Finlay Park - Residential Development **07/12/2022**

Reference number 300/650/012

TRANSPORT ASSESSMENT

SYSTRA

FINLAY PARK - RESIDENTIAL DEVELOPMENT

TRANSPORT ASSESSMENT

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1. INTRODUCTION

1.1 Background

1.1.1 SYSTRA Ltd has been appointed by Westar Homes Limited to provide transport planning support in relation to a proposed residential development at Finlay Park, on a site located 800m to the north-west of Naas town centre, in County Kildare.

1.1.2 The assessment has been undertaken in line with the guidelines set out in Transport Infrastructure Ireland's (TII's) *'Traffic and Transport Assessment Guidelines'.*

1.1.3 Initial Pre-Application discussions took place in April 2021. An Interim Transport Assessment (TA) was prepared in June 2022 to accompany a pre-planning application to Kildare County Council (KCC). KCC's Large-scale Residential Development (LRD) Opinion was issued on 23rd August, and contained detailed advice on traffic and transportation matters. This concluded that the documentation submitted would constitute a 'reasonable basis' on which to make an application for permission.

1.1.4 This TA takes into account the comments received in KCC's LRD Opinion, and supports the planning application itself. The key changes since the draft TA submitted with the LRD consultation are:

- The red line boundary of the application has been amended. A footpath / cycleway on the north side of the canal, which would link the development to the Abbey Bridge is no longer proposed, as passive surveillance would not be provided on this path. This is likely to be delivered in later phases of the development.
- No pedestrian / cycle bridges linking the north side of the canal to the south side / town centre are proposed during this stage of the development. They are to be included in future phases of the development.

1.1.5 Other points that have been specifically addressed are:

- A Mobility Management Pan (MMP) accompanies the Transport Assessment
- A Construction Traffic Management Plan (CTMP) forms part of the wider Construction Management Plan (CMP).
- A rationale on the number of cycle and car parking spaces provided is included within Section 4.7,
- The junction capacity modelling section of the TA has been expanded to include an additional 'Full Masterplan' scenario, which considers the potential impact of future development in the harbour area.

1.1.6 The site location is shown in **Figure 1**.

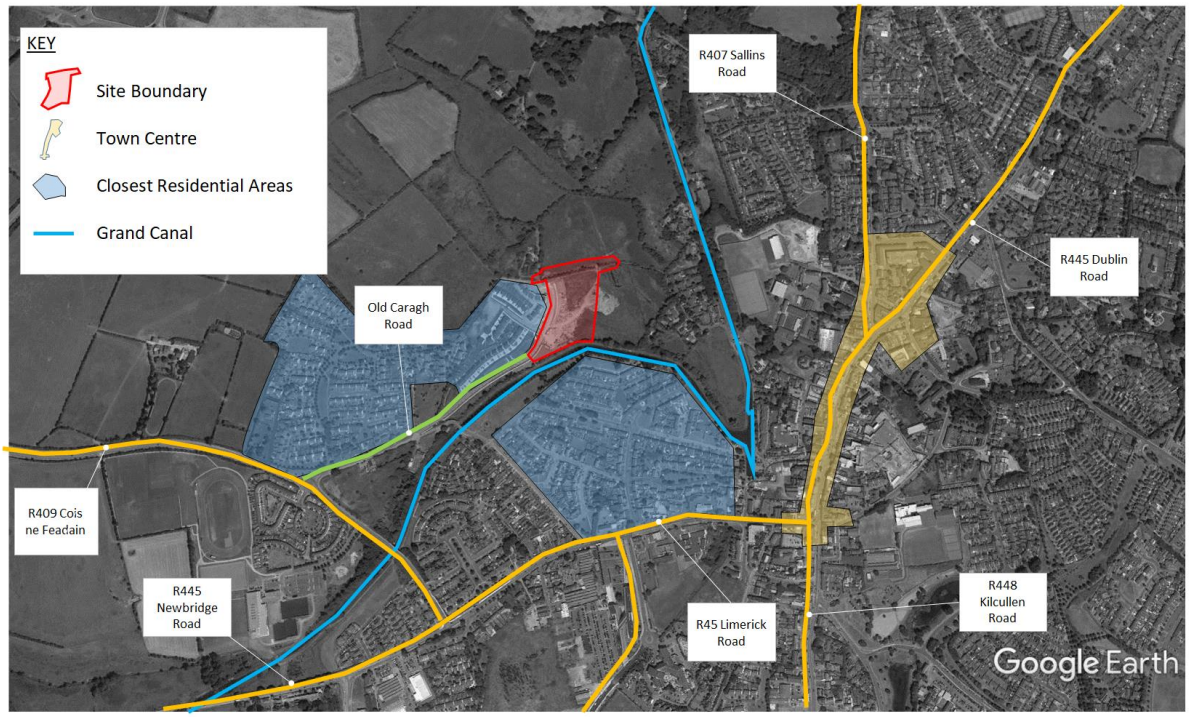


Figure 1. Site Location

1.1.7 A total of 134 apartments is proposed in Phase 1 (the subject of this Planning Application), which will be a mixture of one, two and three-bedroom properties.

1.1.8 The accommodation would be housed in three blocks of up to five storeys in height, which would surround a central communal space. The development also contains a small 248sqm commercial unit at ground floor level within one of the blocks.

1.1.9 The site is in an excellent position to support walking and cycling trips, and will benefit from future initiatives as the Northwest Quadrant of Naas is developed. In addition, SYSTRA has prepared a Mobility Management Plan (MMP) for the development (summarised in Chapter 7) which will accompany the finalised TA, and will be submitted with the planning application.

1.1.10 Vehicular access will be taken from a new priority junction with Old Caragh Road.

Naas Local Area Plan

1.1.11 The Naas Local Area Plan (NLAP) 2021-2027, came into effect on 1st December 2021. As shown in **Figure 2**, the site is predominantly zoned for 'New Residential' development in the NLAP, with other peripheral areas zoned as 'Open Space and Amenity'.

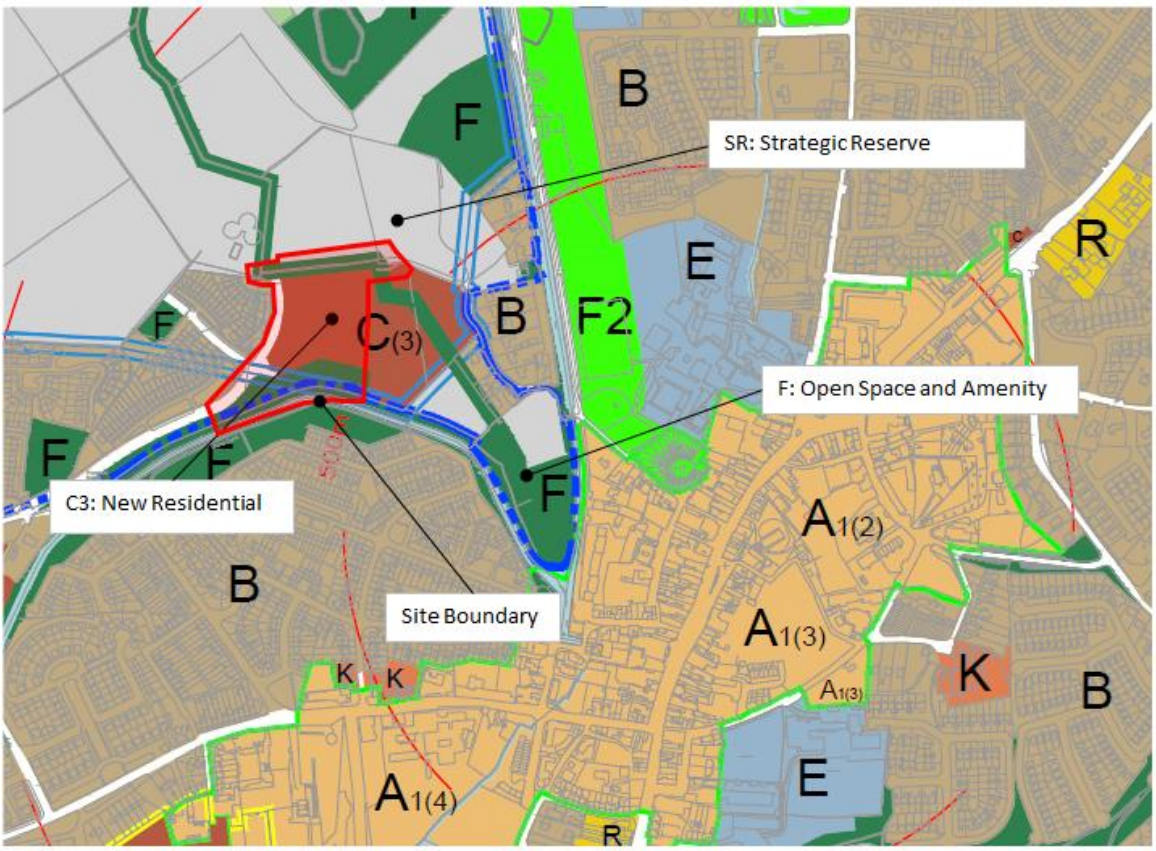


Figure 2. Extract from Draft NLAP Land Use Zoning Plan

1.1.12 The remainder of the Westar lands lie within 'The Northwest Quadrant', an area that the Draft NLAP identifies as 'a *unique opportunity to provide a sustainable urban district and decarbonized zone in proximity to the town centre*".

1.2 Naas Sallins Transport Strategy (2020)

1.2.1 KCC's 'Naas Sallins Transport Strategy' (2020) identifies several transport schemes that have a bearing on the Finlay Park site; including transport corridor proposals which utilise Finlay Park lands to provide local and regional connectivity. Particular attention has therefore been paid within the design and of the development, and within the TA, to how the development will integrate with, and support, the findings of the Naas Sallins Transport Strategy, and KCC's aspirations within the Naas area.

1.3 Report Purpose

1.3.1 The purpose of this report is to set out the likely transport impacts of the proposals, and to identify measures to ensure that it can be successfully integrated into the local transport network.

1.3.2 The report describes and evaluates the baseline transport environment, forecasts multi-modal travel demand from the proposed development, and assesses the potential impact of this demand on the surrounding network.

1.3.3 The report also details the proposed access arrangements to the development for all travel modes, and identifies necessary mitigation measures required to support the development and limit adverse impacts on the surrounding network.

1.4 Assessment Methodology

1.4.1 The assessment has been undertaken in line with the guidelines set out in Transport Infrastructure Ireland's (TII's) *'Traffic and Transport Assessment Guidelines',* and as set out as a requirement under Policy TM7 of the Kildare County Development Plan 2017-2023.

1.5 Report Structure

1.5.1 The report structure is as follows:

- Chapter 2 sets out the policy framework which has informed the assessment, the access strategy and layout as well as the mobility and parking strategies;
- Chapter 3 describes the baseline receiving environment for each mode and planned future network improvements;
- Chapter 4 provides more detail on the proposed development, parking strategy, supporting measures and management measures;
- Chapter 5 outlines the forecast person and trip generation and distribution for the various elements of the development;
- Chapter 6 presents the results of junction capacity modelling; and
- Chapter 7 outlines the proposed mitigation and supporting measures designed to alleviate potential impacts on the surrounding network.

2. POLICY FRAMEWORK & STANDARDS

2.1 Overview

2.1.1 This chapter provides a summary of the relevant plans, policies, and objectives relating to traffic and transport that have been considered as part of the Finlay Park Masterplan. There are a wide range of plans, policies, and objectives that are applicable, which can be divided into three broad levels: the national; regional; and local level.

2.1 National Context

Ireland 2040 Our Plan: National Planning Framework

2.1.1 The National Policy Framework (NPF) outlines the new strategic planning and development strategy for the whole of Ireland and all its regions for the next 20 years. The document co-ordinates National, Regional and Local Authority policies and activities through one central strategy, providing a reference point to adhere to.

Smarter Travel, A Sustainable Transport Future – A New Transport Policy for Ireland 2009-2020

2.1.2 Smarter Travel, A Sustainable Transport Future – A New Transport Policy for Ireland 2009 – 2020 (STASTF) recognises that there is a need to provide an integrated transport network that enables the efficient, effective and sustainable movement of people and goods, in order to contribute to economic, social and cultural progress.

Design Manual for Urban Roads & Streets (Updated 2019)

2.1.3 The primary objective of the Design Manual for Urban Roads & Streets (DMURS), published by the Department of Transport, is to set out an integrated design approach for streets in urban areas which balances the needs of all users, and is influenced by the surrounding context of the street. The manual aims to promote a sustainable approach to design which promotes real alternatives to the car. To achieve this the needs of sustainable modes must be considered before that of the private car. This is outlined in the user shown in **Figure 3**.

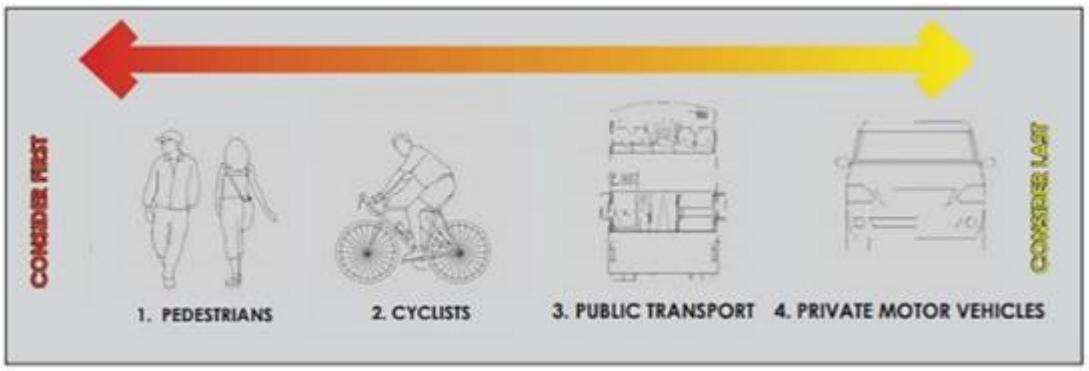


Figure 3. DMURS User Hierarchy

Design Standards for New Apartments (Updated 2020)

2.1.4 The 'Design Standards for New Apartments – Guidance for Planning Authorities' document, published by the Department of Housing, Planning and Local Government in 2020.

2.1.5 The 'Design Standards for New Apartments – Guidance for Planning Authorities' document, published by the Department of Housing, Planning and Local Government in 2020, states that,

"The quantum of car parking or the requirement for any such provision for apartment developments will vary, having regard to the types of location in cities and towns that may be suitable for apartment development, broadly based on proximity and accessibility criteria".

2.1.6 The Guidance sets out suggested standards for sites by three types of location:

- **Central and/or Accessible Urban Locations –** highly accessible areas such as those adjoining city cores, or at the confluence of public transport systems.
- **Intermediate Urban Location** – described as those areas served by public transport or close to town centres or employment areas. Here planning authorities must consider a reduced overall car parking standard and apply an appropriate maximum car parking standard.
- **Peripheral and/or Less Accessible Urban Locations** – for apartments in these relatively peripheral or less accessible urban locations, one car parking space per unit, together with an element of visitor parking, such as one space for every 3-4 apartments, should generally be required.

2.1.7 SYSTRA would contend that the Finlay Park site's location currently lies between an 'Intermediate Urban Location' and a 'Peripheral' location. A full discussion on parking provision is provided within Section 4.7.

2.2 Regional Context

Transport Strategy for the Greater Dublin Area, 2016-2035

2.2.1 This Transport Strategy defines plans for developing transport across Dublin, Meath, Wicklow and Kildare with the aim to "*contribute to the economic, social and cultural progress of the Greater Dublin Area by providing for the efficient, effective and sustainable movement of people and goods*".

2.3 Local Context

Adopted Plans

Kildare County Development Plan 2017-2023

2.3.1 The Kildare County Development Plan (KCDP) sets out an overall vision, with strategies, policies and objectives, for the county as a whole. A separate Local Area Plan for Naas sits underneath the overarching KCDP.

2.3.2 Chapter 6 of the KCDP relates to 'Movement and Transport'. Its overall aim is , "*To promote ease of movement within and access to County Kildare, by integrating sustainable land use planning with a high quality integrated transport system; to support improvements to the road, rail and public transport network……within the county in a manner which is consistent with the proper planning and sustainable development of the county*"

2.3.3 The KCDP recognises that "*social, economic and environmental wellbeing of County Kildare and the GDA is dependent on the efficient and sustainable movement of people and goods within and through the county*". It commits to supporting sustainable transport, whilst also acknowledging that a large proportion of trips will continue to be undertaken in private vehicles.

2.3.4 The transport policies considered to be of most relevance to the Finlay Park development are set out in **Table 1**.

Table 1. KCDP (2017-2023) Transport Policies

REF	POLICY
WC1	Prioritise sustainable modes of travel by the development of high-quality walking and cycling facilities within a safe street environment.
WC3	Ensure that connectivity for pedestrians and cyclists is maximised in new communities and improved within the existing areas in order to maximise access to town centres, local shops, schools, public transport services and other amenities.
WC6	Ensure that all roads in existing and new developments are designed in accordance with the principles, approaches and standards contained in the Design Manual for Urban Roads and Streets 2013, the NTA National Cycle Manual and other appropriate standards.
WC8	Require the provision of secure cycle parking facilities in towns, at public service destinations and in all new residential and commercial developments.
RS8	Ensure that the planning, design and implementation of all road and street networks within urban areas across the county accord with the principles set out in the Design Manual for Urban Roads and Streets (2013), the National Cycle Manual (2010) and other relevant standards where appropriate.
LR1	Ensure that the safety and capacity of the local road network is maintained and improved where funding allows and to ensure that local streets and roads within the county are designed to a suitable standard to accommodate the future needs of the county. The design of

REF	POLICY
	these roads and streets should balance the needs of place and movement with providing a safe street environment for all road users.
LR4	Ensure that all new streets in housing and mixed-use schemes are designed, in accordance with: • Design Manual for Urban Roads and Streets (2013); • Sustainable Residential Development in Urban Areas (2009) and accompanying Best Practice Design Manual (2009); • Architecture 2009-2015 Towards a Sustainable Future: Delivering Quality • within the Built Environment (2009); • Any new guidance / standards from the • DECLG; and • Any other relevant design standards.
LR6	Ensure that all developments can provide full connectivity to the adjacent road network (pedestrian, cycle and vehicular).
PK3	Carefully consider the number of parking spaces provided to service the needs of new development. The Development Management Standards (Chapter 17) set out car parking standards for residential developments. For 'Apartments' such as those proposed, the required provision is 1.5 spaces per unit, plus 1 visitor space per 4 apartments.
PK6	Seek to ensure that all new private car parking facilities are provided to an appropriate standard, proximate to the development which it serves.
RS5	Ensure that the design and speed limits of street networks and associated junctions in new residential estates facilitate the implementation of: • (i) Speed limits in accordance with the Guidelines for Setting and Managing Speed Limits in Ireland DTTS (2015); • (ii) Design Manual for Urban Roads and Streets, DTTS and DECLG (2013).
TM1	Manage traffic in urban areas and prioritise the movement of pedestrians, cyclists and public transport particularly at key junctions.
TM4	Minimise the impact of new developments on the county road and street network by implementing mobility management initiatives.

2.3.5 The Naas Sallins Transport Strategy (NSTS) has been prepared by AECOM on behalf of KCC, and was published in November 2020.

2.3.6 It presents a comprehensive analysis of the current transport situation in Naas/Sallins, outlines the impact of future proposed land development on transportation, and presents potential solutions to improve conditions for active modes, private motorised vehicles and public transport.

2.3.7 The NSTS objectives are shown in **Figure 4**.

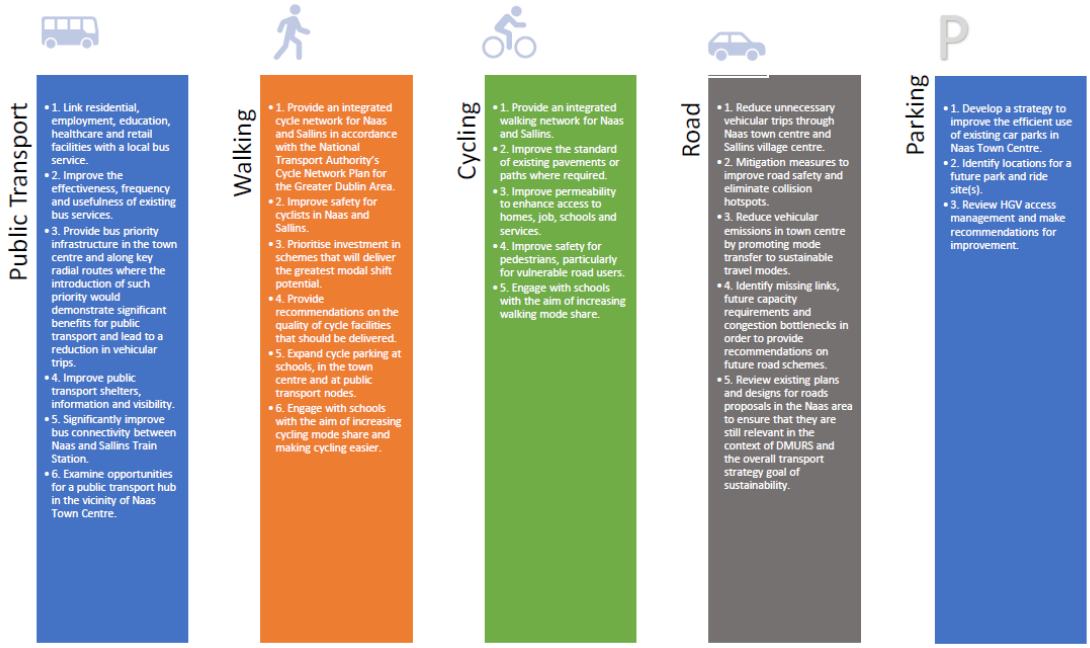


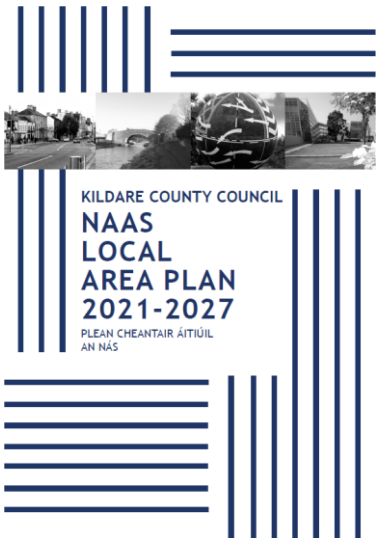
Figure 4. Nass Sallins Transport Strategy Objectives

2.3.8 A comprehensive optioneering and appraisal exercise has been undertaken as part of the Strategy, from which a package of preferred measures has emerged.

2.3.9 Eight measures that are identified in the Strategy are considered to have the potential to interact with the Finlay Park development. These are:

- PT2 Bus Interchange at Naas Harbour;
- PT4 Western Spine' Local Bus route;
- PT 11 Bus -Only' link to Sallins Bypass;
- RD3 Millbridge Street Road Link;
- C1 Naas to Sallins Greenway;
- C16 Northwest Quadrant Link Road Cycle Route;
- C36 Abbey Street Shared Street improvement; and
- C37 Basin Street Shared Street improvement.

2.3.10 It is important for the proposed Finlay Park development that, at the very least, it does not conflict with these measures, but where possible that the proposals actively complement and support the identified improvements. Further detail is provided in **Section 4**.



Naas Local Area Plan 2021 – 2027

2.3.11 In accordance with the Planning and Development Act 2000 (as amended), Local Area Plans (LAPs) are required to be prepared for designated Census towns within the county with a population over 5,000.

2.3.12 The Naas Local Area Plan (NLAP) 2021-2027 came into effect on 1st December 2021.

Key components of the 'core vision' for Naas include:

- To ensure that the growth planned for the town up to 2040 and beyond occurs in a sustainable and sequential manner, while prioritising a low carbon, compact, consolidated and connected pattern of development.
- To develop Naas as a vibrant and culturally rich town, supported by an inclusive, sustainable, all-of-life residential community
- To create a distinct sense of place and community in which people will continue to choose to live, work, do business and visit.
- Movement, connectivity and permeability to key destinations within the town and wider region will be prioritised and a greater emphasis on safe active transport routes and an enhanced public transport network.
- There will be a clear emphasis on linking the town centre to the **Northwest Quadrant** (NWQ) lands, developing key transport modes, community facilities and amenities and delivering a high quality and connected employment quarter with diverse residential and amenity areas.

2.3.13 The key transport policies and objectives that relate to the Finlay Park development are set out in **Table 2**.

Table 2. Naas LAP Transport Policies

REF	POLICY
Policy MT1: Walking and Cycling	*"It is the policy of the Council to promote enhanced universal permeability for pedestrians and cyclists within Naas in order to improve access to the town centre, local schools, residential areas, recreational facilities, public transport services and other amenities".* This includes objectives: **MTO 1.3** Continue to work with Waterways Ireland to progress the delivery of: (i) Naas to Sallins Greenway (ii) Naas to Corbally Harbour Greenway.

REF	POLICY
	MTO 1.5 Create new pedestrian and cycle links across the Grand Canal that enhance connectivity in the area and link residential areas, the town centre, community facilities and public spaces/amenities as proposed under the Naas Transport Strategy. The final design details shall be subject to ecological assessment and public consultation. **MTO 1.6** Ensure that all development within Naas allows for connectivity (pedestrian, cyclist and vehicular) to adjacent lands in accordance with the National Transport Authority's Permeability Best Practice Guide (2015) or any updated version of same.
Policy MT2: Public Transport	*It is the policy of the Council to promote the sustainable development of Naas by supporting and guiding the relevant national agencies in delivering improvements to the public transport network and to public transport services for all users.* This includes objectives: **MTO 2.3** Support and facilitate the implementation of a Bus-only link to Sallins Bypass through the Northwest Quadrant. **MTO 2.4** Engage and co-operate with the Department of Transport, National Transport Authority (NTA), Transport Infrastructure Ireland, Irish Rail, Local Link and other stakeholders to improve the provision of public transport in Naas including the delivery of a sustainable bus-only link between Naas and Sallins Railway Station, a local bus route, additional bus stops and the provision of bus priority measures to ensure the improved movement of bus services through the town centre and local neighbourhoods.
Policy MT3: Road and Street Network	*It is the policy of the Council to maintain, improve and extend the local road network in and around Naas to ensure a high standard of connectivity and safety for all road users.* This includes objectives: **MTO 3.5** Investigate the development of a street network within the Northwest Quadrant by way of the Northwest Quadrant masterplan (as set out in Chapter 10) including improved accessibility over the canal and access to the town centre and Sallins Railway Station to facilitate increased permeability and connectivity, in accordance with the Design Manual for Urban Roads and Streets.
Policy MT4: Parking	*It is the policy of the Council to manage the provision of car parking to provide for the needs of residents, business and visitors to the town centre of Naas.*

Emerging Plans

Draft Kildare County Development Plan 2023-2029

2.3.14 On 11th January 2021, Kildare County Council gave notice of its intention to review the existing Kildare County Development Plan 2017-2023 and to prepare a new County Development Plan for the period 2023-2029.

2.3.15 The review is currently ongoing, and will conclude with the adoption of the Kildare County Development Plan 2023-2029 in 2023.

2.3.16 The Draft KCDP has been published for consultation (which closed in May 2022), and the Proposed Material Alterations have now been published.

2.3.17 Chapter 5 of the Draft KCDP relates to 'Sustainable Mobility and Transport. Its overall aim is,

"To promote and facilitate ease of movement within and access to County Kildare, by integrating sustainable land use planning and a high-quality integrated transport system; and to support and prioritise investment in more sustainable modes of travel, the transition to a lower carbon transport system, and the development of a safer, efficient, inclusive, and connected transport system"

2.3.18 This draft County Development Plan (CDP) contains a series of sustainable transport goals, policies and objectives for healthy placemaking and sustainable movement that, over time, will achieve an increase in walking, cycling and use of public transport and a decrease in the use of the private car.

2.3.19 Furthermore, the includes sustainable transport indicators, including mode share targets, for the purpose of monitoring the efficacy of policies and objectives.

2.3.20 The objectives considered to be of most relevance to the Finlay Park development are set out in **Table 3**.

Table 3. Draft KCDP (2023-2029) Transport Objectives

REF	OBJECTIVES
TM O17	Ensure new development areas are fully permeable for walking and cycling at a minimum, public transport (where appropriate) and provide for filtered permeability for private vehicle access in accordance with the NTA Permeability Best Practice Guide in order to give a competitive advantage to active travel modes for local trip making.
TM O18	Ensure site layout proposals detail present and possible future connections to pedestrian/cycle links and improve permeability between existing and proposed developments including adjacent developments thereby facilitating the '10-minute settlement' concept.
TM O24	Ensure the delivery of robust and efficient cycle and walking infrastructure in Naas by enhancing permeability and improving linkages between Naas Town Centre, surrounding residential and employment areas, Sallins Railway Station and the Northwest Quadrant.

REF	OBJECTIVES
TM O38	Work with statutory agencies and stakeholders to promote and facilitate the development of a public transport hub in Naas and Sallins with new and enhanced public transport infrastructure to connect road, rail and public bus transport, including Park and Ride and interchange facilities. Ensure the bus network in Naas improves linkages between Naas Town Centre, surrounding residential and employment areas, Sallins Railway Station and the Northwest Quadrant.
TM O39	Support and facilitate investigations into the feasibility of a bus priority route through the North West Quadrant in Naas to Sallins Bypass Junction 9A on the M7. This route will provide a new higher density corridor leading into Naas, with a priority bus corridor that will provide a direct service to Sallins Railway Station from the town centre.
TM O55	Ensure that the planning, design and implementation of all road and street networks within urban areas across the county accord with the principles set out in the Design Manual for Urban Roads and Streets (2019), the National Cycle Manual (2011 – or the pending update) and all other standards where relevant.
TM 091	Ensure that all new streets in housing and mixed-use schemes are designed, in accordance with: • Design Manual for Urban Roads and Streets (2019); • Sustainable Residential Development in Urban Areas (2009) and accompanying Best Practice Design Manual (2009); Architecture 2009-2015 Towards a Sustainable Future: Delivering Quality within the Built Environment (2009); • Any new guidance/standards from the DECLG; and • Any other relevant design standards.
TM 093	Ensure that all developments allow for full connectivity (pedestrian, cycle and vehicular) to adjacent road networks and to adjacent lands which may be developed in the future.
TM 097	Ensure that all streets and street networks are designed considering the hierarchy of users and includes the provision of high-quality walking and cycling infrastructure and traffic calming measures which may include speed ramps.
TM 0106	The quantum of car parking or the requirements for any such provision for apartment developments will have regard to the proximity and accessibility to urban locations, public transport and employment locations as outlined in the Sustainable Urban Housing: Design Standards for New Apartments (2020).
TM 110	Support the Government's targets for electric vehicles on roads by prioritising parking for Electric Vehicles (EVs) in central locations, by supporting the provision of charging facilities on public and private land.

2.3.21 The transport policies considered to be of most relevance to the Finlay Park development are set out in **Table 4**.

Table 4. Draft KCDP (2023-2029) Transport Policies

REF	POLICY
TM P1	Promote sustainable development through facilitating movement to, from, and within the County that is accessible to all and prioritises walking, cycling and public transport.
TM P2	Prioritise and promote the development of high-quality, suitable, safe and sustainable walking and cycling pathways and facilities, both inter- county, intra-county (in consultation with all relevant stakeholders including neighbouring local authorities) and within the towns and settlements of County Kildare within a safe road/street environment that will encourage a shift to active travel that is accessible for all, regardless of age, physical mobility, or social disadvantage.
TM P3	Promote the sustainable development of the county by supporting and guiding national agencies in delivering major improvements to the public transport network and to encourage a shift from car-based travel to public transport that is accessible for all, regardless of age, physical mobility, or social disadvantage.
TM P4	Ensure ongoing competitiveness and the efficient movement of people and goods in the county through the improvement and expansion of the road and street network within the county to support economic development and provide access to new and existing communities, employment areas and development, all while prioritising sustainable modes of transport.
TM P7	Ensure that the safety and capacity of the local road network is maintained and improved where funding allows and to ensure that local streets and roads within the county are designed to a suitable standard to accommodate sustainable modes of transport and the future needs of the county. These roads and streets should be appropriately designed for all road users regardless of age, physical mobility, or social disadvantage.
TM P8	Ensure that streets and roads within the county are designed to balance placemaking and movement to, prioritise sustainable modes of transport and to provide a safe traffic calmed street environment in accordance with the principles set out in the Design Manual for Urban Roads and Streets (2019) while meeting the needs of road users of all ages and abilities.
TM P9	Effectively manage and minimise the impacts of traffic in urban areas and prioritise the movement of pedestrians, cyclists and public transport particularly at key junctions, while maximising the efficient use of existing resources.
LTM P10	Balance the demand for parking against the need to promote more sustainable forms of transport, to limit traffic congestion and to protect the quality of the public realm from the physical impact of parking, while meeting the needs of businesses and communities The Development Management Standards (Chapter 15) set out car parking standards for residential developments. For 'Apartments' such as those proposed, the required provision is 1.5 spaces per unit, plus 1 visitor space per 4 apartments.

3. TRANSPORT BASELINE

3.1 Site Location

3.1.1 The site is situated within 800m of the historic, commercial and retail centre of Naas, but is currently on the edge of the urban area, predominantly as a result of its location to the north of the Grand Canal, which separates it from urban areas to the south and east.

3.1.2 To the north and north-west, the site is bounded by farmland, which continues onwards to the Millennium Link Road and M7. To the east and south, the Grand Canal separates the site from residential areas around Millbridge Way and Sarto Park. To the south-west, the site adjoins the relatively new residential developments around Caragh Green.

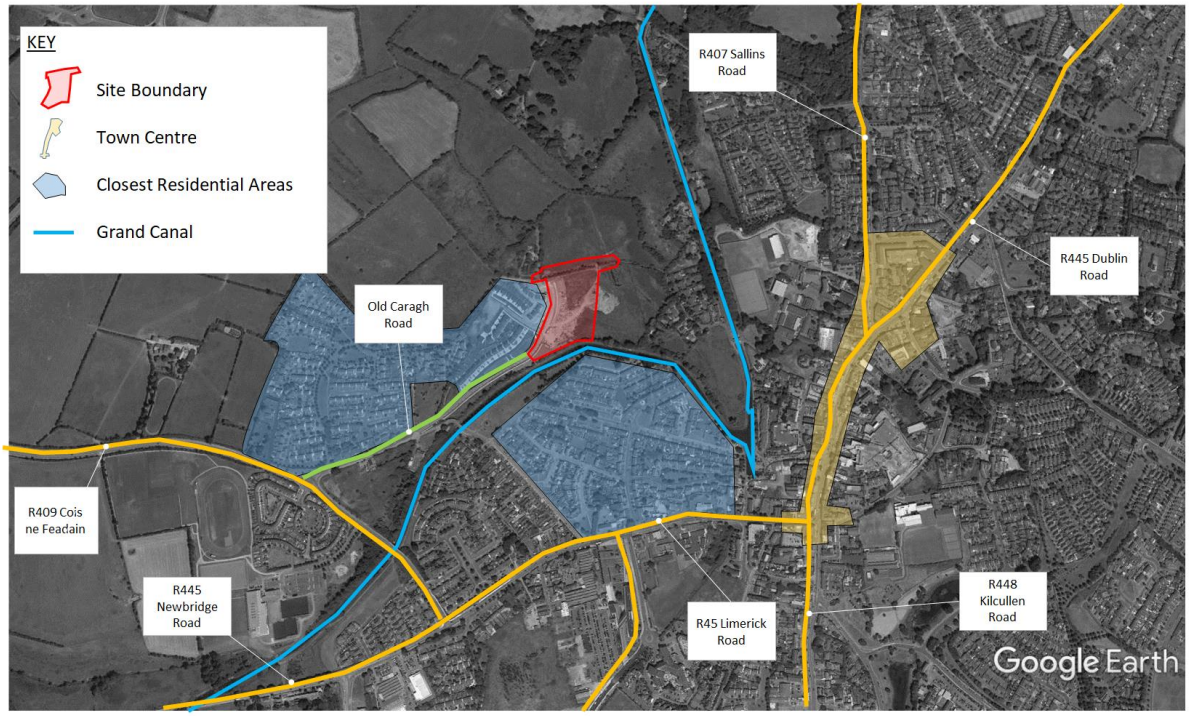


Figure 5. Site Location & Surrounding Road Network

3.2 Walking Accessibility & Infrastructure

3.2.1 The existing pedestrian infrastructure in the vicinity of the site is shown in **Figure 6**.

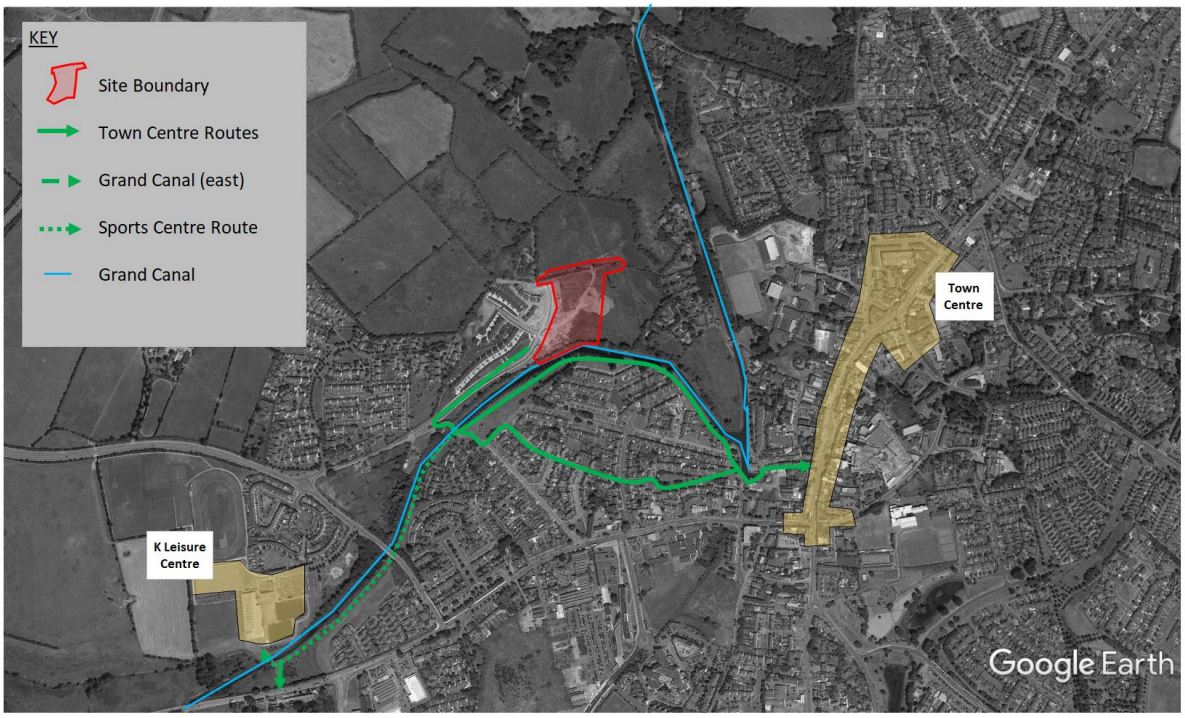


Figure 6. Main Pedestrian Routes in the vicinity of the Site

3.2.2 The main existing pedestrian routes from the site are:

- To the Grand Canal (east) and Naas town centre via Old Caragh Road and Ploopluck bridge, and then either via Sarto road, Pacelli Road or the riverside walk. This is a distance of ~1.4km; and
- To the K-Leisure sports centre 1.2km to the west, via the Naas Historic Trail alongside the Grand Canal.

3.2.3 One of the main pedestrian desire lines from the development will be between the site and the town centre, and high-quality infrastructure is already in place to accommodate this. The completed phase of the Finlay Park development has provided 1.5m-wide footpaths on both sides of Old Caragh Road to the south of the site between the Ploopluck canal bridge and the site boundary. 1.5m-wide cycle lanes run adjacent to these footpaths. A signalised pedestrian crossing is in place at the Ploopluck Bridge, which provides a safe crossing point across Old Caragh Road.

3.2.4 **Figure 7** shows the footpath provision on Old Caragh Road, where pedestrians are separated from traffic by tree-lined verges, and cyclists can travel on segregated cycle tracks.

Figure 7. Footpath provision on Old Caragh Road

3.2.5 Having passed over the Grand Canal at the traffic-free Ploopluck pedestrian / cycle bridge, pedestrians have the option of either following the Naas Historic Trail footpath along the river into the town centre (which KCC plans to upgrade), or continuing along footpaths alongside quiet residential roads such as Sarto Road or Pacelli Road. The town centre is approximately 1.4km from the site.

3.2.6 Alternatively, pedestrians can head west along the Naas Historic Trail footpath to reach the K-Leisure Sports Centre, which, at 1.2km distant, is approximately a 16-minute walk.

3.2.7 The location of the site just to the north-west of the town centre means that it is within a convenient walking distance of a large number of services and amenities, employment areas and public transport hubs. Error! Reference source not found. displays the walking catchment of the site at 5-minute intervals, up to a 20-minute walking time.

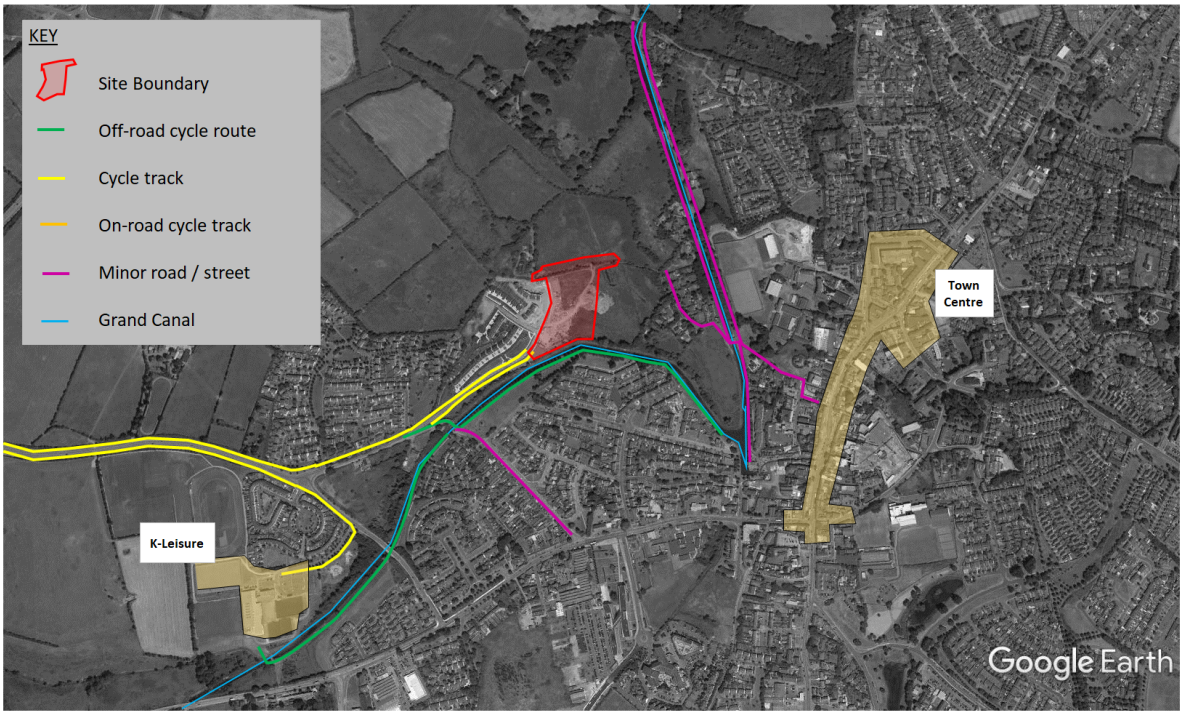


Figure 8. Walking catchment of site

3.2.8 **Figure 8** shows that that majority of main destinations within the Naas urban area are within are within a 15-20-minute walk from the site.

3.2.9 Key employment areas within Naas within walking distance of the site include:

- The area to the south of the R445 accessed from John Devoy Road, which is host to Kildare County Council and the Osprey Business Centre (amongst others). This is around a 20-minute walk from the site.
- The town centre itself, which is between a 15 and 20-minute walk.

3.3 Cycling Accessibility & Infrastructure

3.3.1 **Figure 9** shows the existing cycle infrastructure in the vicinity of the site.

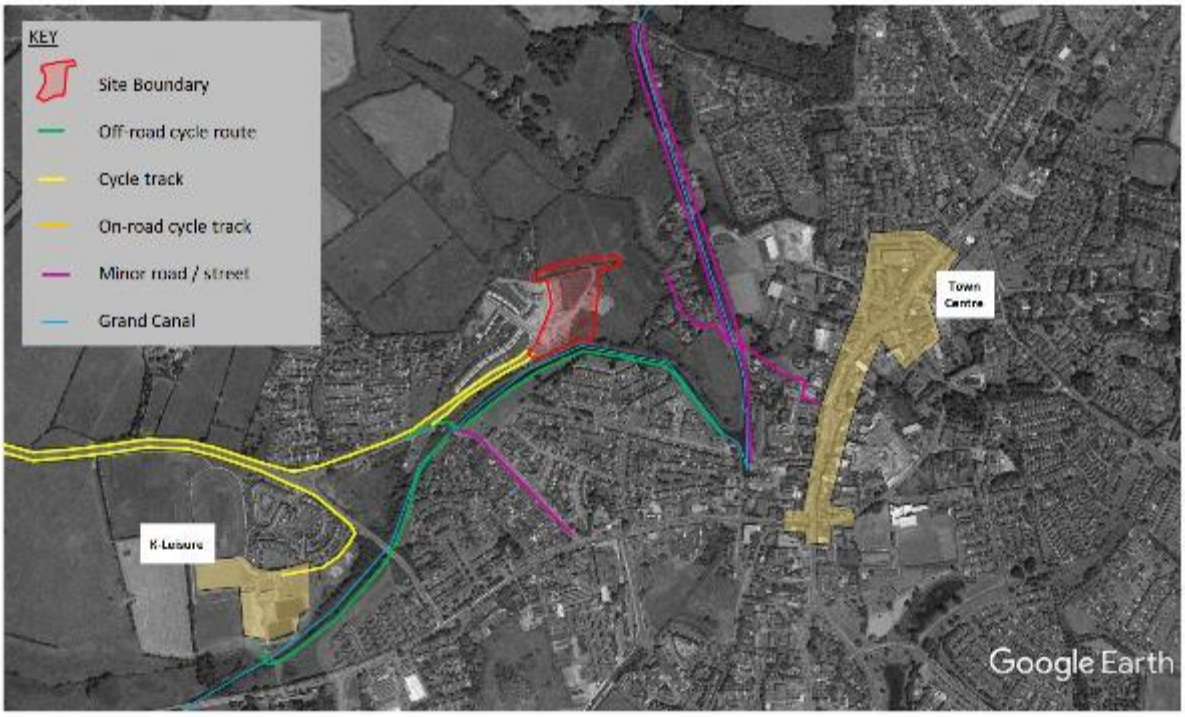


Figure 9. Cycle Infrastructure in the vicinity of the Site

3.3.2 The site is well-connected to both the town centre and recreational routes by the cycle infrastructure in the vicinity of the site, which comprises:

- 2m-wide cycle tracks on both sides of R409 Cois ne Feadain to the west the Old Caragh Road, with a spur on the south of side of the road connecting into the Sports Centre.
- A 3m-wide shared walking and cycling facility on the north side of Old Caragh Road between R409 Cois ne Feadain and the Ploopluck footbridge;
- 1.5m-wide cycle tracks on both sides of Old Caragh Road between Ploopluck cycle / footbridge and the site boundary;
- An off-road surfaced route in both directions along the south bank of the Grand Canal, which is part of the Naas Historic Trail;
- Quiet roads / paths along both sides of the Grand Canal to the east of the site; and
- The Caragh Road / St Bridget's Terrace Shared Surface area.

