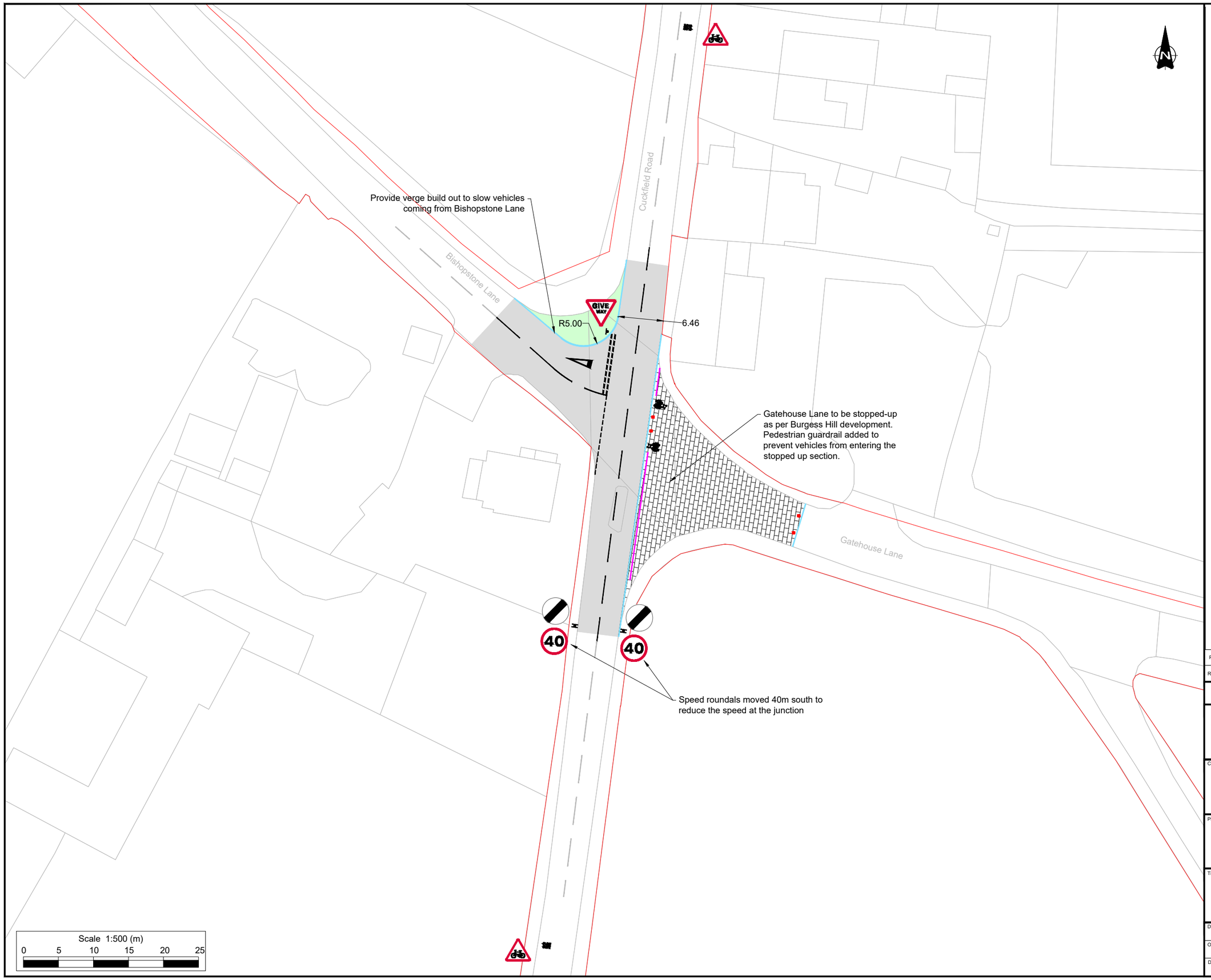
Project: **Mid-Sussex Safety Study**

Title: **Sussex Road / South Road Roundabout**

Drawn	Checked	Reviewed	Approved
MIE	ARM	ARM	DM

Original drg. size	Date	Scale	Drawing Status
A3	14/08/2024	1:500	Preliminary

Drawing Number: GB01T24C55-SYS-XX-XX-DR-D-004 Rev. P0



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Key:

- OS mapping
- Highway boundary
- Existing road markings
- Proposed road markings
- Proposed road sign
- Proposed kerbs
- Proposed stopped up road
- Proposed verge
- Proposed carriageway resurfacing
- Proposed pedestrian guardrail
- Proposed bollard

Rev	Date	Revision details	Drawn	Check.	Review	Approv
P0	14/08/24	Initial issue	MIE	ARM	ARM	DM

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Client: **Mid-Sussex District Council**

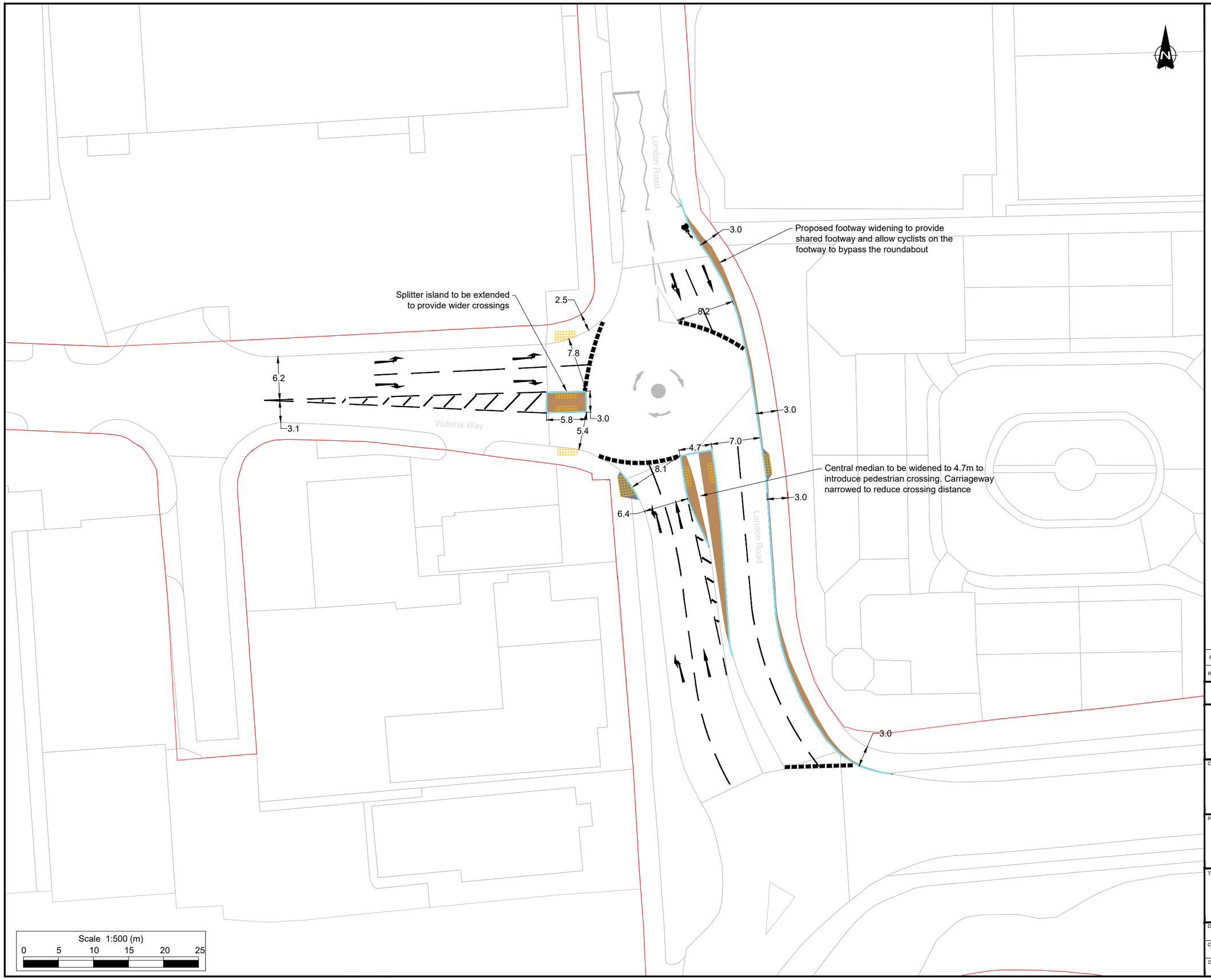
Project: **Mid-Sussex Safety Study**