3.3.3 The position of the site means that, assuming an average cycling speed of 12 km/hr all of the Naas urban area is accessible within a 10-minute cycle journey, as indicated by **Figure 10**. This demonstrates the potential for encouraging cycle trips from the development for commuting, commercial and recreational purposes.

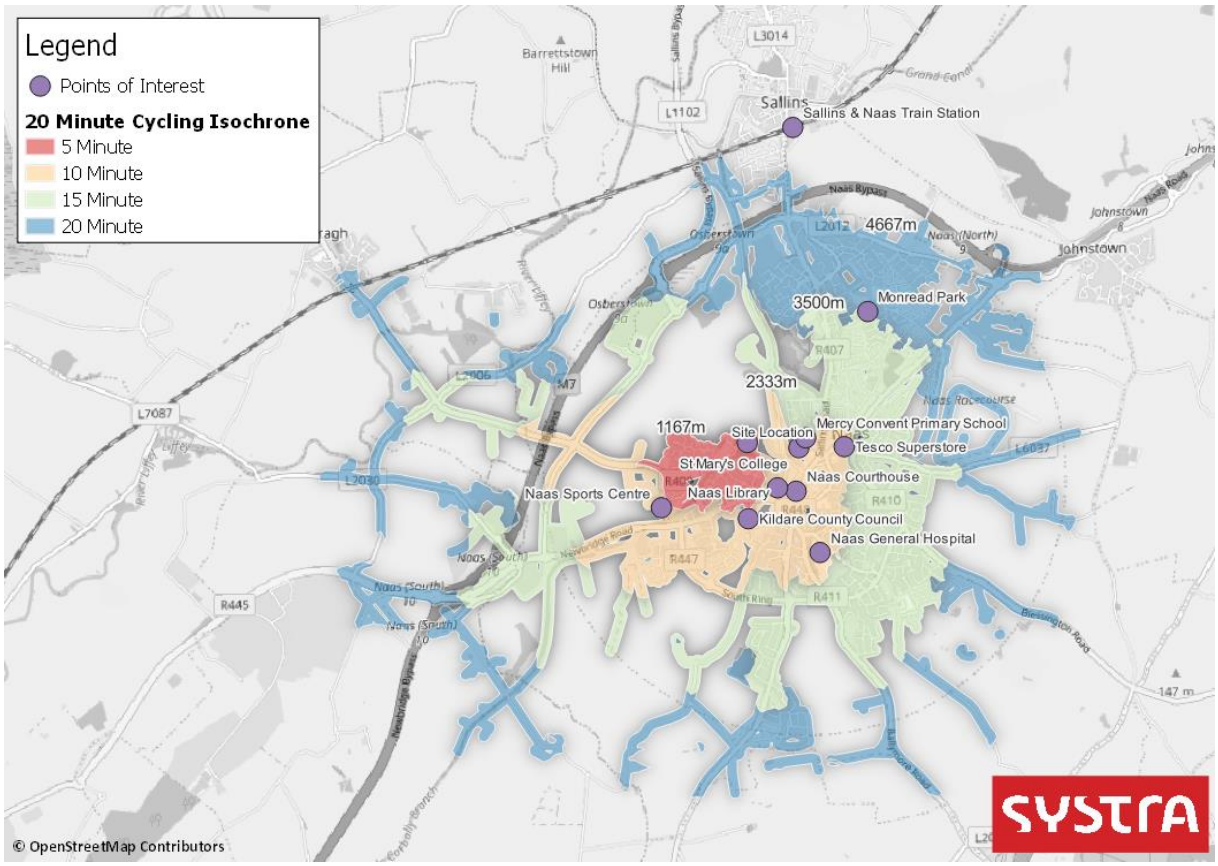


Figure 10. Cycling Catchment

3.4 Public Transport Accessibility & Infrastructure

3.4.1 **Figure 11** shows the closest bus stops to the site, along with the pedestrian routes to them from the site boundary.

Figure 11. Bus Stops & Walking Distances from Site

3.4.2 The closest bus stops to the site are a pair of eastbound and westbound stops on R445 Newbridge Road, to the east of the junction with Caragh Road. These are 900m distant from the site boundary, which corresponds to an approximate 11-minute walking time. The walking routes to the bus stops are wholly along footways and paths, and therefore suitable for pedestrian travel.

3.4.3 Further bus stops are located on South Main Street. These are 1.5km distant from the site boundary, which corresponds to an approximate 19-minute walking time.

3.4.4 **Table 5** outlines the frequency of the bus services at the stops shown in **Figure 11**. Service numbers shown in yellow operate from the nearest stops on R445 Newbridge Road. All services shown operate from the stops on the R445 South Main Street, near the Post Office.

Table 5. Bus Routes & Frequencies

Route		Weekday			Weekend	
		AM Peak	Interpeak	PM Peak	Sat	Sun
125	Newbridge to Naas and Dublin	Two services between 7am and 8am	No service	Two services between 6pm and 7pm	-	-
126	Rathangan - Kildate - Newbridge - Naas - Dublin	30 mins	30 mins	30 mins	30 mins	30 mins
130	Athy - Naas - Dublin	Two services between 6am and 8am	120 mins	One service	4 services per day	3 services per day
139	Naas to Blanchardstwon	1 Service	120 mins	120 mins	120 mins	120 mins
717	Dublin Airport - Dublin City - Kilkenny - Clonmel	One service at 07:25	No service	One service at 18:55	As weekday	
726	Dublin Airport- Portlaoise-via Kildare, Naas, Newbridge and Red Cow Luas	60 mins	60 mins	60 mins	60 mins	60 mins
736	Dublin Airport - City - Carlow - Kilkenny - Waterford	No service	3 services per day	No service	-	-
817	Kilkenny - Dublin	No service	1 service	1 service	-	-
821	Newbridge to Sallins Rail Station	1 service	2 services	1 service	As weekday	3 services per day
880	Dublin - Cork Route	3 services	60 mins	3 services	As weekday	No Service
885	Ballymore Eastace to Sallins Rail Station	1 service	1 service	1 service	-	-

*Information correct as of 8th November 2022

3.4.5 The majority of the services travel through Naas in an east-west direction, between Newbridge and Dublin. Services 139 and 821 travel north-south, providing links between Naas, Sallins and its rail station.

3.4.6 A selection of key employment centres, and the bus journey time to them from Naas are summarised below:

- Sallins and Naas Rail Station – 10 minutes
- Newbridge – 18 minutes
- Red Cow Luas – 30 minutes
- Dublin Airport – 45 minutes
- Dublin City Centre (Connolly Station) – 50 minutes
- Citywest Business Campus – 60 minutes

3.4.7 The above list demonstrates that a wide range of employment centres is within a one-hour bus journey from

3.4.8 Full bus timetables are included in the Mobility Management Plan (MMP) that accompanies the application.

3.5 Rail Accessibility

3.5.1 Sallins and Naas railway station is located in the centre of Sallins, 3km to the north of the site.

3.5.2 The station is on the Dublin Heuston to Cork rail line. Regular services operate throughout the week, with typically 2-3 services per hour in both directions. The journey time between Sallins / Naas and Dublin Heuston for direct trains is typically 22 minutes, and for trains which stop at intervening stations it is typically around 31 minutes.

3.5.3 The station is also on the following rail lines:

- Dublin Heuston to Galway
- Dublin Heuston to Limerick and Ennis
- Dublin Heuston to Waterford
- Galway to Limerick
- Dublin Heuston to Portlaise (bus connection from Sallins)

3.5.4 Trains from Sallins / Naas on the above lines are much less frequent, and typically limited to between 2 and 4 services per day.

3.5.5 Timetable information is regularly updated on the Irish Rail website https://www.irishrail.ie/en-ie/station/sallins-and-naas. Full rail timetables are included in the Mobility Management Plan (MMP) that accompanies the application.

3.5.6 Cycle times to Sallins Rail Station from the centre of Naas, travelling alongside the canal, are approximately 12 minutes.

3.5.7 Bus Service 139, operated by JJ Kavanagh and Sons runs between the centre of Naas and the Sallins Rail station (and onwards to Maynooth, Leixlip, Ongar and Blanchardstown). It runs at two-hourly intervals Monday to Sunday, taking 10-15 minutes to travel between Naas and the Station. A return fare from Naas costs 3 Euro.

3.5.8 The rail station is approximately an 10-minute drive from the Finlay Park site, and there are 390 pay and display car parking spaces available for commuters.

3.5.9 Travelling to the station (Either by bike, bus or car), and then commuting onwards by train to Dublin is therefore a relatively convenient option for future residents of Finlay Park.

3.6 Road Network Infrastructure & Traffic Conditions

3.6.1 **Figure 12** shows the local road network, and key junctions in the vicinity of the site.

Figure 12. Local Road Network and Key Junctions

3.6.2 The key roads within the study area are:

- **R409 Cois ne Feadain**, which runs north-west from Naas, passing though Carragh and Springfield before meeting the R403 to the west of Prosperous.
- **R445 Newbridge / Limerick / Dublin Road**, which runs from Junction 10 of the M7 in the north-east, through Naas town centre, and continues south-west to Newbridge.
- **R448 Kilcullen Road**, which meets R445 Dublin Road at a signalised junction in the centre of Naas.
- **Caragh Road / St Bridget's Terrace**, a residential street running north from R445 Newbridge Road towards the Grand Canal. The Ploopluck bridge over the canal is closed to traffic, but provides access onto Old Caragh Road for pedestrians and cyclists.

3.6.3 The vehicular access for the development site will be via Old Caragh Road. Between R409 Cois ne Feadain and the Ploopluck canal bridge, Old Caragh Road has a 6.5m wide, two-way carriageway, and in addition incorporates a 2m-wide shared footpath and cycle facility on its northern side. A 30kph speed limit is in place. The road is shown in **Figure 13**.

Figure 13. Old Caragh Road looking west to Cois ne Feadain

3.6.4 To the east of the Ploopluck Bridge, the road continues as a 6.5m-wide carriageway, with separate 1.5m-wide footpaths and cycle tracks on either side, as shown in **Figure 14**.

Figure 14. Old Caragh Road to the east of Ploopluck pedestrian bridge

3.6.5 Old Caragh Road joins the primary road network at the R409 Cois ne Feadain / Old Caragh Road priority roundabout. The roundabout has an inscribed circle diameter of 35m, and each

of the four arms has a single lane approach. The R409 Cois ne Feadain has a speed limit of 50km/h.

Figure 15. R409 Cois ne Feadain / Old Caragh Road priority roundabout

3.7 Traffic Flows

3.7.1 Baseline traffic flows were extracted from the 2018 Base Naas VISUM model, which was created by KCC as part of the Naas / Sallins Transport Strategy. Traffic growth factors have been applied to growth 2018 flows to a Base year of 2022. These are discussed in **Section 6**.

3.8 Road Safety

3.8.1 The Road Safety Authority's (RSA) online collision map has been reviewed to assess any local accidents and safety trends which may be of relevance to the proposed development. **Figure 16** displays recorded accidents between 2011 and 2016, the latest five years for which data is available.

Figure 16. RSA Collision Map – Recorded Accidents 2012-2016

3.8.2 **Figure 16** shows that in the area considered, there have been four 'Serious' and 32 'Minor' accidents. The majority of these accidents have occurred on the R448 Kilcullen Road / R445 South Main Street corridor, with two clusters on R445 Limerick / Newbridge in the vicinity of the St Ila's Place / Harbour View junction, and to the east of the R409 signalised junction.

3.8.3 **Table 6** provides further details on the recorded accidents closest to the site, within the red box shown on **Figure 16.**

Table 6. Local Accident Summary

NO.	ROAD	YEAR	SEVERITY	VEHICLE	CIRCUMSTANCES	NO. CASUALITIES
1	Radharc An Chaislean	2016	Serious	Bicycle	Other	1
2	Old Caragh Road	2015	Minor	Bicycle	Other	1
3		2012	Serious	Motorcycle	Single vehicle only	1
4	Ploopluck Pedestrian / Cycle bridge	2012	Minor	Pedestrian	Undefined	1
5	R445 Newbridge Road	2015	Minor	Car	Rear end, straight	1
6		2016	Serious	Bicycle	Other	1
7		2016	Minor	Motorcycle	Rear end, right turn	1
8	Caragh	2016	Minor	Car	Other	1
9	R445 Newbridge Road	2012	Minor	Car	Head-on, right turn	1

3.8.4 **Table 5** shows that there have been three accidents involving bicycles or pedestrians on, or close to, Old Caragh Road within the period 2011-2016. The proposed development will increase the amount of cycling and walking activity in this area. The recently completed upgraded sections of Old Caragh Road feature segregated footways and cycle tracks on both sides of the road, which provide safe routes for pedestrians and cyclists. The proposed development will benefit from these, as well as providing additional high-quality facilities for non-motorised modes. A Road Safety Audit (RSA) of the site design has been undertaken by an independent specialist, and is included as part of the application pack.

3.9 Mode Share

3.9.1 Using the 'Small Area Population Statistics' (SAPS) from the 2016 Census data, the commuting mode shares have been analysed for the Caragh area of Naas, which is adjacent to the development site, as indicated by **Figure 17**. This has been compared with data for Naas, and wider data for Kildare as a whole.

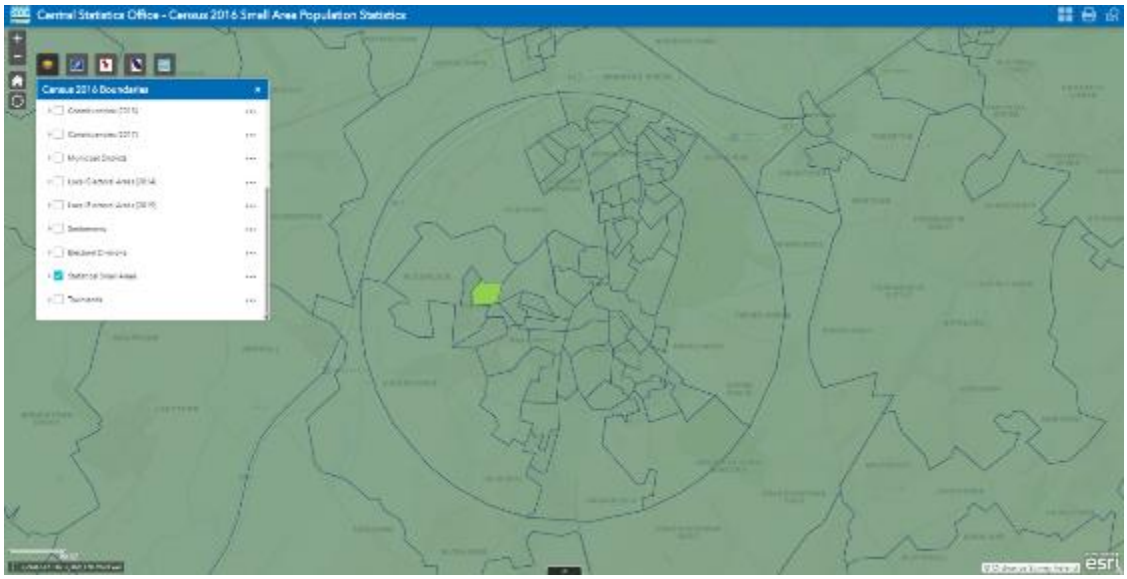


Figure 17. 2016 Census – Caragh 'Small Area' 087071005

3.9.2 **Figure 18** shows the breakdown of mode shares for all three areas. Respondents who failed to record on answer on the census have been excluded from the analysis.

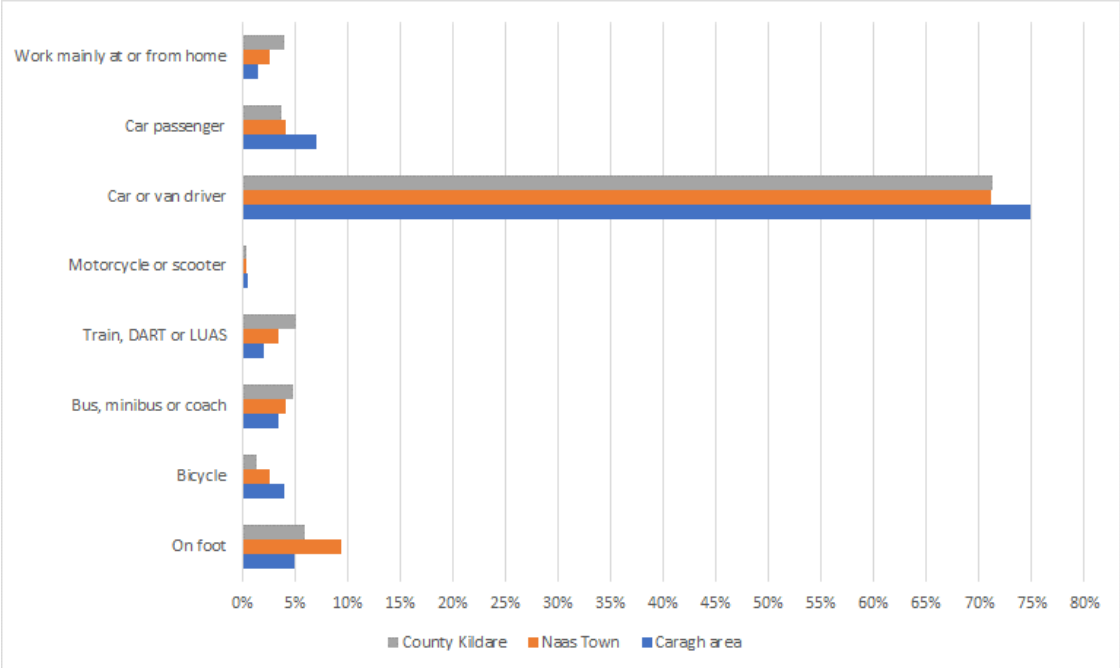


Figure 18. Caragh Area & Local Commuting Mode Share

3.9.3 As shown in **Figure 18**, commuting patterns in the Caragh area are consistent with patterns within Naas and across the wider County Kildare area. The predominant mode of commuter travel is as the driver of a car or van, with 75% travelling by this mode, and a further 7% travelling as passengers in private vehicles. Nine percent of commuters walk or cycle to work, presumably in Naas itself, with 4% travelling by bus, and 2% by train.

3.9.4 In 2016, 2% of people worked mainly at home, but this proportion is now likely to be much higher following the changes in working practices as a result of the COVID outbreak. Research published by the Central Statistics Office found that 16% of people started working fully from home, and 6% increased their hours working from home. Since the return to workplaces, these numbers will have fallen, but a significant number of people will have continued to work from home at least some of the time.

3.9.5 This means that the number of outbound and inbound commuter trips is likely to be lower than assumed in the analysis. However, for the purposes of the Transport Assessment, the 2% figure has been used, which is considered by SYSTRA to be an underestimation.

3.9.6 It should be borne in mind that these statistics relate purely to commuter travel. Trips for other purposes, such as education, leisure, recreation and shopping (particularly local shopping), are likely to be made over shorter distances, and therefore sustainable travel modes are likely to make up a greater proportion of these trips than they do for work-based travel.

3.10 Destination Choice

3.10.1 The Kildare Census 2016 Profile 'Commuting' Report shows that 29% of Naas residents work in the town itself, 20% work elsewhere in Kildare County, 37% work outside Kildare County (primarily in Dublin or its suburbs), and 14% in mobile or 'uncodable' locations.

3.10.2 It should be borne in mind that the Census data is now around 6 years old, and so commuting patterns are likely to have changed in the interim. Nevertheless the fact that in 2016 29% of Naas residents worked within the town itself is positive, and suggests that there is scope to increase sustainable commuting travel beyond current levels of 12% (total of current walking / cycling trips for Naas town).

3.10.3 For longer-distance commuting trips, particularly to Dublin and its suburbs, commuters have the option of travelling by bus (from Naas) and train services from the nearby Naas Sallins rail station, which lies 3km to the north of Naas town centre.

4. PROPOSED DEVELOPMENT & ACCESS ARRANGEMENTS

4.1 Development Mix

4.1.1 The proposed development will comprise 134 residential units within the site. A site plan is shown in **Figure 19**. A larger version is included as **Appendix A**.

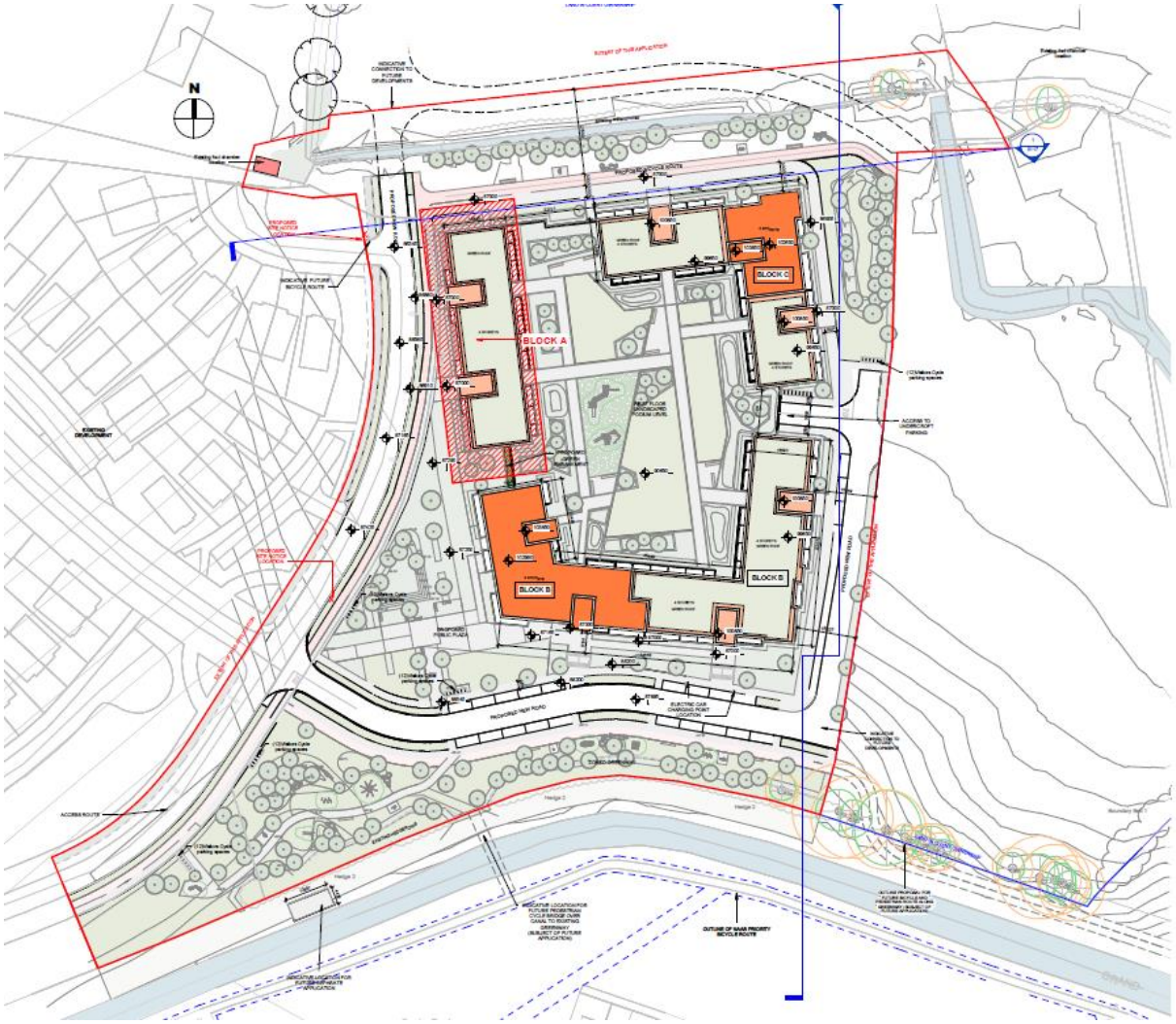


Figure 19. Site Layout

4.1.2 The accommodation would be housed in three blocks of up to five storeys in height, which will surround a central landscaped area, and will comprise:

- 22 no. one-bedroom apartments.
- 77 two-bedroom apartments /duplexes.
- 35 three-bedroom apartments / duplexes.

4.1.3 A new public plaza will be developed at the south-west corner of the southern block, to form a gateway to the new development. The development will also contain a small 248sqm commercial unit at ground floor level

4.2 Access Strategy

4.2.1 **Figure 20** provides an overview of the proposed access strategy.

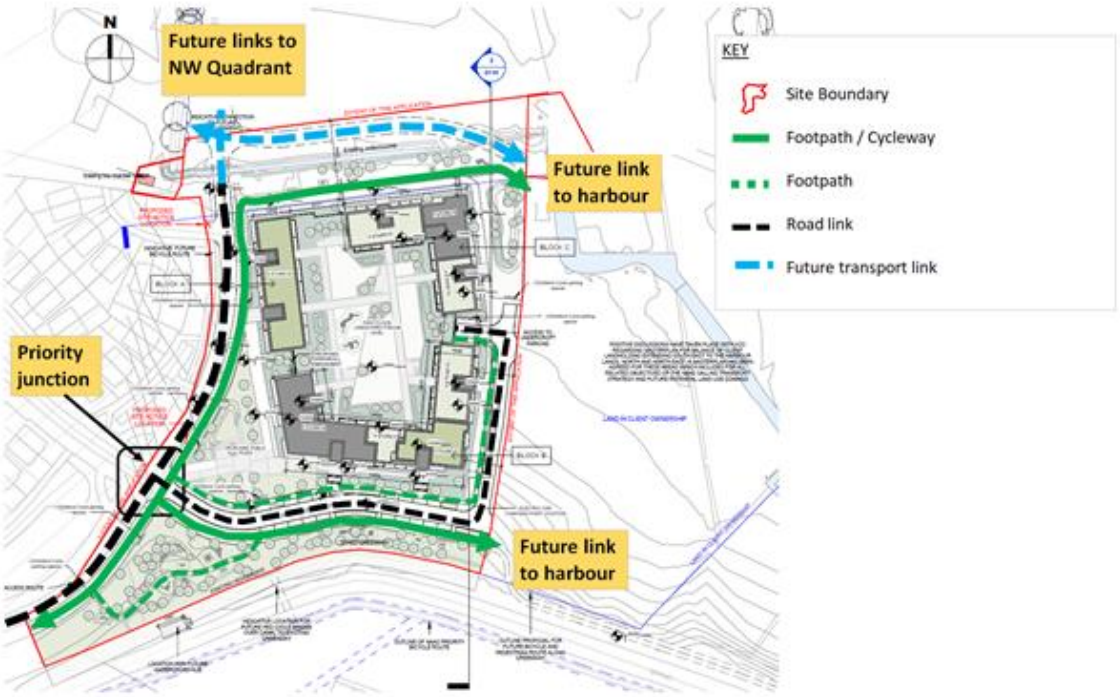


Figure 20. Access Strategy

4.2.2 The main aspects of the access strategy can be summarised as follows:

- The main **Pedestrian access** into the development will be via the proposed Public Plaza, which will provide access into Block B, and from there around the western perimeter of the site.
- The main **cycling route** will run along the east side of Old Caragh Road, and then pass east along the northern boundary of the site, with the potential to link up to future connection south-east towards the town centre.
- **Vehicle access** to the development would be taken from a new priority junction on Old Caragh Road. From here a new road will lead into the undercroft car park. Further details are provided in the following sections.

4.3 Pedestrian Facilities

4.3.1 New pedestrian and cycle paths within the development have been designed in accordance with the Government's Design Manual for Urban Roads and Streets - 2019 (DMURS), the

national Cycle Manual (2011 and any subsequent updates), Draft GDA Cycle Network Plan (NTA, 2021) and the Draft KCDP.

4.3.2 The proposed site design provides excellent access to, from, and within the development for pedestrians. Footpaths will be provided around the perimeter of the building, which will link into the pedestrian entrances to each block. In addition, footpaths will be provided through greenspaces providing direct pedestrian access to building entrances and short cuts between roads.

4.3.3 Paths within the landscaped area on the first-floor podium level will provide connectivity into each block.

4.4 Cycle Facilities

4.4.1 The development will provide a segregated cycle track on the east side of Old Caragh Road, which will link into existing facilities further south on Old Caragh Road. This will provide a continuous off-road route between the development site and the Ploopluck canal bridge (and the western spur of the proposed Naas Sallins Greenway along the south bank of the canal), and on to the R409 and Naas Sports Centre.

4.4.2 An east-west cycle track will also be provided along the north side of the development, which will provide cycle access into the north of the site, as well as access to a future cycle route to the harbour. This spur could also connect into the main Naas-Sallins Greenway alongside the canal, providing recreational routes in both directions between the two settlements.

4.4.3 The future continuation of a road link from Old Caragh Road, through the Northwest Quadrant, to M7 J9a, will incorporate some form of cycle provision. Once complete, this will provide a continuous cycle link from the site to Sallins.

4.4.4 The KCDP 2017-2023 cycle standards (and the emerging Draft Standards) specify a minimum cycle parking provision of one resident space per unit, and 0.5 visitor spaces per unit. For the proposed development this results in the requirement for 148 resident spaces, plus a further 74 spaces for visitors.

4.4.5 In total, 388 cycle parking spaces will be provided. This comprises:

- 300 residents parking spaces (2.23 per unit), which will be located securely within the undercroft area.
- 67 visitor spaces, which will be located in the undercroft, and on cycle racks throughout the development.
- A further 21 spaces outside the commercial premises.

4.4.6 The above level of provision fully complies with current and emerging KCDP standards.

4.5 Public Transport Access

4.5.1 Although at present no bus services run along Old Caragh Road, in the longer term (5-10 years), the Naas Sallins Transport Strategy (NSTS) envisages that a bus link will run from a new interchange within the harbour, and through the Finlay Park site to link up with a 'bus only'

link running northwards through the Northwest Quadrant to M7 J9a and beyond to Naas Sallins Rail Station.

4.5.2 As shown in **Figure 21**, the development proposals prove a layout which can incorporate a future connection to the identified PT2 Harbour Bus Interchange. This would loop around the north of the site, and connect into Old Caragh Road, before continuing northwards towards the Millennium Link Road.

4.5.3 At present it is not known whether this route would be used for general traffic (so that buses and general traffic would both use the access), or it could be made 'bus only'. Whichever approach is ultimately adopted, the proposed layout for this LRD proposal will not prejudice the completion of this future link to the north.

4.6 Vehicle Access

4.6.1 Vehicle access into the residential area will be provided via a new priority junction on Old Caragh Road,

4.6.2 The access road will run east from the junction, loop around the south of the development, and then enter a parking undercroft on its eastern site.

4.6.3 The internal roads within the development will be 5.5m wide, and have 2m footways on either side. Corner radii will be reduced as far as possible to help reduce vehicle speeds.

4.6.4 Further traffic calming measures will be incorporated at the detailed design stage. These are likely to take the form of measures such as differentiated surfacing, localised narrowing and horizontal deflections.

4.7 Parking Strategy and Justification

4.7.1 The KCDP 2017-2023 Development Management Standards (Chapter 17) set out car parking standards for residential developments. For 'Apartments' such as those proposed, the standard provision is 1.5 spaces per unit, plus 1 visitor space per 4 apartments. These are the same standards as proposed in the Draft KCDP 2023-2029. For the proposed development this results in the requirement for 201 resident spaces, plus a further 34 spaces for visitors.

4.7.2 The development will provide a total of 201 parking spaces comprising:

- 179 resident spaces (at a rate of 1.3 spaces per unit); and
- 22 visitor spaces, which will be provided on either side of the access road to the south of the buildings. These can be used (if required) by customers of the small commercial element.

4.7.3 Resident parking will be provided in undercroft parking, which will provide secure parking locations for residents, and remove the visual clutter of parked vehicles from these areas.

4.7.4 Eight of the resident's parking spaces in the undercroft will be Accessible spaces (one of which will provide an Electric Vehicle (EV) charging point), and a further seven resident spaces will contain EV charging points. As per the Draft KCDP 2023-2027, ducting infrastructure will be installed to serve each car parking space within the development, which will allow for future conversion to electric charging spaces. The proposed layout is shown in **Figure 21**.

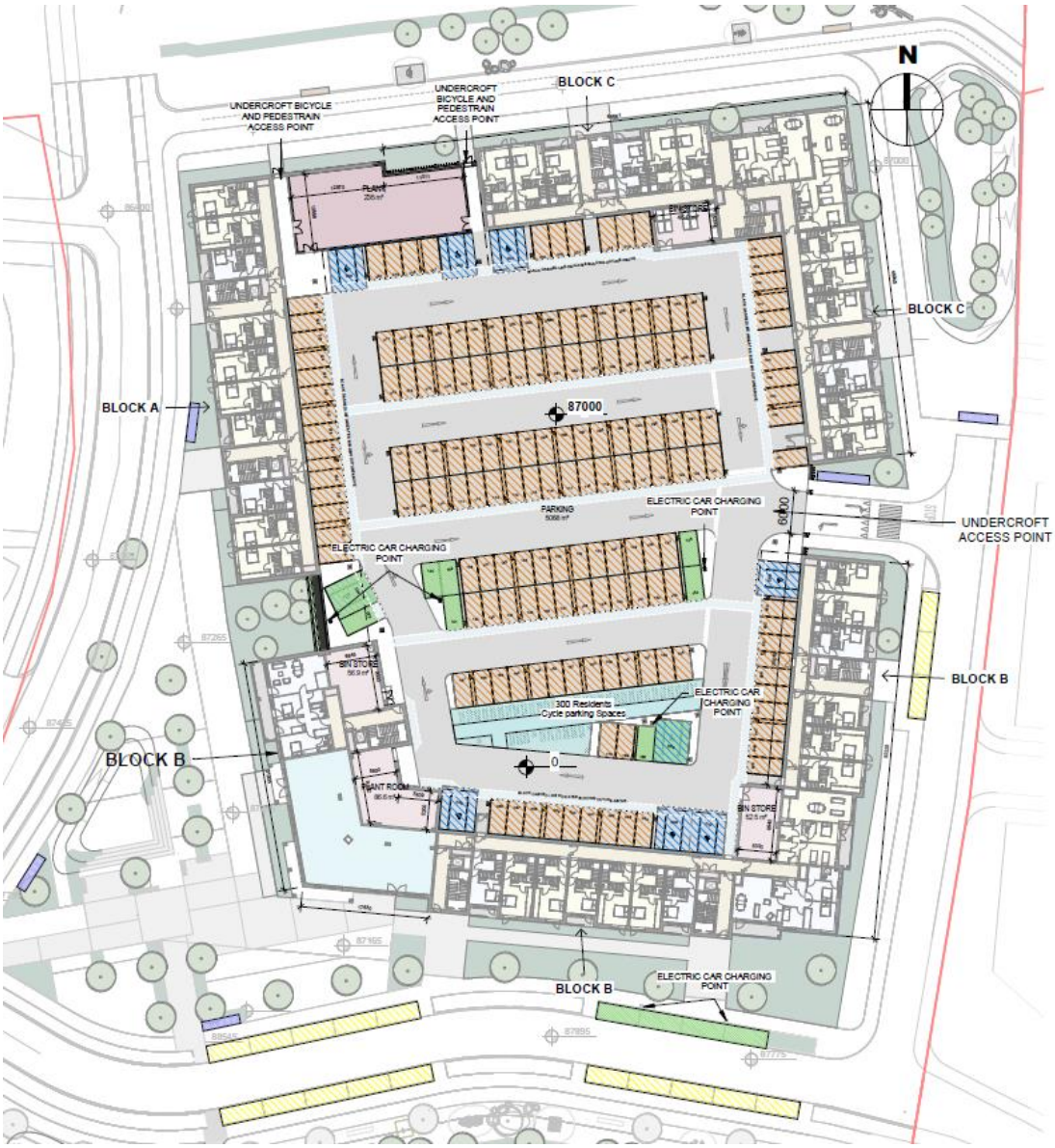


Figure 21. Undercroft Parking

4.7.5 Visitor parking outside the undercroft is to be provided on-street on both sides of the access road that leads to the undercroft. No specific parking is to be provided for the small commercial element of the development. This will primarily serve residents of the development (who will not need to park). Visitor parking (shared with the residential element) is available on street for the small number of customers who may choose to drive.

4.7.6 The Development Management Standards set out in the Draft KCDP 2023-2029 advocate a degree of flexibility and allows developers to submit analysis to demonstrate the supply and demand for car parking spaces (this has been provided below). The guidance suggests that an area-based approach can be taken to assess the analysis of car parking depending on the nature and location of the development and its proximity to public transport where possible.

4.7.7 There is therefore scope within the car parking standards as set out to consider the requirements of each site.

4.7.8 Census 2016 data has been analysed to assess the suitability of the proposed parking provision, and is presented in **Table 7**.

Table 7. Census 2016 Car Ownership

	NAAS	CARAGH GREEN SPA	RATHASKER SPA
No. households	7,109	132	103
Total Cars	10,753	206	128
Cars per household	1.5	1.6	1.2
% House / Bungalow	87%	98%	40%
% Flat / Apartment	12%	1%	60%

4.7.9 The analysis presented in **Table 6** shows that the number of cars per household across Naas as a whole is 1.5. It also demonstrates that there is a clear relationship between house type and car ownership levels. Caragh Green, where nearly all of properties are houses, has an average of 1.6 cars per household, whilst Rathasker, where 60% of the properties are apartments, has an average of just 1.2 cars per household (below the proposed provision for Finlay Park, where all of the residential units are apartments.).

4.7.10 Objective TM106 from the Draft KCDP 2023 – 2027 states that, "*The quantum of car parking or the requirements for any such provision for apartment developments will have regard to the proximity and accessibility to urban locations, public transport and employment locations as outlined in the* ***Sustainable Urban Housing: Design Standards for New Apartments (2020)***".

4.7.11 This document, published by the Department of Housing, Planning and Local Government, states that,

"The quantum of car parking or the requirement for any such provision for apartment developments will vary, having regard to the types of location in cities and towns that may be suitable for apartment development, broadly based on proximity and accessibility criteria".

4.7.12 The Guidance sets out suggested standards for sites by three types of location:

- **Central and/or Accessible Urban Locations –** highly accessible areas such as those adjoining city cores, or at the confluence of public transport systems.
- **Intermediate Urban Location** – described as those areas served by public transport or close to town centres or employment areas. Here planning authorities must consider a reduced overall car parking standard and apply an appropriate maximum car parking standard.
- **Peripheral and/or Less Accessible Urban Locations** – for apartments in these relatively peripheral or less accessible urban locations, one car parking space per unit, together with an element of visitor parking, such as one space for every 3-4 apartments, should generally be required.

4.7.13 SYSTRA would contend that the Finlay Park site's location currently lies between an 'Intermediate Urban Location' and a 'Peripheral' location. The parking provided within the development is in line with that required at a peripheral location, which reflects the fact that whilst the site is within walking distance of the town centre and local bus stops, it may not fully evolve into an 'Intermediate Urban Location' until public transport routes associated with the Northwest Quadrant directly pass the site.

4.7.14 Based on the above, the proposed parking provision is deemed to be adequate. The development will enjoy good walking and cycling links to the town centre, which it is hoped will help to reduce parking demand within the town centre, as well as promoting lower levels of car ownership within the development itself.

4.7.15 The 248sqm commercial element of the development is likely to comprise either a small convenience store, or a restaurant / café (or a combination of the two). The KCDP parking standards set a maximum parking standard for these uses of either 1 space per 15sqm or 20sqm GFA. The maximum provision is therefore between 12 and 17 parking spaces. No additional parking spaces have been added for the commercial aspect, as the units are intended to serve the development itself, and the nearby developments on Old Caragh Road, for which parking is provided.

4.8 Servicing

4.8.1 Refuse and recycling for each of the three residential blocks will be stored within three bin stores in the undercroft area.

4.8.2 Bins will be taken out through the undercroft parking access to a bin collection area which is located to the north of a turning head, as shown in **Figure 22**.

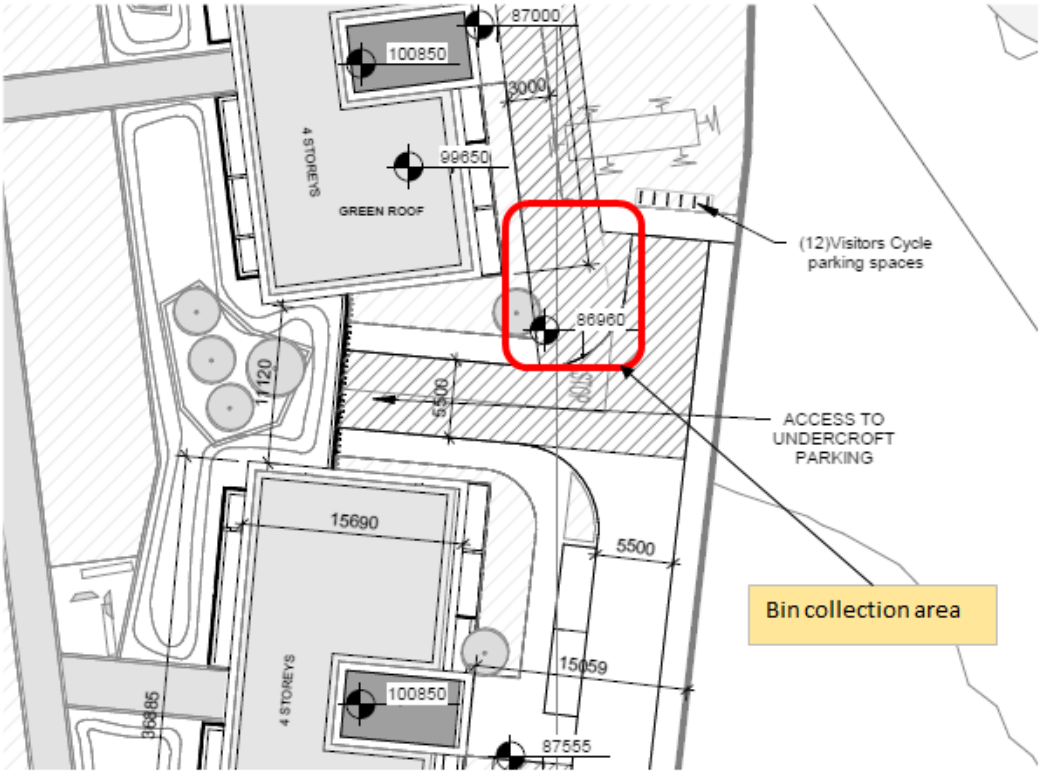


Figure 22. Bin Collection Area

4.8.3 Refuse vehicles will reverse into the hammerhead to collect the bins before moving off. Movement of the bins, and management of the stores, will be the responsibility of the management company in control of the development.

4.9 Emergency Access

4.9.1 In the event that Old Caragh Road becomes blocked for any reason and emergency access is required, the following route has been identified as shown in **Figure 23**.

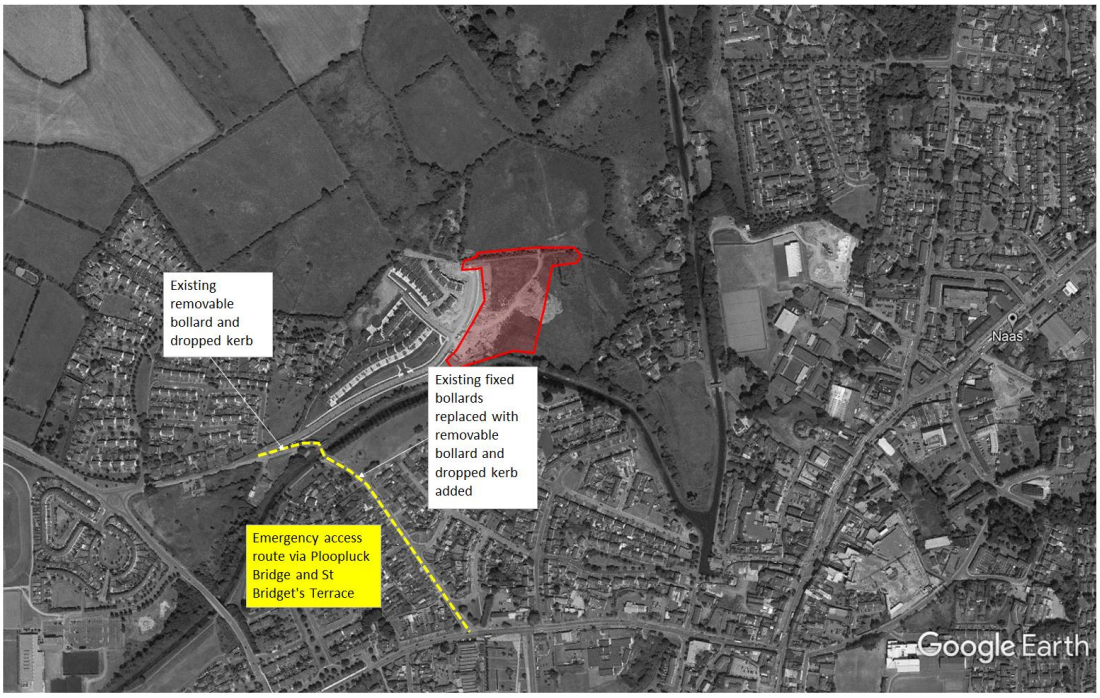


Figure 23. Emergency Route

4.9.2 The route is Via Caragh Road / St Bridget's Terrace, and the Ploopluck Bridge over the canal, onto Old Caragh Road 250m to the east of the R409.

4.9.3 The Ploopluck Bridge is currently a pedestrian / cycle bridge, and would remain this way, with access only being required in emergencies. It is understood that this route currently serves as an emergency access over the canal, and removable bollards and dropped kerbs are already in place.

Figure 24. Ploopluck Bridge south (l) and north (r) access points

4.9.4 SYSTRA would note that the emergency access may not be required for the level of development proposed as part of this phase of the development. This will be agreed with KCC.

4.10 Access During Construction Phase

4.10.1 An Outline Construction Management Plan (OCMP) has been developed for the development, and forms part of the submission package. The OCMP sets out construction vehicle and construction staff movements to the site and the mitigation measures proposed to alleviate any potential impacts.

4.11 Wider Masterplan

4.11.1 **Figure 25** shows the overall Indicative Masterplan that has been developed, which sets out how future phases of the development may look. A larger plan is included as **Appendix B**. This is included for information only, and does not form part of the current application.

4.11.2 Current plans envisage:

- 534 apartments (including the 134 units that are the subject of this application);
- 29 terrace houses; and
- A 134-bedroom hotel.

4.11.3 The envisaged wider Masterplan incorporates:

- Extended road / cycle / public transport routes into future developments to the north and west;
- A pedestrian and cycle route on the north side of the Grand Canal, linking into the Harbour area;
- Two footbridges across the Grand Canal;
- A bus route running from the Harbour area, passing through the Masterplan site, and continuing north towards the N7 interchange
- A hotel and further residential units in the harbour area, along with a public park / public space and sports facility.

Figure 25. Wider Masterplan

4.11.4 At this stage the Masterplan does not show a bus interchange at the harbour, or a bus bridge over the canal providing access to the interchange, but allows sufficient space for these to be accommodated if required.

4.12 Supporting the NSTS

4.12.1 The Naas Sallins Transport Strategy (2020) identifies a multi-modal package of preferred measures, which are earmarked to be delivered in the short, medium and longer term over the next ten years.

4.12.2 Eight measures that are identified in the Strategy are considered to have the potential to interact with the Finlay Park development. These are:

- PT2 Bus Interchange at Naas Harbour;
- PT4 Western Spine' Local Bus route;
- PT 11 'Bus -Only' link to Sallins Bypass;
- RD3 Millbridge Street Road Link;
- C1 Naas to Sallins Greenway;
- C16 Northwest Quadrant Link Road Cycle Route;
- C36 Abbey Street Shared Street improvement; and
- C37 Basin Street Shared Street improvement.