Title: **Bishopstoke Lane / Cuckfield Road Junction**

Drawn	Checked	Reviewed	Approved
MIE	ARM	ARM	DM

Original drg. size	Date	Scale	Drawing Status
A3	14/08/2024	1:500	Preliminary

Drawing Number: GB01T24C55-SYS-XX-XX-DR-D-001 Rev. P0



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Key:

- OS mapping
- Highway boundary
- Existing road markings
- Proposed road markings
- Proposed kerbs
- Proposed uncontrolled tactiles
- Proposed footway build out
- Proposed footway resurfacing

Rev	Date	Revision details	Drawn	Check.	Review	Approv
P0	14/08/24	Initial issue	MIE	ARM	ARM	DM

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Client: **Mid-Sussex District Council**

Project: **Mid-Sussex Safety Study**

Title: **Victoria Way / London Road Roundabout**

Drawn	Checked	Reviewed	Approved
MIE	ARM	ARM	DM

Original drg. size	Date	Scale	Drawing Status
A3	14/08/2024	1:500	Preliminary

Drawing Number: GB01T24C55-SYS-XX-XX-DR-D-005 Rev. P0

Appendix E – Merge Diverge Mitigations

Notes:

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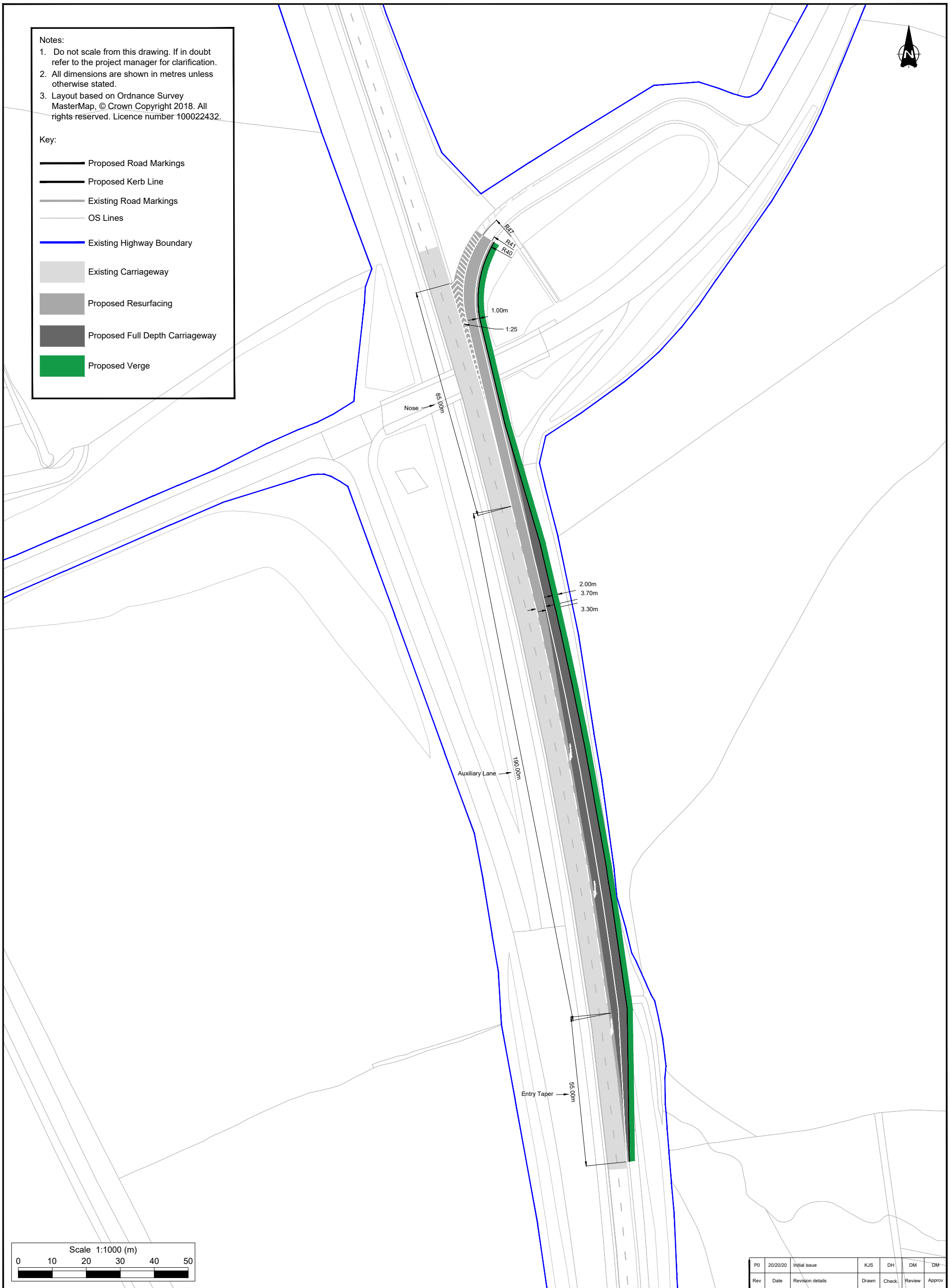
Key:

- Proposed Road Markings
- Proposed Kerb Line
- Existing Road Markings
- OS Lines
- Existing Highway Boundary
- Existing Carriageway
- Proposed Resurfacing
- Proposed Full Depth Carriageway
- Proposed Verge



Scale 1:1000 (m)

0 10 20 30 40 50

Rev	Date	Revision details	Drawn	Check	Review	Approv
P0	20/20/20	Initial issue	KJS	DH	DM	DM

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Client: **Mid-Sussex District Council**

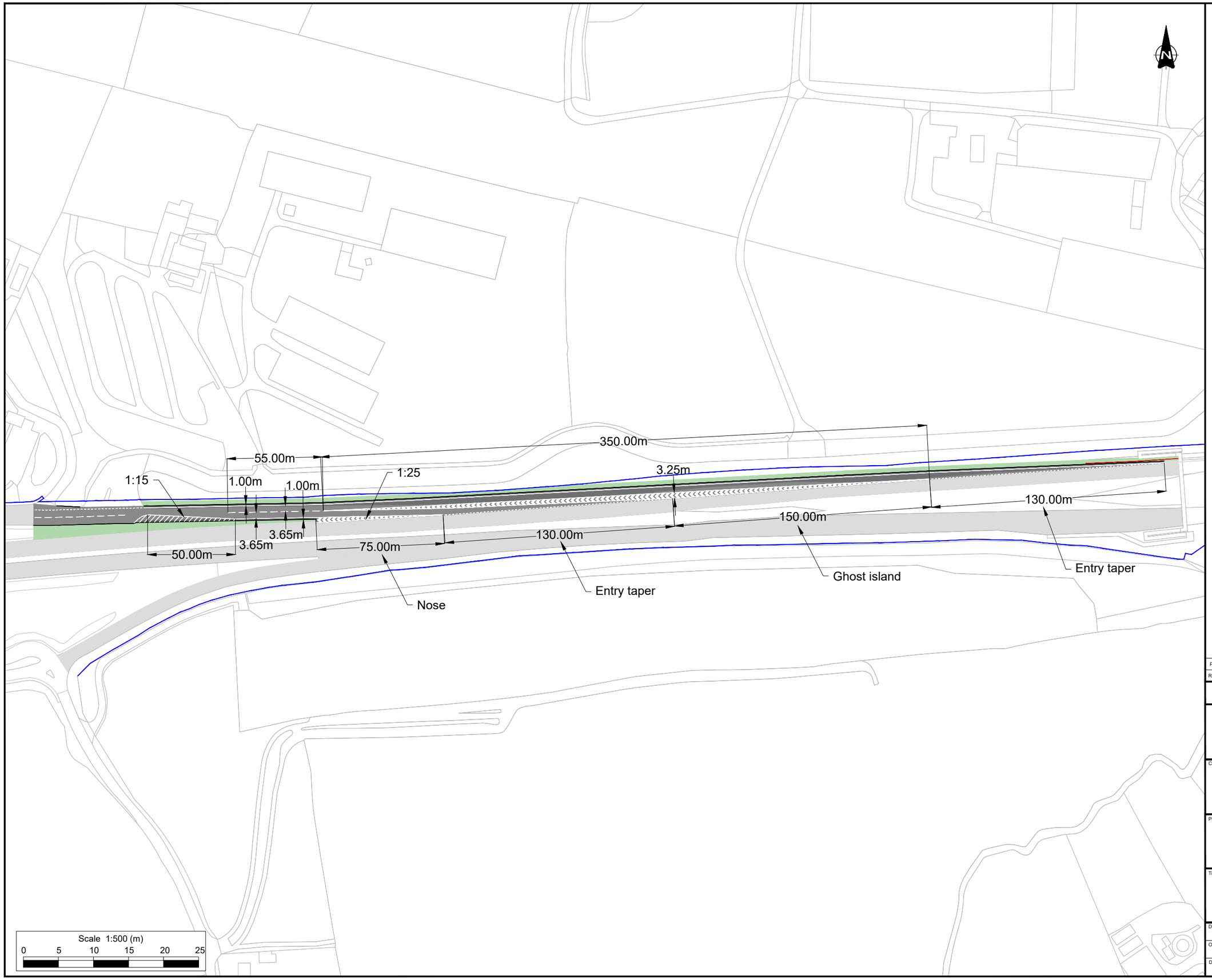
Project: **Mid Sussex**

Title: **A23 B2117 Proposed Arrangement**

Drawn	Checked	Reviewed	Approved
KJS	DH	DM	DM

Original drg. size	Date of Issue	Scale	Drawing Status
A3	20/08/24	1:1000	Preliminary

Drawing Number	Rev.
GB01T24C55-SYS-XX-XX-DR-D-006	P0



Notes:

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Key:

- OS mapping
- Existing road markings
- Existing carriageway
- Highway boundary
- Proposed kerb
- Proposed carriageway resurfacing
- Proposed carriageway full depth
- Proposed road markings
- Proposed verge
- Proposed VRS

Rev	Date	Revision details	Drawn	Check.	Review	Approv
P0	20/08/24	Initial issue	DH	DM	-	DM