4.12.3 The locations of the above options are shown in **Figure 26**.

Figure 26. NSTS Preferred Options affecting Finlay Park Site

4.12.4 The NSTS acknowledges that many of the projects are indicative at this stage, and are likely to evolve from their current form as detailed design progresses:

"*….these projects will then be examined on their own merits, and be subject to the rigorous analysis requirements of the Public Spending Code (PSC and the Common Appraisal Framework (CAF)…..It should also be noted that the individual projects will be subjected to public consultation, environmental and heritage studies, relevant statutory procedures and consultation with the relevant statutory stakeholders*".

4.12.5 **Table 8** provides further information on each identified option, and sets out how the identified Preferred Options have been incorporated into the current plans for the Finlay Park site, and the wider Masterplan.

Table 8. Incorporation of NSTS Measures into Finlay Park Site

REF	DESCRIPTION	ACCOMMODATION IN FINLAY PARK MASTERPLAN
PT2 Bus Interchange at Naas Harbour	The proposed interchange is a longer-term aspiration to support the Northwest Quadrant. The interchange proposals would require a new 'Bus only' road bridge between the town centre and the site, over the canal, for local buses to serve the hub. The exact location of which would need to be determined by future study. The interchange would be supported by PT11, which would allow intercity and regional buses to access the M7 without being impacted by town centre congestion. Long term (6-10 years)	The proposed Masterplan layout, although not showing a bus interchange, does not preclude future bus access across the canal at the Harbour, and could accommodate a bus interchange if required. Provision has been made for a bus route through the north of the development site, which would link into the interchange.
PT4 'Western Spine' Local Bus route	An indicative route to serve the Northwest Quadrant. This would run from the Piper's Hill school complex to the south of Naas, through the town centre, proceed through the Finlay Park site (on PT 11, a 'Bus only' section), serve the rail station, pass through the west of Sallins, and terminate at the train station. Long term (6-10 years)	The development proposals allow for a future bus route through the site, which would loop around the north of the buildings and link the potential harbour interchange with lands to the north. This would join Old Caragh Road at a crossroads, which would likely be signalised to provide bus priority.
PT 11 'Bus -Only' link to Sallins Bypass	A 'bus only' link to connect the PT2 bus interchange with the Millennium Link Road and the new M7 Junction. This would form part of PT4. Long term (6-10 years)	The development allows for future connection. Further Council-led studies may be required to identify whether this link will be suitable for general traffic, as well as buses. SYSTRA would note that the projected frequency of four buses per hour would not typically justify the need for dedicated bus only infrastructure.
RD3 Millbridge Street Road Link	Creation of Millbridge Street, a road connection from Old Caragh Road to Millbridge Way, providing connectivity between R409 Caragh Road and the R407	The development proposals assume that Old Caragh Road, will form part of RD3, accommodating pedestrians, cyclists, and private vehicles. To the north of the

REF	DESCRIPTION	ACCOMMODATION IN FINLAY PARK MASTERPLAN
	Sallins Road, requiring a crossing of the Grand Canal. The road corridor is intended for public transport, walking and cycling usage, whilst its suitability or carrying private vehicle traffic will be examined during detailed design. Long term (6-10 years)	site, RD3 will continue in a north-easterly direction towards Millbridge Street.
C1 Naas to Sallins Greenway	Walking and cycling Greenway, running along the east bank of the Grand Canal, and west from the harbour area along the canal to the K Leisure site. Medium term (3-5 years)	Connection to the Greenway will eventually be provided via the new footpath / cycleway along the north bank of the Grand Canal and the pedestrian over-bridges. Future, more direct connection to the Greenway is likely to be possible via the Abbey Bridge link.
C16 Northwest Quadrant Link Road Cycle Route	Cycle facilities along the PT4 corridor. Long term (6-10 years)	Proposed cycle lane to be provided along eastern side of Old Caragh Road, and allowance for future connection south-east to harbour area.
C36 + C37 Abbey Street and Basin Street Shared Street improvements.	Abbey Street Shared Street improvement. Medium term (3-5 years)	Development will enhance the case for the conversion of Abbey Street to a Shared Space, as it will increase both pedestrian and cycle demand.

4.12.6 The existing transport links complemented by the additions set out in the LRD proposal are suitable to accommodate the proposed development.

4.12.7 The Finlay Park development has been designed to supports the Preferred Options above, and does not compromise the future provision of these measures.

5. TRIP GENERATION & DISTRIBUTION

5.1 Trip Generation

5.1.1 In line with best practice, the TRICS[1] database (v7.7.4) has been utilised to obtain people trip rates for the proposed development. For clarity the figures below relate solely to the proposed development, and not the wider Masterplan.

5.1.2 TRICS surveys within the "03 – Residential" and "C – Apartments Privately Owned" have been selected for comparable edge-of-town sites. TRICS reports are included as **Appendix C**.

5.1.3 The person trip rates per unit, between 07:00 and 19:00, is shown in **Table 9**.

Table 9. Residential Use People Trip Rates – Daily Profile

TIME	PRIVATE APARTMENTS TRIP RATE (1 UNIT)		
	Arrive	Depart	Two-way
07:00-08:00	0.105	0.44	0.545
08:00-09:00	**0.165**	**0.594**	**0.759**
09:00-10:00	0.141	0.285	0.426
10:00-11:00	0.107	0.168	0.275
11:00-12:00	0.124	0.114	0.238
12:00-13:00	0.131	0.18	0.311
13:00-14:00	0.165	0.151	0.316
14:00-15:00	0.212	0.165	0.377
15:00-16:00	0.241	0.161	0.402
16:00-17:00	0.28	0.153	0.433
17:00-18:00	**0.462**	**0.17**	**0.632**
18:00-19:00	0.467	0.251	0.718
12-Hr Total	2.6	2.832	5.432

5.1.4 **Table 10** shows the predicted Person trip generation, based upon 134 apartments / duplexes.

[1] TRICS (Trip Rate Information Computer System) is a database of trip rates for developments used in the United Kingdom and Ireland for transport planning purposes, specifically to quantify the trip generation of new developments

Table 10. Residential Use People Trip Generation – Daily Profile

TIME	PRIVATE APARTMENTS TRIP GENERATION (134 UNITS)		
	Arrive	Depart	Two-way
07:00-08:00	14	59	73
08:00-09:00	**22**	**80**	**102**
09:00-10:00	19	38	57
10:00-11:00	14	23	37
11:00-12:00	17	15	32
12:00-13:00	18	24	42
13:00-14:00	22	20	42
14:00-15:00	28	22	51
15:00-16:00	32	22	54
16:00-17:00	38	21	58
17:00-18:00	**62**	**23**	**85**
18:00-19:00	63	34	96
12-Hr Total	348	379	728

5.1.5 **Table 10** shows that over the 12-hour period, the development is expected to generate a total of 728 person trips, which is the combined total of arrivals and departures.

5.1.6 The network traffic peak hours (as modelled in the Naas VISUM model) are 08:15 – 09:15 and 17:00 – 18:00. TRICS figures from the following hours have therefore been used in the analysis:

- AM Peak hour: 08:00 - 09:15; and
- PM Peak hour: 17:00 - 18:00

5.1.7 **Table 9** shows that during the AM peak period, it is estimated that there will be in the region of 22 arrivals and 80 departures, therefore 102 two-way people trips, by all modes. During the PM peak period, it is estimated that there will be in the region of 62 arrivals and 23 departures, therefore 85 two-way people trips.

5.1.8 It has been assumed that the 248sqm commercial premises will not generate any additional travel demand, other than a small number of staff trips. It has been assumed that commercial demand will arise from residents already on the site (or in close proximity).

5.2 Modal Split

5.2.1 The people trips demonstrated in **Table 9** have been categorised into the number of trips per mode of travel, based on the 2016 Census data for the Caragh area set out in **Section 4**. The results are shown in **Table 11**.

Table 11. Trips by Mode of Travel

MODE	MODE SHARE	AM (0800-0900)			PM (1800-1900)		
		Arrive	Depart	Two-way	Arrive	Depart	Two-way
On foot	5%	1	4	5	3	1	4
Bicycle	4%	1	3	4	2	1	3
Bus, minibus or coach	4%	1	3	4	2	1	3
Train, DART or LUAS	2%	0	2	2	1	0	2
Motorcycle or scooter	1%	0	0	1	0	0	0
Car or van driver	75%	17	60	76	46	17	63
Car passenger	7%	2	6	7	4	2	6
Other	3%	1	2	3	2	1	3
Total	**100%**	**22**	**80**	**102**	**62**	**23**	**85**

5.2.2 The analysis shown in **Table 11** estimates that the proposed development will generate 76 and 63 vehicle trips in the AM and PM peak hours respectively. It is hoped that the high-quality walking and cycling facilities to be provided for residents will encourage a much higher uptake of these modes than that shown in existing travel patterns, and that public transport use (particularly when bus-related NSTS measures are implanted) will also be higher than that shown.

5.2.3 The results shown in **Table 11** are based upon Census Journey to Work data, which specifically represents commuter travel. The modal split for other journey purposes, and at other times

of the day, would differ from that shown. For example, Census Travel to School data for the Caragh area show that 30% of pupils / students walk of cycle to school.

5.3 Public Transport Capacity

Existing Bus Services

5.3.1 As set out in **Section 3.4**, the nearest bus stops to the site are located on R445 Newbridge Street.

5.3.2 Analysis of the timetables above in the AM and PM peak hours (08:00-09:00 and 17:00-18:00 respectively) has been undertaken to establish the absolute capacity of the bus services running along Newbridge Street at peak times, and to estimate the percentage of this capacity that demand from the development may take up. **Table 12** shows the results of this analysis at the eastbound (Dublin-bound) stop. The analysis conservatively assumes that all of the buses that pass the stops are single-deckers, and assumes capacity is based on the number of seats (when in reality there will be an additional number of standing spaces).

Table 12. Calculated bus capacity R445 EB

Time Period	No. Buses	Total Capacity (seats)	Finlay Park Bus Demand (people)	Finlay Park % of capacity
AM Peak (08:00- 09:00)	5	200	4	2%
PM Peak (17:00 - 18:00)	4	160	3	2%

5.3.3 **Table 12** shows that there is an estimated total bus capacity of 200 seats in the AM peak hour, and 160 seats in the PM peak hour. The estimated demand from the proposed development (assuming all new passengers head eastbound) would take up around 2% of this capacity at peak periods, which is not deemed to be significant.

5.3.4 **Table 13** shows the results of this analysis at the westbound (Newbridge-bound) stop.

Table 13. Calculated bus capacity R445 WB

Time Period	No. Buses	Total Capacity (seats)	Finlay Park Bus Demand (people)	Finlay Park % of capacity
AM Peak (08:00- 09:00)	3	120	4	3%
PM Peak (17:00 - 18:00)	4	160	3	2%

5.3.5 **Table 12** shows that there is an estimated total capacity of 120 seats in the AM peak hour, and 160 seats in the PM peak hour. The estimated demand from the proposed development (assuming all new passengers head westbound) would take up around 2-3% of this capacity, which is not deemed to be significant.

Future Bus Services

5.3.6 Whilst the development is not reliant upon the emergence of future bus services, it is useful to set out how these might evolve in the wider area.

5.3.7 The Connecting Ireland Rural Mobility Plan is a major national public transport initiative developed by the National Transport Authority (NTA), with the aim of increasing connectivity, particularly for people living outside major cities and towns.

5.3.8 Connecting Ireland seeks to make public transport for rural communities more useful for more people, and it will do this by:

- Improving existing services;
- Adding new services; and
- Enhancing the current Demand Responsive Transport (DRT) network which meets the transport needs of people who live in remote locations.

5.3.9 The proposed service improvements that will directly improve bus services to and from Naas are:

- A new local bus route from Caragh, Prosperous, Cooleragh, Allenwood, Robertstown, and Kilmeague to both Naas and Newbridge
- A new local bus route from Naas via Kilcullen, Narraghmore, and Castledermot to Carlow
- A new local bus route from Sallins via Naas, Blessington, Ballymore Eustace, Baltinglass, and Castledermot to Carlow
- A new local bus route from Sallins (Rail Station) via Naas, Blessington, Glendalough, Wicklow, and Rathnew to Arklow

5.3.10 As a general comment, the Plan notes that, "*The minimum level of service we have identified is a starting point in many cases. Where our analysis demonstrates a warrant for levels of service above the minimum, we will plan to provide that, where funding can be identified. Improvements may be delivered in stages as the project proceeds*"

5.3.11 The rollout of new and improved services has begun, and is continuing on a phased basis from 2023 to 2026. These services, in tandem with the bus enhancements set out in the NSTS (see Section 4.12) will further enhance bus frequency and capacity for residents of the development.

Existing Rail Services

5.3.12 The passenger volumes presented in the NSTS provide a useful indicator as to the likely percentage impact of demand from the Finlay Park development at the Sallins & Naas station.

5.3.13 In 2017, recorded daily passenger volumes recorded that 1,783 people boarded a train at the station. Taking the overall 409 person trips departing the Finlay Park development over the course of a day, and assuming a 2% rail mode split (as recorded in 2016 census data), this results in an increase of 8 persons boarding at Sallins & Naas station, an increase of 0.4%, which his not deemed to be significant.

5.4 Traffic Distribution

5.4.1 New traffic demand to and from of Finlay Park, as set out in **Table 10**, has been distributed through the network based upon the traffic splits observed in the Base 2018 model. The resultant number of trips are shown in **Figure 27** and **28** for the AM and PM peaks respectively.

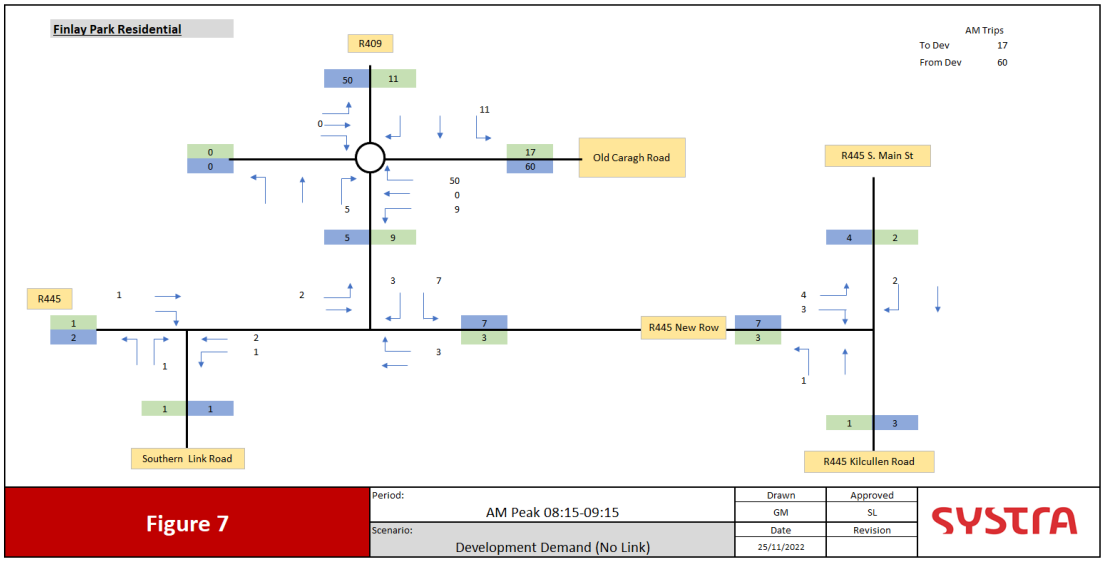


Figure 27. AM Trip Distribution (pcu)

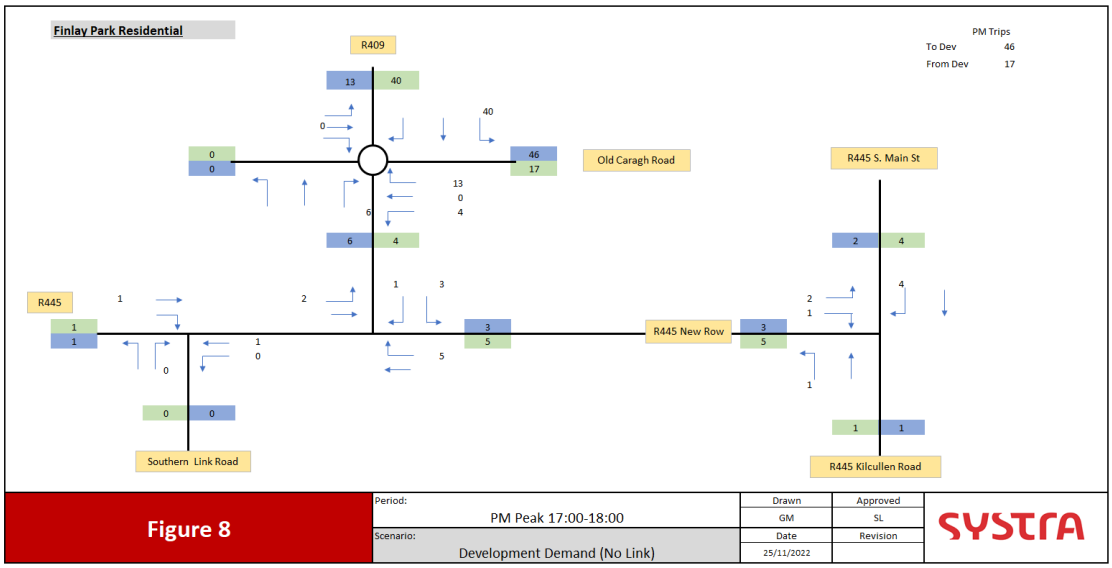


Figure 28. PM Trip Distribution (pcu)

5.5 Full Masterplan Trip Generation

5.5.1 KCC has requested that the junction capacity modelling also assess the impact of the full future Masterplan on the Finlay Park site.

5.5.2 Indicative plans show that this will comprise:

- 534 apartments
- 29 terrace houses
- A 134-bedroom hotel.

5.5.3 Using the same trip generation and modal split methodology set out in Section 5 results in the trip generation figures presented in **Table 14**.

Table 14. Full Masterplan Person Trips by Mode of Travel

MODE	MODE SHARE	AM (0800-0900)			PM (1800-1900)		
		Arrive	Depart	Two-way	Arrive	Depart	Two-way
On foot	5%	4	8	12	13	5	19
Bicycle	4%	3	7	10	11	4	15
Bus, minibus or coach	4%	3	6	9	9	4	13
Train, DART or LUAS	2%	2	3	5	5	2	7
Motorcycle or scooter	1%	0	1	1	1	1	2

MODE	MODE SHARE	AM (0800-0900)			PM (1800-1900)		
		Arrive	Depart	Two-way	Arrive	Depart	Two-way
Car or van driver	75%	62	123	185	200	77	277
Car passenger	7%	6	12	17	19	7	26
Other	3%	2	5	7	8	3	11
Total	**100%**	**83**	**164**	**248**	**267**	**103**	**370**

5.5.4 **Table 14** shows that the full Masterplan is expected to generate 185 and 277 two-way vehicle trips in the AM and PM peak network hours respectively.

5.6 Full Masterplan Modal Split

5.6.1 The people trips demonstrated in **Table 14** have been categorised into the number of trips per mode of travel, based on the 2016 Census data for the Caragh area set out in **Section 4**. The results are shown in **Table 15**.

Table 15. Full Masterplan Vehicle Trips

Mode	MODE SHARE	AM (0800-0900)			PM (1800-1900)		
		Arrive	Depart	Two-way	Arrive	Depart	Two-way
On foot	5%	5	17	22	13	5	19
Bicycle	4%	4	14	18	11	4	15
Bus, minibus or coach	4%	3	12	15	9	4	13
Train, DART or LUAS	2%	2	7	9	5	2	7
Motorcycle or scooter	1%	0	2	2	1	1	2
Car or van driver	75%	88	279	367	221	93	313
Car passenger	7%	7	24	31	19	7	26
Other	3%	3	10	13	8	3	11
Total	**100%**	**112**	**365**	**477**	**288**	**119**	**406**

5.7 Full Masterplan Distribution

5.7.1 Full Masterplan vehicular demand, as set out in **Table 13**, has been distributed through the network based upon the traffic splits observed in the Base 2018 model. The resultant number of trips are shown in **Figure 29** and **30** for the AM and PM peaks respectively.

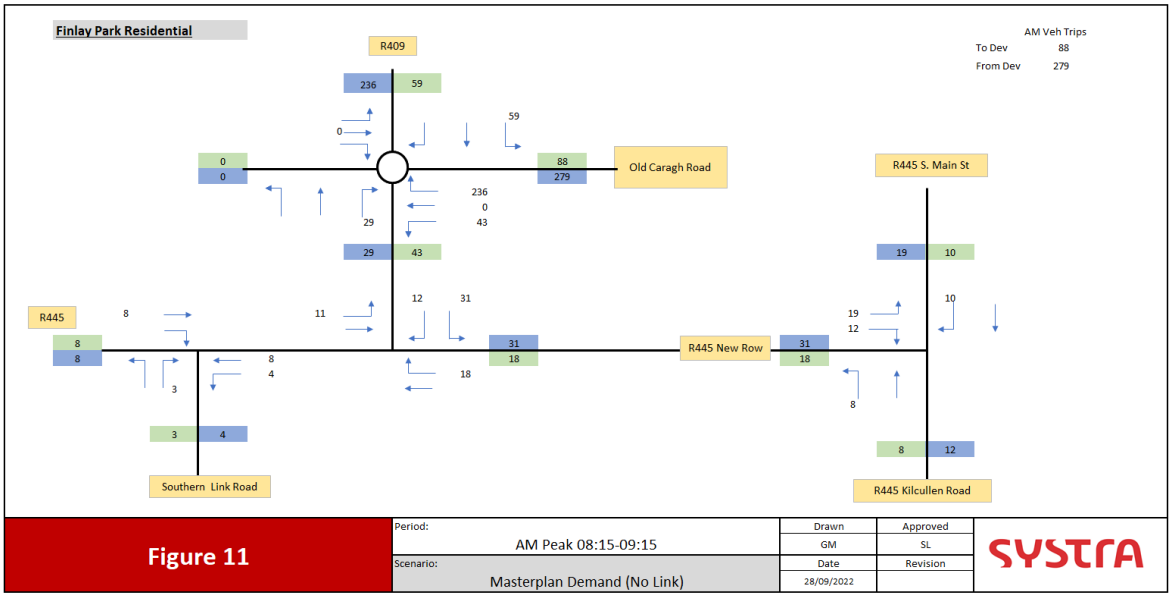


Figure 29. Masterplan AM Trip Distribution (pcu)

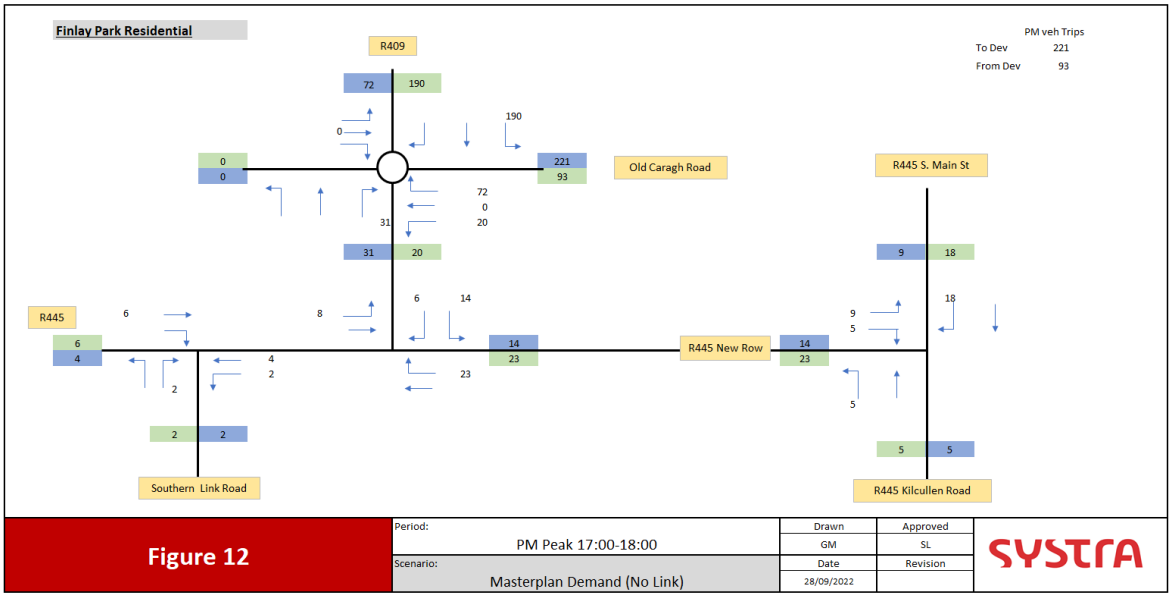


Figure 30. Masterplan PM Trip Distribution (pcu)

6. TRAFFIC IMPACT

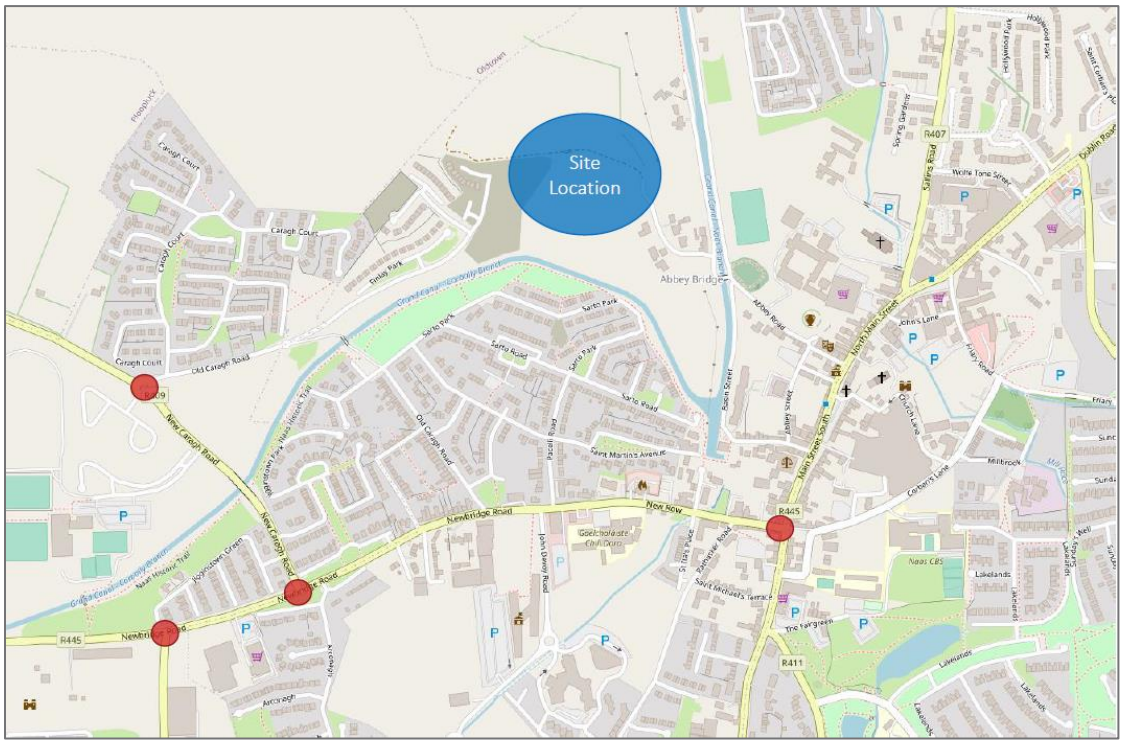
6.1 Baseline Traffic Conditions

6.1.1 The Naas VISUM model has been utilised to establish baseline traffic turning counts at key junctions in the vicinity of the site. Peak hour turn counts were obtained from the following junctions:

- R409 / Old Caragh Road / Teampull Cearach 4-arm roundabout;
- R445 / R409 signalised junction;
- R445 / Naas Southern Link Road signalised junction; and
- R445 / R448 signalised junction.

6.1.2 **Figure 31** below illustrates the location of these junctions in the context of the proposed development.

Figure 31. Location of Junctions Turning Counts obtained from VISUM Model



6.1.3 As set out in the 'Naas Transport Strategy Baseline Report' (KCC, September 2020), the Naas VISUM model was calibrated to a Base Year of 2018.

6.1.4 Turn count diagrams for the AM and PM peak hours from the 2018 Base model (and all modelled scenarios) are presented in **Appendix D**.

6.2 Modelled Scenarios

Naas VISUM Model

6.2.1 As set out in the 'Naas / Sallins Transport Strategy Future Year Modelling Report (FYMR) (KCC, September 2020), the following scenarios were created by AECOM to test future network interventions using the Naas VISUM model:

- Base 2018;
- 2023 Do Minimum; and
- 2030 Do Minimum.

6.2.2 The Do Minimum models incorporated expected land-use and population changes in Naas. The Do Minimum models were used to test eight road options, including 'Option 3 Millbridge Street', which assessed the impact of extending Old Caragh Road over the Grand Canal to Millbridge Street, and tying back in to R407 Sallins Road.

SYSTRA Finlay Park Testing Scenarios

6.2.3 SYSTRA has developed scenarios to test the impact of this LRD application, and the additional impact of the full Masterplan. Both of the above scenarios have been tested with, and without, the Millbridge Street Link in place.

6.2.4 The following scenarios have been developed, using turning flow results from the VISUM model.

- 2022 Base
- 2030 Do Nothing
- 2030 Do Nothing + LRD application
- 2030 Do Nothing + Full Masterplan

- 2030 Do Minimum
- 2030 Do Minimum + LRD application
- 2030 Do Minimum + Full Masterplan

6.2.5 The 'Do Nothing' models assume the 2018 road network remains in place (i.e. no Millbridge Street Link), but that LDP traffic growth occurs. The 'Do Minimum' model assumes that the Millbridge Street Link is constructed (i.e. that traffic redistribution occurs), and that LDP traffic growth occurs.

6.2.6 Turn count flows used in each scenario are presented in **Appendix D**. Further information on each scenario is provided below.

2022 Base

6.2.7 The 2022 Base Scenario has been created by applying the following factors to the 2018 Base VISUM model:

- AM Peak hour 2018 – 2022: 1.282
- PM Peak hour 2018 – 2022: 1.406

6.2.8 The above growth factors were calculated using the VISUM trip end totals between 2018 and 2030 set out in Table 2.3 of the FYMR. It was assumed that the growth rate between 2018 and 2022 represented one-third of the growth over the full 12-year period.

2030 Do Nothing Scenario

6.2.9 The 2030 Do Nothing scenario has been created by factoring the 2018 Base VISUM model flows using the following growth factors:

- AM Peak hour 2018 – 2030: 1.282
- PM Peak hour 2018 – 2030: 1.406

6.2.10 The above growth factors were calculated using the VISUM trip end totals between 2018 and 2030 set out in Table 2.3 of the FYMR.

6.2.11 If consented, this LRD application will be completed prior to the Millbridge Street link. The above approach allows for LDP traffic growth, but assumes that traffic distribution is as at present.

2030 Do Nothing + LRD Application Scenario

6.2.12 New demand to and from the development, as set out in **Section 5**, has been added to the 2030 Do Nothing traffic flows.

2030 Do Nothing + Full Masterplan Scenario

6.2.13 New demand to and from the full Masterplan, as set out in **Section 5**, has been added to the 2030 Do Nothing traffic flows.

2030 DM Scenario

6.2.14 When the Millbridge Street Link is constructed, Finlay Park traffic will have the choice of travelling west on Old Caragh Road, or turning east onto the Millbridge Street link.

6.2.15 Traffic flows in this scenario have been taken directly from the 2030 DM VISUM model, which includes LDP growth.

6.2.16 The 2030 DM model indicates the adopted split of development traffic, which has been calculated using the traffic flows from the 2030 DM model.:

- AM Peak hour 2030 – 59% Old Caragh Road, 41% east
- AM Peak hour 2030 – 31% Old Caragh Road, 69% east

6.2.17 Masterplan traffic has been assigned as per the above splits. The percentage of traffic arriving / departing via the R409 / Old Caragh Road roundabout has then been split proportionally through the other modelled junctions using the observed 2018 turn flows.

2030 Do Minimum + LRD Application Scenario

6.2.18 New demand to and from the proposed development, as set out in **Section 5**, has been added to the 2030 Do Minimum traffic flows.

2030 DM Scenario + Full Masterplan Scenario

6.2.19 Traffic flows from the full Finlay Park Masterplan, as set out in Section 5.4, have been added to the 2030 DM flows. This represents a robust assessment, as the 2030 DM scenario already includes traffic from the LDP zone containing Finlay Park. It has not been possible to disaggregate this traffic from the 2030 DM Scenario, and therefore in effect it has been 'double counted'.

6.2.20 It should be noted that the wider Masterplan is not part of the current application. The results from this scenario have been provided at the request of KCC, and should be seen as providing a guide to the proportionate level of impact that might results should the Masterplan be consented. Future phases of the Masterplan would need to be supported by a refreshed Transport Assessment that would consider these impacts in more detail.

6.3 Junction Capacity Assessments: Methodology

6.3.1 In order to assess the impact of the development proposals on the local road network, SYSTRA has utilised industry standard assessment software Junctions 8 (ARCADY module) and LinSig v3.

6.3.2 The following software has been used to model each junction:

- R409 / Old Caragh Road Roundabout – Junctions 8
- R409 / R445 signalised junction – LINSIG v3
- R445 / Naas Southern Link Road signalised junction – LINSIG v3
- R445 / R448 signalised junction – LINSIG v3

6.3.3 With respect to the LinSig modelling, suitable signal phasing and staging have been developed by SYSTRA. Minimum greens and intergreens have been calculated from the geometric measurements. More specifically a minimum green time of 7s has been assumed for standard signalised traffic phases, with a minimum green time of 5s for traffic filters and indicative arrows.

6.3.4 Intergreens have been calculated as per the guidance set out in Traffic Advisory Leaflet (TAL) 1/06, published by the Department for Transport.

6.3.5 The constructed signalised junction and existing signalised junction modelled are likely to be MOVA controlled (or similar), which means that phase and cycle times can vary per cycle and are automatically optimised according to traffic flow and pedestrian demands. To model this effect, cycle times were fixed within LinSig with signal timings optimised for each scenario.

Full model inputs and outputs for both LinSig and Junctions 8 modelling are available on request.

Interpretation of Results

6.3.6 The Junctions 8 analysis reports on the Ratio of Flow Capacity (RFC) and the maximum forecast queue for each movement within the junction. The RFC of an arm of a junction is one

of the principal factors in influencing queues and delays. General engineering design principles, as set out in DMRB, suggest that when assessing a priority junction or roundabout, RFC levels should not exceed 0.85 in order for the arm of a junction to operate within 'practical' capacity. Should the RFC level exceed 1.0 then the junction is operating above 'theoretical' capacity.

6.3.7 LinSig results refer to the Degree of Saturation (DoS) and Mean Maximum Queue (MMQ) predicted for each lane at the junction. A DoS of 100% indicates that the lane in question is operating at its theoretical capacity (point of saturation), whilst a DoS of 90% or less indicates that the lane is operating within its practical capacity.

6.3.8 The MMQ represents the maximum queue (in PCUs) within a typical cycle averaged over all the cycles within the modelled time period.

6.3.9 Full model output files are included in **Appendix E**.

6.4 Results - Without Millbridge Street Link

R409 / Old Caragh Road / Teampull Cearach 4-arm roundabout

6.4.1 The modelling results at the R409 / Old Caragh Road / Teampull Cearach 4-arm roundabout are presented in **Table 16**.

Table 16. R409 / Old Caragh Road / Teampull Cearach Junction Capacity Assessment Results

Arm	AM		PM	
	Queue (PCU)	RFC	Queue (PCU)	RFC
2022 Base				
R409 North	0.44	0.3	0.63	0.39
Old Caragh Road	0.18	0.15	0.05	0.05
R409 South	0.14	0.12	0.25	0.2
Teampull Cearach	0.1	0.09	0.15	0.13
2030 DN				
R409 North	0.56	0.36	0.92	0.48
Old Caragh Road	0.23	0.19	0.07	0.07
R409 South	0.16	0.14	0.33	0.25
Teampull Cearach	0.13	0.11	0.2	0.17
2030 DN + Dev				
R409 North	0.58	0.37	1.07	0.52
Old Caragh Road	0.33	0.25	0.09	0.08
R409 South	0.18	0.15	0.34	0.26
Teampull Cearach	0.13	0.12	0.21	0.17
2030 DN + Masterplan				
R409 North	0.69	0.41	1.77	0.64
Old Caragh Road	0.82	0.45	0.18	0.15
R409 South	0.23	0.19	0.39	0.28
Teampull Cearach	0.16	0.14	0.22	0.18

6.4.2 The results presented in **Table 116** indicate that without construction of the Millbridge Street Link, the roundabout is predicted to operate within capacity in all scenarios, and is able to accommodate both the proposed development and Full Masterplan traffic in its current form.

6.4.3 The results predict that the proposed development will result in a modest uplift in queues and delay at the roundabout, with all arms continuing to operate well below capacity.

6.4.4 In the 2030 DN + Full Masterplan Scenario, the RFC of the Old Caragh Road arm is predicted to increase to 0.82, but to remain within capacity.

R445 / Naas Southern Link Road signalised junction

6.4.5 The modelling results for the R445 / Southern Link Road junction, are presented in **Table 17**.

Table 17. R445 / Southern Link Rd LinSig Model Results

Description	Link	AM		PM	
		Deg Sat (%)	MMQ (PCU)	Deg Sat (%)	MMQ (PCU)
2022 Base					
R445 E WB Left Ahead	1/1+1/2	84.2 : 85.2%	8.7	93.8 : 90.0%	11.5
Naas Link Road NB Left Right	3/1+3/2	99.9 : 99.9%	41	100.5 : 100.5%	35
R445 E EB Right Ahead	4/1+4/2	100.3 : 100.3%	24.1	101.8 : 101.8%	33.5
2030 DN					
R445 E WB Left Ahead	1/1+1/2	98.2 : 99.9%	17.2	116.1 : 111.4%	48.3
Naas Link Road NB Left Right	3/1+3/2	117.5 : 117.5%	132.4	124.6 : 124.6%	134.7
R445 E EB Right Ahead	4/1+4/2	117.8 : 117.8%	86	126.3 : 126.3%	129.6
2030 DN + DEV					
R445 E WB Left Ahead	1/1+1/2	99.6 : 100.6%	18.6	126.30%	49.4
Naas Link Road NB Left Right	3/1+3/2	117.5 : 117.5%	132.4	126.30%	134.7
R445 E EB Right Ahead	4/1+4/2	117.8 : 117.8%	86.3	116.7 : 111.8%	129.8
2030 DN + MASTERPLAN					
R445 E WB Left Ahead	1/1+1/2	101.6 : 101.6%	20	116.1 : 111.4%	48.3
Naas Link Road NB Left Right	3/1+3/2	116.2 : 116.2%	125.6	123.3 : 123.3%	129
R445 E EB Right Ahead	4/1+4/2	116.9 : 116.9%	83.2	125.1 : 125.1%	125.1

6.4.6 The results presented in **Table 17** indicate that:

- The junction is predicted to operate over capacity in both the Base 2022 AM and PM Scenarios.
- By the 2030 DN Scenario, the junction is predicted to continue to operate over capacity in both the AM and PM peaks. This is primarily a result of very high predicted left-turning flows from the SLR onto the A445 west
- The addition of both the proposed development, and later full Masterplan traffic, to the junction is predicted to have a small, proportionate impact upon queuing and delay. The maximum percentage changes on any one traffic movement at the junction are:
- LRD Application vs 2030 Do Nothing: Maximum 1% increase (R445 east ahead)
- Full Masterplan vs 2030 DM: Maximum 2% increase (R445 east ahead)

6.4.7 The results above suggest that both the proposed development, and the wider Masterplan, will have little impact upon the R445 / SLR signalised junction, but that improvements will be required at this location to support the LDP. The traffic congestion at this junction is not caused, or particularly exacerbated, by the proposed development.

R445 / R409 signalised junction

6.4.8 The modelling results for the R445 / R409 junction, are presented in **Table 18**.

Table 18. R445 / R409 LinSig Model Results

Description	Link	AM		PM	
		Deg Sat (%)	MMQ (PCU)	Deg Sat (%)	MMQ (PCU)
2022 Base					
R409 SB Right Left	1/2+1/1	70.2 : 69.7%	11.9	50.1 : 50.1%	6.8
R445 W EB Left Ahead	3/1	70.70%	15.9	50.00%	9.8
R445 E WB Ahead	5/1	18.70%	3.2	29.40%	5.6
R445 E WB Right	5/2	15.70%	2.4	29.80%	5.1
2030 DN					
R409 SB Right Left	1/2+1/1	82.3 : 81.9%	16.7	60.3 : 60.3%	10.6
R445 W EB Left Ahead	3/1	83.1%	20.6	60.4%	14.8
R445 E WB Ahead	5/1	21.8%	3.9	37.9%	9
R445 E WB Right	5/2	18.4%	2.8	38.0%	8.1
2030 DN + DEV					
R409 SB Right Left	1/2+1/1	83.2 : 83.2%	20.9	60.6 : 60.6%	10.7
R445 W EB Left Ahead	3/1	83.4%	4	60.6%	14.8
R445 E WB Ahead	5/1	22.3%	2.9	38.4%	9.2
R445 E WB Right	5/2	18.8%	0	39.4%	8.6
2030 DN + MASTERPLAN					
R409 SB Right Left	1/2+1/1	85.2 : 85.2%	18.7	62.0 : 62.0%	11.2
R445 W EB Left Ahead	3/1	85.6%	21.5	60.9%	14.9
R445 E WB Ahead	5/1	22.1%	4	38.4%	9.2
R445 E WB Right	5/2	20.1%	3.2	41.3%	9.1

6.4.9 The results presented in **Table 18** indicate that:

- The junction is predicted to operate under capacity in the 2030 DN scenario, and when traffic from the Full Masterplan is considered (in both the AM and PM peak hours).
- The results demonstrate that the proposed development, and later the Full Masterplan, would have a small, proportionate impact on queuing and delay at this location.

6.4.10 The results above suggest that both the proposed development, and the wider Masterplan, can be accommodated without any changes being required to the R405 / R409 junction.

R445 / R448 signalised junction

6.4.11 The modelling results for the R445 / R409 junction, are presented in **Table 19**

Table 19. R445 / R448 LinSig Model Results

Description	Link	AM		PM	
		Deg Sat (%)	MMQ (PCU)	Deg Sat (%)	MMQ (PCU)
2022 Base					
R445 W EB Left Right	1/2+1/1	71.2 : 71.2%	9.9	67.5 : 66.6%	8.4
R445 N SB Right Ahead	4/1+4/2	70.2 : 70.2%	10.8	67.2 : 67.2%	10.9
R448 S NB Left Ahead	44566	72.0%	16.3	59.3%	13.6
2030 DN					
R445 W EB Left Right	1/2+1/1	88.1 : 88.1%	17.1	89.9 : 89.9%	13.2
R445 N SB Right Ahead	4/1+4/2	89.7 : 89.7%	21.2	94.3 : 94.3%	20.6
R448 S NB Left Ahead	5/1	82.9%	0	80.5%	21.1
2030 DN + DEV					
R445 W EB Left Right	1/2+1/1	88.9 : 88.9%	16.6	90.4 : 90.4%	13.3
R445 N SB Right Ahead	4/1+4/2	90.6 : 90.6%	17.5	95.1 : 95.1%	21.8
R448 S NB Left Ahead	5/1	83.1%	21.3	80.7%	21.3
2030 DN + MASTERPLAN					
R445 W EB Left Right	1/2+1/1	91.5 : 91.5%	18.1	91.3 : 91.3%	14
R445 N SB Right Ahead	4/1+4/2	92.4 : 92.4%	18.1	96.9 : 96.9%	25.2
R448 S NB Left Ahead	5/1	84.7%	21.8	80.1%	20.9

6.4.12 The results presented in **Table 19** indicate that:

- The junction is predicted to operate within capacity in 2022.
- In the PM peak 2030 Do Nothing scenario, the junction is predicted to operate above capacity as a result of LDP traffic growth. The AM peak is predicted to be close to capacity.
- The proposed development is predicted to have a very marginal additional impact on this – traffic flows are predicted to increase at the junction by 1% as a result of the development.
- The addition of traffic from the Full Masterplan adds a further, small, incremental increase to queues and delays at the junction.

6.4.13 The results above suggest that both the proposed development, and the wider Masterplan, will have little impact upon the R445 / R448 signalised junction, but that improvements will be required at this location to support the LDP. The traffic congestion at this junction is not caused, or particularly exacerbated, by the proposed development.

6.5 Results - With Millbridge Street Link

R409 / Old Caragh Road / Teampull Cearach 4-arm roundabout

6.5.1 The modelling results at the R409 / Old Caragh Road / Teampull Cearach 4-arm roundabout are presented in **Table 20**.

Table 20. R409 / Old Caragh Road / Teampull Cearach Junction Capacity Assessment Results

2030 DM + LINK				
R409 North	0.53	0.35	8.46	0.91
Old Caragh Road	4.32	0.82	0.48	0.33
R409 South	0.42	0.29	0.26	0.21
Teampull Cearach	0.26	0.21	0.16	0.14
2030 DM + LINK + DEV				
R409 North	0.56	0.36	12.6	0.94
Old Caragh Road	6.54	0.88	0.53	0.35
R409 South	0.46	0.31	0.27	0.22
Teampull Cearach	0.29	0.23	0.17	0.14
2030 DM + LINK + MASTERPLAN				
R409 North	0.61	0.38	11.72	0.94
Old Caragh Road	16.11	0.97	0.55	0.36
R409 South	0.53	0.35	0.28	0.22
Teampull Cearach	0.35	0.26	0.17	0.14

6.5.2 The construction of the Millbridge Street Link, which will effectively act as a local distributor road around the north of the town centre, is predicted to increase traffic volumes at the roundabout significantly, as vehicles are attracted to Old Caragh Road.

6.5.3 The results presented in **Table 20** indicate that:

- The junction is predicted to operate over capacity in the PM peak in the 2030 DM + Link scenario. The RFC on Old Caragh Road in the AM peak is predicted to be 0.82, which is approaching capacity.
- The addition of traffic from the proposed development slightly impacts on both of these issues, creating marginal additional congestion.
- Addition of Full Masterplan traffic further exacerbates an over-capacity situation.

6.5.4 The results suggest that the construction of the Millbridge Street Link, and associated increase in trips through the roundabout, will lead to it operating at, or close to capacity. It is suggested that more detailed modelling will be required as part of the planning application for the Link itself, which will consider whether any improvements are required at the R409 Old Caragh Road roundabout, or other junctions along the Link.

6.5.5 The Finlay Park development creates a proportionate additional impact on top of this situation, but is not responsible for the majority of traffic using Old Caragh Road.

6.5.6 It should also be borne in mind that that the 2030 DM + Link scenario already includes full LDP development (including development on the Finlay Park site), and therefore that the these results reflect the likely performance of the junction, more that the over-cautious scenarios which add in Finlay Park development again on top of this.