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Client

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Project

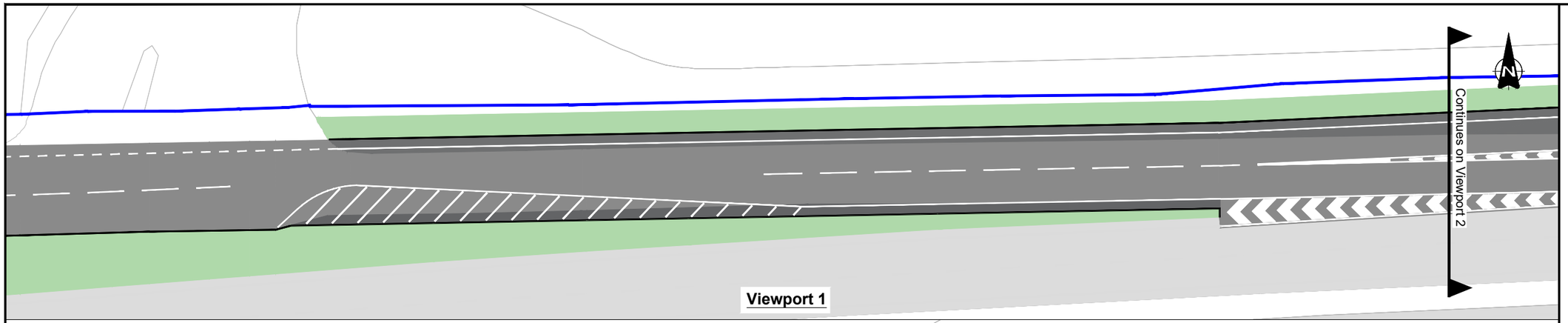
Mid Sussex

Title

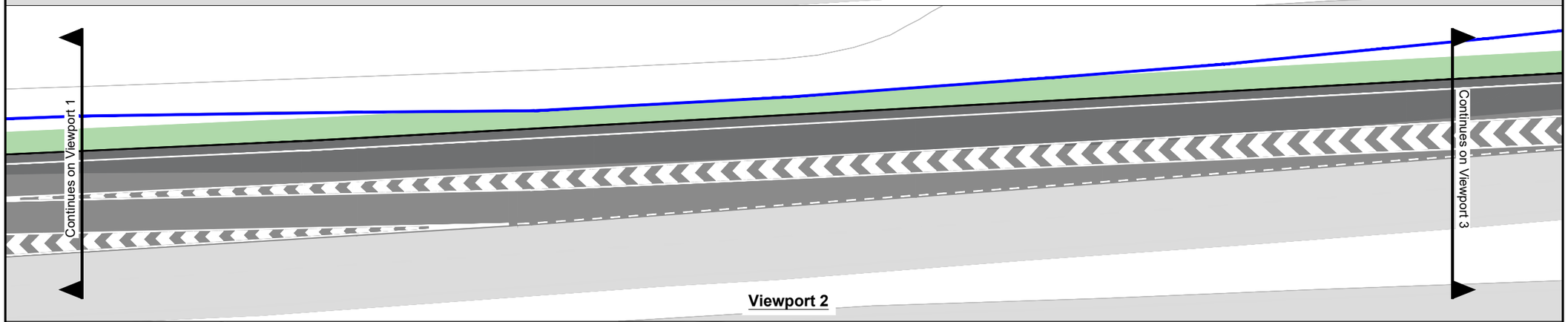
A23 B2118 Proposed Arrangement Overview

Drawn	Checked	Reviewed	Approved
DH	DM	-	DM
Original drg. size	Date	Scale	Drawing Status
A3	20/08/2024	1:500	Preliminary

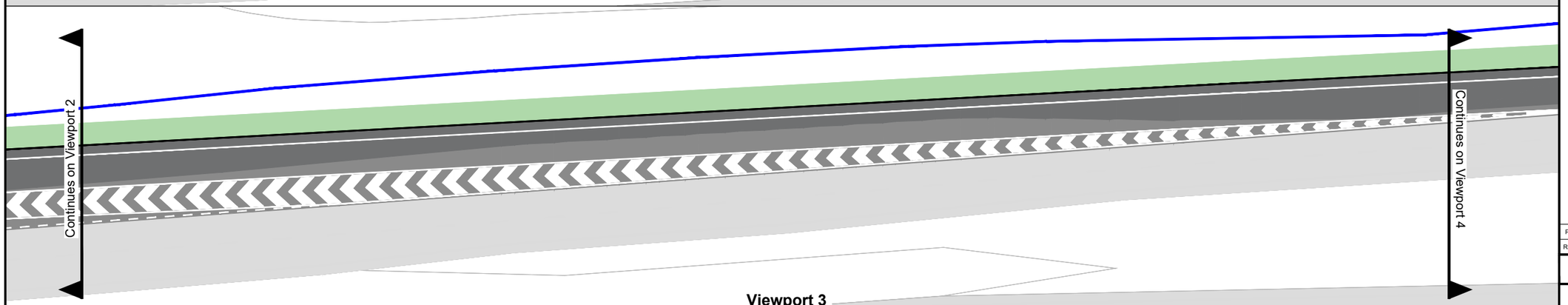
Drawing Number: GB01T24C55-SYS-XX-XX-DR-D-007 Rev. P0