R445 / Naas Southern Link Road signalised junction

6.5.7 The modelling results for the R445 / Southern Link Road junction, are presented in **Table 21**.

Description	Link	AM		PM	
		Deg Sat (%)	MMQ (PCU)	Deg Sat (%)	MMQ (PCU)
2030 DM + LINK					
R445 E WB Left Ahead	1/1+1/2	85.5 : 85.5%	8.9	126.0 : 126.0%	69.8
Naas Link Road NB Left Right	3/1+3/2	154.4 : 154.4%	331.2	129.7 : 129.7%	148.3
R445 E EB Right Ahead	4/1+4/2	155.4 : 155.4%	221.6	130.4 : 130.4%	141.8
2030 DM + LINK + DEV					
R445 E WB Left Ahead	1/1+1/2	86.2 : 86.2%	9.1	126.0 : 126.0%	70
Naas Link Road NB Left Right	3/1+3/2	154.4 : 154.4%	331.6	129.7 : 129.7%	148.3
R445 E EB Right Ahead	4/1+4/2	155.4 : 155.4%	222.1	130.4 : 130.4%	142
2030 DM + LINK + MASTERPLAN					
R445 E WB Left Ahead	1/1+1/2	87.2 : 87.2%	9.4	126.4 : 126.4%	70.9
Naas Link Road NB Left Right	3/1+3/2	154.5 : 154.5%	332.1	129.8 : 129.8%	148.7
R445 E EB Right Ahead	4/1+4/2	155.5 : 155.5%	222.8	130.4 : 130.4%	142.3

Table 21. R445 / Southern Link Rd LinSig Model Results

6.5.8 The results presented in **Table 21** indicate that:

- Construction of the Millbridge Street link is predicted to increase congestion at the junction.
- Improvements will be required at this location to support the LDP.
- The traffic congestion at this junction is not caused, or particularly exacerbated, by the proposed development.

R445 / R409 signalised junction

6.5.9 The modelling results for the R445 / R409 junction, are presented in **Table 22**.

Table 22. R445 / R409 LinSig Model Results

Description	Link	AM		PM	
		Deg Sat (%)	MMQ (PCU)	Deg Sat (%)	MMQ (PCU)
2030 DM + LINK					
R409 SB Right Left	1/2+1/1	69.6 : 69.6%	11.2	82.0 : 82.0%	19.5
R445 W EB Left Ahead	3/1	69.5%	16.6	80.5%	14.1
R445 E WB Ahead	5/1	20.5%	3.5	33.4%	6.4
R445 E WB Right	5/2	20.9%	3.2	33.3%	5.8
2030 DM + LINK + DEV					
R409 SB Right Left	1/2+1/1	71.1 : 71.1%	11.6	82.4 : 82.4%	19.9
R445 W EB Left Ahead	3/1	69.7%	16.6	81.0%	14.3
R445 E WB Ahead	5/1	20.5%	3.5	33.4%	6.4
R445 E WB Right	5/2	21.2%	3.3	33.9%	5.9
2030 DM + LINK + MASTERPLAN					
R409 SB Right Left	1/2+1/1	71.8 : 71.8%	12.1	82.6 : 82.6%	20
R445 W EB Left Ahead	3/1	71.7%	17.2	81.0%	14.3
R445 E WB Ahead	5/1	20.8%	3.6	33.4%	6.4
R445 E WB Right	5/2	22.1%	3.5	34.2%	6

6.5.10 The results presented in **Table 22** indicate that:

- The junction is predicted to operate under capacity in the 2030 DM + Link scenario, and when traffic from the Full Masterplan is considered (in both the AM and PM peak hours).
- The results demonstrate that traffic from the proposed development, and later the Full Masterplan, would have a small, proportionate impact on queuing and delay at this location.

6.5.11 The results above suggest that, should the Millbridge Street Link be constructed, both the proposed development, and the wider Masterplan, can be accommodated without any changes being required to the R405 / R409 junction.

R445 / R448 signalised junction

6.5.12 The modelling results for the R445 / R409 junction, are presented in **Table 23**.

Table 23. R445 / R448 LinSig Model Results

Description	Link	AM		PM	
		Deg Sat (%)	MMQ (PCU)	Deg Sat (%)	MMQ (PCU)
2030 DM + LINK					
R445 W EB Left Right	1/2+1/1	75.6 : 75.6%	11.8	80.2 : 80.2%	15
R445 N SB Right Ahead	4/1+4/2	68.8 : 68.8%	10.9	73.9 : 73.9%	18.4
R448 S NB Left Ahead	5/1	74.60%	17.1	79.5%	18.3
2030 DM + LINK + DEV					
R445 W EB Left Right	1/2+1/1	76.5 : 76.5%	11.8	80.6 : 80.6%	15.3
R445 N SB Right Ahead	4/1+4/2	69.2 : 69.2%	10.5	74.2 : 74.2%	18.7
R448 S NB Left Ahead	5/1	76.50%	17.6	79.6%	18.4
2030 DM + LINK + MASTERPLAN					
R445 W EB Left Right	1/2+1/1	76.9 : 76.9%	12.3	80.8 : 80.8%	15.4
R445 N SB Right Ahead	4/1+4/2	71.0 : 71.0%	11	74.3 : 74.3%	18.7
R448 S NB Left Ahead	5/1	76.9%	17.7	79.8%	18.4

6.5.13 The results presented in **Table 23** indicate that:

- Construction of the Millbridge Street link is predicted to reduce congestion at the junction as a result of traffic re-routeing.
- The junction is predicted to operate under capacity in the 2030 DM + Link scenario, and when traffic from the Full Masterplan is considered (in both the AM and PM peak hours).
- The results demonstrate that the proposed development, and later the Full Masterplan, would have a small, proportionate impact on queuing and delay at this location.

6.5.14 The results above suggest that, should the Millbridge Street Link be constructed, both the proposed development, and the wider Masterplan, can be accommodated without any changes being required to the R405 / R448 junction.

Modelling Conclusion

6.5.15 The junction modelling exercise demonstrates that, without the Millbridge Street link in place, The R409 / Old Caragh Road roundabout is predicted to operate comfortably within capacity in 2030 with the proposed development in place, and to remain within capacity when traffic from the full Masterplan is added.

6.5.16 Construction of the Millbridge Street Link, and the associated increase in trips through the roundabout, will lead to it operating at, or close to capacity even without consideration of the Finlay Park development.

6.5.17 The Finlay Park development creates a small additional impact on top of this situation, but is not responsible for the majority of traffic using Old Caragh Road. This increase in traffic movements is mainly a result of traffic redistribution, as vehicles head to and from the Link, as well as from LDP traffic growth.

6.5.18 It is suggested that more detailed modelling will be required as part of the planning application for the link road, which will consider whether any improvements are required at the R409 Old Caragh Road roundabout, or other junctions along the Link. This would be assessed as part of future phases of the Masterplan, ideally when more detailed plans for the Northwest Quarter, and as delivery of the nearby elements of the Naas-Sallins Transport Strategy emerge.

6.5.19 It should also be borne in mind that that the 2030 DM + Link scenario already includes full LDP development (including development on the Finlay Park site), and therefore that these results reflect the likely performance of the junction, more that the over-cautious scenarios which add in Finlay Park development again on top of this.

6.5.20 Modelling at the other three junctions that have been assessed suggests that both the proposed development, and the wider Masterplan, will have small, marginal impacts upon junction performance, but that any significant traffic congestion is not caused, or particularly exacerbated by the proposed development.

6.5.21 In conclusion:

- No mitigation is deemed to be required at any of the assessed junctions to support the proposed development.
- The junctions should be reassessed as part of future phases of development on the Finlay Park site, but analysis suggests that, prior to construction of the Millbridge Street Link, changes are not likely to be required at any of the assessed junctions as a result of the development.
- Construction of the Millbridge Street Link is predicted to add a significant number of trips to Old Caragh Road. It is suggested that more detailed modelling will be required as part of the planning application for the Link itself, which will consider whether any improvements are required at the R409 Old Caragh Road roundabout, or other junctions along the Link.

7. SUPPORTING MEASURES

7.1 Introduction

7.1.1 To support and enable residents to travel to and from the development by sustainable modes, a supporting Mobility Management Plan (MMP) has been produced. A brief summary is provided below – full details can be found in the Plan itself, which forms part of the Planning Application.

7.2 Summary

7.2.1 As demonstrated in **Chapter 3**, the site has good walking and cycling links, and access to public transport is reasonable at the moment, and is likely to improve significantly in the future as the Northwest Quarter develops. To further encourage the use of these modes, and reduce the need for car travel, an MMP has been developed.

7.2.2 The overall aim of an MMP for the proposed developments is to minimise the proportion of single occupancy vehicle trips and address the forecast transport impacts of the end-users of the site. The objectives can be summarised as follows:

- Consider the needs of residents in relation to accessing facilities for employment, education, health, leisure, recreation and shopping purposes, including identifying local amenities available that reduce the need to travel longer distances;
- Reduce the vehicular traffic generated by the development, including developing measures to reduce the need to travel;
- Support and encourage walking, cycling and public transport use from the development.

7.2.3 To achieve the above, a range of “hard” and “soft” tools have been developed with the objective of influencing travel choices. These can be summarised into the following broad areas as follows:

- Mobility Manager
- Reducing the need to travel
- Welcome Travel Pack
- Marketing and Travel Information
- Personalised Travel Planning
- Walking
- Cycling
- Public Transport
- Managing Car Use

7.2.4 A Mobility Manager will be appointed to deliver the MMP. The role involves being the main point of contact for travel information, promotion and improvements, and the coordination and monitoring of the agreed measures.

8. SUMMARY AND CONCLUSIONS

8.1 Summary

8.1.1 SYSTRA has been appointed by Westar Group to provide transport planning support in relation to a proposed residential development at Finlay Park in Naas.

8.1.2 This TA accompanies the planning application, and follows feedback from Kildare County Council (KCC). It also considers how the site will interact with wider development set out in the KCDP, and how it supports the future implementation of KCC's 'Naas Sallins Transport Strategy' (2020).

8.1.3 A mixture of 134 duplexes and apartments is proposed (the subject of this Planning Application), which will be a mixture of one, two and three-bedroom properties.

8.1.4 The accommodation would be housed in three blocks of up to five storeys in height, which would surround a central communal space. The development also contains a small 248sqm commercial unit at ground floor level within one of the blocks

8.1.5 A new public plaza will be developed at the south-west corner of the southern block, to form a gateway to the new development.

8.1.6 A wider Masterplan has also been developed that shows how the site will support the NSTS, and could be integrated into future plans for the Harbour to the south. This is not the subject of this application, but analysis has been included at the request of KCC.

8.1.7 The majority of main destinations within the Naas urban area are within are currently within a 15-20-minute walk from the site, and there is a good standard and coverage of cycle infrastructure in the local area. The main existing pedestrian and cycle routes from the site are:

- To the Grand Canal (east) and Naas town centre via Old Caragh Road and Ploopluck bridge; and
- To the Sports Centre to the west, via the Naas Historic Trail alongside the Grand Canal.

8.1.8 The closest bus stops to the site are a pair of eastbound and westbound stops on R445 Newbridge Road, to the east of the junction with Caragh Road. These are 900m distant from the site boundary, which corresponds to an approximate 11-minute walking time. In the longer term, bus routes are likely to pass close by, and through the development.

8.1.9 The site is therefore an excellent position to support walking and cycling trips, and will benefit from future initiatives as the Northwest Quarter of Naas is developed.

8.1.10 Sallins and Naas railway station is located in the centre of Sallins, 3km to the north of the site. Travelling to the station (Either by bike, bus or car), and then commuting onwards by train to Dublin is therefore a relatively convenient option for future residents of Finlay Park.

8.1.11 The Finlay Park access strategy has been developed to integrate with the longer-term aspirations of the NSTS. The main aspects of the access strategy can be summarised as follows:

- The main **Pedestrian access** into the development will be via the proposed Public Plaza, which will provide access into Block B, and from there around the western perimeter of the site.
- The main **cycling route** will run along the east side of Old Caragh Road, and then pass east along the northern boundary of the site, with the potential to link up to future connection south-east towards the town centre.
- **Vehicle access** to the development would be taken from a new priority junction on Old Caragh Road. From here a new road will lead into the undercroft car park.

8.1.12 Demand analysis suggests that the development will typically generate a total of 728 person trips between 07:00-19:00, of which 102 and 85 will be in the AM and PM peak hours respectively. Census data suggests that the predominant mode of commuter travel will be by car, and it is estimated that the proposed development will generate 76 and 63 vehicle trips in the AM and PM peak hours respectively.

8.1.13 The traffic impact of the development in these peak hours has been assessed at four junctions, where stand-alone junction models have been constructed using traffic flows from the Naas VISSIM microsimulation model. The assessed junctions are:

- R409 / Old Caragh Road / Teampull Cearach 4-arm roundabout
- R445 / R409 signalised junction
- R445 / Naas Southern Link Road signalised junction
- R445 / R448 signalised junction

8.1.14 SYSTRA has developed scenarios to test the impact of the proposed development, and the additional impact of the full Masterplan. Both of the above scenarios have been tested with, and without, the Millbridge Street Link in place.

8.1.15 The junction modelling exercise demonstrates that, without the Millbridge Street in place, The R409 / Old Caragh Road roundabout is predicted to operate within capacity in 2030 with the proposed development in place, and to remain within capacity when traffic from the full Masterplan is added.

8.1.16 Construction of the Millbridge Street Link, and the associated increase in trips through the roundabout, will lead to it operating at, or close to capacity even without consideration of the Finlay Park development.

8.1.17 It is suggested that more detailed modelling will be required as part of the planning application for the Link, which will consider whether any improvements are required at the R409 Old Caragh Road roundabout, or other junctions along the Link. This would be assessed as part of future phases of the Masterplan, ideally when more detailed plans for the Northwest Quarter, and delivery of the nearby elements of the Naas-Sallins Transport Strategy emerge.

8.1.18 Modelling at the other three junctions that have been assessed suggests that both the proposed development, and the wider Masterplan, will have small, marginal impacts upon

junction performance, but that any significant traffic congestion is not caused, or particularly exacerbated by the proposed development.

8.1.19 A supporting Mobility Management Plan (MMP) has been produced to support residents to travel to and from the development by sustainable modes,

8.2 Conclusions

8.2.1 Residential development on the Finlay Park site represents a natural extension of development close to the town centre, and the site's excellent walking and cycling links will help to support sustainable travel.

8.2.2 The Transport Assessment has demonstrated that the proposed development can be successfully accommodated in traffic terms.

8.2.3 The site layout has been designed to support the future transport proposals set out in the Naas Sallins Transport Strategy, ensuring that the site complements longer-term aspirations in the area. Fundamentally, the development proposals and wider harbour masterplan:

- Reflect the Nass Sallins Transport Strategy proposals;
- Accommodate the Greenway proposals; and
- Allow for future access and development of the bus interchange.

APPENDIX A – SITE PLAN

1 Proposed Site Layout - Zone 1

1 : 500

Description:
Digital Cartographic Model (DCM)

Publisher / Source:
Ordnance Survey Ireland (OSi)

Data Source / Reference:
PRIME2

File Format:
Autodesk AutoCAD (DWG_R2013)

File Name:
v_50119998_1.dwg

Clip Extent / Area of Interest (AOI):
LLX,LLY= 687832.0,719115.0
LRX,LRY= 689356.0,719115.0
ULX,ULY= 687832.0,720311.0
URX,URY= 689356.0,720311.0

Projection / Spatial Reference:
Projection= IRENET95_Irish_Transverse_Mercator

Centre Point Coordinates:
X,Y= 688594.0,719713.0

Reference Index:
Map Series | Map Sheets
1:1,000 | 3559-07
1:1,000 | 3559-02
1:2,500 | 3558-B
1:2,500 | 3509-C
1:1,000 | 3509-22
1:1,000 | 3559-06
1:2,500 | 3508-D
1:2,500 | 3559-A

Data Extraction Date:
Date= 14-May-2020

Source Data Release:
DCLMS Release V1.128.109a

Product Version:
Version= 1.3

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Please visit 'www.osi.ie/about/terms-conditions'.

NOTES:

DESIGN INTENT DRAWING

FOR INFORMATION PURPOSES

LEGEND:

SITE OUTLINED IN RED
SITE AREA =28,825.07 m² / 2.9 H.A

LAND OWNERSHIP EXTENDS BEYOND RAWING. FUTURE DEVELOPMENT

APARTMENT BLOCKS

SCHEDULE OF ACCOMMODATION

1BED	2BED	3BED	TOTAL
22	77	35	134
16%	57%	26%	100%

Rev	Date	Description	Issued By
P01	06/12/2022	Planning Issue	

Project Stage

PLANNING

Client:
Westar Homes Limited

Project:
Residential @ Finlay Park
Finlay Park, Naas, Co. Kildare

Drawing Title:
Proposed Site Layout

Drawn	Checked	Paper Size	Scale	Date
VM	BB	A1	As indicated @A1	06/12/2022

Project No.	Drawing No.	Classification	Revision
PE17019	0111		P01

File Name
PE17019-CWO-01-ZZ-DR-A-0111

Status:
S2-Suitable for information

C+W O'BRIEN ARCHITECTS

No.1 Sarsfield Quay, Dublin 7, D07 R9FH
t: 01 518 0170 e: admin@cwoarchitects.ie
Dublin I Cork I Galway I London I UK & Europe +
www.cwoarchitects.ie

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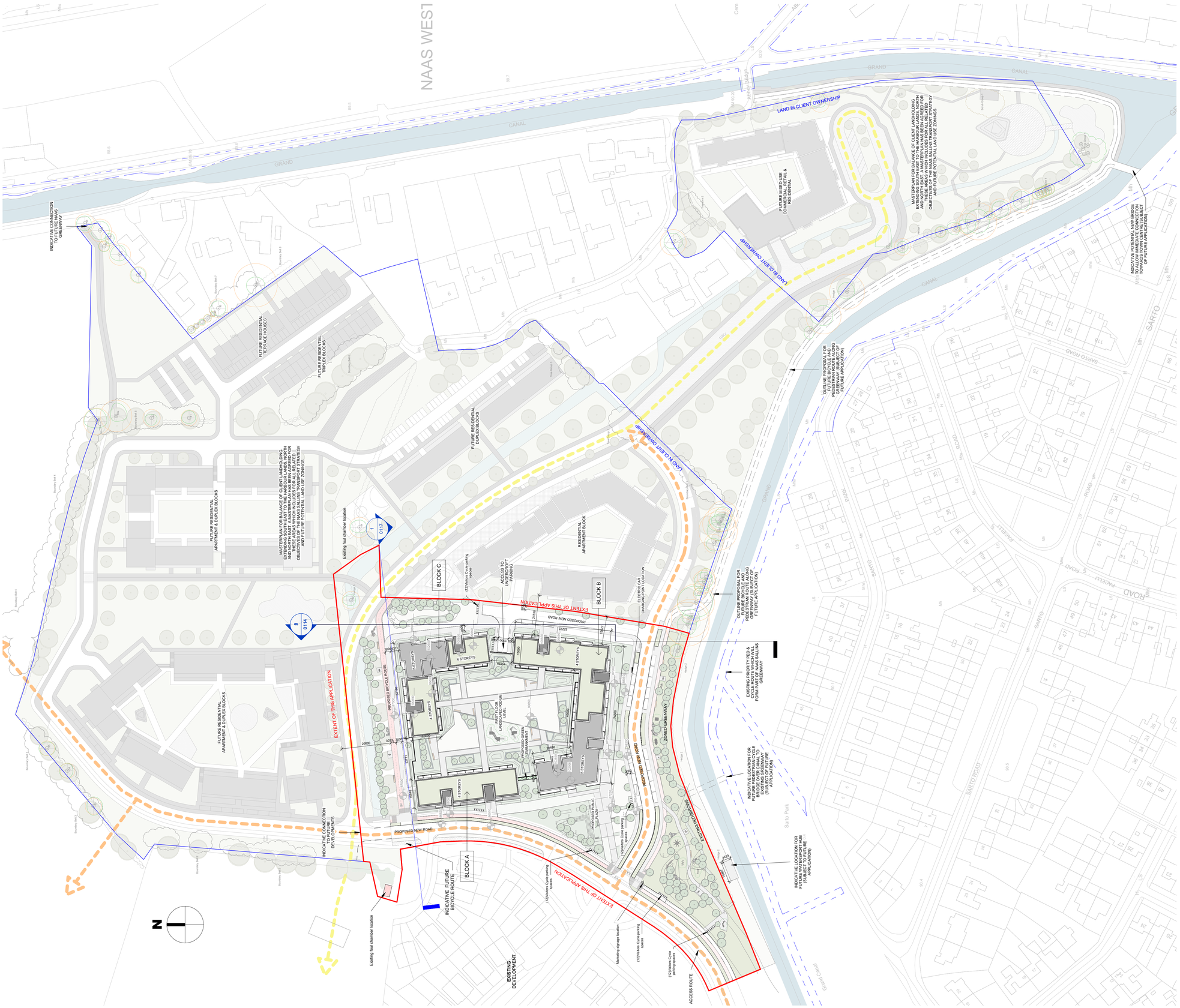
APPENDIX B – WIDER MASTERPLAN



Description:
Digital Cartographic Model (DCM)

Publisher / Source:
Ordnance Survey Ireland (OSi)

Data Source / Reference:
PRIME2

File Format:
Autodesk AutoCAD (DWG_R2013)

File Name:
v_50119998_1.dwg

Clip Extent / Area of Interest (AOI):
LLX,LLY= 687832.0,719115.0
LRX,LRY= 689356.0,719115.0
ULX,ULY= 687832.0,720311.0
URX,URY= 689356.0,720311.0

Projection / Spatial Reference:
Projection= IRENET95_Irish_Transverse_Mercator

Centre Point Coordinates:
X,Y= 688594.0,719713.0

Reference Index:
Map Series | Map Sheets
1:1,000 | 3559-07
1:1,000 | 3559-02
1:2,500 | 3558-B
1:2,500 | 3509-C
1:1,000 | 3509-22
1:1,000 | 3559-06
1:2,500 | 3508-D
1:2,500 | 3559-A

Data Extraction Date:
Date= 14-May-2020

Source Data Release:
DCLMS Release V1.128.109a

Product Version:
Version= 1.3

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Please visit 'www.osi.ie/about/terms-conditions'.

NOTES:

DESIGN INTENT DRAWING

FOR INFORMATION PURPOSES

LEGEND:

- SITE OUTLINED IN RED
  SITE AREA =28,825.07 m² / 2.9 H.A
- LAND OWNERSHIP EXTENDS BEYOND RAWING. FUTURE DEVELOPMENT
- OUTLINE OF NAAS PRIORITY BICYCLE ROUTE

Rev	Date	Description	Issued By
P01	06/12/2022	Planning Issue	

Project Stage

PLANNING

Client:
Westar Homes Limited

Project:
Residential @ Finlay Park
Finlay Park, Naas, Co. Kildare

Drawing Title:
Proposed Site Phasing Masterplan

Drawn	Checked	Paper Size	Scale	Date
VM	BB	A1	As indicated @A1	06/12/2022

Project No.	Drawing No.	Classification	Revision
PE17019	0118		P01

File Name
PE17019-CWO-01-ZZ-DR-A-0118

Status:
S2- Suitable for information

1 Proposed Site - Phasing Masterplan 1 : 1000

C+W O'BRIEN ARCHITECTS
No.1 Sarsfield Quay, Dublin 7, D07 R9FH
t: 01 518 0170 e: admin@cworchitects.ie
Dublin I Cork I Galway I London I UK & Europe +
www.cworchitects.ie

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APPENDIX C - TRICS REPORTS

Calculation Reference: AUDIT-700705-210330-0313

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : C - FLATS PRIVATELY OWNED
MULTI-MODAL TOTAL VEHICLES

Selected regions and areas:

12	CONNAUGHT		
	GA	GALWAY	1 days
15	GREATER DUBLIN		
	DL	DUBLIN	5 days
17	ULSTER (NORTHERN IRELAND)		
	AN	ANTRIM	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: No of Dwellings
Actual Range: 20 to 140 (units:)
Range Selected by User: 18 to 372 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/12 to 28/11/14

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Tuesday	4 days
Wednesday	1 days
Thursday	1 days
Friday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	7 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	4
Edge of Town	1
Neighbourhood Centre (PPS6 Local Centre)	2

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	5
Built-Up Zone	1
No Sub Category	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

C3	7 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

15,001 to 20,000	1 days
20,001 to 25,000	1 days
25,001 to 50,000	5 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

50,001 to 75,000	1 days
125,001 to 250,000	1 days
250,001 to 500,000	1 days
500,001 or More	4 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.1 to 1.5	6 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	7 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	7 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 AN-03-C-02 BLOCK OF FLATS ANTRIM
SUMMERHILL AVENUE
BELFAST
KNOCK
Edge of Town
Residential Zone
Total No of Dwellings: 22
Survey date: FRIDAY *28/11/14* *Survey Type: MANUAL*

2 DL-03-C-11 BLOCK OF FLATS DUBLIN
WYCKHAM WAY
DUBLIN
DUNDRUM
Neighbourhood Centre (PPS6 Local Centre)
Residential Zone
Total No of Dwellings: 96
Survey date: TUESDAY *10/09/13* *Survey Type: MANUAL*

3 DL-03-C-12 BLOCK OF FLATS DUBLIN
BOOTERSTOWN AVENUE
DUBLIN

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 47
Survey date: TUESDAY *10/09/13* *Survey Type: MANUAL*

4 DL-03-C-13 BLOCK OF FLATS DUBLIN
SANDYFORD ROAD
DUBLIN

Neighbourhood Centre (PPS6 Local Centre)
Built-Up Zone
Total No of Dwellings: 52
Survey date: TUESDAY *10/09/13* *Survey Type: MANUAL*

5 DL-03-C-14 BLOCKS OF FLATS DUBLIN
BALLINTEER ROAD
DUBLIN
DUNDRUM
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 140
Survey date: TUESDAY *10/09/13* *Survey Type: MANUAL*

6 DL-03-C-15 BLOCKS OF FLATS DUBLIN
MONKSTOWN ROAD
DUBLIN
MONKSTOWN
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 20
Survey date: WEDNESDAY *01/10/14* *Survey Type: MANUAL*

7 GA-03-C-01 FLATS GALWAY
BALLYLOUGHANE ROAD
GALWAY

Suburban Area (PPS6 Out of Centre)
No Sub Category
Total No of Dwellings: 34
Survey date: THURSDAY *31/10/13* *Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL TOTAL VEHICLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	7	59	0.056	7	59	0.275	7	59	0.331
08:00 - 09:00	7	59	0.071	7	59	0.287	7	59	0.358
09:00 - 10:00	7	59	0.056	7	59	0.124	7	59	0.180
10:00 - 11:00	7	59	0.024	7	59	0.068	7	59	0.092
11:00 - 12:00	7	59	0.051	7	59	0.058	7	59	0.109
12:00 - 13:00	7	59	0.073	7	59	0.085	7	59	0.158
13:00 - 14:00	7	59	0.063	7	59	0.061	7	59	0.124
14:00 - 15:00	7	59	0.102	7	59	0.058	7	59	0.160
15:00 - 16:00	7	59	0.092	7	59	0.058	7	59	0.150
16:00 - 17:00	7	59	0.109	7	59	0.066	7	59	0.175
17:00 - 18:00	7	59	0.219	7	59	0.046	7	59	0.265
18:00 - 19:00	7	59	0.263	7	59	0.097	7	59	0.360
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.179			1.283			2.462

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Parameter summary

Trip rate parameter range selected:	20 - 140 (units:)
Survey date date range:	01/01/12 - 28/11/14
Number of weekdays (Monday-Friday):	7
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL TAXIS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	7	59	0.005	7	59	0.005	7	59	0.010
08:00 - 09:00	7	59	0.000	7	59	0.000	7	59	0.000
09:00 - 10:00	7	59	0.005	7	59	0.005	7	59	0.010
10:00 - 11:00	7	59	0.000	7	59	0.000	7	59	0.000
11:00 - 12:00	7	59	0.000	7	59	0.000	7	59	0.000
12:00 - 13:00	7	59	0.000	7	59	0.000	7	59	0.000
13:00 - 14:00	7	59	0.005	7	59	0.005	7	59	0.010
14:00 - 15:00	7	59	0.005	7	59	0.005	7	59	0.010
15:00 - 16:00	7	59	0.005	7	59	0.005	7	59	0.010
16:00 - 17:00	7	59	0.000	7	59	0.002	7	59	0.002
17:00 - 18:00	7	59	0.000	7	59	0.000	7	59	0.000
18:00 - 19:00	7	59	0.000	7	59	0.000	7	59	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.025			0.027			0.052

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL OGVS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	7	59	0.000	7	59	0.007	7	59	0.007
08:00 - 09:00	7	59	0.000	7	59	0.002	7	59	0.002
09:00 - 10:00	7	59	0.002	7	59	0.002	7	59	0.004
10:00 - 11:00	7	59	0.002	7	59	0.002	7	59	0.004
11:00 - 12:00	7	59	0.000	7	59	0.000	7	59	0.000
12:00 - 13:00	7	59	0.000	7	59	0.000	7	59	0.000
13:00 - 14:00	7	59	0.000	7	59	0.000	7	59	0.000
14:00 - 15:00	7	59	0.000	7	59	0.000	7	59	0.000
15:00 - 16:00	7	59	0.002	7	59	0.000	7	59	0.002
16:00 - 17:00	7	59	0.000	7	59	0.000	7	59	0.000
17:00 - 18:00	7	59	0.000	7	59	0.000	7	59	0.000
18:00 - 19:00	7	59	0.002	7	59	0.000	7	59	0.002
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.008			0.013			0.021

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL PSVS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	7	59	0.002	7	59	0.007	7	59	0.009
08:00 - 09:00	7	59	0.000	7	59	0.000	7	59	0.000
09:00 - 10:00	7	59	0.000	7	59	0.000	7	59	0.000
10:00 - 11:00	7	59	0.000	7	59	0.000	7	59	0.000
11:00 - 12:00	7	59	0.000	7	59	0.000	7	59	0.000
12:00 - 13:00	7	59	0.000	7	59	0.000	7	59	0.000
13:00 - 14:00	7	59	0.000	7	59	0.000	7	59	0.000
14:00 - 15:00	7	59	0.000	7	59	0.000	7	59	0.000
15:00 - 16:00	7	59	0.000	7	59	0.000	7	59	0.000
16:00 - 17:00	7	59	0.000	7	59	0.000	7	59	0.000
17:00 - 18:00	7	59	0.000	7	59	0.000	7	59	0.000
18:00 - 19:00	7	59	0.000	7	59	0.000	7	59	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.002			0.007			0.009

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL CYCLISTS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	7	59	0.002	7	59	0.007	7	59	0.009
08:00 - 09:00	7	59	0.000	7	59	0.019	7	59	0.019
09:00 - 10:00	7	59	0.002	7	59	0.007	7	59	0.009
10:00 - 11:00	7	59	0.002	7	59	0.000	7	59	0.002
11:00 - 12:00	7	59	0.002	7	59	0.000	7	59	0.002
12:00 - 13:00	7	59	0.007	7	59	0.000	7	59	0.007
13:00 - 14:00	7	59	0.002	7	59	0.002	7	59	0.004
14:00 - 15:00	7	59	0.000	7	59	0.007	7	59	0.007
15:00 - 16:00	7	59	0.000	7	59	0.002	7	59	0.002
16:00 - 17:00	7	59	0.002	7	59	0.002	7	59	0.004
17:00 - 18:00	7	59	0.007	7	59	0.005	7	59	0.012
18:00 - 19:00	7	59	0.012	7	59	0.005	7	59	0.017
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.038			0.056			0.094

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL VEHICLE OCCUPANTS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	7	59	0.058	7	59	0.324	7	59	0.382
08:00 - 09:00	7	59	0.092	7	59	0.367	7	59	0.459
09:00 - 10:00	7	59	0.061	7	59	0.146	7	59	0.207
10:00 - 11:00	7	59	0.036	7	59	0.080	7	59	0.116
11:00 - 12:00	7	59	0.061	7	59	0.068	7	59	0.129
12:00 - 13:00	7	59	0.092	7	59	0.095	7	59	0.187
13:00 - 14:00	7	59	0.090	7	59	0.078	7	59	0.168
14:00 - 15:00	7	59	0.139	7	59	0.068	7	59	0.207
15:00 - 16:00	7	59	0.144	7	59	0.083	7	59	0.227
16:00 - 17:00	7	59	0.136	7	59	0.085	7	59	0.221
17:00 - 18:00	7	59	0.251	7	59	0.073	7	59	0.324
18:00 - 19:00	7	59	0.297	7	59	0.127	7	59	0.424
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.457			1.594			3.051

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL PEDESTRIANS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	7	59	0.034	7	59	0.044	7	59	0.078
08:00 - 09:00	7	59	0.061	7	59	0.073	7	59	0.134
09:00 - 10:00	7	59	0.063	7	59	0.085	7	59	0.148
10:00 - 11:00	7	59	0.056	7	59	0.044	7	59	0.100
11:00 - 12:00	7	59	0.051	7	59	0.036	7	59	0.087
12:00 - 13:00	7	59	0.019	7	59	0.063	7	59	0.082
13:00 - 14:00	7	59	0.051	7	59	0.041	7	59	0.092
14:00 - 15:00	7	59	0.056	7	59	0.049	7	59	0.105
15:00 - 16:00	7	59	0.046	7	59	0.051	7	59	0.097
16:00 - 17:00	7	59	0.058	7	59	0.054	7	59	0.112
17:00 - 18:00	7	59	0.097	7	59	0.054	7	59	0.151
18:00 - 19:00	7	59	0.078	7	59	0.061	7	59	0.139
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.670			0.655			1.325

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL BUS/TRAM PASSENGERS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	7	59	0.010	7	59	0.063	7	59	0.073
08:00 - 09:00	7	59	0.012	7	59	0.131	7	59	0.143
09:00 - 10:00	7	59	0.010	7	59	0.044	7	59	0.054
10:00 - 11:00	7	59	0.012	7	59	0.041	7	59	0.053
11:00 - 12:00	7	59	0.010	7	59	0.010	7	59	0.020
12:00 - 13:00	7	59	0.012	7	59	0.019	7	59	0.031
13:00 - 14:00	7	59	0.019	7	59	0.022	7	59	0.041
14:00 - 15:00	7	59	0.015	7	59	0.029	7	59	0.044
15:00 - 16:00	7	59	0.046	7	59	0.017	7	59	0.063
16:00 - 17:00	7	59	0.083	7	59	0.010	7	59	0.093
17:00 - 18:00	7	59	0.105	7	59	0.039	7	59	0.144
18:00 - 19:00	7	59	0.078	7	59	0.058	7	59	0.136
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.412			0.483			0.895

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL TOTAL RAIL PASSENGERS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	7	59	0.000	7	59	0.002	7	59	0.002
08:00 - 09:00	7	59	0.000	7	59	0.002	7	59	0.002
09:00 - 10:00	7	59	0.005	7	59	0.002	7	59	0.007
10:00 - 11:00	7	59	0.000	7	59	0.002	7	59	0.002
11:00 - 12:00	7	59	0.000	7	59	0.000	7	59	0.000
12:00 - 13:00	7	59	0.000	7	59	0.002	7	59	0.002
13:00 - 14:00	7	59	0.002	7	59	0.007	7	59	0.009
14:00 - 15:00	7	59	0.002	7	59	0.012	7	59	0.014
15:00 - 16:00	7	59	0.005	7	59	0.007	7	59	0.012
16:00 - 17:00	7	59	0.000	7	59	0.002	7	59	0.002
17:00 - 18:00	7	59	0.002	7	59	0.000	7	59	0.002
18:00 - 19:00	7	59	0.002	7	59	0.000	7	59	0.002
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.018			0.038			0.056

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL PUBLIC TRANSPORT USERS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	7	59	0.010	7	59	0.066	7	59	0.076
08:00 - 09:00	7	59	0.012	7	59	0.134	7	59	0.146
09:00 - 10:00	7	59	0.015	7	59	0.046	7	59	0.061
10:00 - 11:00	7	59	0.012	7	59	0.044	7	59	0.056
11:00 - 12:00	7	59	0.010	7	59	0.010	7	59	0.020
12:00 - 13:00	7	59	0.012	7	59	0.022	7	59	0.034
13:00 - 14:00	7	59	0.022	7	59	0.029	7	59	0.051
14:00 - 15:00	7	59	0.017	7	59	0.041	7	59	0.058
15:00 - 16:00	7	59	0.051	7	59	0.024	7	59	0.075
16:00 - 17:00	7	59	0.083	7	59	0.012	7	59	0.095
17:00 - 18:00	7	59	0.107	7	59	0.039	7	59	0.146
18:00 - 19:00	7	59	0.080	7	59	0.058	7	59	0.138
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.431			0.525			0.956

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	7	59	0.105	7	59	0.440	7	59	0.545
08:00 - 09:00	7	59	0.165	7	59	0.594	7	59	0.759
09:00 - 10:00	7	59	0.141	7	59	0.285	7	59	0.426
10:00 - 11:00	7	59	0.107	7	59	0.168	7	59	0.275
11:00 - 12:00	7	59	0.124	7	59	0.114	7	59	0.238
12:00 - 13:00	7	59	0.131	7	59	0.180	7	59	0.311
13:00 - 14:00	7	59	0.165	7	59	0.151	7	59	0.316
14:00 - 15:00	7	59	0.212	7	59	0.165	7	59	0.377
15:00 - 16:00	7	59	0.241	7	59	0.161	7	59	0.402
16:00 - 17:00	7	59	0.280	7	59	0.153	7	59	0.433
17:00 - 18:00	7	59	0.462	7	59	0.170	7	59	0.632
18:00 - 19:00	7	59	0.467	7	59	0.251	7	59	0.718
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.600			2.832			5.432

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL CARS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	7	59	0.002	7	59	0.024	7	59	0.026
08:00 - 09:00	7	59	0.007	7	59	0.024	7	59	0.031
09:00 - 10:00	7	59	0.010	7	59	0.007	7	59	0.017
10:00 - 11:00	7	59	0.010	7	59	0.012	7	59	0.022
11:00 - 12:00	7	59	0.007	7	59	0.005	7	59	0.012
12:00 - 13:00	7	59	0.010	7	59	0.012	7	59	0.022
13:00 - 14:00	7	59	0.007	7	59	0.010	7	59	0.017
14:00 - 15:00	7	59	0.007	7	59	0.000	7	59	0.007
15:00 - 16:00	7	59	0.010	7	59	0.005	7	59	0.015
16:00 - 17:00	7	59	0.007	7	59	0.010	7	59	0.017
17:00 - 18:00	7	59	0.034	7	59	0.005	7	59	0.039
18:00 - 19:00	7	59	0.005	7	59	0.015	7	59	0.020
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.116			0.129			0.245

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL LGVS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	7	59	0.002	7	59	0.012	7	59	0.014
08:00 - 09:00	7	59	0.010	7	59	0.010	7	59	0.020
09:00 - 10:00	7	59	0.010	7	59	0.007	7	59	0.017
10:00 - 11:00	7	59	0.000	7	59	0.005	7	59	0.005
11:00 - 12:00	7	59	0.005	7	59	0.007	7	59	0.012
12:00 - 13:00	7	59	0.007	7	59	0.012	7	59	0.019
13:00 - 14:00	7	59	0.002	7	59	0.000	7	59	0.002
14:00 - 15:00	7	59	0.000	7	59	0.000	7	59	0.000
15:00 - 16:00	7	59	0.000	7	59	0.000	7	59	0.000
16:00 - 17:00	7	59	0.002	7	59	0.000	7	59	0.002
17:00 - 18:00	7	59	0.000	7	59	0.002	7	59	0.002
18:00 - 19:00	7	59	0.000	7	59	0.000	7	59	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.038			0.055			0.093

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

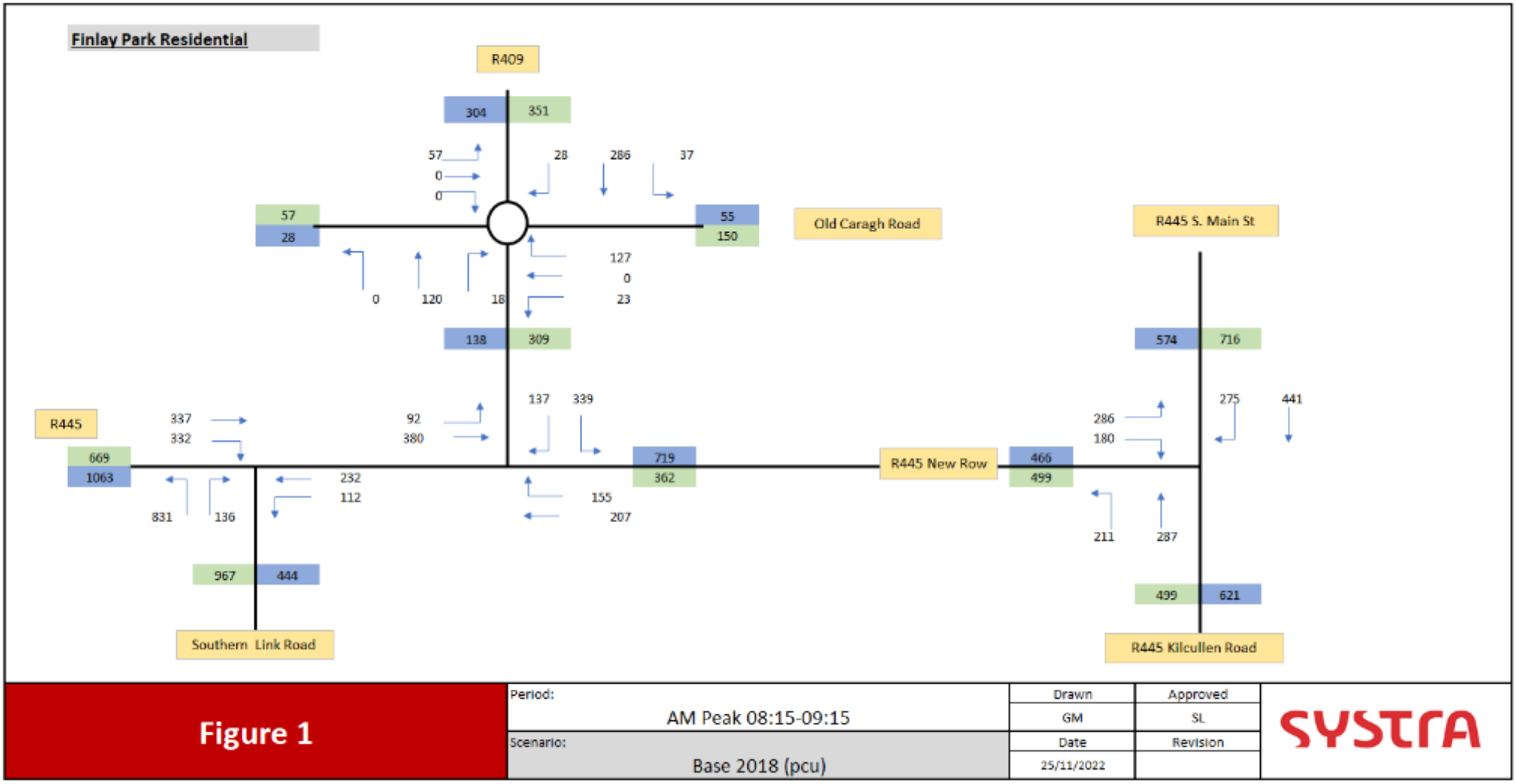
TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL MOTOR CYCLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	7	59	0.002	7	59	0.000	7	59	0.002
08:00 - 09:00	7	59	0.000	7	59	0.000	7	59	0.000
09:00 - 10:00	7	59	0.000	7	59	0.000	7	59	0.000
10:00 - 11:00	7	59	0.000	7	59	0.000	7	59	0.000
11:00 - 12:00	7	59	0.000	7	59	0.000	7	59	0.000
12:00 - 13:00	7	59	0.000	7	59	0.000	7	59	0.000
13:00 - 14:00	7	59	0.000	7	59	0.000	7	59	0.000
14:00 - 15:00	7	59	0.000	7	59	0.002	7	59	0.002
15:00 - 16:00	7	59	0.005	7	59	0.000	7	59	0.005
16:00 - 17:00	7	59	0.000	7	59	0.002	7	59	0.002
17:00 - 18:00	7	59	0.000	7	59	0.000	7	59	0.000
18:00 - 19:00	7	59	0.002	7	59	0.000	7	59	0.002
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.009			0.004			0.013

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

APPENDIX D – TURN COUNT DIAGRAMS


Finlay Park Residential
R409
304
351
57
0
0
28
286
37
57
28
55
150
Old Caragh Road
R445 S. Main St
0
120
18
127
0
23
138
309
574
716
R445
337
332
92
380
137
339
275
441
286
180
669
1063
719
362
R445 New Row
466
499
232
112
155
207
831
136
211
287
967
444
499
621
Southern Link Road
R445 Kilcullen Road
Figure 1
Period:
AM Peak 08:15-09:15
Scenario:
Base 2018 (pcu)
Drawn
GM
Approved
SL
Date
25/11/2022
Revision
SYSTRA

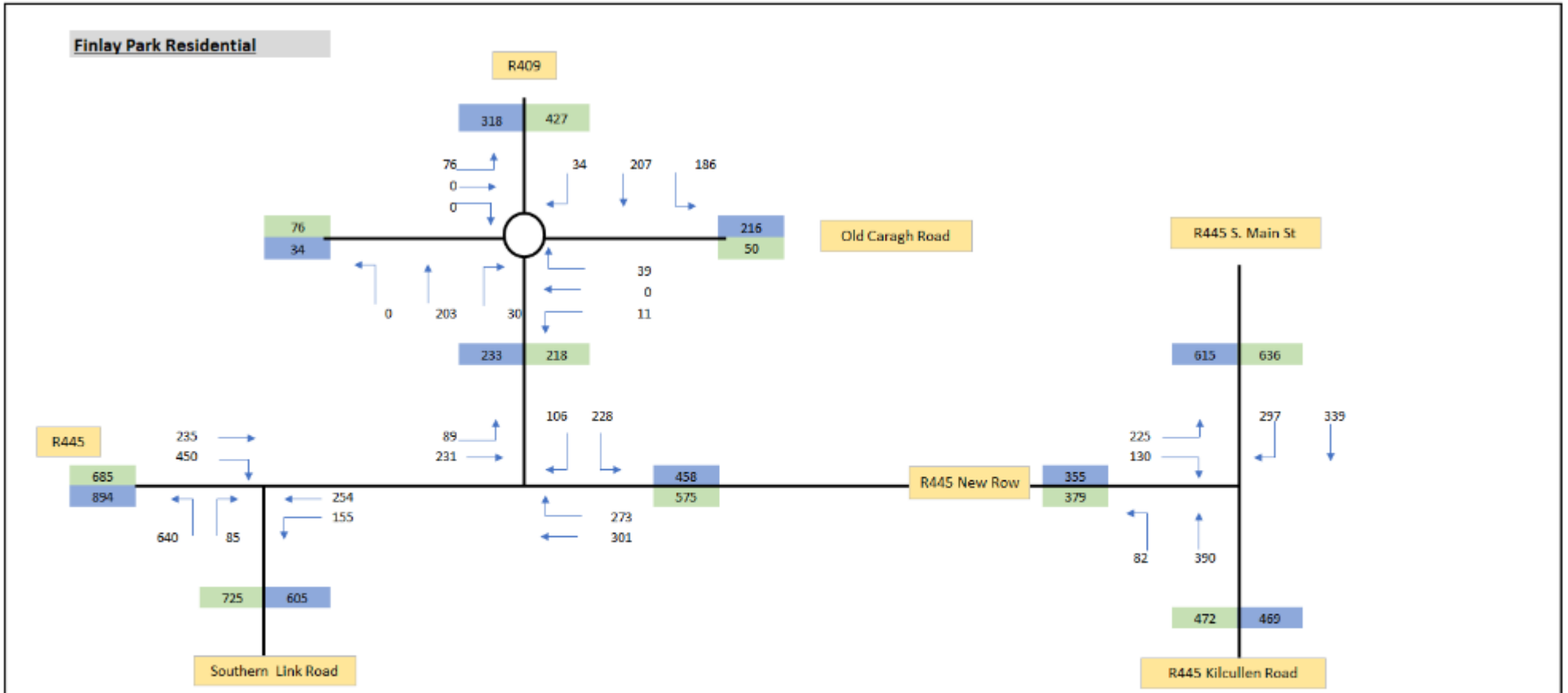
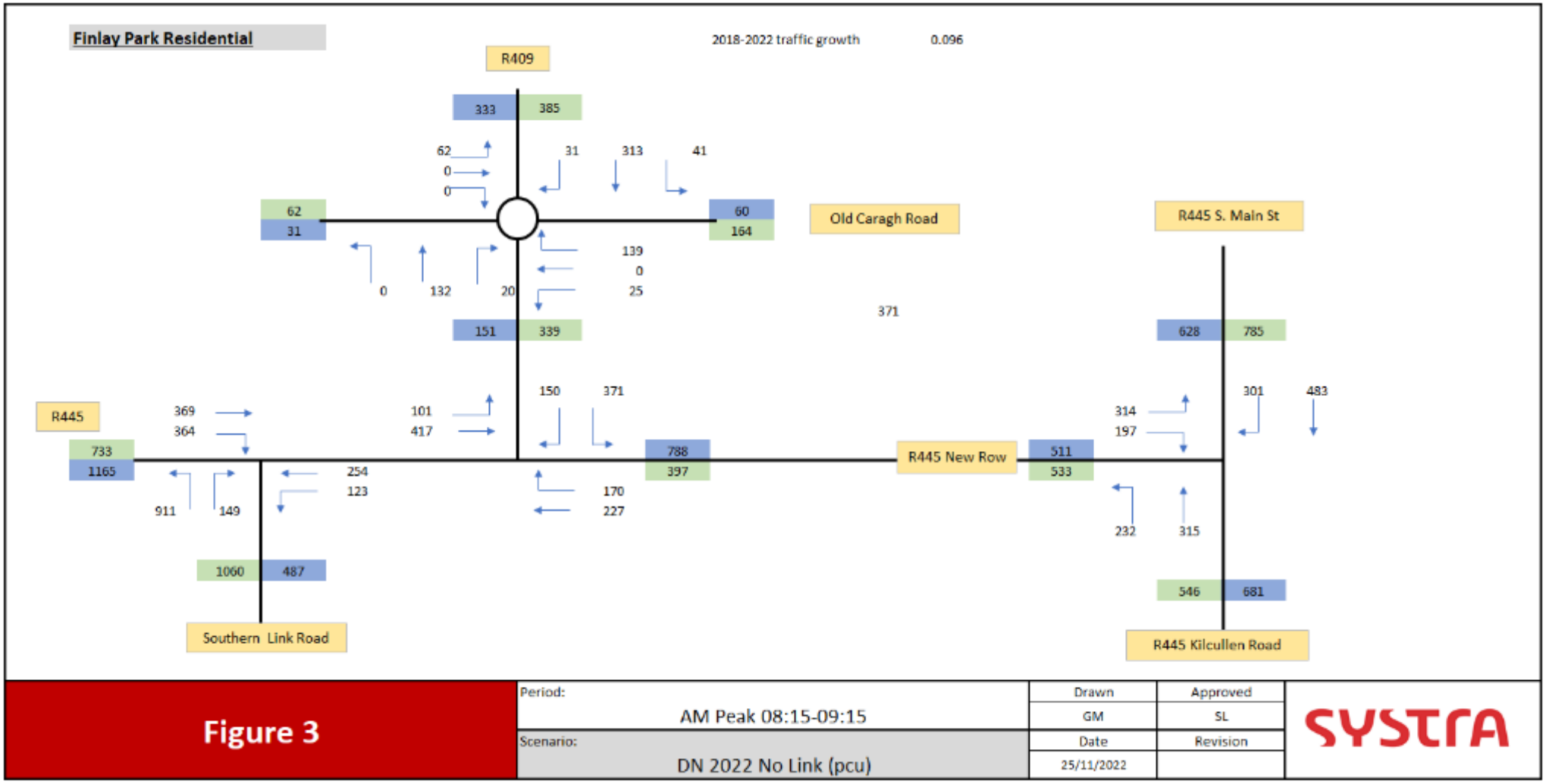
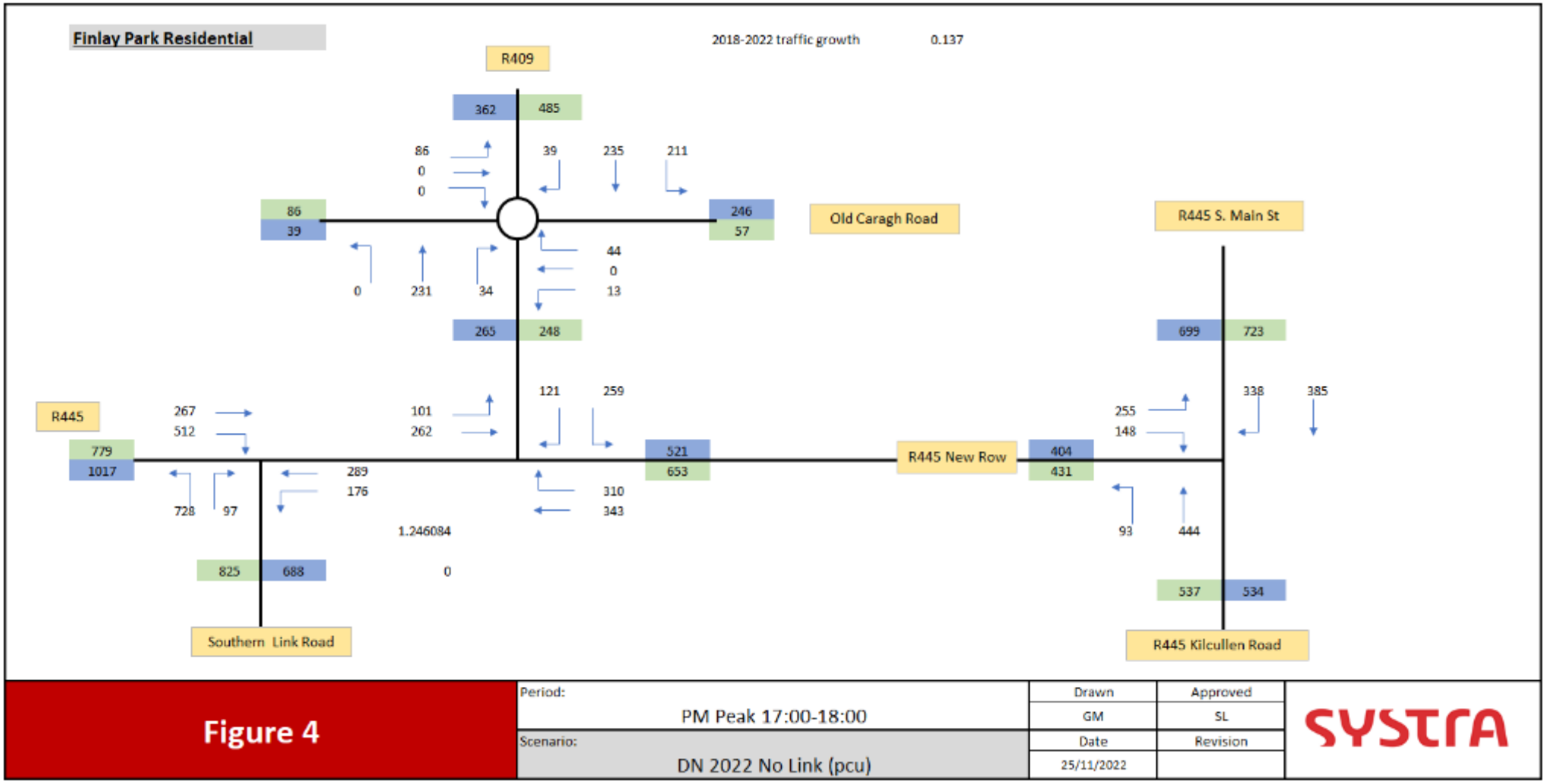
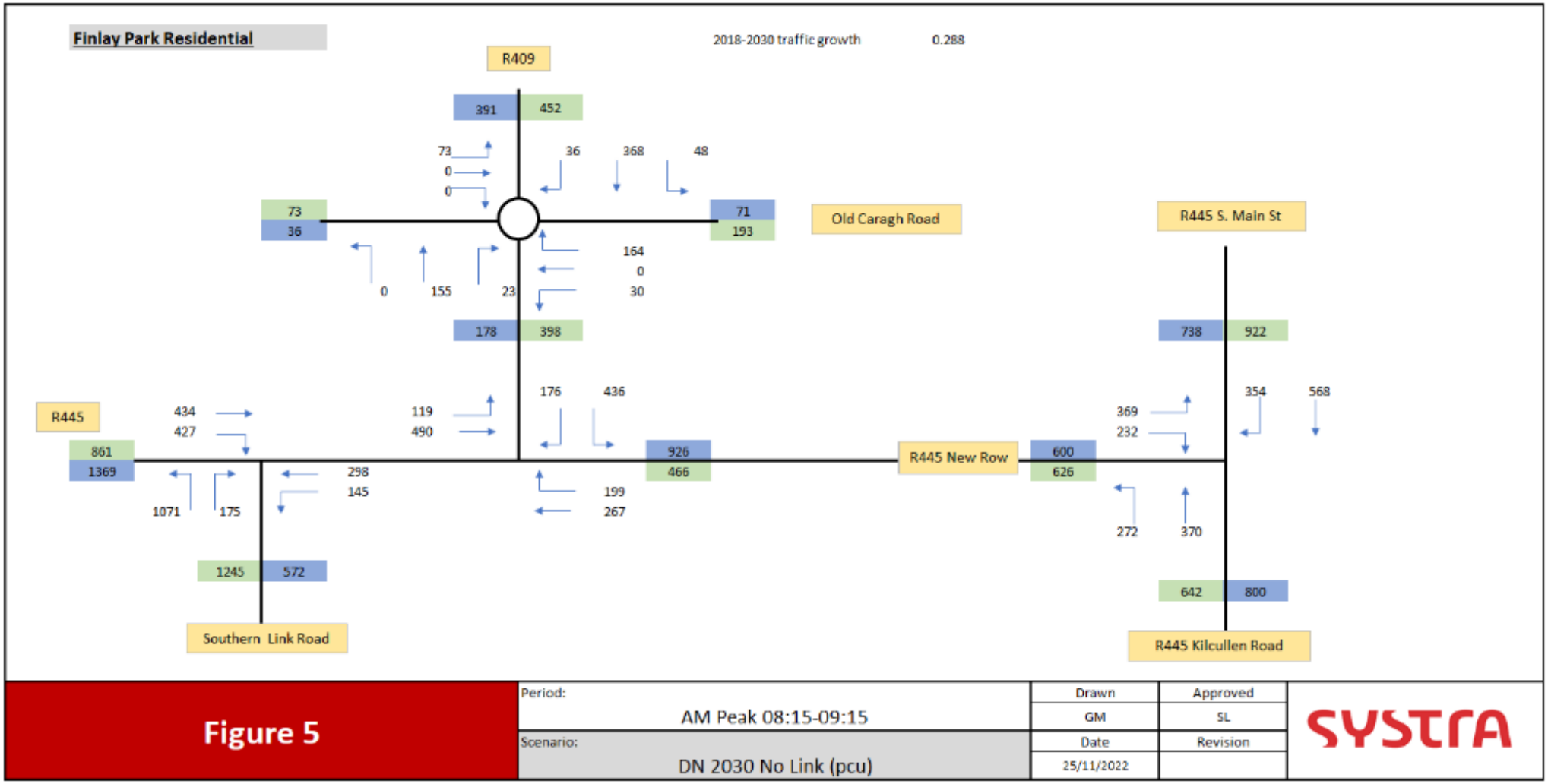
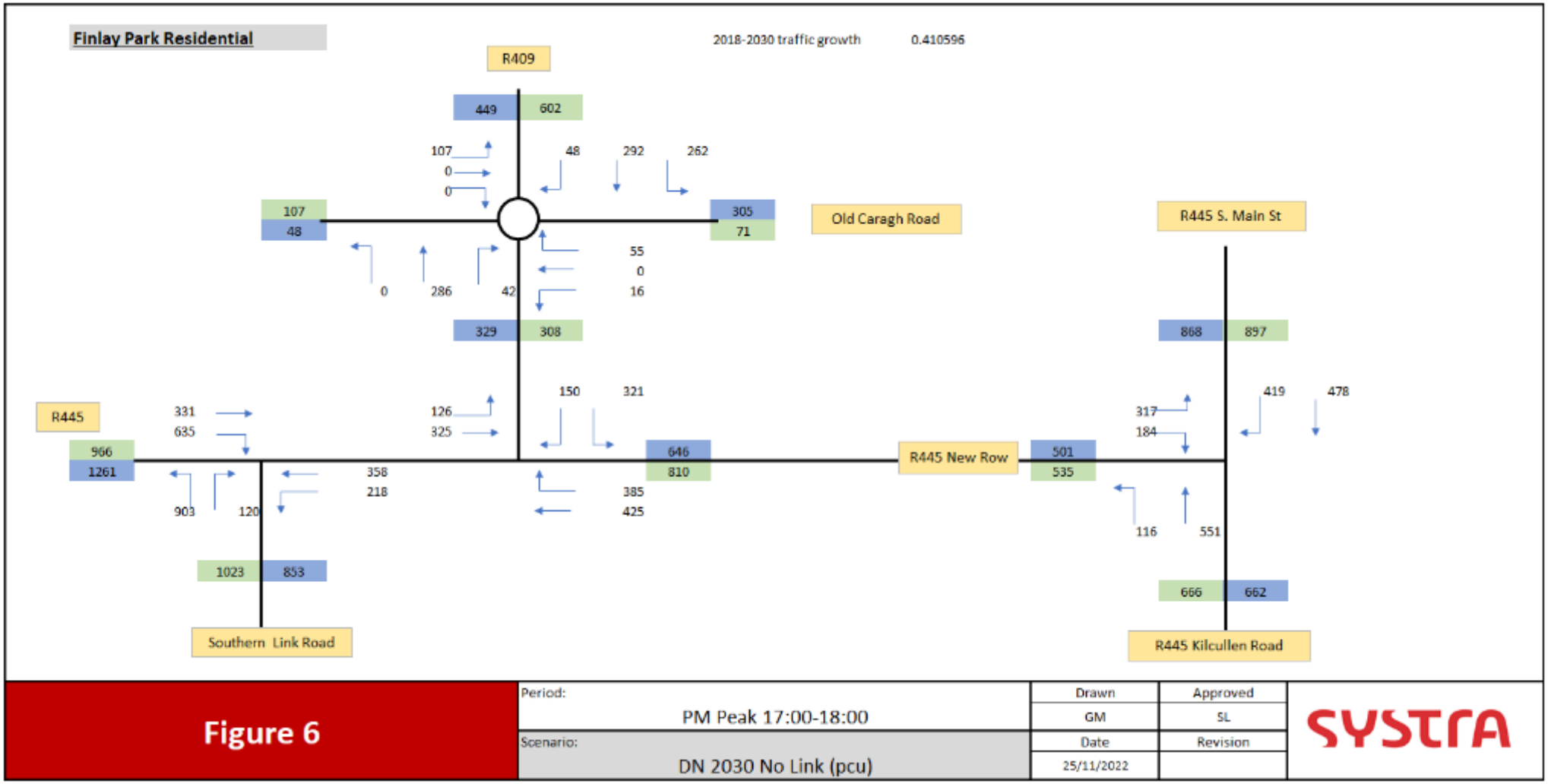


Figure 2	Period: PM Peak 17:00-18:00	Drawn: GM	Approved: SL
	Scenario: Base 2018 (pcu)	Date: 25/11/2022	Revision:


Finlay Park Residential
2018-2022 traffic growth
0.096
R409
333
385
62
0
0
31
313
41
62
31
60
164
Old Caragh Road
R445 S. Main St
139
0
25
0
132
20
371
151
339
628
785
R445
369
364
101
417
150
371
301
483
314
197
733
1165
788
397
R445 New Row
511
533
254
123
170
227
911
149
232
315
1060
487
546
681
Southern Link Road
R445 Kilcullen Road
Figure 3
Period:
AM Peak 08:15-09:15
Scenario:
DN 2022 No Link (pcu)
Drawn
GM
Approved
SL
Date
25/11/2022
Revision
SYSTRA


Finlay Park Residential
2018-2022 traffic growth
0.137
R409
362
485
86
0
0
39
235
211
86
39
246
57
Old Caragh Road
R445 S. Main St
44
0
13
0
231
34
265
248
699
723
121
259
338
385
R445
267
512
101
262
255
148
779
1017
521
653
R445 New Row
404
431
289
176
310
343
728
97
93
444
1.246084
825
688
0
537
534
Southern Link Road
R445 Kilcullen Road
Figure 4
Period:
PM Peak 17:00-18:00
Scenario:
DN 2022 No Link (pcu)
Drawn
GM
Approved
SL
Date
25/11/2022
Revision
SYSTRA


Finlay Park Residential
2018-2030 traffic growth 0.288
R409
391
452
73
0
0
36
368
48
73
36
71
193
Old Caragh Road
R445 S. Main St
164
0
30
0
155
23
178
398
738
922
176
436
354
568
R445
434
427
119
490
369
232
861
1369
926
466
R445 New Row
600
626
298
145
199
267
1071
175
272
370
1245
572
642
800
Southern Link Road
R445 Kilcullen Road
Figure 5
Period:
AM Peak 08:15-09:15
Scenario:
DN 2030 No Link (pcu)
Drawn
GM
Approved
SL
Date
25/11/2022
Revision


Finlay Park Residential
2018-2030 traffic growth 0.410596
R409
449
602
107
0
0
48
292
262
107
48
305
71
Old Caragh Road
R445 S. Main St
55
0
16
0
286
42
329
308
868
897
R445
331
635
126
325
150
321
317
184
419
478
966
1261
646
810
R445 New Row
501
535
358
218
385
425
903
120
116
551
1023
853
666
662
Southern Link Road
R445 Kilcullen Road
Figure 6
Period:
PM Peak 17:00-18:00
Scenario:
DN 2030 No Link (pcu)
Drawn
GM
Approved
SL
Date
25/11/2022
Revision
SYSTRA

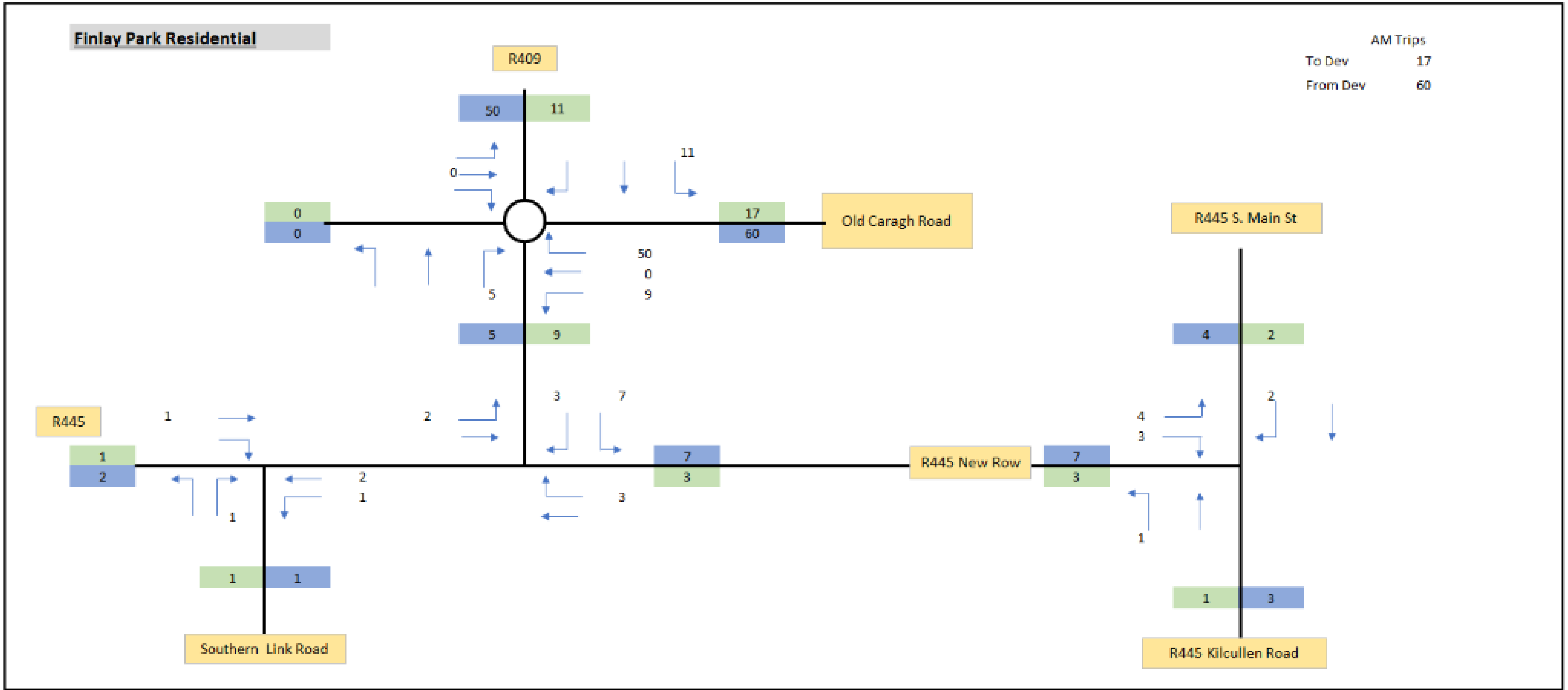
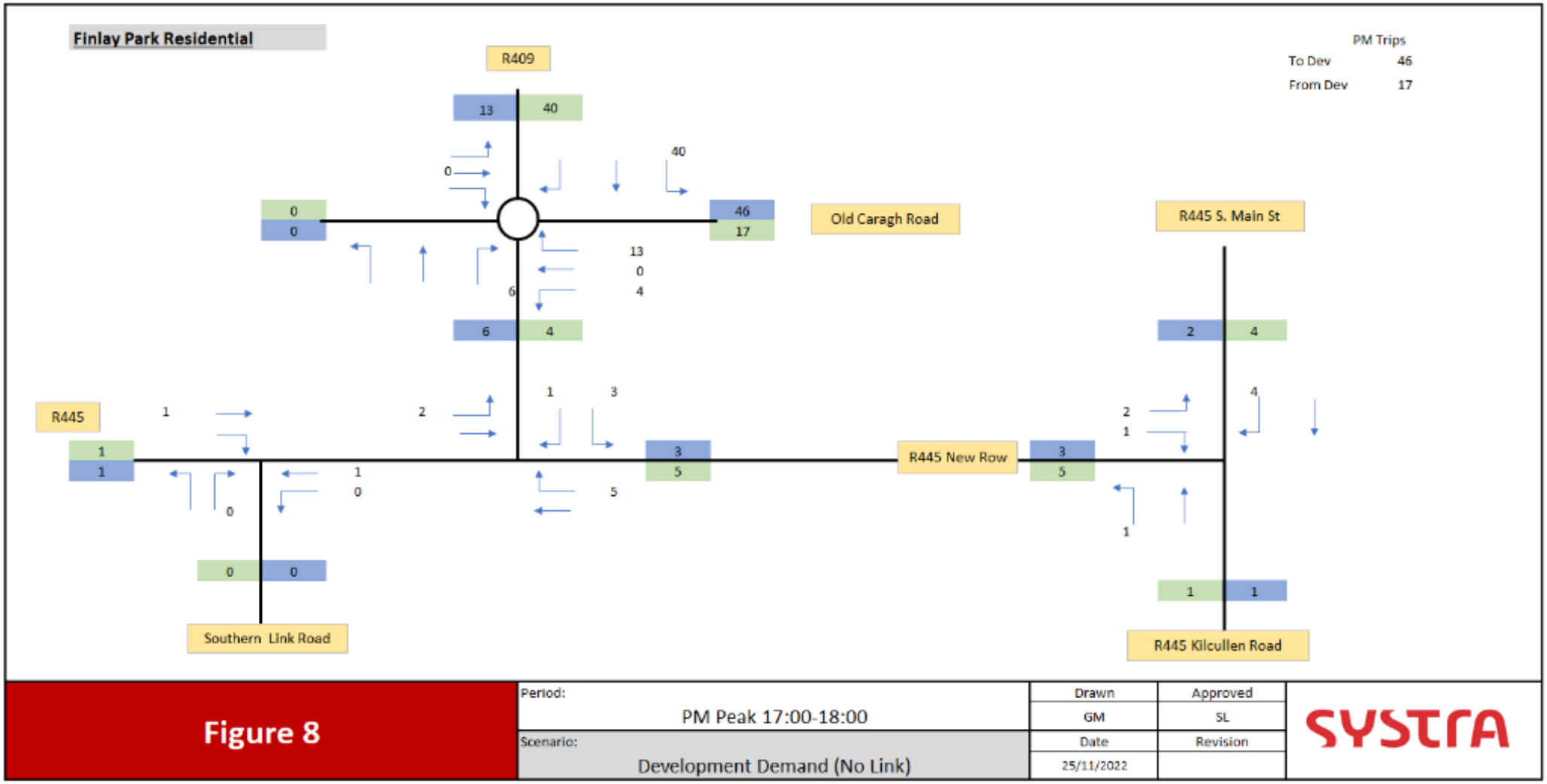


Figure 7

Period:	Drawn	Approved
AM Peak 08:15-09:15	GM	SL
Scenario:	Date	Revision
Development Demand (No Link)	25/11/2022	


Finlay Park Residential
PM Trips
To Dev 46
From Dev 17
R409
13
40
40
0
0
0
46
17
Old Caragh Road
R445 S. Main St
13
0
4
6
6
4
2
4
R445
1
1
1
2
1
3
3
5
R445 New Row
3
5
2
1
4
1
1
0
1
0
5
1
0
0
0
1
1
Southern Link Road
R445 Kilcullen Road
Figure 8
Period:
PM Peak 17:00-18:00
Scenario:
Development Demand (No Link)
Drawn
GM
Approved
SL
Date
25/11/2022
Revision
SYSTRA

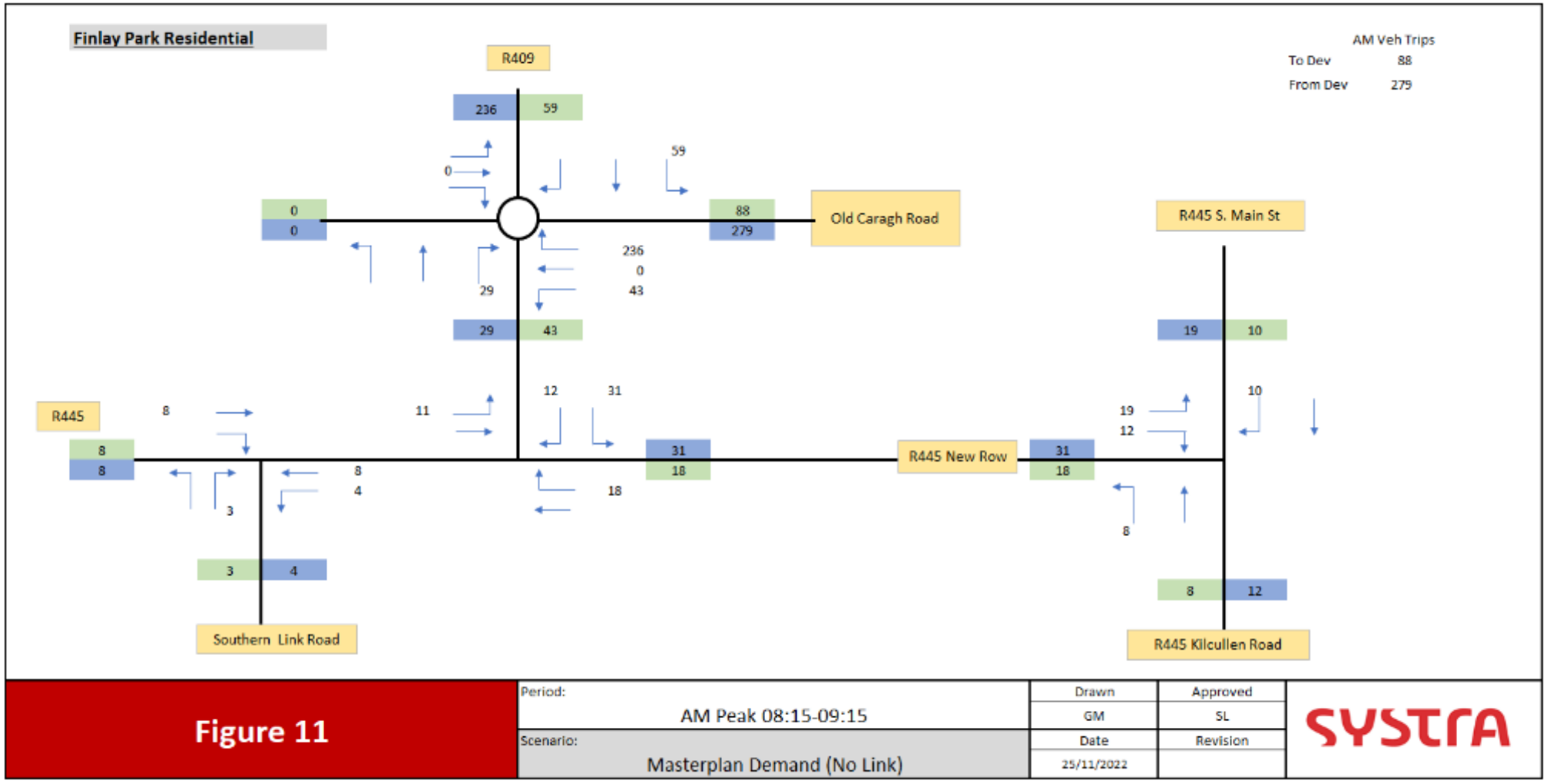

Finlay Park Residential
AM Veh Trips
To Dev 88
From Dev 279
R409
236
59
0
59
0
0
88
279
Old Caragh Road
236
0
43
29
29
43
R445 S. Main St
19
10
10
R445
8
11
12
31
19
12
8
8
31
18
R445 New Row
31
18
8
4
18
3
8
3
4
12
Southern Link Road
R445 Kilcullen Road
Period:
AM Peak 08:15-09:15
Scenario:
Masterplan Demand (No Link)
Drawn
GM
Approved
SL
Date
25/11/2022
Revision

Figure 11

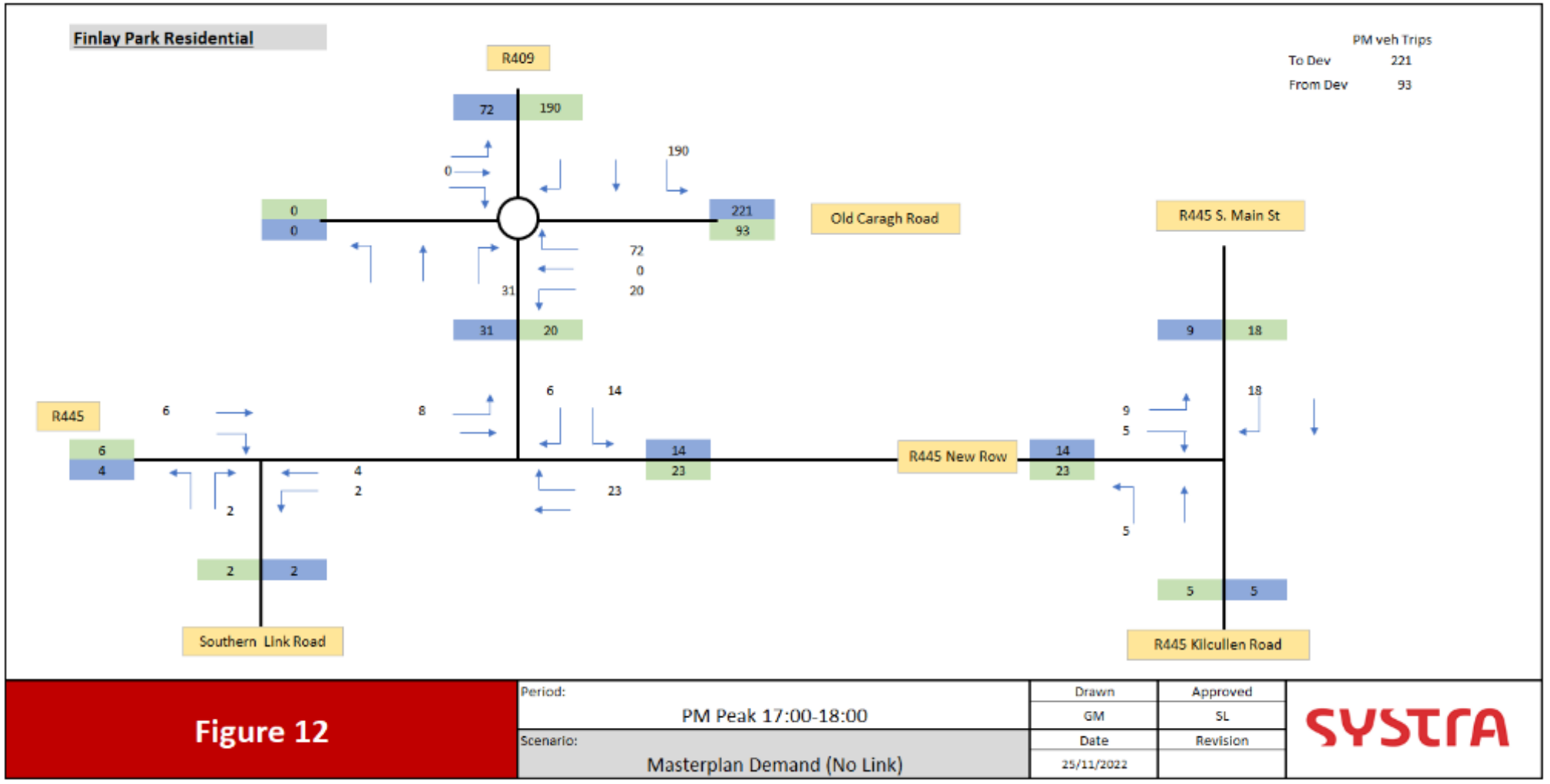


Figure 12	Period: PM Peak 17:00-18:00	Drawn: GM	Approved: SL
	Scenario: Masterplan Demand (No Link)	Date: 25/11/2022	Revision:

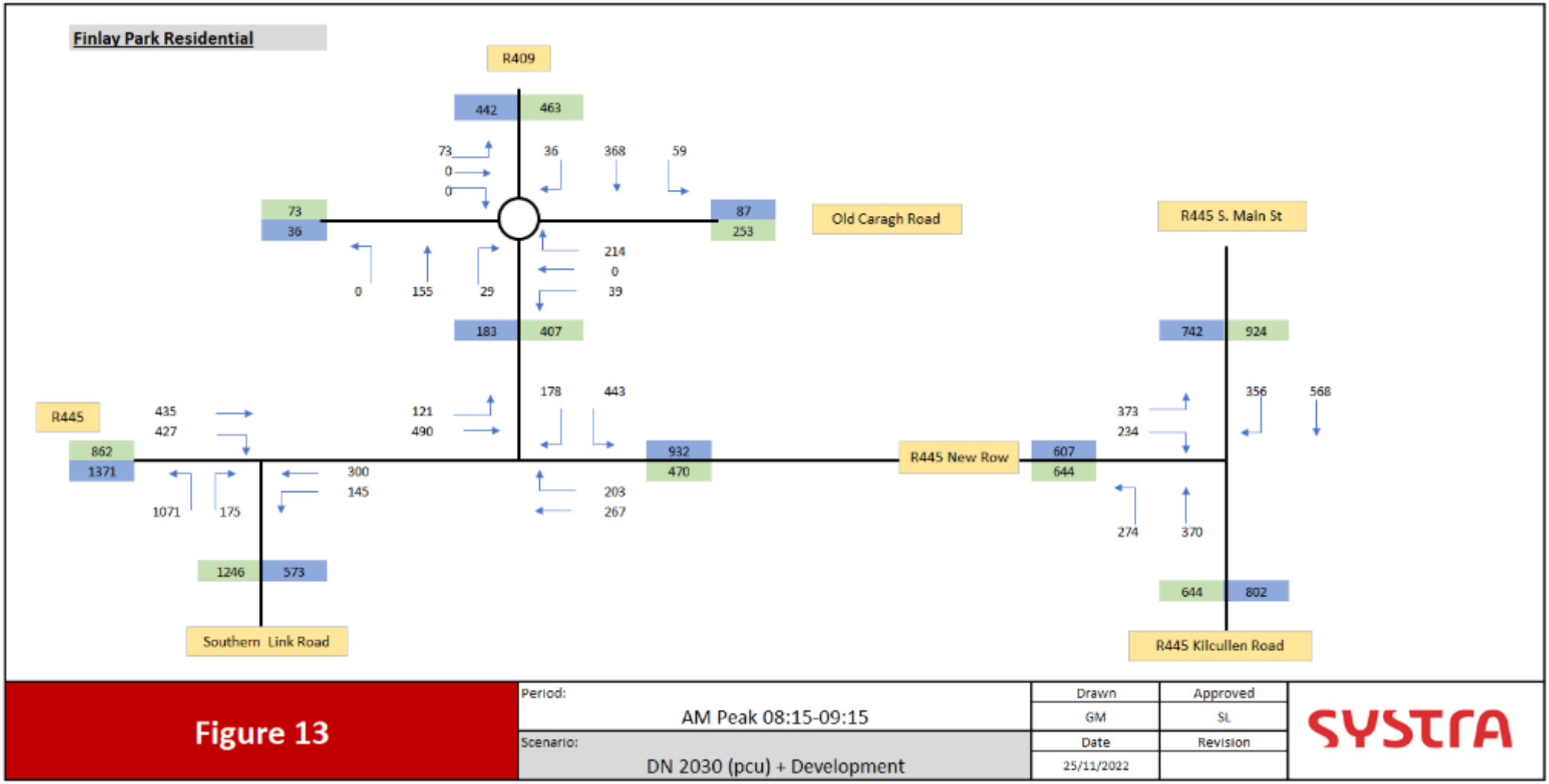
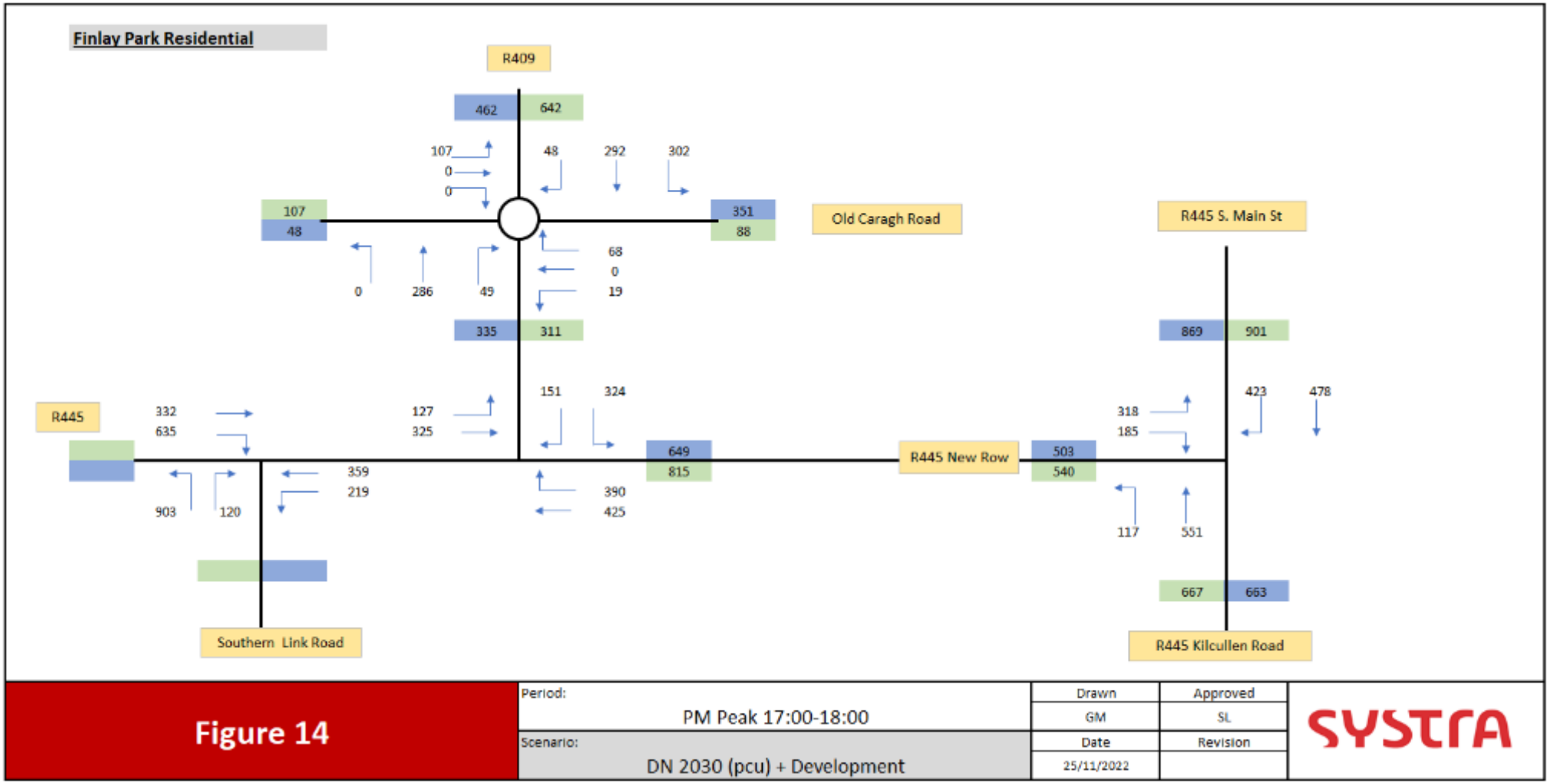


Figure 13

Period:	Drawn	Approved
AM Peak 08:15-09:15	GM	SL
Scenario:	Date	Revision
DN 2030 (pcu) + Development	25/11/2022	

SYSTRA


Finlay Park Residential
R409
462
642
107
0
0
48
292
302
107
48
351
88
Old Caragh Road
R445 S. Main St
0
286
49
68
0
19
335
311
869
901
R445
332
635
127
325
151
324
423
478
318
185
649
815
R445 New Row
503
540
359
219
390
425
903
120
117
551
667
663
Southern Link Road
R445 Kilcullen Road
Figure 14
Period:
PM Peak 17:00-18:00
Scenario:
DN 2030 (pcu) + Development
Drawn
GM
Approved
SL
Date
25/11/2022
Revision
SYSTRA

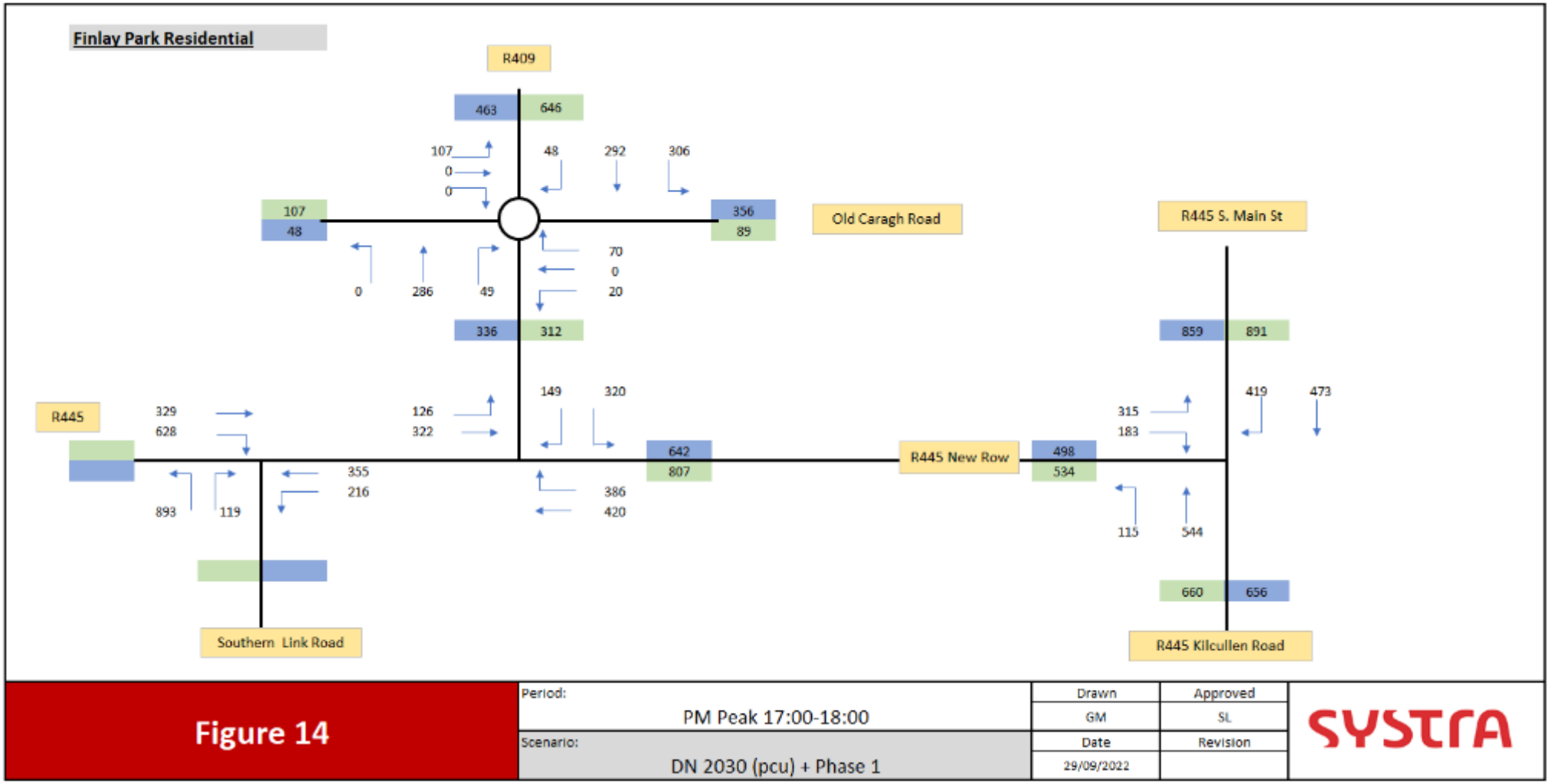


Figure 14	Period: PM Peak 17:00-18:00	Drawn: GM	Approved: SL
	Scenario: DN 2030 (pcu) + Phase 1	Date: 29/09/2022	Revision:

SYSTRA

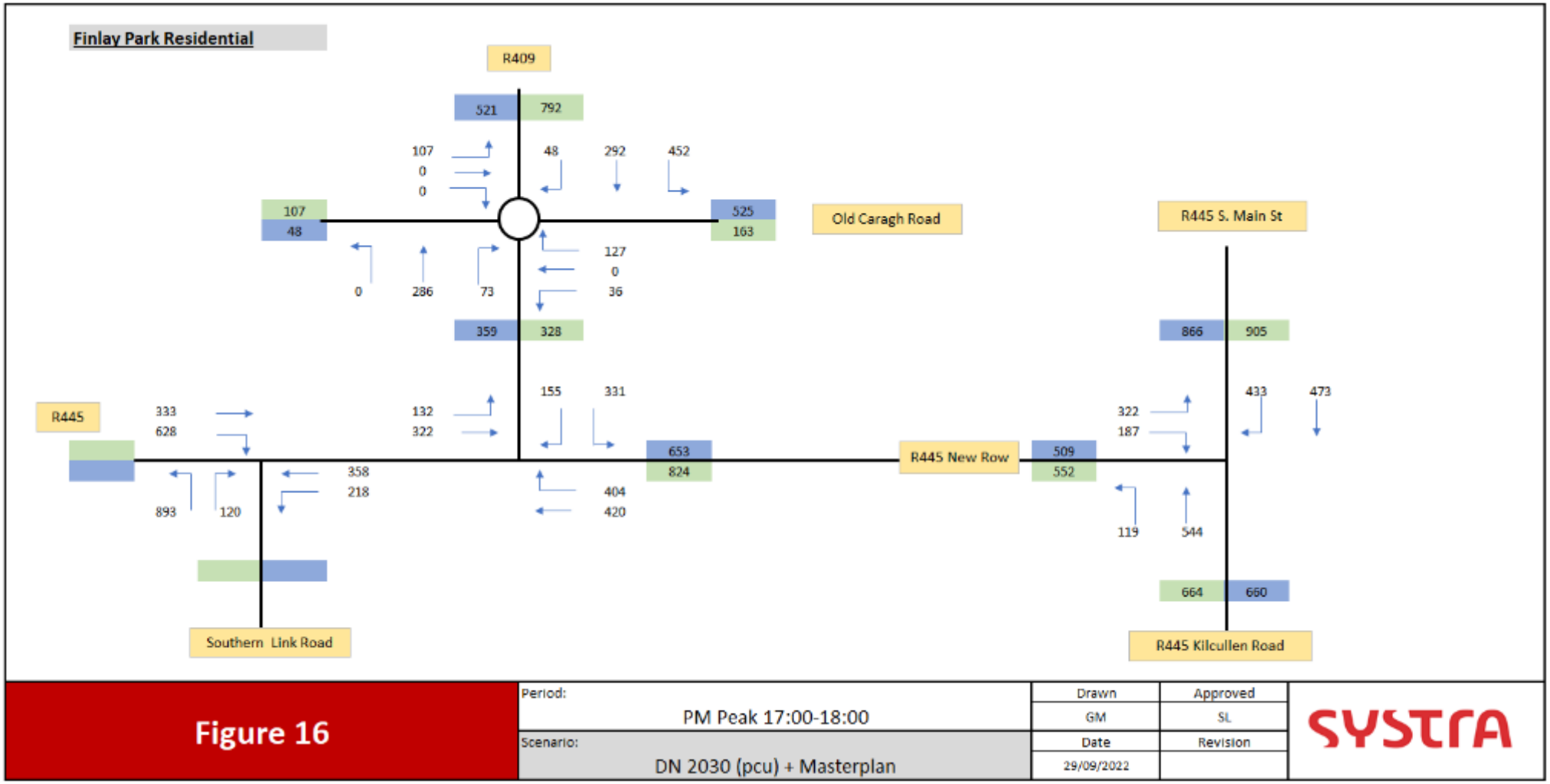
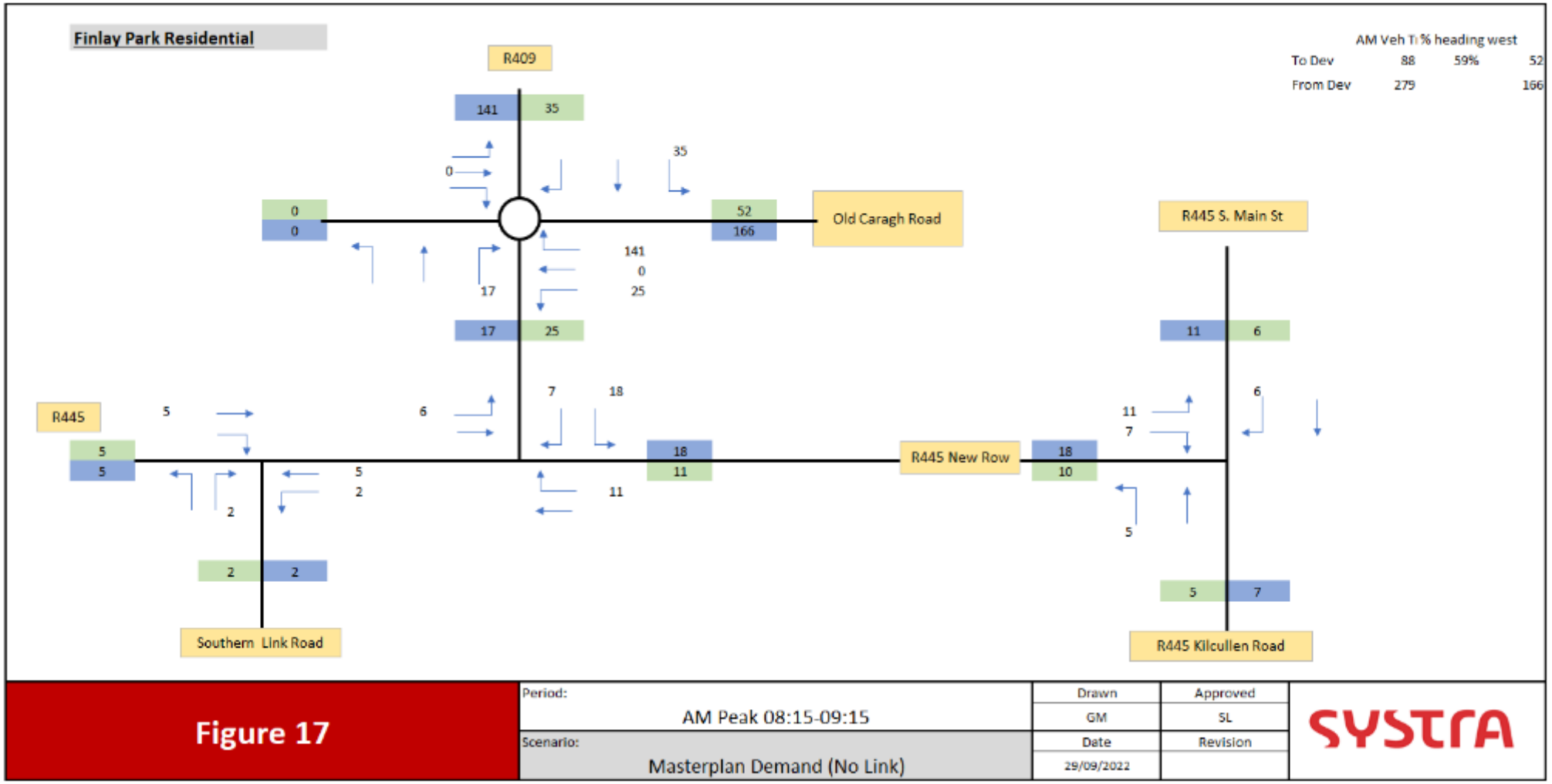
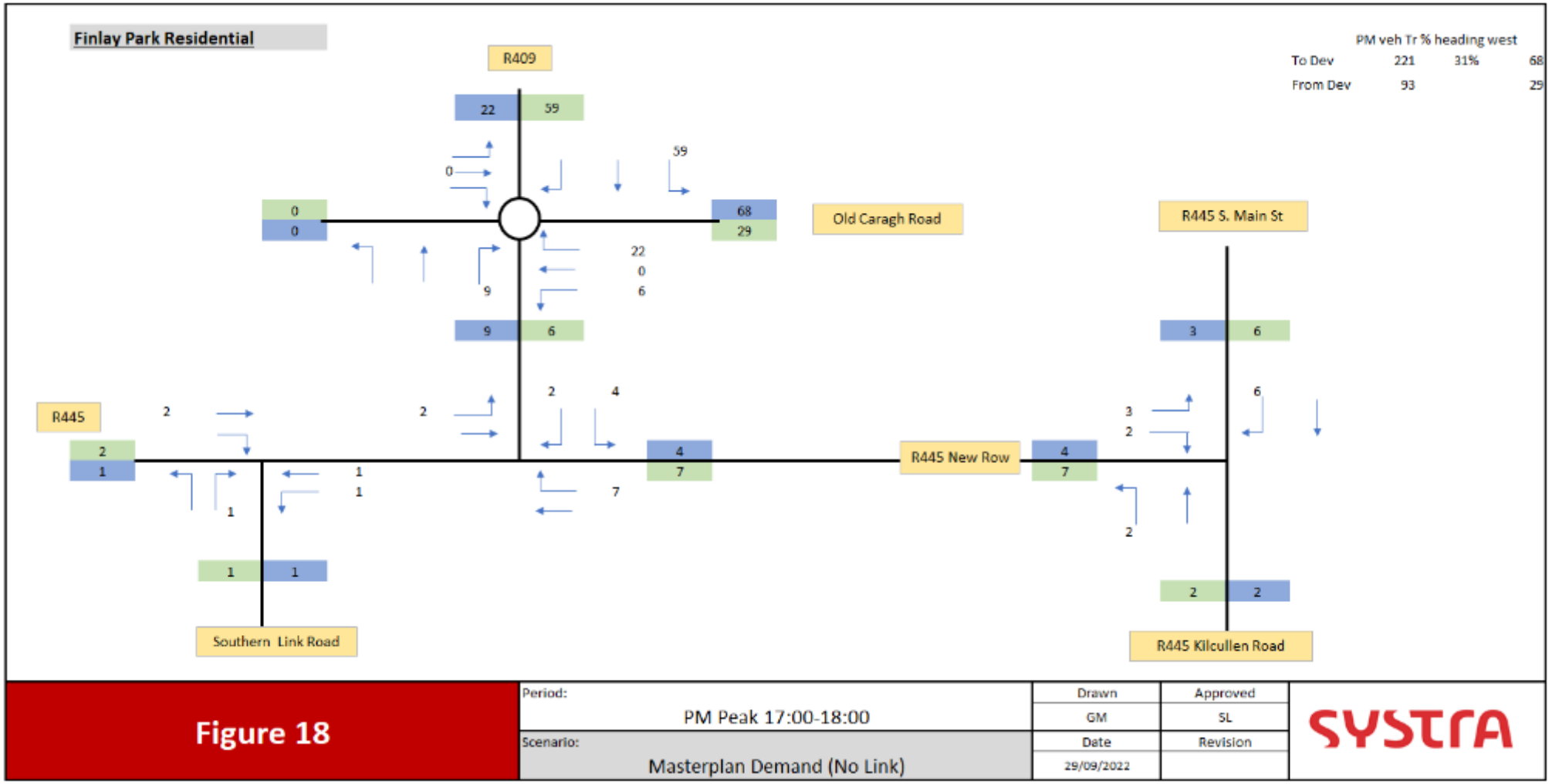


Figure 16	Period: PM Peak 17:00-18:00	Drawn: GM	Approved: SL
	Scenario: DN 2030 (pcu) + Masterplan	Date: 29/09/2022	Revision:

SYSTRA


Finlay Park Residential
AM Veh Ti % heading west
To Dev 88 59% 52
From Dev 279 166
R409
141
35
0
35
0
0
52
166
Old Caragh Road
141
0
25
17
17
25
R445 S. Main St
11
6
6
7
18
R445
5
6
11
7
5
5
18
11
R445 New Row
18
10
5
2
11
5
2
2
2
5
7
Southern Link Road
R445 Kilcullen Road
Figure 17
Period:
AM Peak 08:15-09:15
Scenario:
Masterplan Demand (No Link)
Drawn
GM
Approved
SL
Date
29/09/2022
Revision
SYSTRA


Finlay Park Residential
PM veh Tr % heading west
To Dev 221 31% 68
From Dev 93 29
R409
22
59
0
59
0
0
68
29
Old Caragh Road
R445 S. Main St
22
0
6
9
9
6
3
6
R445
2
2
2
4
6
3
2
2
1
4
7
R445 New Row
4
7
1
1
1
7
2
1
1
2
2
Southern Link Road
R445 Kilcullen Road
Figure 18
Period:
PM Peak 17:00-18:00
Scenario:
Masterplan Demand (No Link)
Drawn
GM
Approved
SL
Date
29/09/2022
Revision
SYSTRA

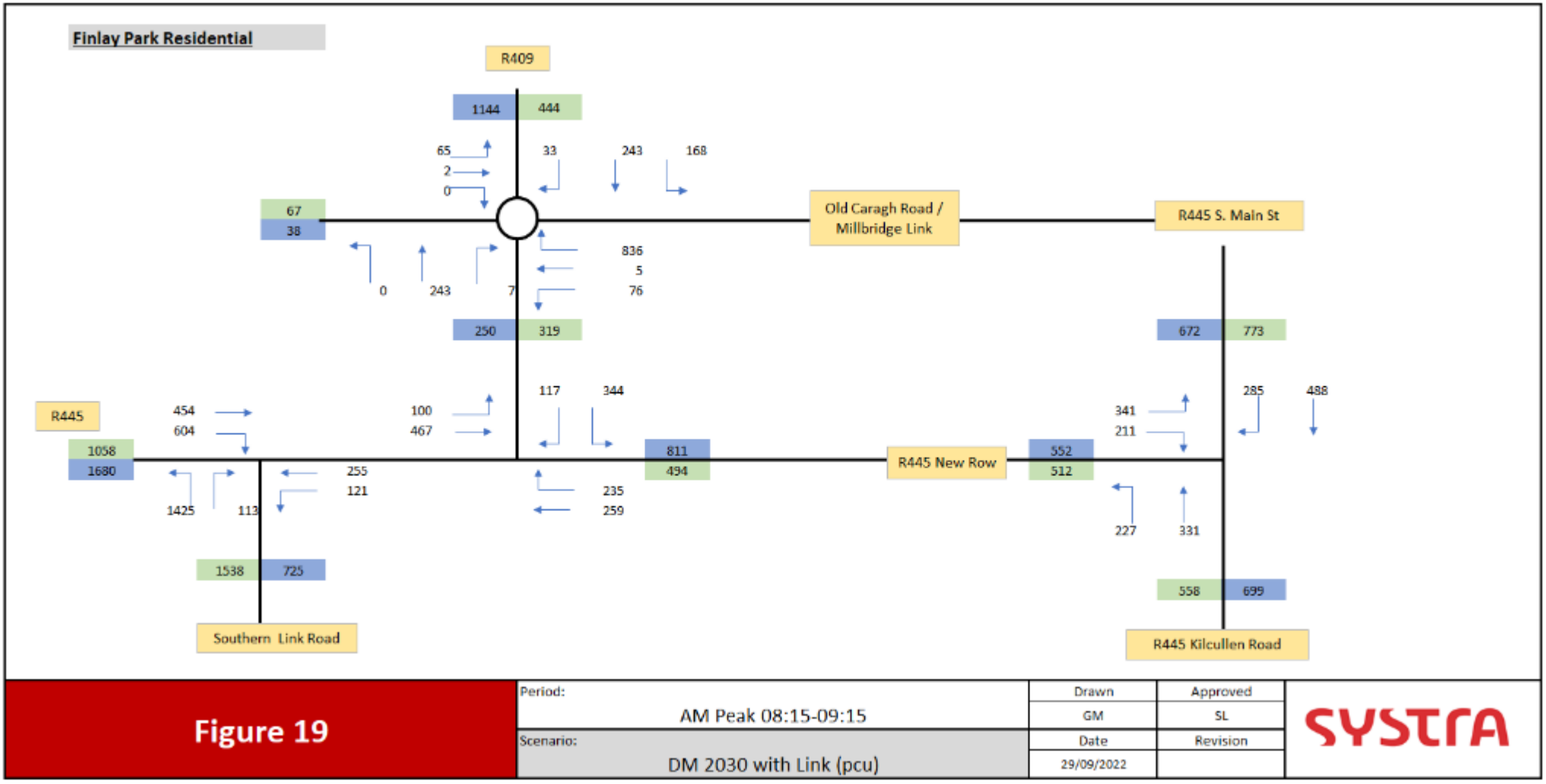


Figure 19	Period: AM Peak 08:15-09:15	Drawn: GM	Approved: SL
	Scenario: DM 2030 with Link (pcu)	Date: 29/09/2022	Revision:

SYSTRA

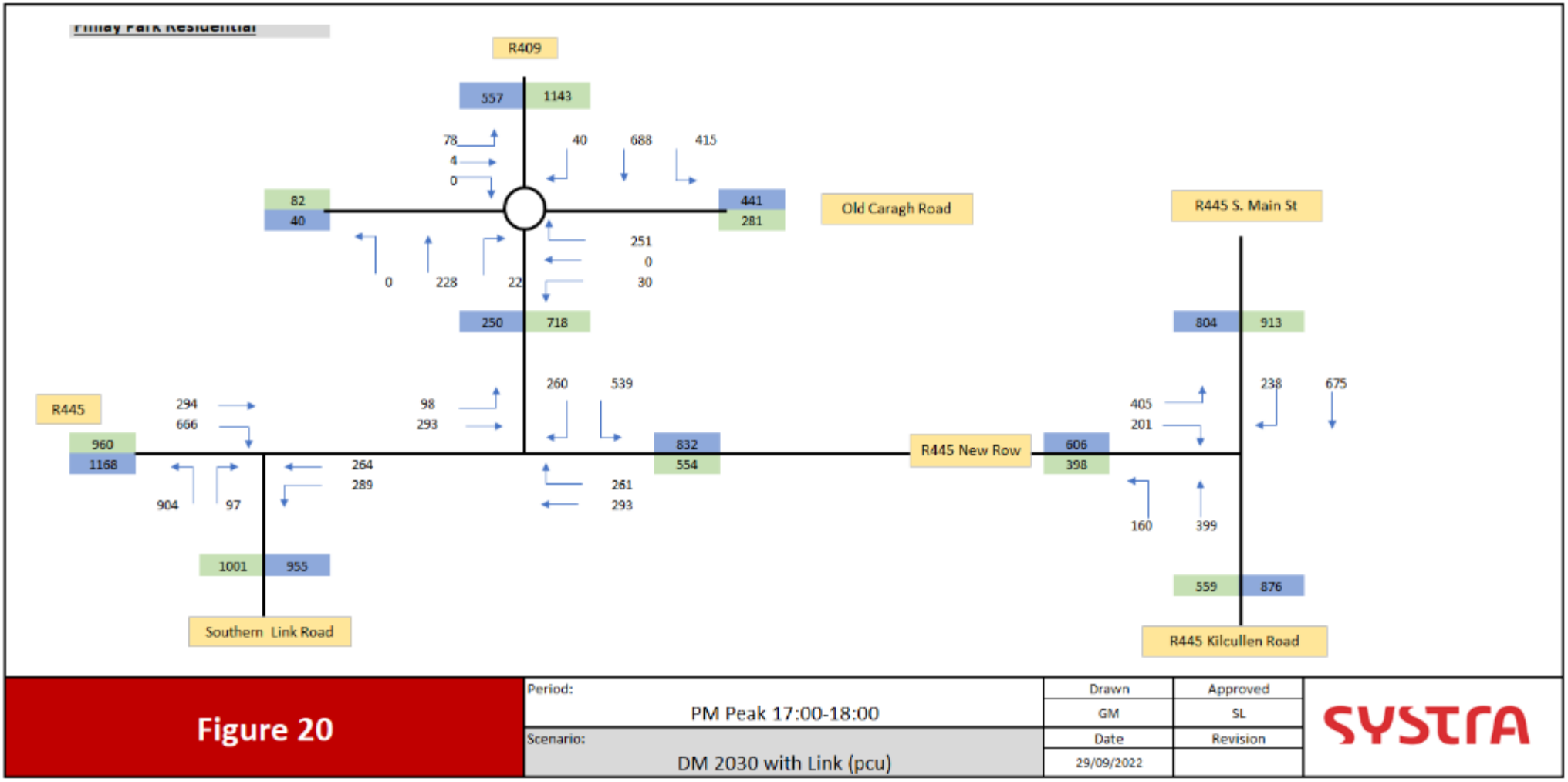


Figure 20	Period: PM Peak 17:00-18:00	Drawn: GM	Approved: SL
	Scenario: DM 2030 with Link (pcu)	Date: 29/09/2022	Revision:

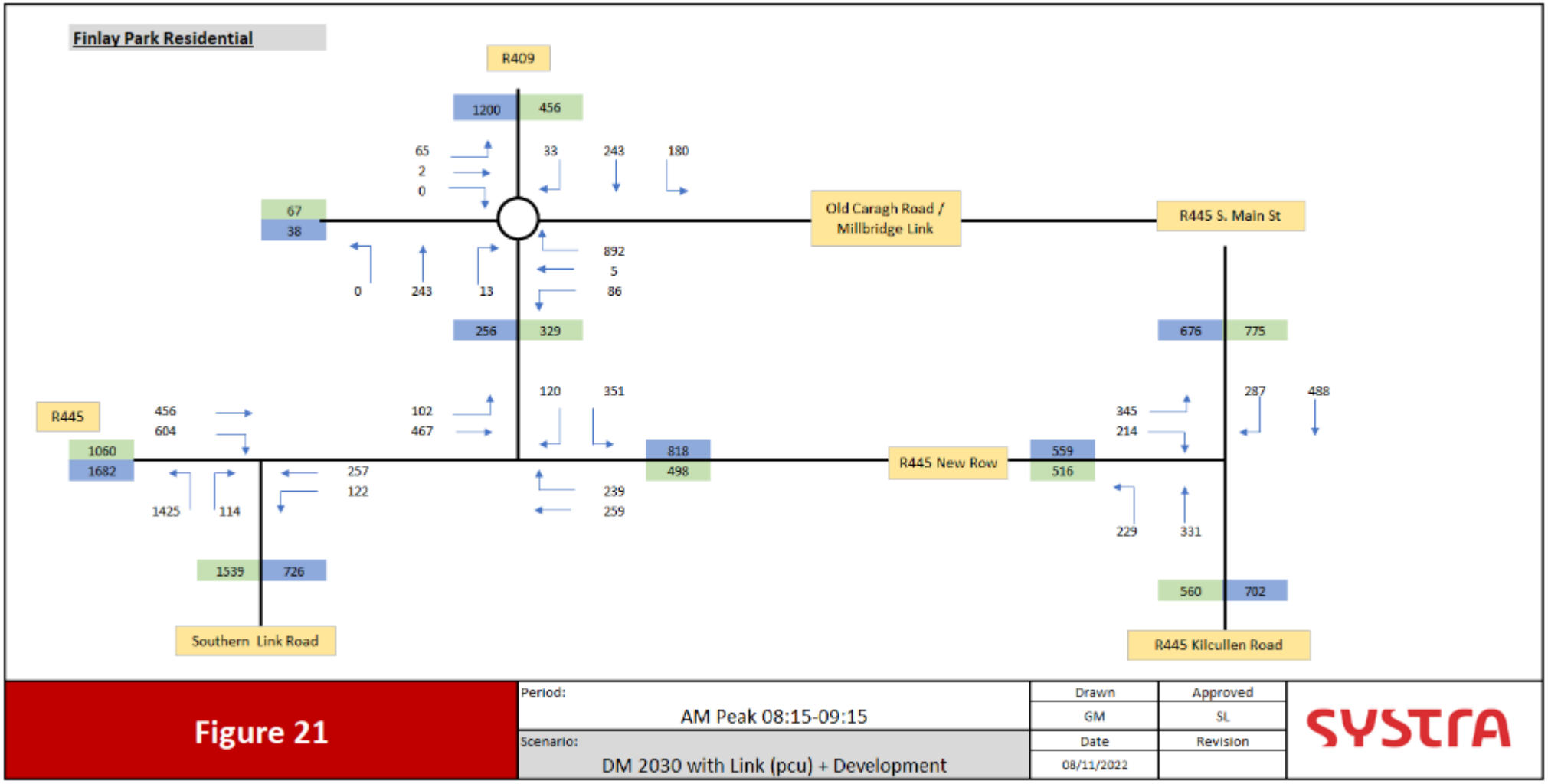

Finlay Park Residential
R409
1200
456
65
2
0
33
243
180
67
38
Old Caragh Road / Millbridge Link
R445 S. Main St
892
5
86
0
243
13
256
329
676
775
R445
456
604
1060
1682
102
467
120
351
818
498
R445 New Row
559
516
345
214
287
488
257
122
239
259
1425
114
229
331
1539
726
560
702
Southern Link Road
R445 Kilcullen Road
Period:
AM Peak 08:15-09:15
Scenario:
DM 2030 with Link (pcu) + Development
Drawn
GM
Approved
SL
Date
08/11/2022
Revision

Figure 21

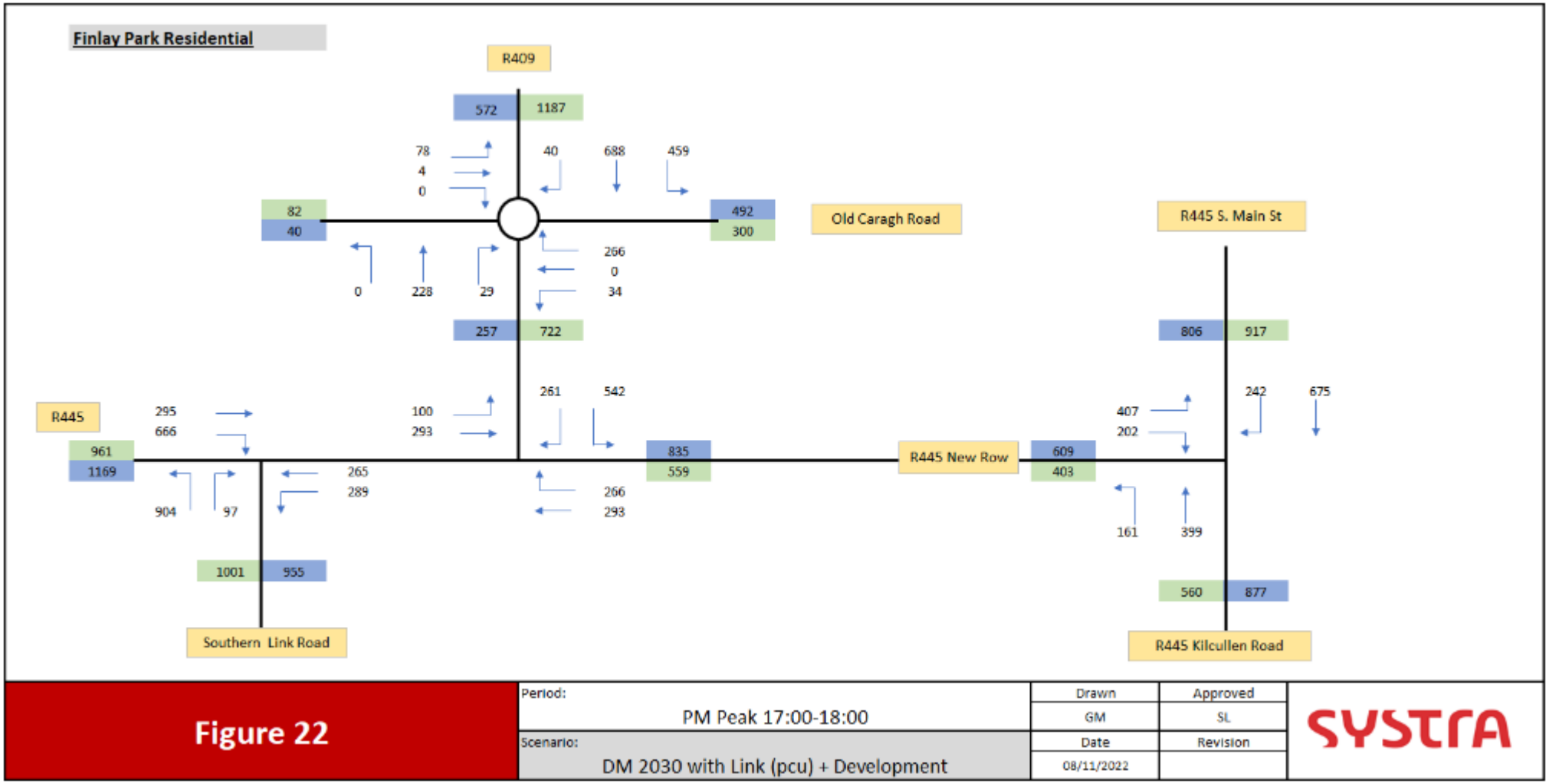


Figure 22

Period:	Drawn	Approved
PM Peak 17:00-18:00	GM	SL
Scenario:	Date	Revision
DM 2030 with Link (pcu) + Development	08/11/2022	

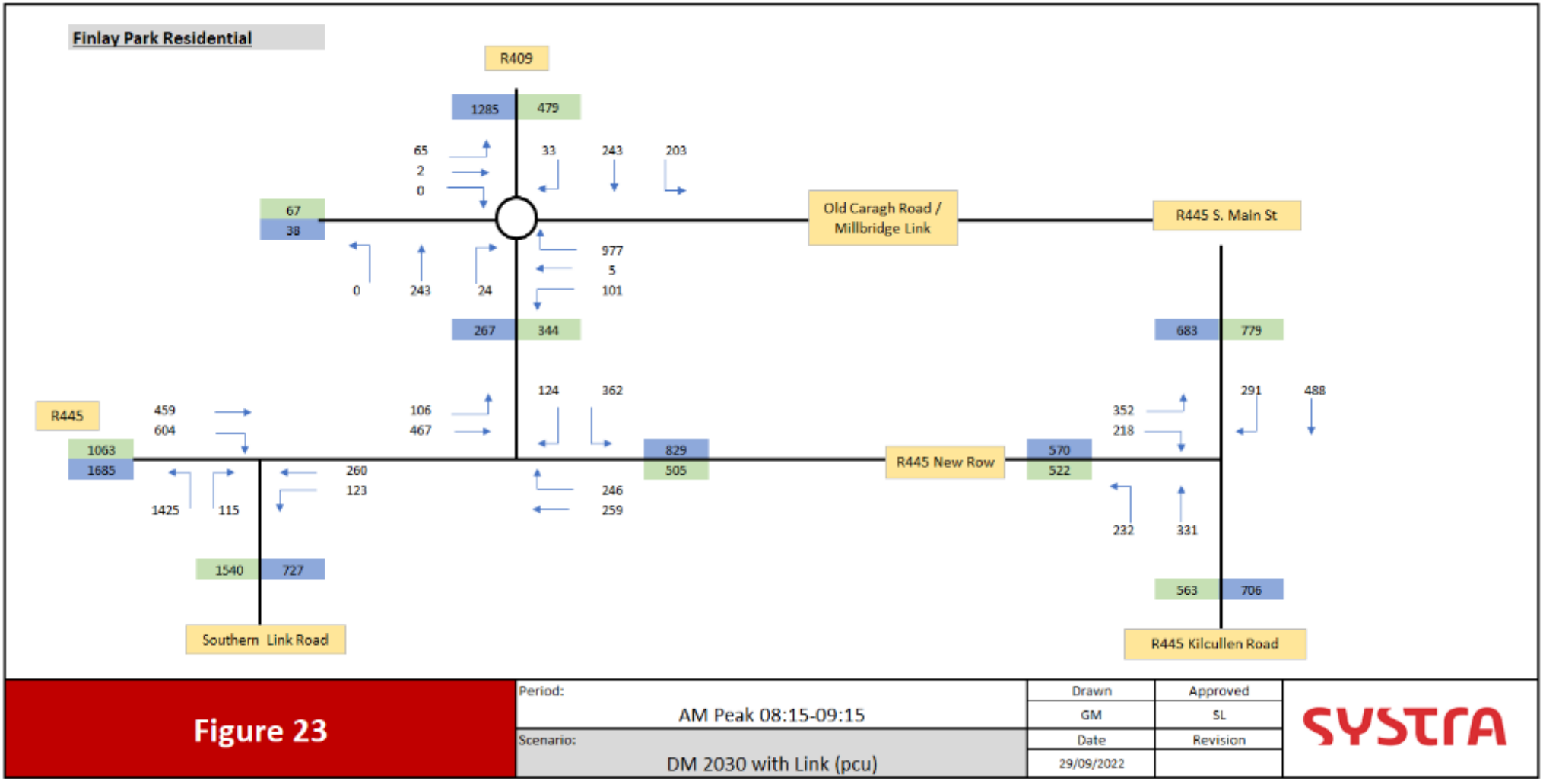
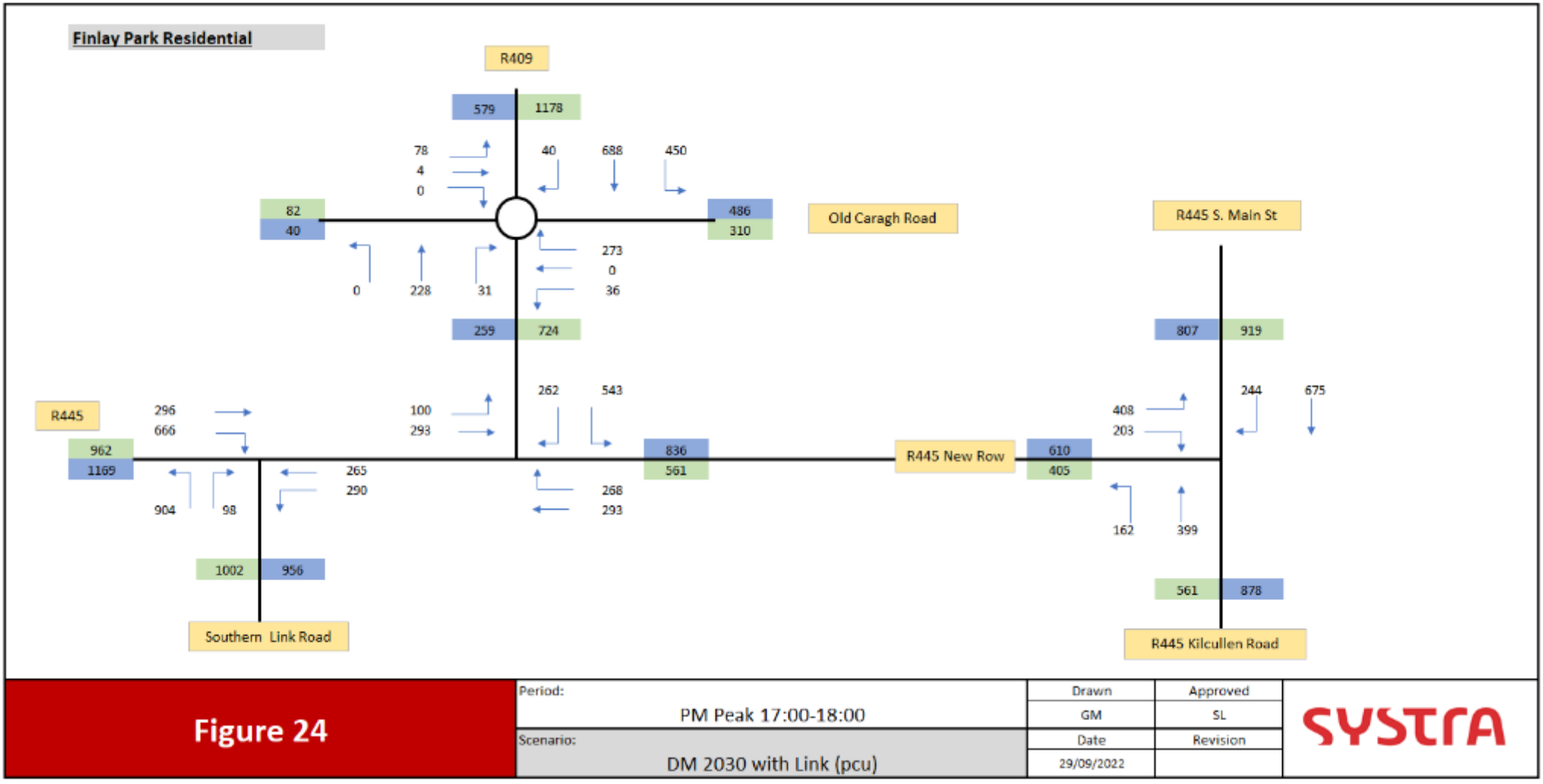


Figure 23

Period:	Drawn	Approved
AM Peak 08:15-09:15	GM	SL
Scenario:	Date	Revision
DM 2030 with Link (pcu)	29/09/2022	


Finlay Park Residential
R409
579
1178
78
4
0
40
688
450
82
40
486
310
Old Caragh Road
R445 S. Main St
273
0
36
0
228
31
259
724
807
919
262
543
244
675
R445
296
666
100
293
408
203
962
1169
836
561
R445 New Row
610
405
265
290
268
293
904
98
162
399
1002
956
561
878
Southern Link Road
R445 Kilcullen Road
Figure 24
Period:
PM Peak 17:00-18:00
Scenario:
DM 2030 with Link (pcu)
Drawn
GM
Approved
SL
Date
29/09/2022
Revision
SYSTRA

APPENDIX E – JUNCTION MODEL OUTPUT FILES

Available electronically on request

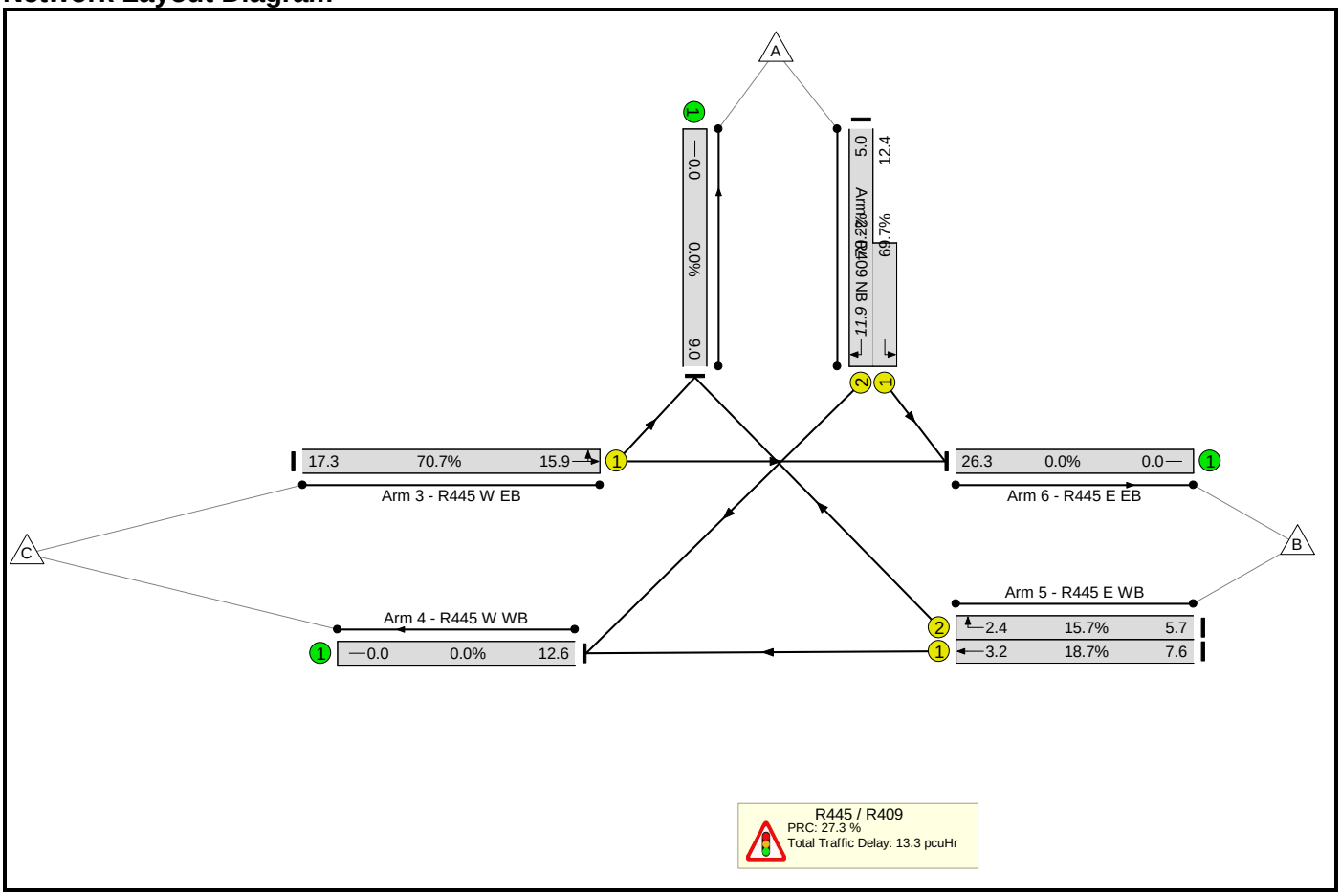
Basic Results Summary

Project and User Details

Project:	**Finlay Park Residential**
Client:	Westar Homes Ltd
Site Ref(s):	R445 / R409 signalised junction
Additional detail:	
File name:	R445 x R409.lsg3x
Author:	Glen Moon
Company:	SYSTRA Ltd
Address:	2nd Floor, Riverview House, 21-23 City Quay, Dublin Docklands, Dublin 2, Ireland
Linsig Version:	3, 2, 44, 1

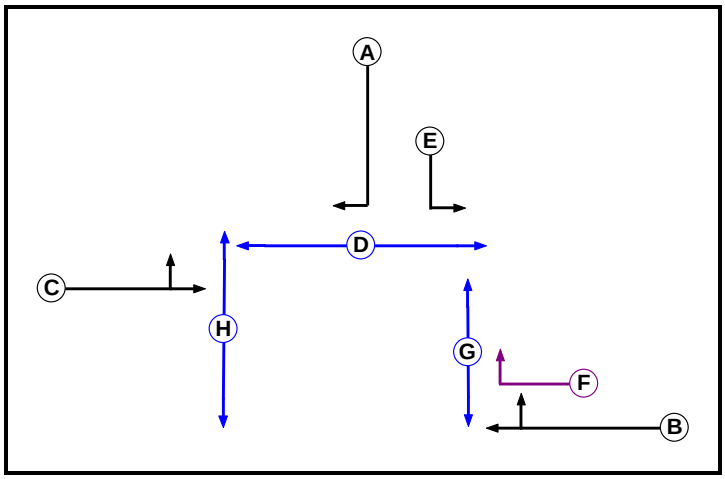
Scenario 1: '2022 Base AM' (FG1: '2022 Base AM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



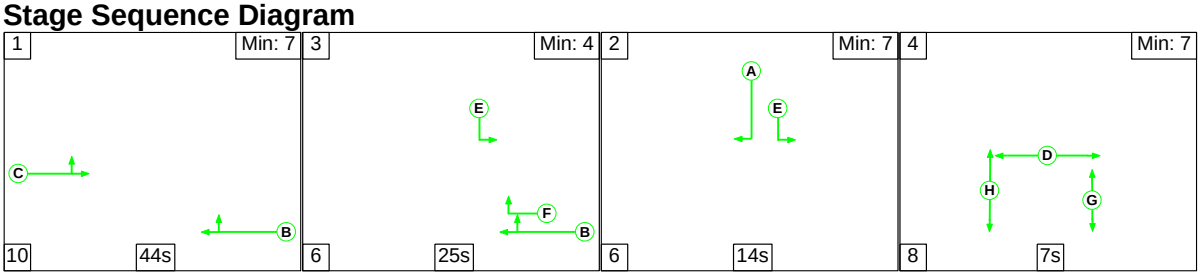
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		7	7
E	Traffic		7	7
F	Ind. Arrow	B	4	4
G	Pedestrian		7	7
H	Pedestrian		7	7

Phase Intergreens Matrix

		Starting Phase							
		A	B	C	D	E	F	G	H
Terminating Phase	A		5	5	5	-	5	-	8
	B	6		-	8	-	-	5	9
	C	5	-		7	6	6	9	5
	D	10	10	10		10	10	-	-
	E	-	-	5	5		-	8	-
	F	5	-	5	5	-		5	-
	G	-	10	10	-	10	10		-
	H	9	9	9	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / R409												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (R409 SB)	U	E	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Left	9.00
1/2 (R409 SB)	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Right	12.50
2/1 (R409 NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (R445 W EB)	U	C	2	3	34.8	Geom	-	3.85	0.00	Y	Arm 2 Left Arm 6 Ahead	12.50 Inf
4/1 (R445 W WB)	U		2	3	15.7	Inf	-	-	-	-	-	-
5/1 (R445 E WB)	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Ahead	Inf
5/2 (R445 E WB)	U	B F	2	3	17.7	Geom	-	3.00	0.00	Y	Arm 2 Right	12.50
6/1 (R445 E EB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / R409
There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2022 Base AM'	08:00	09:00	01:00	

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	371	150	521
	B	170	0	227	397
	C	101	417	0	518
	Tot.	271	788	377	1436

Basic Results Summary

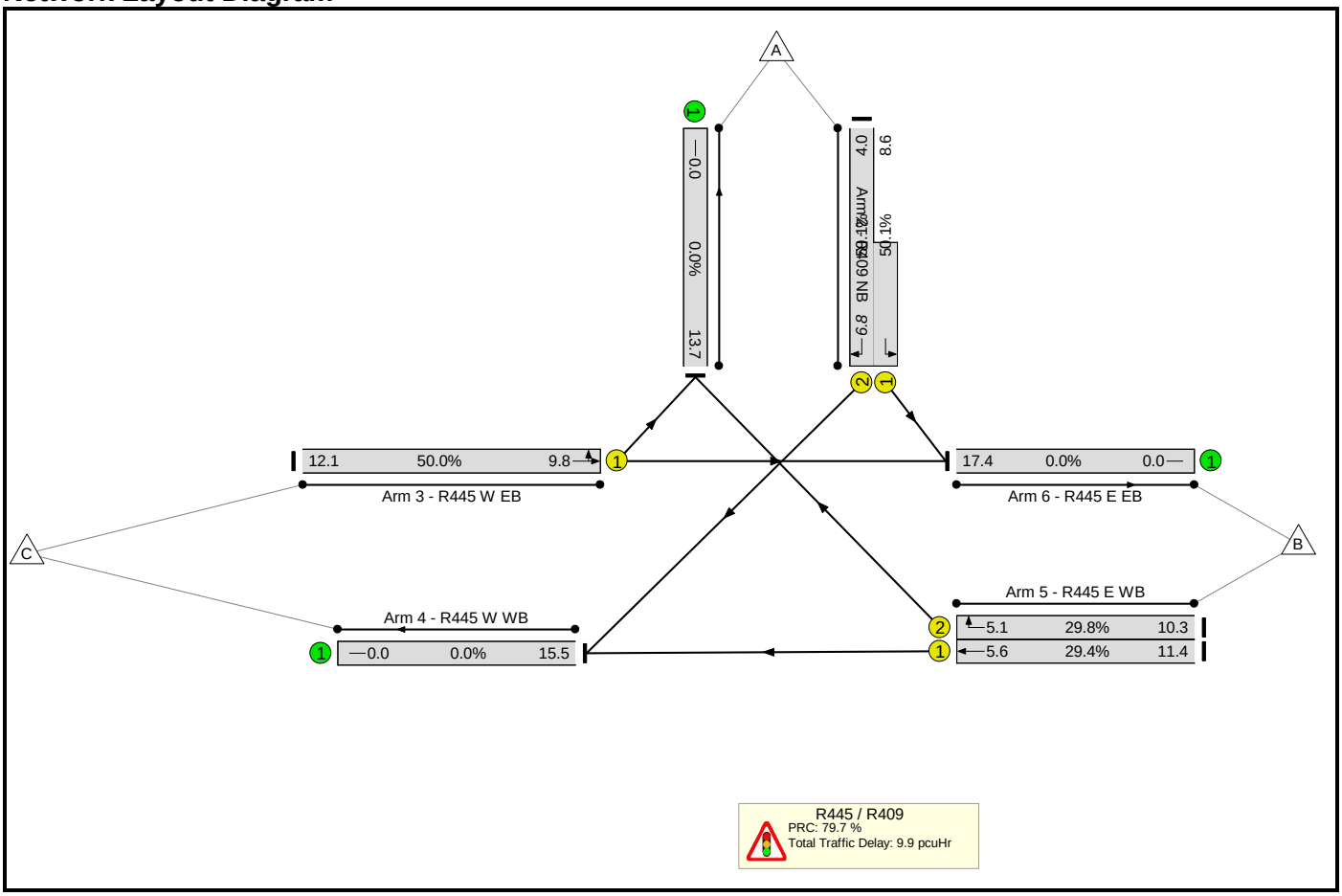
Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**70.7%**	**13.3**	**-**	**-**
R445 / R409	**70.7%**	**13.3**	**-**	**-**
1/2+1/1	70.2 : 69.7%	6.3	43.4	11.9
3/1	70.7%	5.8	40.2	15.9
5/1	18.7%	0.7	11.0	3.2
5/2	15.7%	0.5	10.9	2.4