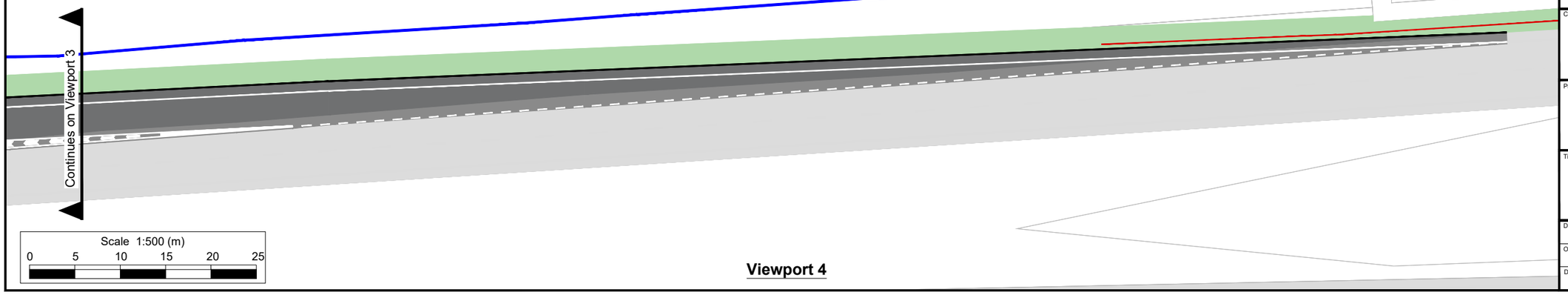
Viewport 1



Viewport 2



Viewport 3



Viewport 4

Scale 1:500 (m)

0 5 10 15 20 25

Notes:

1. Do not scale from this drawing. If in doubt refer to the project manager for clarification.
2. All dimensions are shown in metres unless otherwise stated.
3. Layout based on Ordnance Survey MasterMap, © Crown Copyright 2018. All rights reserved. Licence number 100022432.

Key:

- OS mapping
- Existing road markings
- Existing carriageway
- Highway boundary
- Proposed kerb
- Proposed carriageway resurfacing
- Proposed carriageway full depth
- Proposed road markings
- Proposed verge
- Proposed VRS

Rev	Date	Revision details	Drawn	Check.	Review	Approv
P0	20/08/24	Initial issue	DH	DM	-	DM