C1
PRC for Signalled Lanes (%): 27.3
PRC Over All Lanes (%): 27.3
Total Delay for Signalled Lanes (pcuHr): 13.27
Total Delay Over All Lanes(pcuHr): 13.27

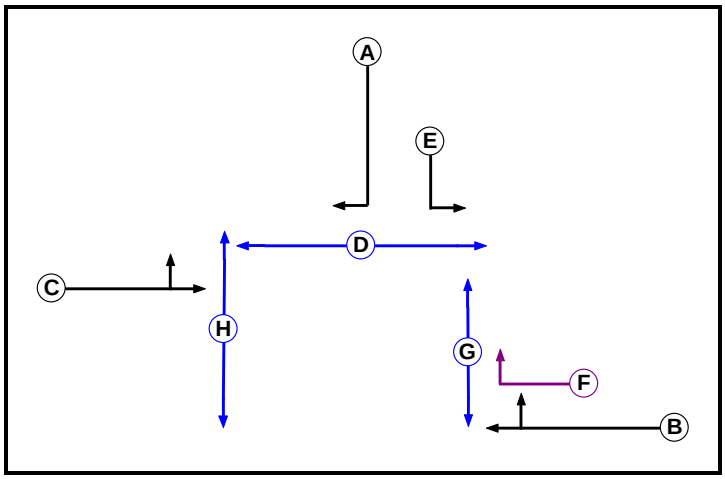
Scenario 2: '2022 Base PM' (FG2: '2022 Base PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



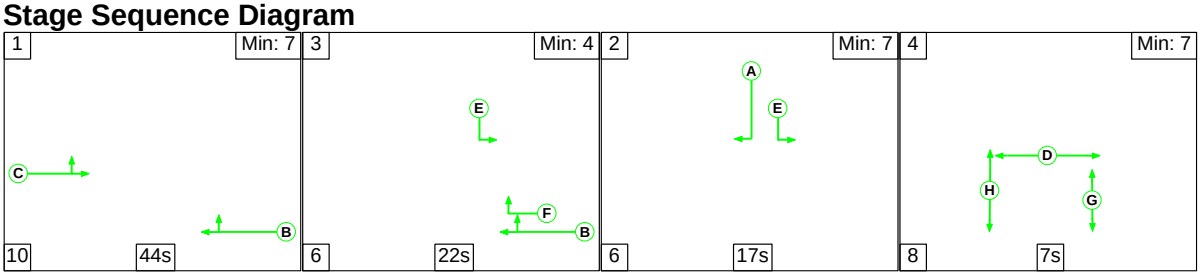
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		7	7
E	Traffic		7	7
F	Ind. Arrow	B	4	4
G	Pedestrian		7	7
H	Pedestrian		7	7

Phase Intergreens Matrix

		Starting Phase							
		A	B	C	D	E	F	G	H
Terminating Phase	A		5	5	5	-	5	-	8
	B	6		-	8	-	-	5	9
	C	5	-		7	6	6	9	5
	D	10	10	10		10	10	-	-
	E	-	-	5	5		-	8	-
	F	5	-	5	5	-		5	-
	G	-	10	10	-	10	10		-
	H	9	9	9	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / R409												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (R409 SB)	U	E	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Left	9.00
1/2 (R409 SB)	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Right	12.50
2/1 (R409 NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (R445 W EB)	U	C	2	3	34.8	Geom	-	3.85	0.00	Y	Arm 2 Left Arm 6 Ahead	12.50 Inf
4/1 (R445 W WB)	U		2	3	15.7	Inf	-	-	-	-	-	-
5/1 (R445 E WB)	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Ahead	Inf
5/2 (R445 E WB)	U	B F	2	3	17.7	Geom	-	3.00	0.00	Y	Arm 2 Right	12.50
6/1 (R445 E EB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / R409
There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
2: '2022 Base PM'	17:00	18:00	01:00	

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	259	121	380
	B	310	0	343	653
	C	101	262	0	363
	Tot.	411	521	464	1396

Basic Results Summary

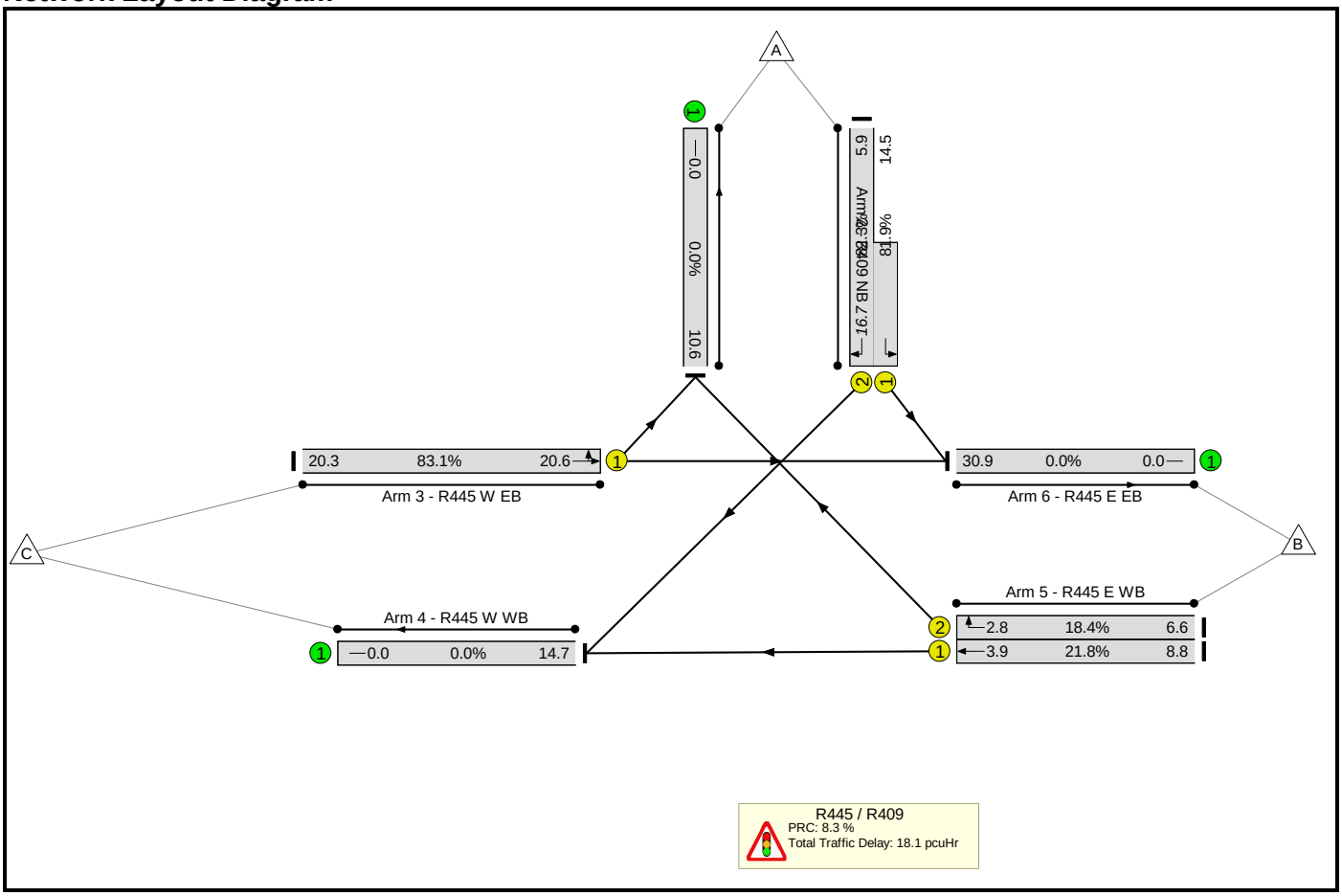
Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**50.1%**	**9.9**	**-**	**-**
R445 / R409	**50.1%**	**9.9**	**-**	**-**
1/2+1/1	50.1 : 50.1%	4.0	38.1	6.8
3/1	50.0%	3.4	33.8	9.8
5/1	29.4%	1.3	13.4	5.6
5/2	29.8%	1.2	13.7	5.1

C1
PRC for Signalled Lanes (%): 79.7
PRC Over All Lanes (%): 79.7
Total Delay for Signalled Lanes (pcuHr): 9.88
Total Delay Over All Lanes(pcuHr): 9.88

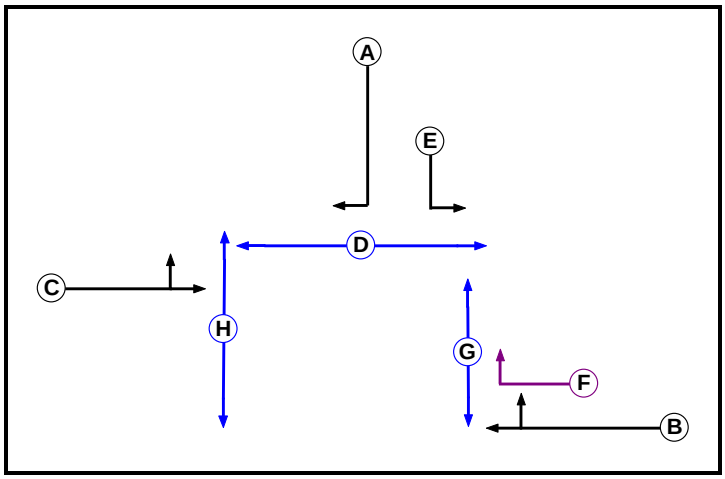
Scenario 3: '2030 DN AM' (FG3: '2030 DN AM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



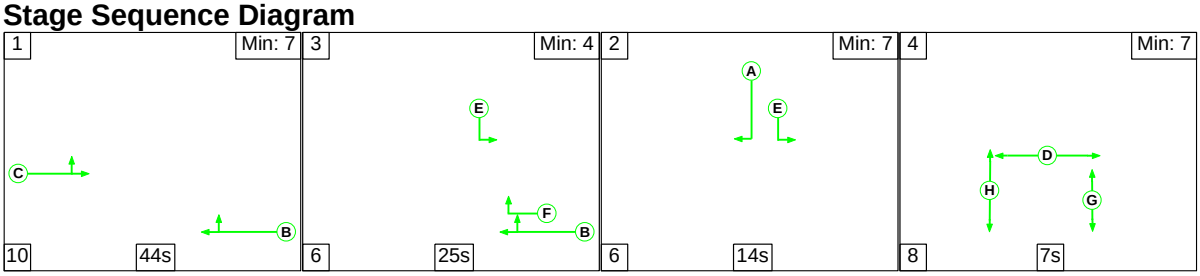
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		7	7
E	Traffic		7	7
F	Ind. Arrow	B	4	4
G	Pedestrian		7	7
H	Pedestrian		7	7

Phase Intergreens Matrix

		Starting Phase							
		A	B	C	D	E	F	G	H
Terminating Phase	A		5	5	5	-	5	-	8
	B	6		-	8	-	-	5	9
	C	5	-		7	6	6	9	5
	D	10	10	10		10	10	-	-
	E	-	-	5	5		-	8	-
	F	5	-	5	5	-		5	-
	G	-	10	10	-	10	10		-
	H	9	9	9	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / R409

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (R409 SB)	U	E	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Left	9.00
1/2 (R409 SB)	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Right	12.50
2/1 (R409 NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (R445 W EB)	U	C	2	3	34.8	Geom	-	3.85	0.00	Y	Arm 2 Left Arm 6 Ahead	12.50 Inf
4/1 (R445 W WB)	U		2	3	15.7	Inf	-	-	-	-	-	-
5/1 (R445 E WB)	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Ahead	Inf
5/2 (R445 E WB)	U	B F	2	3	17.7	Geom	-	3.00	0.00	Y	Arm 2 Right	12.50
6/1 (R445 E EB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / R409

There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
3: '2030 DN AM'	08:00	09:00	01:00	

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	436	176	612
	B	199	0	264	463
	C	119	490	0	609
	Tot.	318	926	440	1684

Basic Results Summary

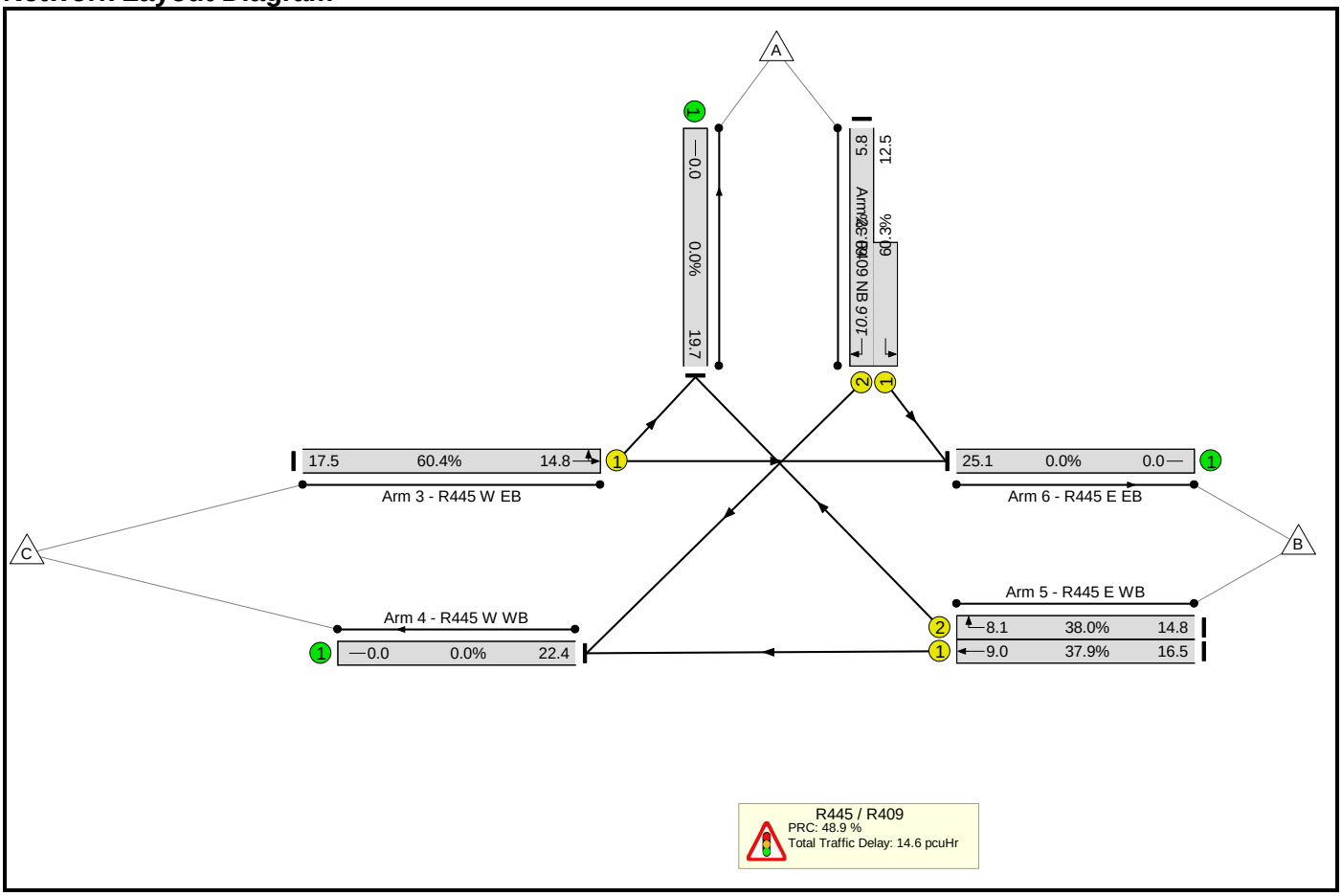
Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**83.1%**	**18.1**	**-**	**-**
R445 / R409	**83.1%**	**18.1**	**-**	**-**
1/2+1/1	82.3 : 81.9%	8.5	50.1	16.7
3/1	83.1%	8.1	48.1	20.6
5/1	21.8%	0.8	11.3	3.9
5/2	18.4%	0.6	11.2	2.8

C1	PRC for Signalled Lanes (%):	8.3	Total Delay for Signalled Lanes (pcuHr):		18.08
	PRC Over All Lanes (%):	8.3	Total Delay Over All Lanes(pcuHr):		18.08

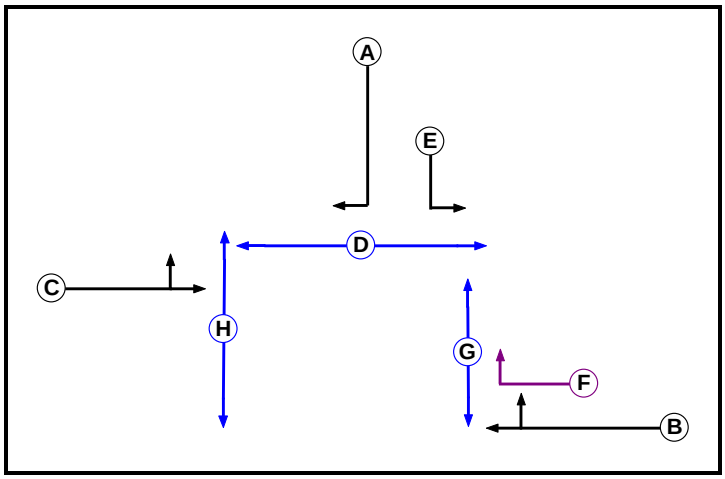
Scenario 4: '2030 DN PM' (FG4: '2030 DN PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



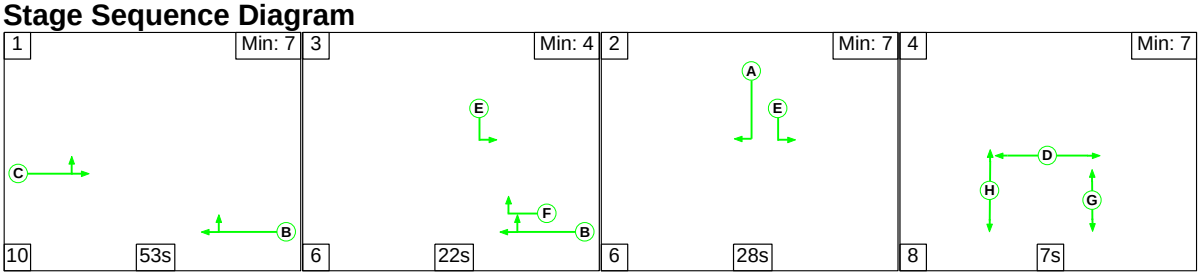
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		7	7
E	Traffic		7	7
F	Ind. Arrow	B	4	4
G	Pedestrian		7	7
H	Pedestrian		7	7

Phase Intergreens Matrix

		Starting Phase							
		A	B	C	D	E	F	G	H
Terminating Phase	A		5	5	5	-	5	-	8
	B	6		-	8	-	-	5	9
	C	5	-		7	6	6	9	5
	D	10	10	10		10	10	-	-
	E	-	-	5	5		-	8	-
	F	5	-	5	5	-		5	-
	G	-	10	10	-	10	10		-
	H	9	9	9	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / R409												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (R409 SB)	U	E	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Left	9.00
1/2 (R409 SB)	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Right	12.50
2/1 (R409 NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (R445 W EB)	U	C	2	3	34.8	Geom	-	3.85	0.00	Y	Arm 2 Left Arm 6 Ahead	12.50 Inf
4/1 (R445 W WB)	U		2	3	15.7	Inf	-	-	-	-	-	-
5/1 (R445 E WB)	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Ahead	Inf
5/2 (R445 E WB)	U	B F	2	3	17.7	Geom	-	3.00	0.00	Y	Arm 2 Right	12.50
6/1 (R445 E EB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / R409
There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
4: '2030 DN PM'	17:00	18:00	01:00	

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	321	150	471
	B	381	0	425	806
	C	126	325	0	451
	Tot.	507	646	575	1728

Basic Results Summary

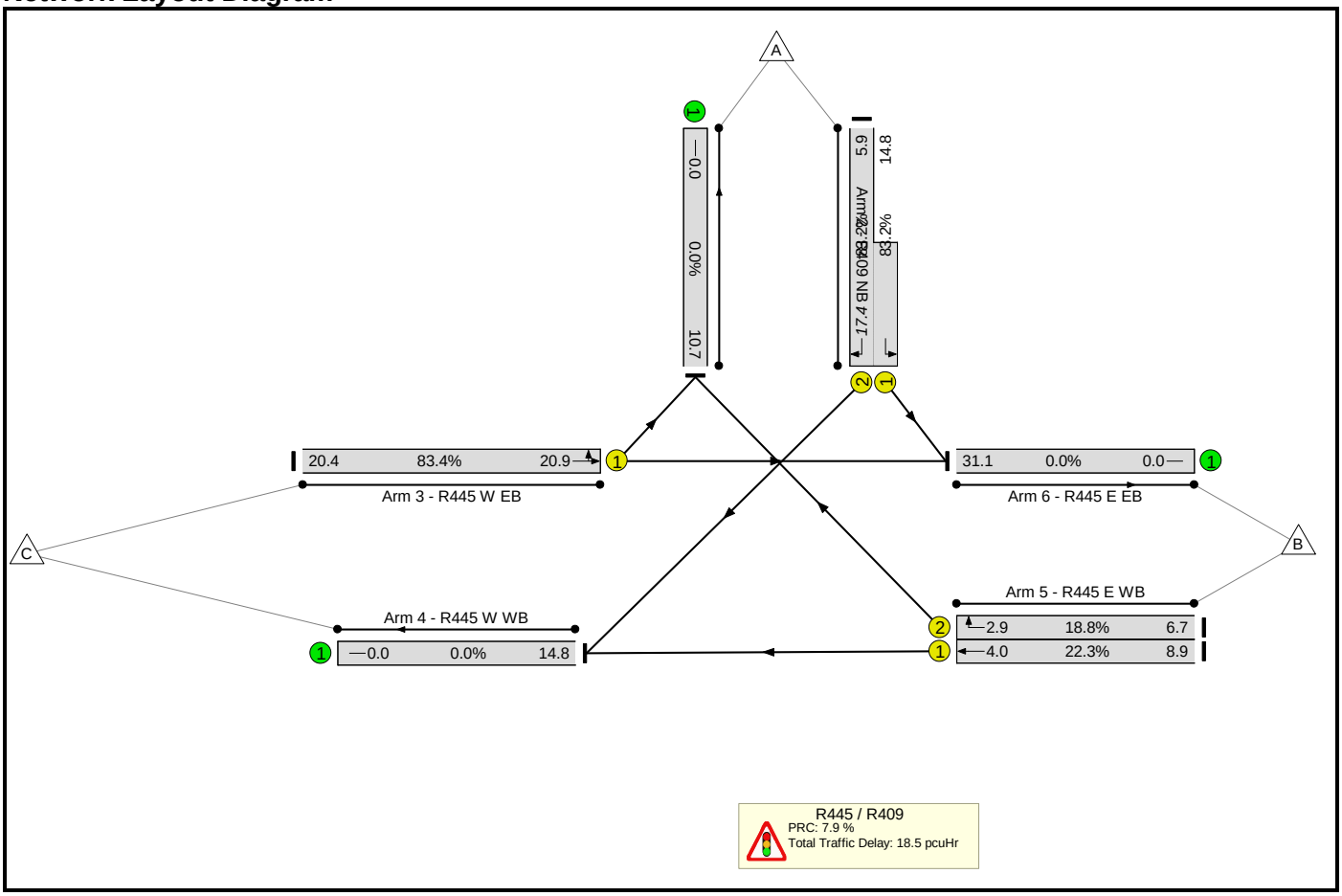
Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**60.4%**	**14.6**	**-**	**-**
R445 / R409	**60.4%**	**14.6**	**-**	**-**
1/2+1/1	60.3 : 60.3%	5.5	42.0	10.6
3/1	60.4%	5.1	40.5	14.8
5/1	37.9%	2.1	18.0	9.0
5/2	38.0%	1.9	18.4	8.1

C1	PRC for Signalled Lanes (%):	48.9	Total Delay for Signalled Lanes (pcuHr):	14.64
	PRC Over All Lanes (%):	48.9	Total Delay Over All Lanes(pcuHr):	14.64

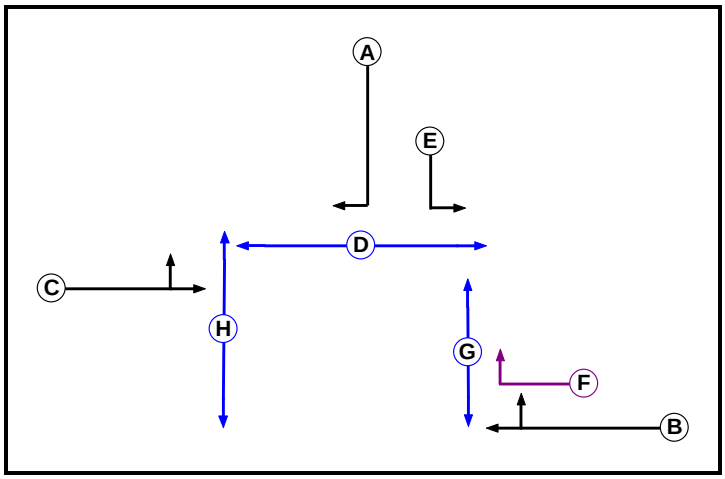
Scenario 5: '2030 DN + PH1 AM' (FG5: '2030 DN + PH1 AM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



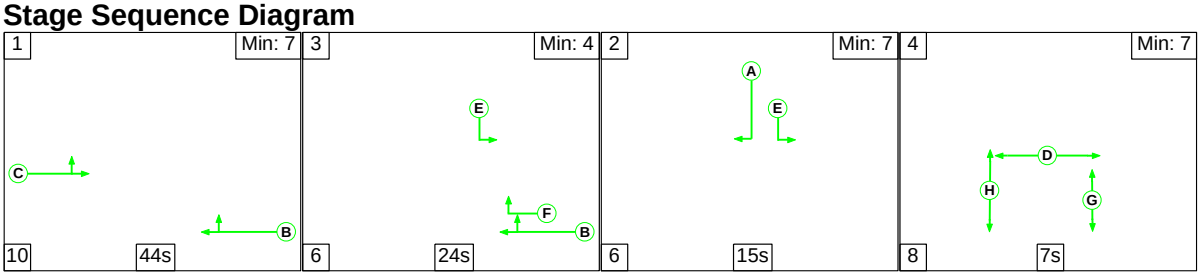
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		7	7
E	Traffic		7	7
F	Ind. Arrow	B	4	4
G	Pedestrian		7	7
H	Pedestrian		7	7

Phase Intergreens Matrix

		Starting Phase							
		A	B	C	D	E	F	G	H
Terminating Phase	A		5	5	5	-	5	-	8
	B	6		-	8	-	-	5	9
	C	5	-		7	6	6	9	5
	D	10	10	10		10	10	-	-
	E	-	-	5	5		-	8	-
	F	5	-	5	5	-		5	-
	G	-	10	10	-	10	10		-
	H	9	9	9	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / R409

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (R409 SB)	U	E	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Left	9.00
1/2 (R409 SB)	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Right	12.50
2/1 (R409 NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (R445 W EB)	U	C	2	3	34.8	Geom	-	3.85	0.00	Y	Arm 2 Left Arm 6 Ahead	12.50 Inf
4/1 (R445 W WB)	U		2	3	15.7	Inf	-	-	-	-	-	-
5/1 (R445 E WB)	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Ahead	Inf
5/2 (R445 E WB)	U	B F	2	3	17.7	Geom	-	3.00	0.00	Y	Arm 2 Right	12.50
6/1 (R445 E EB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / R409

There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
5: '2030 DN + PH1 AM'	08:00	09:00	01:00	

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	443	178	621
	B	201	0	267	468
	C	121	490	0	611
	Tot.	322	933	445	1700

Basic Results Summary

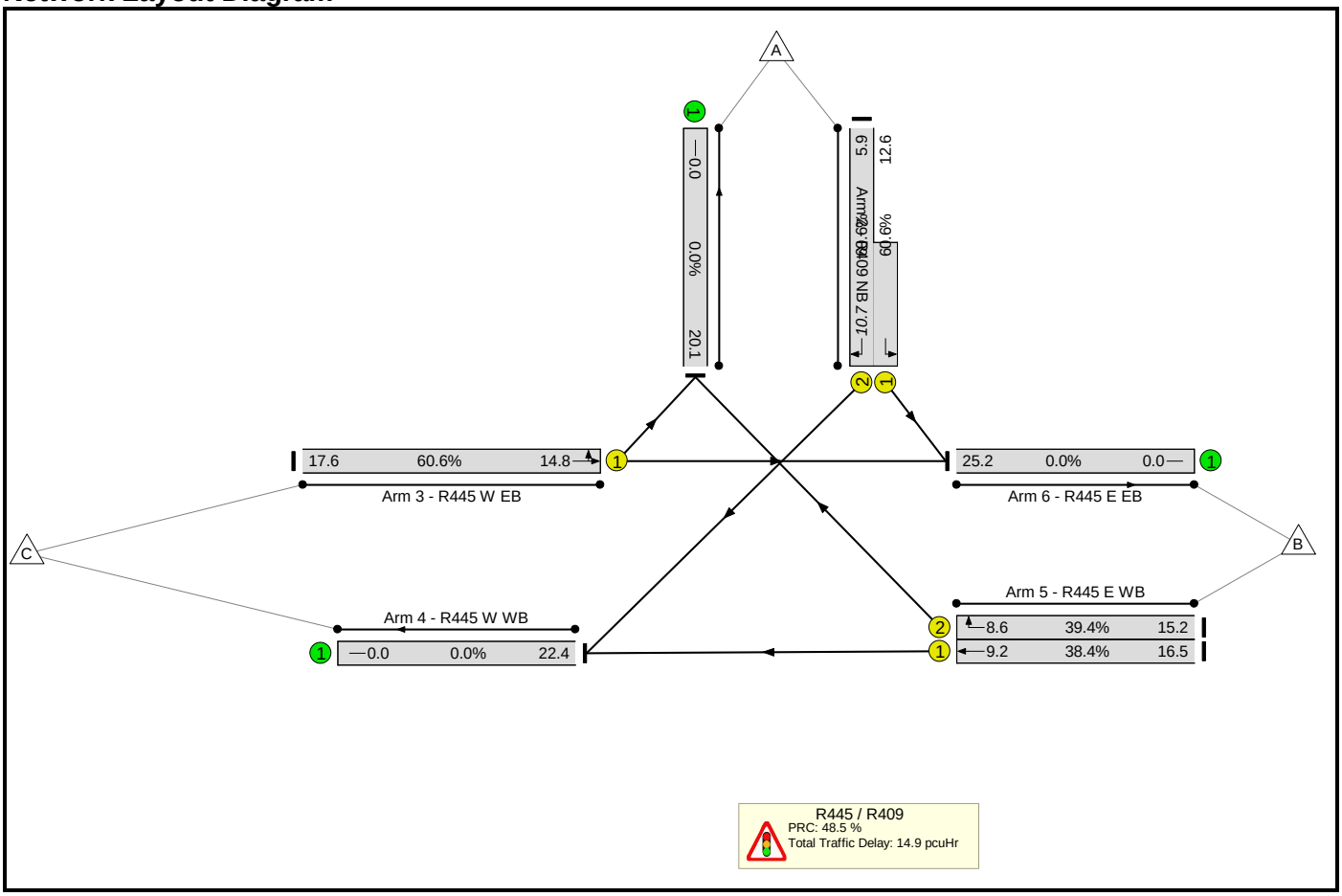
Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**83.4%**	**18.5**	**-**	**-**
R445 / R409	**83.4%**	**18.5**	**-**	**-**
1/2+1/1	83.2 : 83.2%	8.8	50.7	17.4
3/1	83.4%	8.2	48.3	20.9
5/1	22.3%	0.9	11.7	4.0
5/2	18.8%	0.6	11.6	2.9

C1
PRC for Signalled Lanes (%): 7.9
PRC Over All Lanes (%): 7.9
Total Delay for Signalled Lanes (pcuHr): 18.48
Total Delay Over All Lanes(pcuHr): 18.48

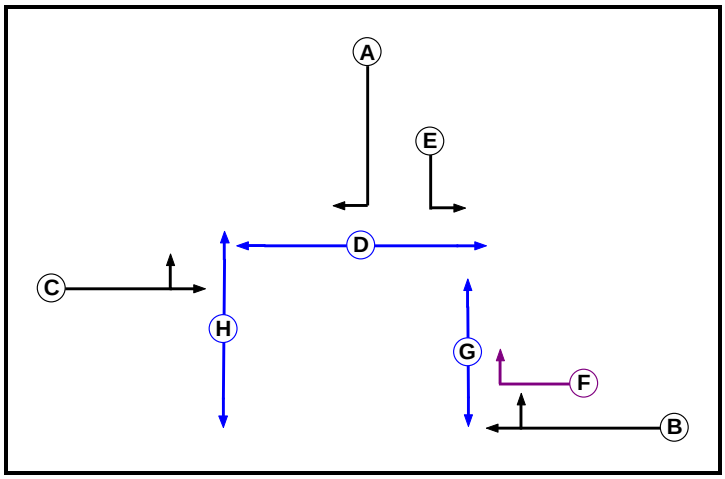
Scenario 6: '2030 DN + PH1 PM' (FG6: '2030 DN + PH1 PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



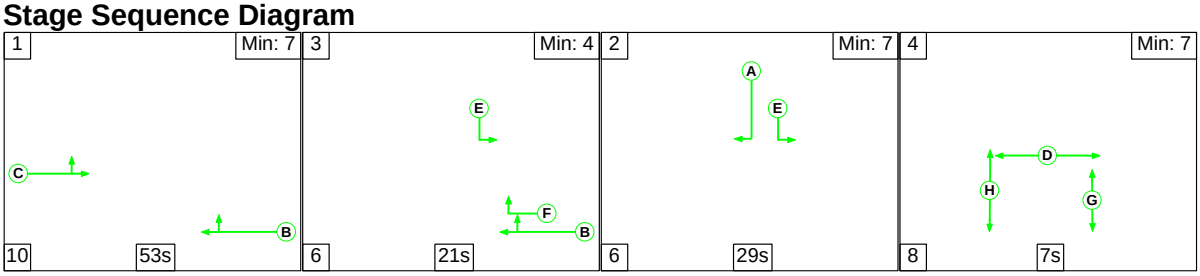
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		7	7
E	Traffic		7	7
F	Ind. Arrow	B	4	4
G	Pedestrian		7	7
H	Pedestrian		7	7

Phase Intergreens Matrix

		Starting Phase							
		A	B	C	D	E	F	G	H
Terminating Phase	A		5	5	5	-	5	-	8
	B	6		-	8	-	-	5	9
	C	5	-		7	6	6	9	5
	D	10	10	10		10	10	-	-
	E	-	-	5	5		-	8	-
	F	5	-	5	5	-		5	-
	G	-	10	10	-	10	10		-
	H	9	9	9	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / R409

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (R409 SB)	U	E	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Left	9.00
1/2 (R409 SB)	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Right	12.50
2/1 (R409 NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (R445 W EB)	U	C	2	3	34.8	Geom	-	3.85	0.00	Y	Arm 2 Left Arm 6 Ahead	12.50 Inf
4/1 (R445 W WB)	U		2	3	15.7	Inf	-	-	-	-	-	-
5/1 (R445 E WB)	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Ahead	Inf
5/2 (R445 E WB)	U	B F	2	3	17.7	Geom	-	3.00	0.00	Y	Arm 2 Right	12.50
6/1 (R445 E EB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / R409

There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
6: '2030 DN + PH1 PM'	17:00	18:00	01:00	

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	324	151	475
	B	390	0	425	815
	C	127	325	0	452
	Tot.	517	649	576	1742

Basic Results Summary

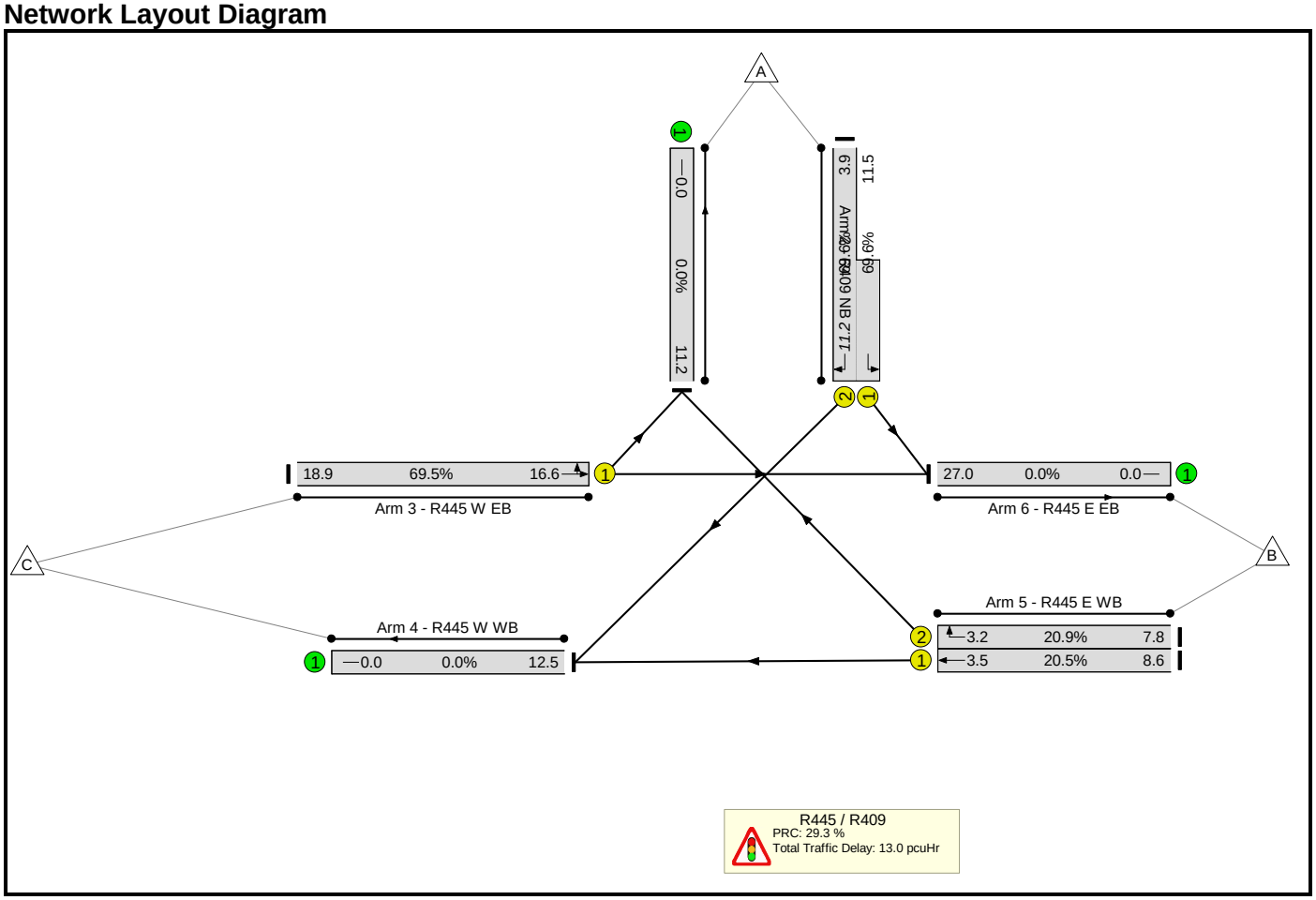
Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**60.6%**	**14.9**	**-**	**-**
R445 / R409	**60.6%**	**14.9**	**-**	**-**
1/2+1/1	60.6 : 60.6%	5.5	41.8	10.7
3/1	60.6%	5.1	40.6	14.8
5/1	38.4%	2.2	18.6	9.2
5/2	39.4%	2.1	19.1	8.6

C1	PRC for Signalled Lanes (%):	48.5	Total Delay for Signalled Lanes (pcuHr):	14.87
	PRC Over All Lanes (%):	48.5	Total Delay Over All Lanes(pcuHr):	14.87

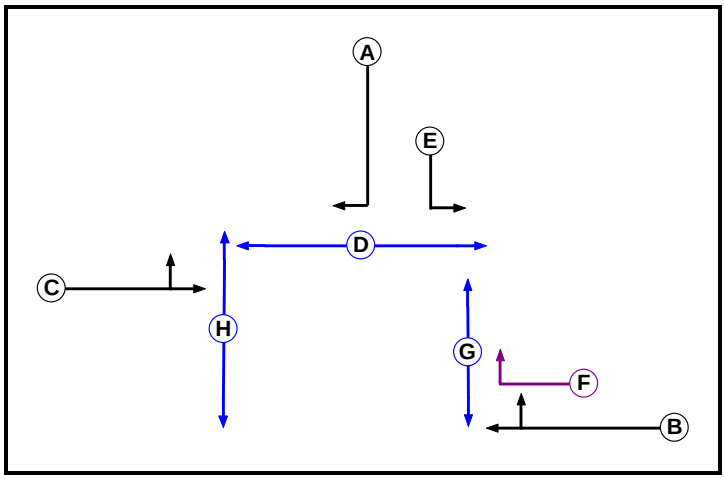
Scenario 7: '2030 DM + LINK AM' (FG7: '2030 DM + LINK AM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



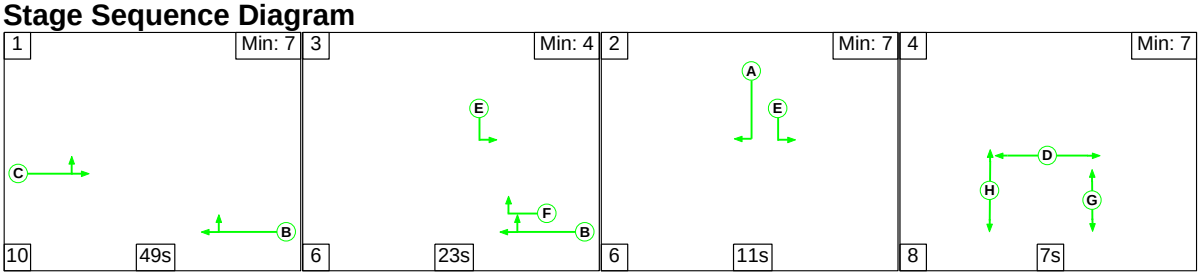
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		7	7
E	Traffic		7	7
F	Ind. Arrow	B	4	4
G	Pedestrian		7	7
H	Pedestrian		7	7

Phase Intergreens Matrix

		Starting Phase							
		A	B	C	D	E	F	G	H
Terminating Phase	A		5	5	5	-	5	-	8
	B	6		-	8	-	-	5	9
	C	5	-		7	6	6	9	5
	D	10	10	10		10	10	-	-
	E	-	-	5	5		-	8	-
	F	5	-	5	5	-		5	-
	G	-	10	10	-	10	10		-
	H	9	9	9	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / R409												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (R409 SB)	U	E	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Left	9.00
1/2 (R409 SB)	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Right	12.50
2/1 (R409 NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (R445 W EB)	U	C	2	3	34.8	Geom	-	3.85	0.00	Y	Arm 2 Left Arm 6 Ahead	12.50 Inf
4/1 (R445 W WB)	U		2	3	15.7	Inf	-	-	-	-	-	-
5/1 (R445 E WB)	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Ahead	Inf
5/2 (R445 E WB)	U	B F	2	3	17.7	Geom	-	3.00	0.00	Y	Arm 2 Right	12.50
6/1 (R445 E EB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / R409
There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
7: '2030 DM + LINK AM'	08:00	09:00	01:00	

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	344	117	461
	B	235	0	259	494
	C	100	467	0	567
	Tot.	335	811	376	1522

Basic Results Summary

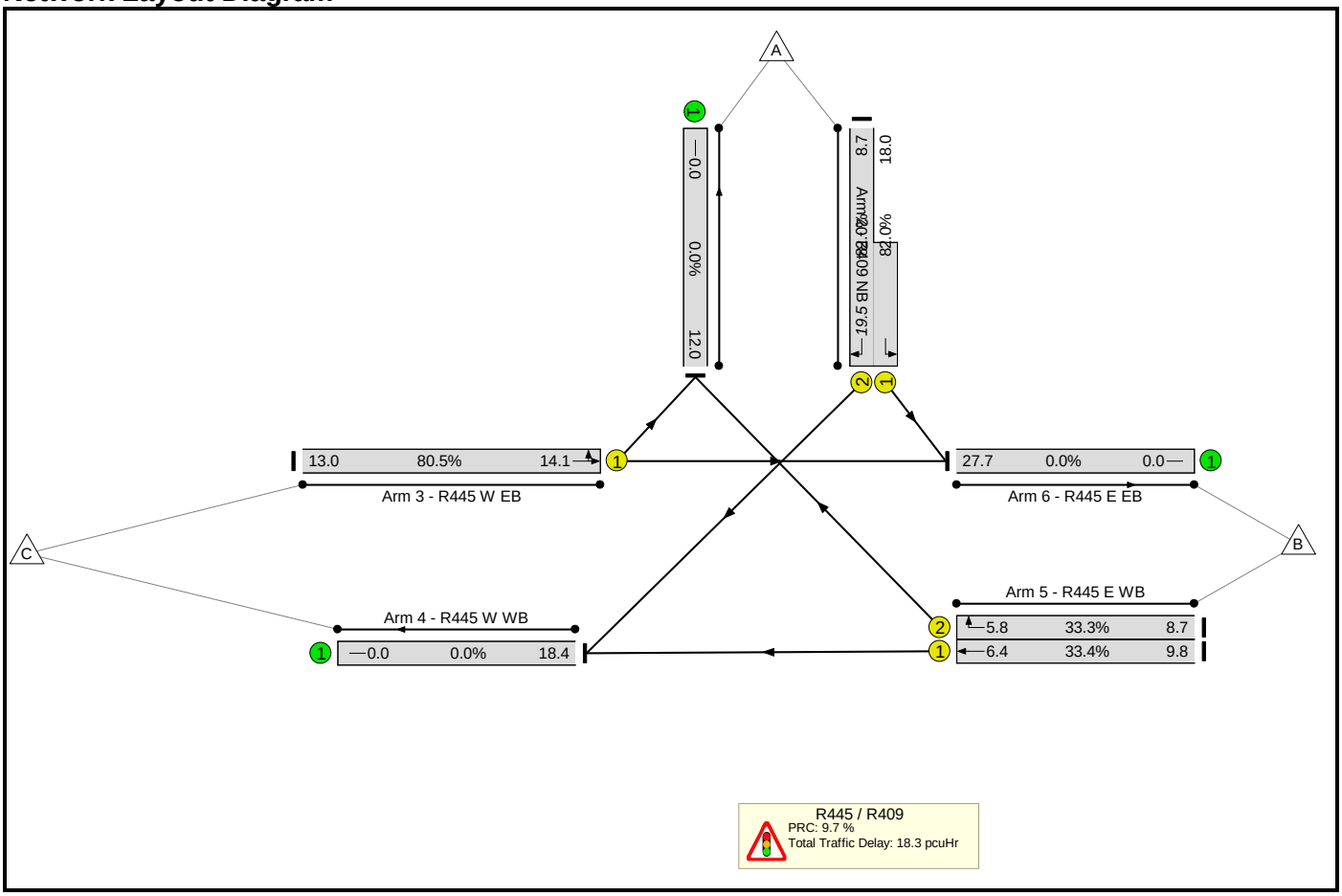
Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**69.6%**	**13.0**	**-**	**-**
R445 / R409	**69.6%**	**13.0**	**-**	**-**
1/2+1/1	69.6 : 69.6%	6.0	46.6	11.2
3/1	69.5%	5.7	35.9	16.6
5/1	20.5%	0.7	9.9	3.5
5/2	20.9%	0.7	10.1	3.2

C1	PRC for Signalled Lanes (%):	29.3	Total Delay for Signalled Lanes (pcuHr):	13.00
	PRC Over All Lanes (%):	29.3	Total Delay Over All Lanes(pcuHr):	13.00