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Client

Mid-Sussex District Council

Project

Mid Sussex

Title

A23 B2118 Proposed Arrangement Detail

Drawn	Checked	Reviewed	Approved
DH	DM	-	DM

Original drg. size	Date	Scale	Drawing Status
A3	20/08/2024	1:500	Preliminary

Drawing Number	Rev.
GB01T24C55-SYS-XX-XX-DR-D-008	P0

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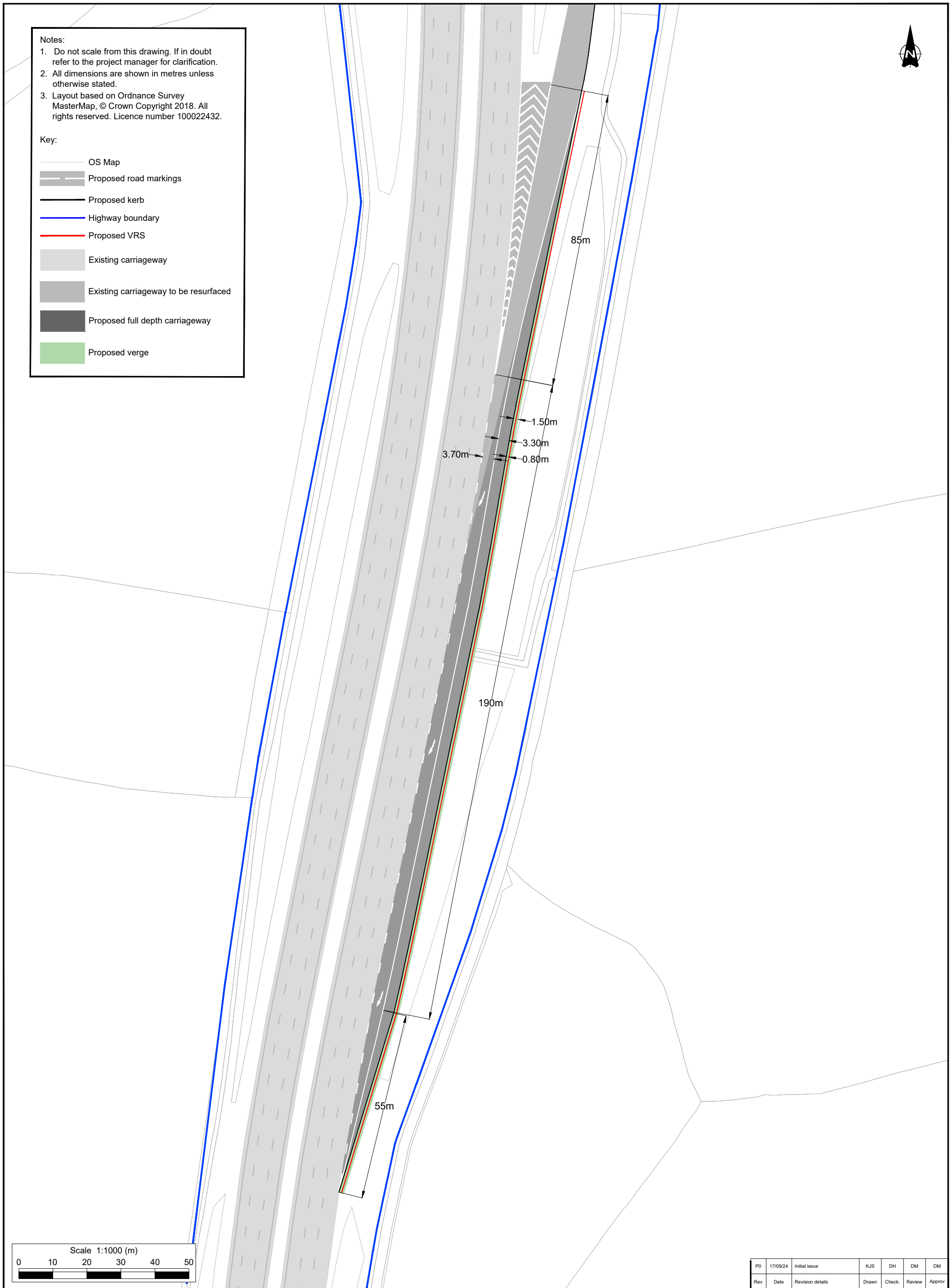
Key:

- OS Map
- Proposed road markings
- Proposed kerb
- Highway boundary
- Proposed VRS
- Existing carriageway
- Existing carriageway to be resurfaced
- Proposed full depth carriageway
- Proposed verge



Scale 1:1000 (m)

0 10 20 30 40 50

Rev	Date	Revision details	Drawn	Check.	Review	Approv
P0	17/09/24	Initial issue	KJS	DH	DM	DM

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Project: **Mid Sussex**

Title: **A23 / A272 SB Merge Proposed Arrangement**

Drawn	Checked	Reviewed	Approved
KJS	DH	DM	DM

Original drg. size	Date of Issue	Scale	Drawing Status
A3	17/09/2024	1:1000	Preliminary

Drawing Number: GB01T24C55-SYS-XX-XX-DR-D-009 GA

Rev.: P0

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