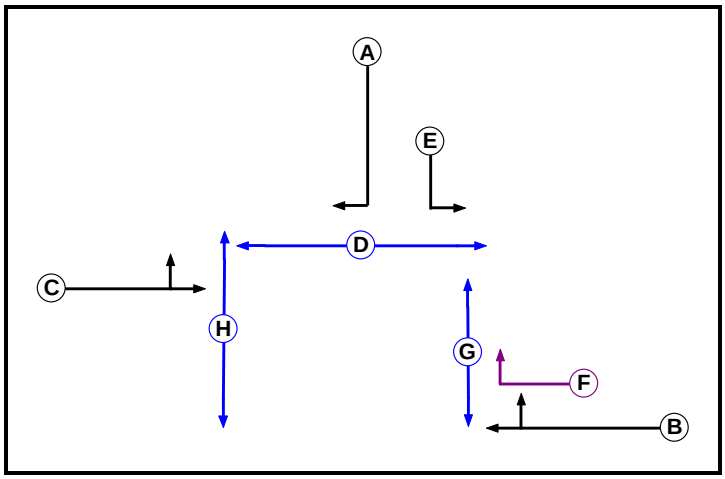
Scenario 8: '2030 DM + LINK PM' (FG8: '2030 DM + LINK PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



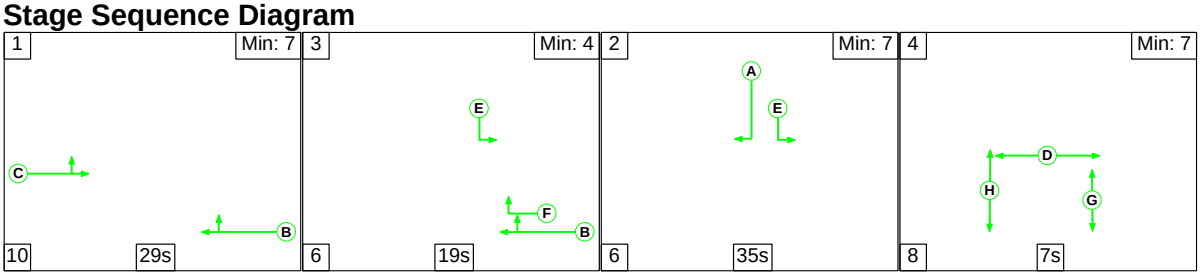
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		7	7
E	Traffic		7	7
F	Ind. Arrow	B	4	4
G	Pedestrian		7	7
H	Pedestrian		7	7

Phase Intergreens Matrix

		Starting Phase							
		A	B	C	D	E	F	G	H
Terminating Phase	A		5	5	5	-	5	-	8
	B	6		-	8	-	-	5	9
	C	5	-		7	6	6	9	5
	D	10	10	10		10	10	-	-
	E	-	-	5	5		-	8	-
	F	5	-	5	5	-		5	-
	G	-	10	10	-	10	10		-
	H	9	9	9	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / R409												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (R409 SB)	U	E	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Left	9.00
1/2 (R409 SB)	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Right	12.50
2/1 (R409 NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (R445 W EB)	U	C	2	3	34.8	Geom	-	3.85	0.00	Y	Arm 2 Left Arm 6 Ahead	12.50 Inf
4/1 (R445 W WB)	U		2	3	15.7	Inf	-	-	-	-	-	-
5/1 (R445 E WB)	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Ahead	Inf
5/2 (R445 E WB)	U	B F	2	3	17.7	Geom	-	3.00	0.00	Y	Arm 2 Right	12.50
6/1 (R445 E EB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / R409
There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
8: '2030 DM + LINK PM'	17:00	18:00	01:00	

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	539	260	799
	B	261	0	293	554
	C	98	293	0	391
	Tot.	359	832	553	1744

Basic Results Summary

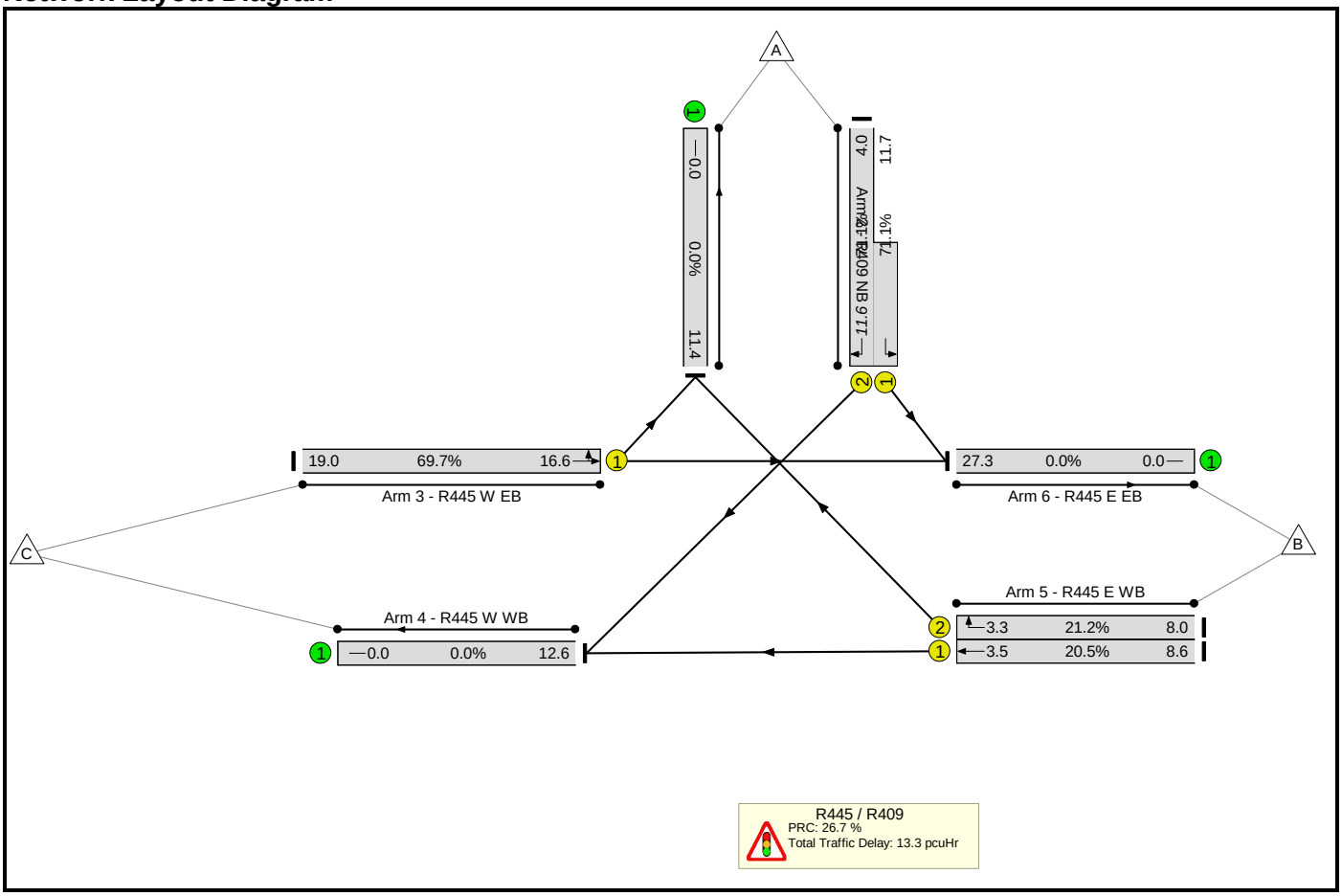
Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**82.0%**	**18.3**	**-**	**-**
R445 / R409	**82.0%**	**18.3**	**-**	**-**
1/2+1/1	82.0 : 82.0%	8.0	36.3	19.5
3/1	80.5%	6.6	60.5	14.1
5/1	33.4%	1.9	23.9	6.4
5/2	33.3%	1.8	24.2	5.8

C1	PRC for Signalled Lanes (%):	9.7	Total Delay for Signalled Lanes (pcuHr):		18.32
	PRC Over All Lanes (%):	9.7	Total Delay Over All Lanes(pcuHr):		18.32

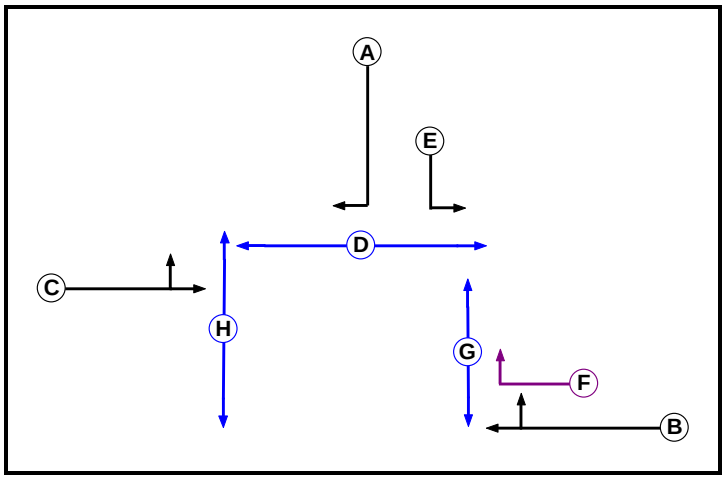
Scenario 9: '2030 DM + LINK + PH1 AM' (FG9: '2030 DM + LINK + PH1 AM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



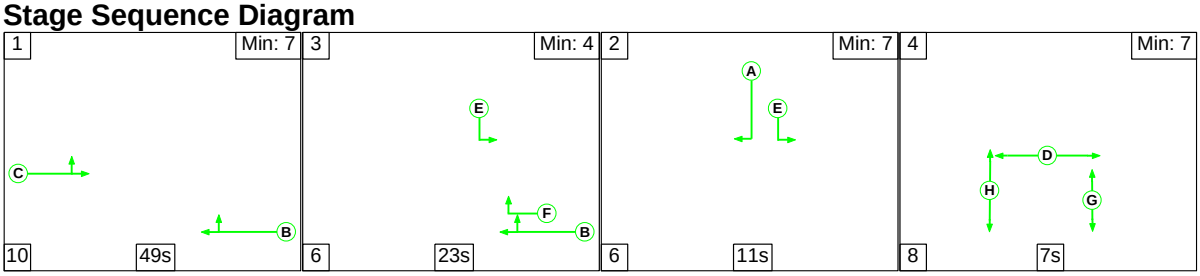
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		7	7
E	Traffic		7	7
F	Ind. Arrow	B	4	4
G	Pedestrian		7	7
H	Pedestrian		7	7

Phase Intergreens Matrix

		Starting Phase							
		A	B	C	D	E	F	G	H
Terminating Phase	A		5	5	5	-	5	-	8
	B	6		-	8	-	-	5	9
	C	5	-		7	6	6	9	5
	D	10	10	10		10	10	-	-
	E	-	-	5	5		-	8	-
	F	5	-	5	5	-		5	-
	G	-	10	10	-	10	10		-
	H	9	9	9	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / R409												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (R409 SB)	U	E	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Left	9.00
1/2 (R409 SB)	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Right	12.50
2/1 (R409 NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (R445 W EB)	U	C	2	3	34.8	Geom	-	3.85	0.00	Y	Arm 2 Left Arm 6 Ahead	12.50 Inf
4/1 (R445 W WB)	U		2	3	15.7	Inf	-	-	-	-	-	-
5/1 (R445 E WB)	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Ahead	Inf
5/2 (R445 E WB)	U	B F	2	3	17.7	Geom	-	3.00	0.00	Y	Arm 2 Right	12.50
6/1 (R445 E EB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / R409
There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
9: '2030 DM + LINK + PH1 AM'	08:00	09:00	01:00	

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	351	120	471
	B	239	0	259	498
	C	102	467	0	569
	Tot.	341	818	379	1538

Basic Results Summary

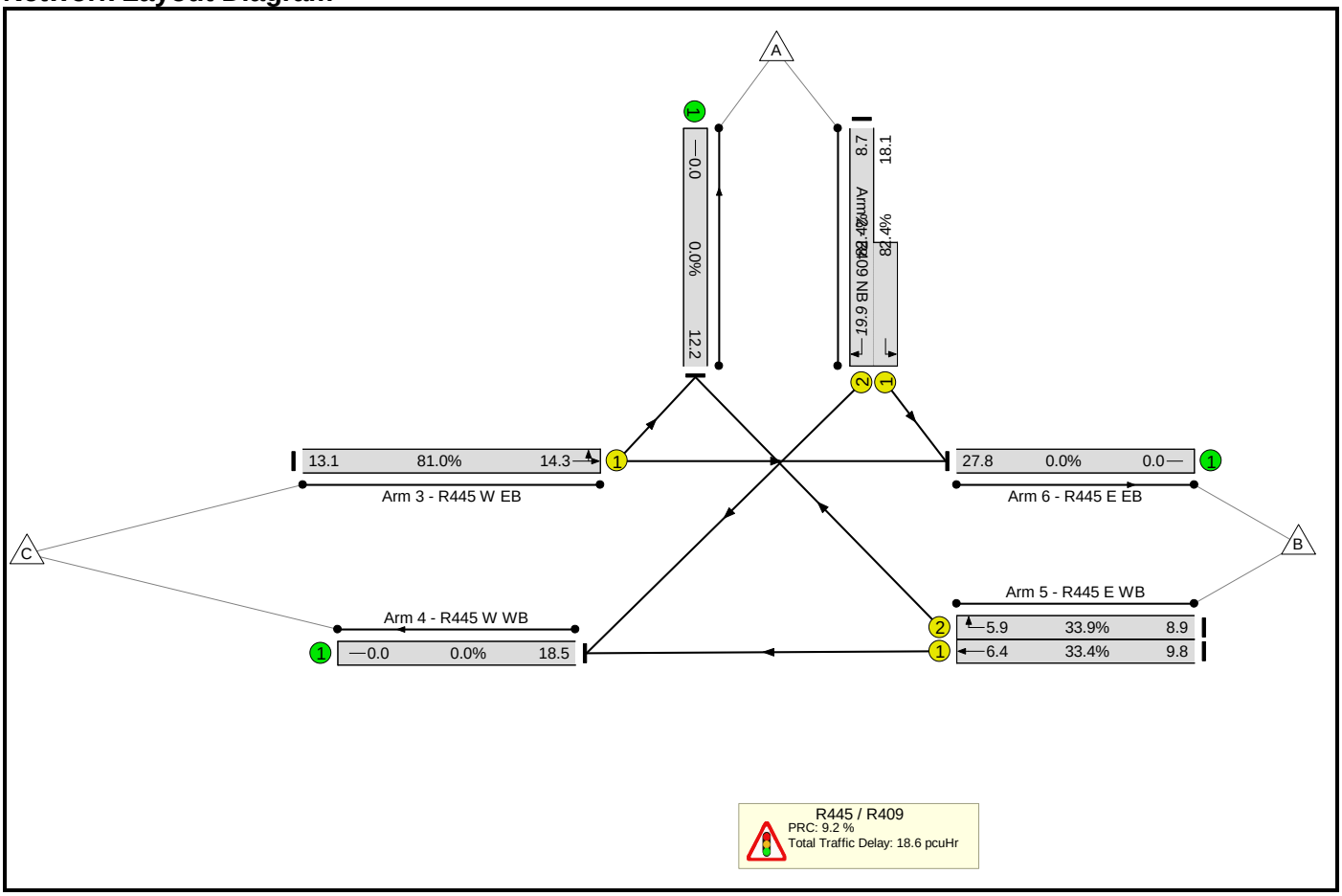
Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**71.1%**	**13.3**	**-**	**-**
R445 / R409	**71.1%**	**13.3**	**-**	**-**
1/2+1/1	71.1 : 71.1%	6.2	47.2	11.6
3/1	69.7%	5.7	36.0	16.6
5/1	20.5%	0.7	9.9	3.5
5/2	21.2%	0.7	10.2	3.3

C1	PRC for Signalled Lanes (%):	26.7	Total Delay for Signalled Lanes (pcuHr):	13.26
	PRC Over All Lanes (%):	26.7	Total Delay Over All Lanes(pcuHr):	13.26

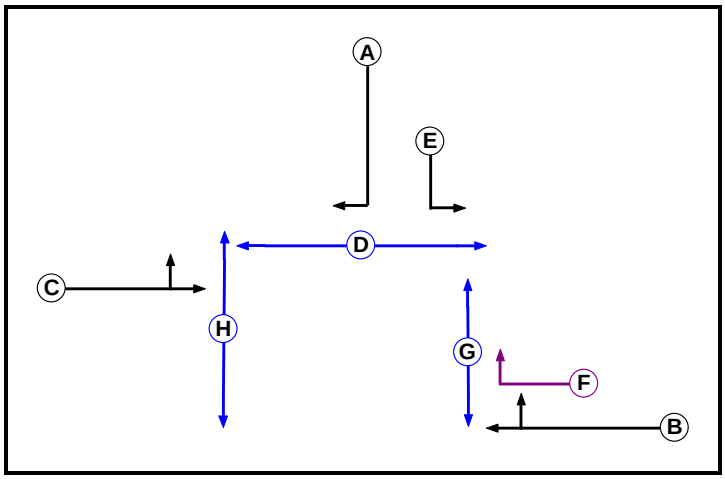
Scenario 10: '2030 DM + LINK + PH1 PM' (FG10: '2030 DM + LINK + PH1 PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



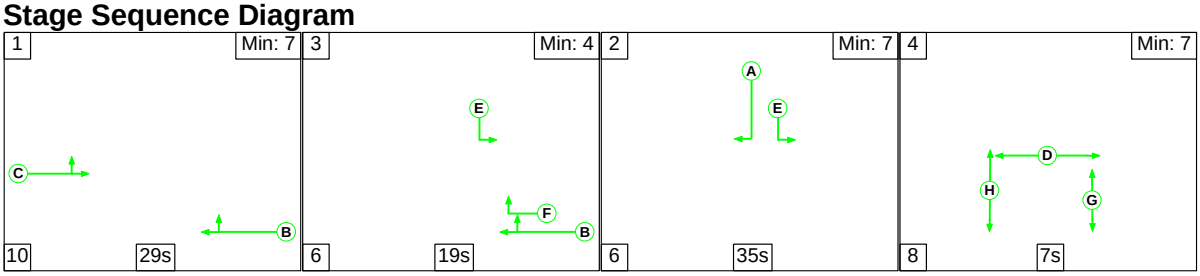
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		7	7
E	Traffic		7	7
F	Ind. Arrow	B	4	4
G	Pedestrian		7	7
H	Pedestrian		7	7

Phase Intergreens Matrix

		Starting Phase							
		A	B	C	D	E	F	G	H
Terminating Phase	A		5	5	5	-	5	-	8
	B	6		-	8	-	-	5	9
	C	5	-		7	6	6	9	5
	D	10	10	10		10	10	-	-
	E	-	-	5	5		-	8	-
	F	5	-	5	5	-		5	-
	G	-	10	10	-	10	10		-
	H	9	9	9	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / R409

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (R409 SB)	U	E	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Left	9.00
1/2 (R409 SB)	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Right	12.50
2/1 (R409 NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (R445 W EB)	U	C	2	3	34.8	Geom	-	3.85	0.00	Y	Arm 2 Left Arm 6 Ahead	12.50 Inf
4/1 (R445 W WB)	U		2	3	15.7	Inf	-	-	-	-	-	-
5/1 (R445 E WB)	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Ahead	Inf
5/2 (R445 E WB)	U	B F	2	3	17.7	Geom	-	3.00	0.00	Y	Arm 2 Right	12.50
6/1 (R445 E EB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / R409

There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
10: '2030 DM + LINK + PH1 PM'	17:00	18:00	01:00	

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	542	261	803
	B	266	0	293	559
	C	100	293	0	393
	Tot.	366	835	554	1755

Basic Results Summary

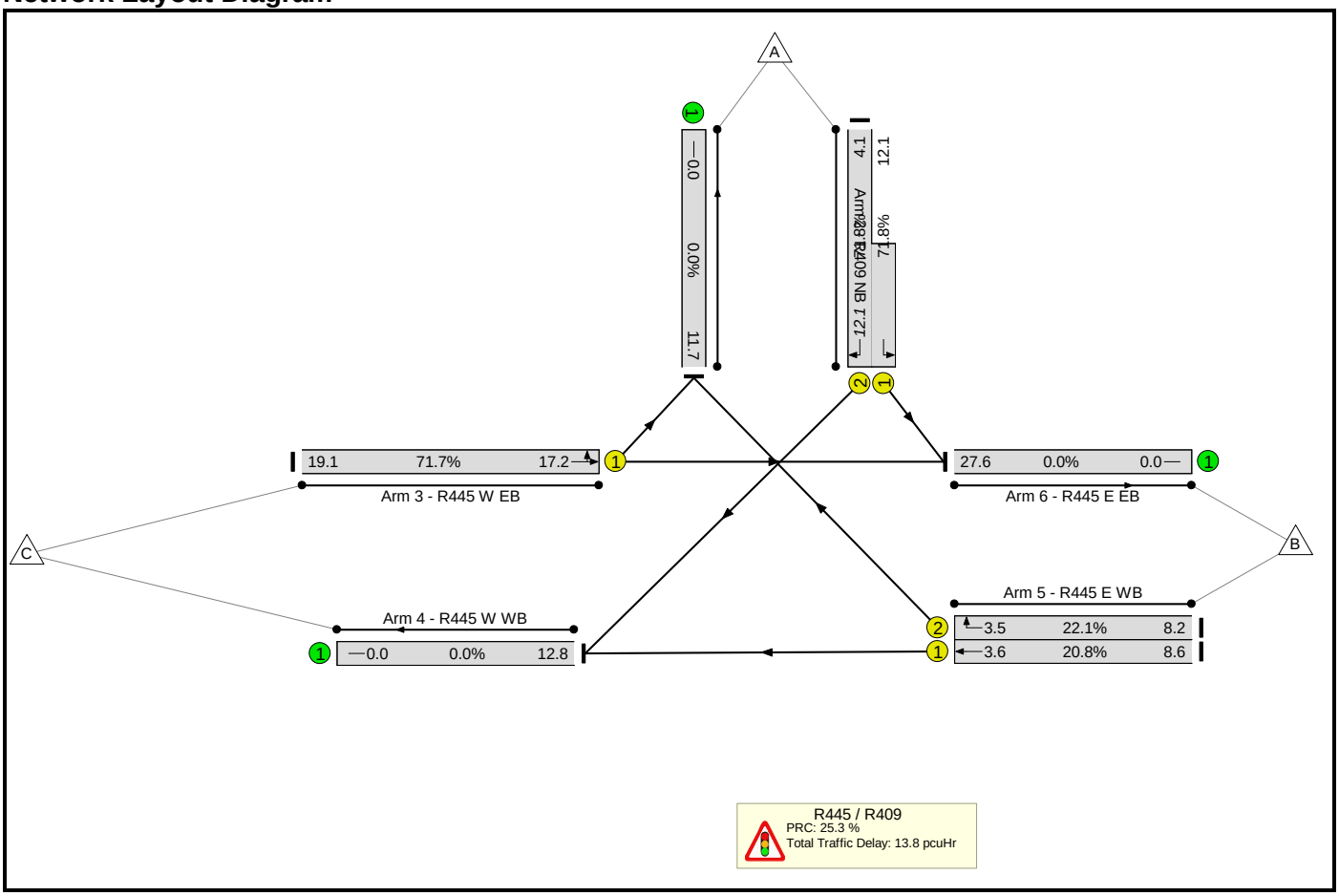
Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**82.4%**	**18.6**	**-**	**-**
R445 / R409	**82.4%**	**18.6**	**-**	**-**
1/2+1/1	82.4 : 82.4%	8.2	36.6	19.9
3/1	81.0%	6.7	61.0	14.3
5/1	33.4%	1.9	23.9	6.4
5/2	33.9%	1.8	24.3	5.9

C1	PRC for Signalled Lanes (%):	9.2	Total Delay for Signalled Lanes (pcuHr):		18.56
	PRC Over All Lanes (%):	9.2	Total Delay Over All Lanes(pcuHr):		18.56

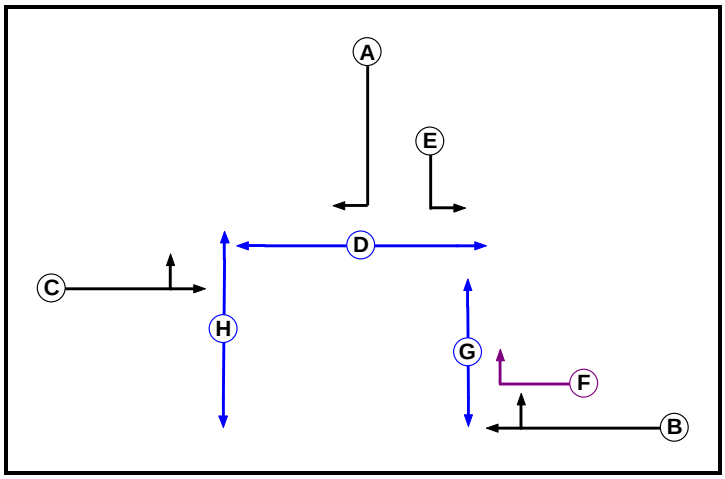
Scenario 11: '2030 DM + LINK + MASTERPLAN AM' (FG11: '2030 DM + LINK + MASTERPLAN AM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



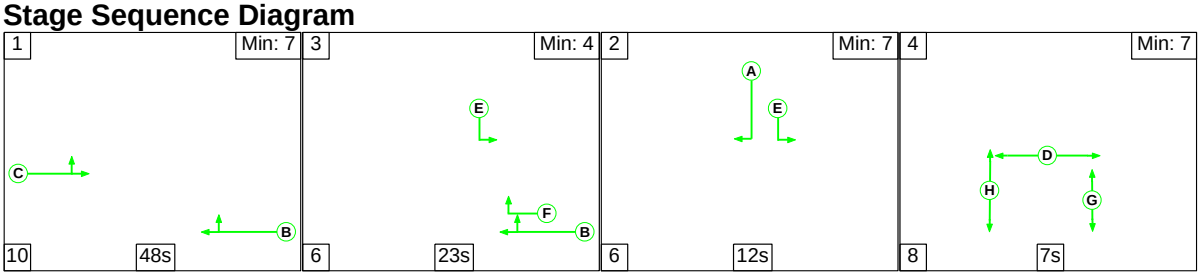
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		7	7
E	Traffic		7	7
F	Ind. Arrow	B	4	4
G	Pedestrian		7	7
H	Pedestrian		7	7

Phase Intergreens Matrix

		Starting Phase							
		A	B	C	D	E	F	G	H
Terminating Phase	A		5	5	5	-	5	-	8
	B	6		-	8	-	-	5	9
	C	5	-		7	6	6	9	5
	D	10	10	10		10	10	-	-
	E	-	-	5	5		-	8	-
	F	5	-	5	5	-		5	-
	G	-	10	10	-	10	10		-
	H	9	9	9	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / R409												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (R409 SB)	U	E	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Left	9.00
1/2 (R409 SB)	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Right	12.50
2/1 (R409 NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (R445 W EB)	U	C	2	3	34.8	Geom	-	3.85	0.00	Y	Arm 2 Left Arm 6 Ahead	12.50 Inf
4/1 (R445 W WB)	U		2	3	15.7	Inf	-	-	-	-	-	-
5/1 (R445 E WB)	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Ahead	Inf
5/2 (R445 E WB)	U	B F	2	3	17.7	Geom	-	3.00	0.00	Y	Arm 2 Right	12.50
6/1 (R445 E EB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / R409
There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
11: '2030 DM + LINK + MASTERPLAN AM'	08:00	09:00	01:00	

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	362	124	486
	B	246	0	259	505
	C	106	467	0	573
	Tot.	352	829	383	1564

Basic Results Summary

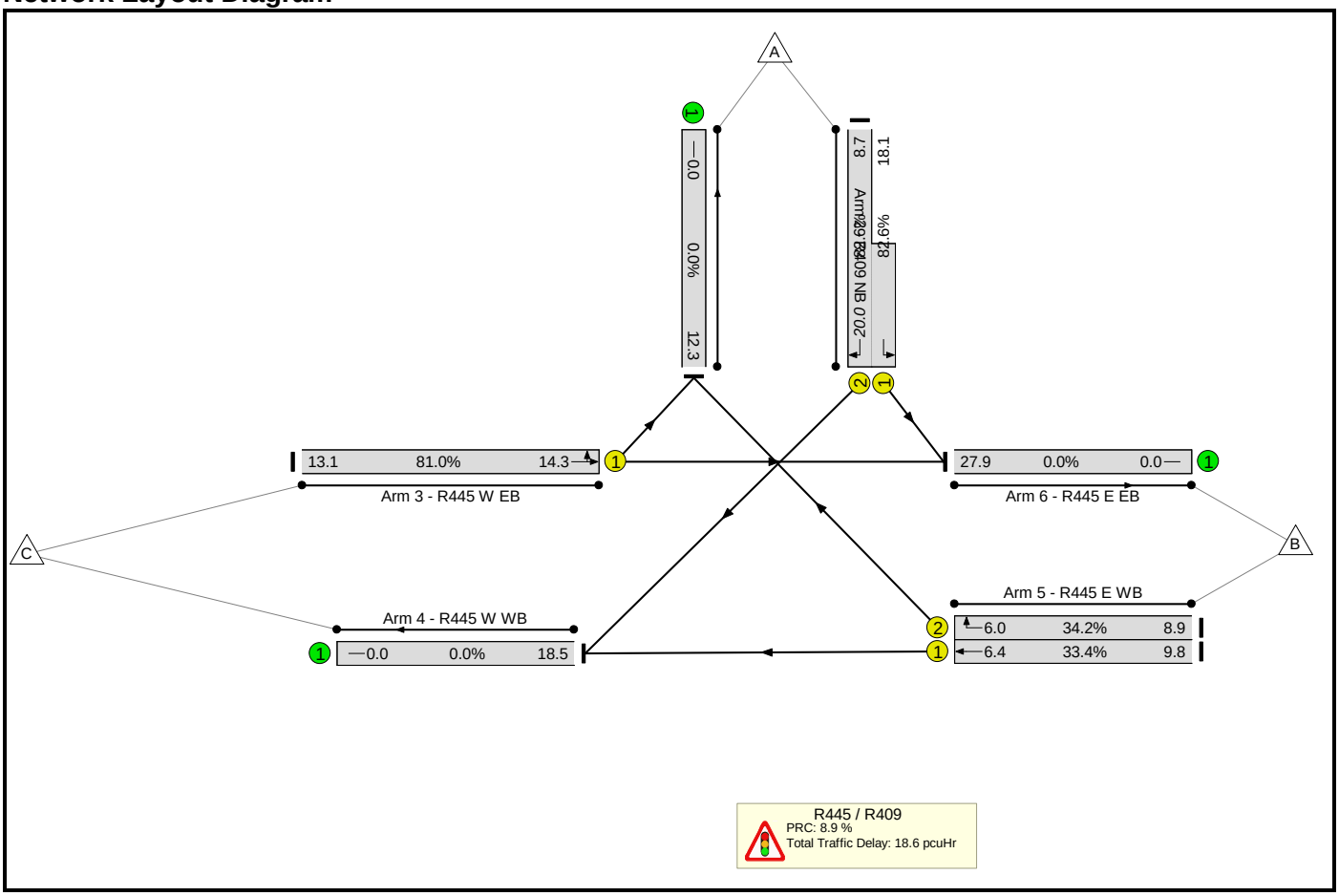
Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**71.8%**	**13.8**	**-**	**-**
R445 / R409	**71.8%**	**13.8**	**-**	**-**
1/2+1/1	71.8 : 71.8%	6.3	46.7	12.1
3/1	71.7%	6.0	37.6	17.2
5/1	20.8%	0.7	10.3	3.6
5/2	22.1%	0.7	10.7	3.5

C1
PRC for Signalled Lanes (%): 25.3
PRC Over All Lanes (%): 25.3
Total Delay for Signalled Lanes (pcuHr): 13.75
Total Delay Over All Lanes(pcuHr): 13.75

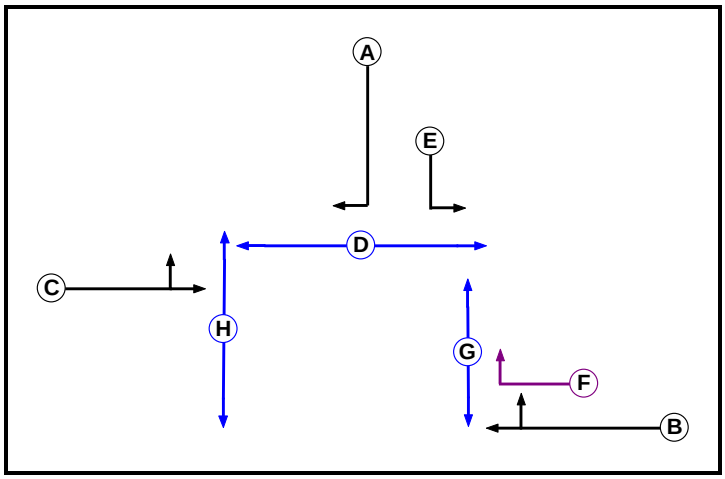
Scenario 12: '2030 DM + LINK + MASTERPLAN PM' (FG12: '2030 DM + LINK + MASTERPLAN PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



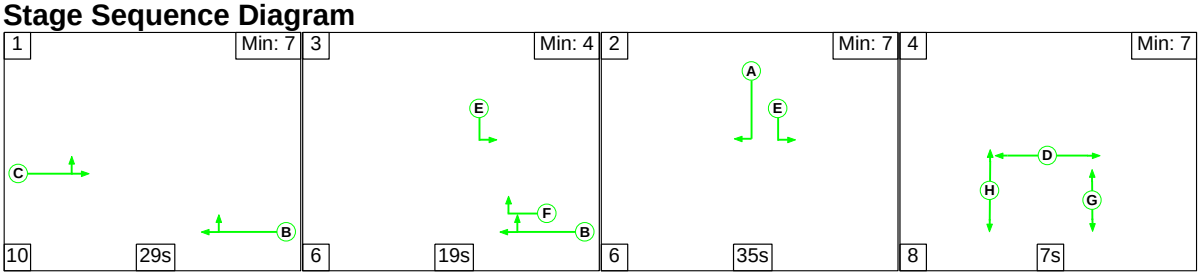
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		7	7
E	Traffic		7	7
F	Ind. Arrow	B	4	4
G	Pedestrian		7	7
H	Pedestrian		7	7

Phase Intergreens Matrix

		Starting Phase							
		A	B	C	D	E	F	G	H
Terminating Phase	A		5	5	5	-	5	-	8
	B	6		-	8	-	-	5	9
	C	5	-		7	6	6	9	5
	D	10	10	10		10	10	-	-
	E	-	-	5	5		-	8	-
	F	5	-	5	5	-		5	-
	G	-	10	10	-	10	10		-
	H	9	9	9	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / R409												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (R409 SB)	U	E	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Left	9.00
1/2 (R409 SB)	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Right	12.50
2/1 (R409 NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (R445 W EB)	U	C	2	3	34.8	Geom	-	3.85	0.00	Y	Arm 2 Left Arm 6 Ahead	12.50 Inf
4/1 (R445 W WB)	U		2	3	15.7	Inf	-	-	-	-	-	-
5/1 (R445 E WB)	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Ahead	Inf
5/2 (R445 E WB)	U	B F	2	3	17.7	Geom	-	3.00	0.00	Y	Arm 2 Right	12.50
6/1 (R445 E EB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / R409
There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
12: '2030 DM + LINK + MASTERPLAN PM'	17:00	18:00	01:00	

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	543	262	805
	B	268	0	293	561
	C	100	293	0	393
	Tot.	368	836	555	1759

Basic Results Summary

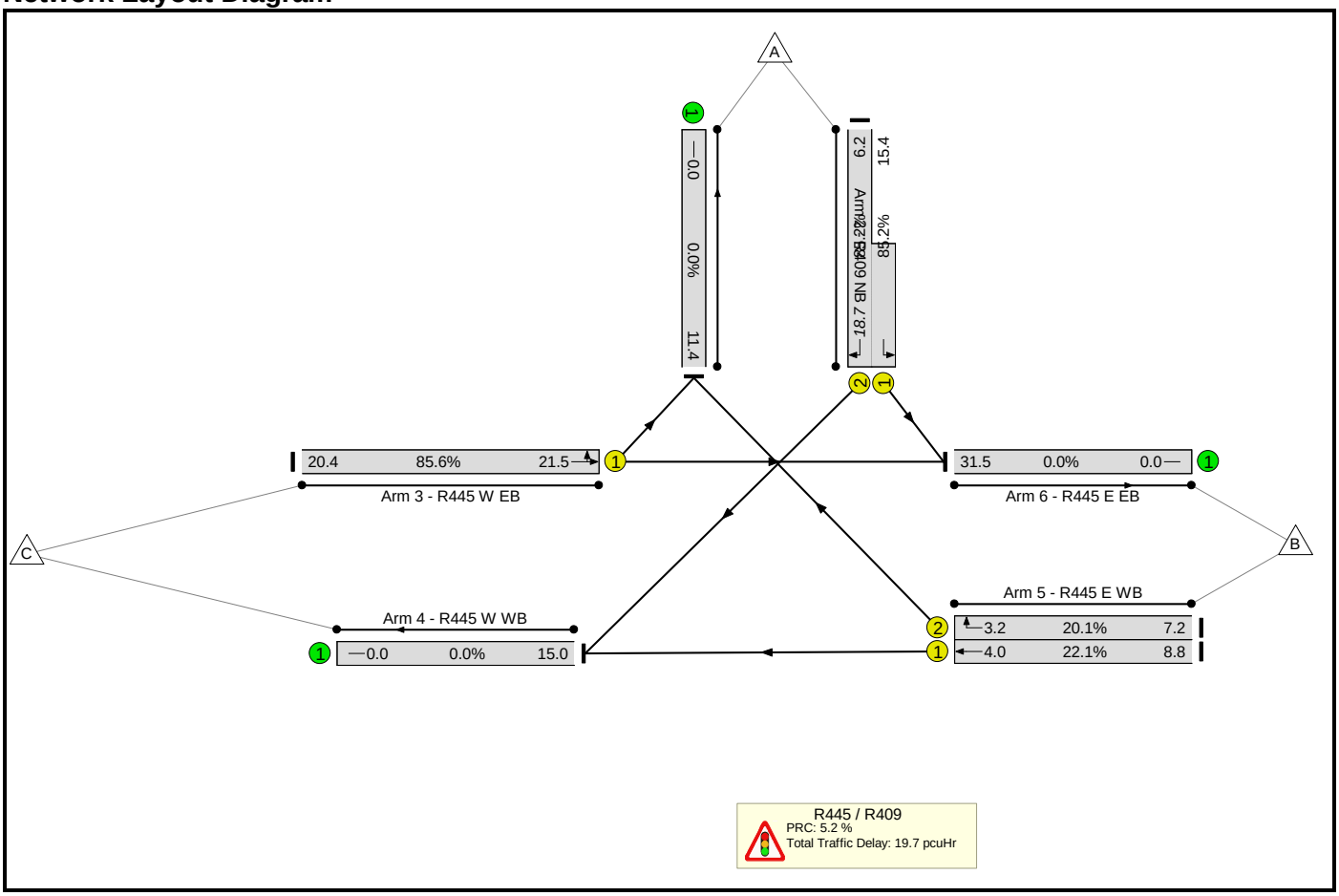
Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**82.6%**	**18.6**	**-**	**-**
R445 / R409	**82.6%**	**18.6**	**-**	**-**
1/2+1/1	82.6 : 82.6%	8.2	36.7	20.0
3/1	81.0%	6.7	61.0	14.3
5/1	33.4%	1.9	23.9	6.4
5/2	34.2%	1.8	24.4	6.0

C1	PRC for Signalled Lanes (%):	8.9	Total Delay for Signalled Lanes (pcuHr):		18.62
	PRC Over All Lanes (%):	8.9	Total Delay Over All Lanes(pcuHr):		18.62

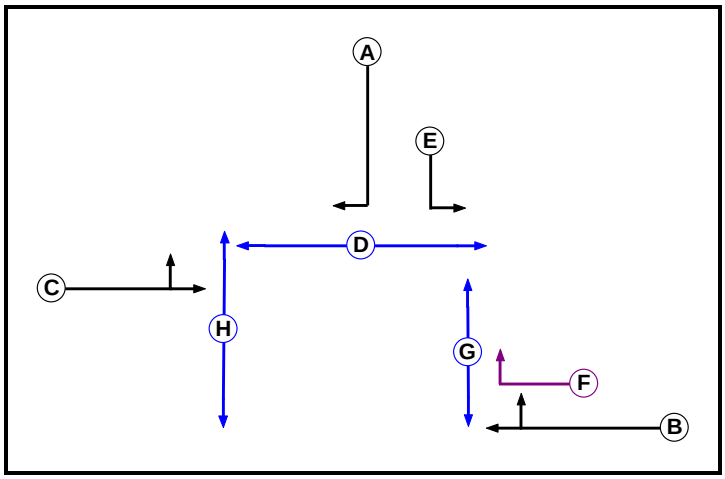
Scenario 13: '2030 DN + MASTERPLAN AM' (FG13: '2030 DN + MASTERPLAN AM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



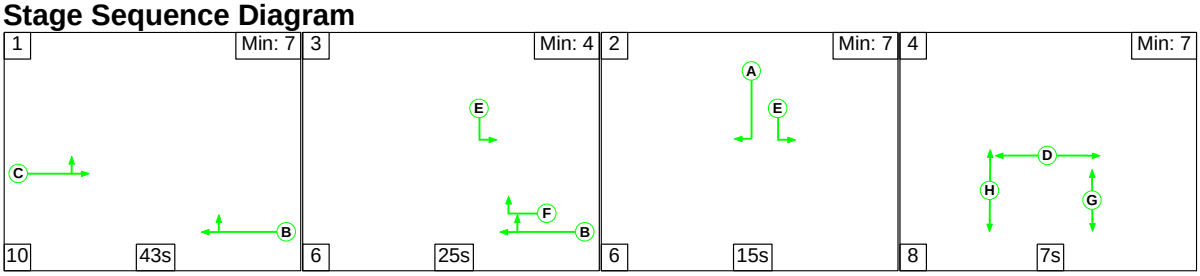
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		7	7
E	Traffic		7	7
F	Ind. Arrow	B	4	4
G	Pedestrian		7	7
H	Pedestrian		7	7

Phase Intergreens Matrix

		Starting Phase							
		A	B	C	D	E	F	G	H
Terminating Phase	A		5	5	5	-	5	-	8
	B	6		-	8	-	-	5	9
	C	5	-		7	6	6	9	5
	D	10	10	10		10	10	-	-
	E	-	-	5	5		-	8	-
	F	5	-	5	5	-		5	-
	G	-	10	10	-	10	10		-
	H	9	9	9	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / R409												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (R409 SB)	U	E	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Left	9.00
1/2 (R409 SB)	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Right	12.50
2/1 (R409 NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (R445 W EB)	U	C	2	3	34.8	Geom	-	3.85	0.00	Y	Arm 2 Left Arm 6 Ahead	12.50 Inf
4/1 (R445 W WB)	U		2	3	15.7	Inf	-	-	-	-	-	-
5/1 (R445 E WB)	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Ahead	Inf
5/2 (R445 E WB)	U	B F	2	3	17.7	Geom	-	3.00	0.00	Y	Arm 2 Right	12.50
6/1 (R445 E EB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / R409
There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
13: '2030 DN + MASTERPLAN AM'	08:00	09:00	01:00	

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	462	186	648
	B	215	0	264	479
	C	128	484	0	612
	Tot.	343	946	450	1739

Basic Results Summary

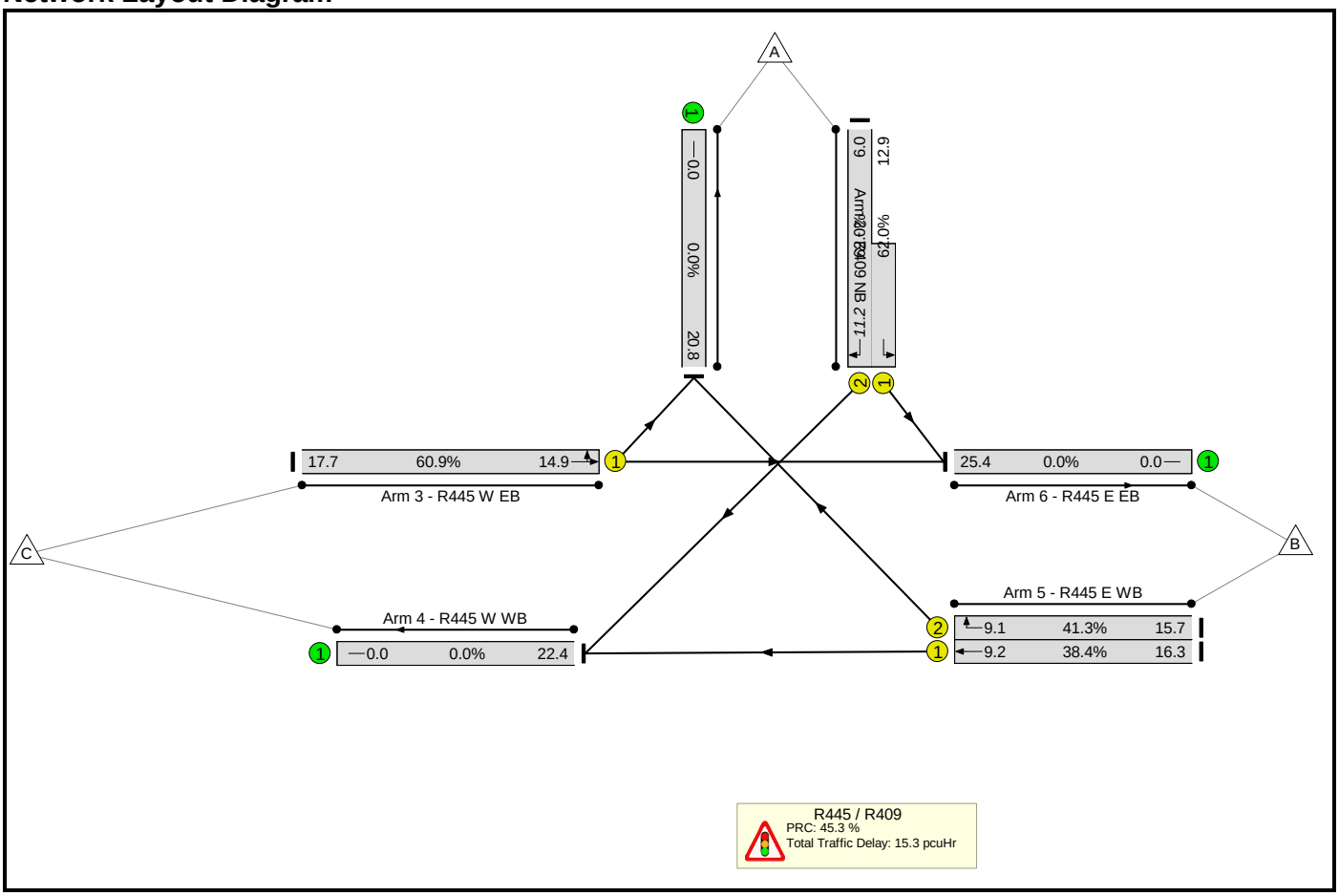
Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**85.6%**	**19.7**	**-**	**-**
R445 / R409	**85.6%**	**19.7**	**-**	**-**
1/2+1/1	85.2 : 85.2%	9.4	52.1	18.7
3/1	85.6%	8.8	51.6	21.5
5/1	22.1%	0.9	11.7	4.0
5/2	20.1%	0.7	11.8	3.2

C1	PRC for Signalled Lanes (%):	5.2	Total Delay for Signalled Lanes (pcuHr):		19.71
	PRC Over All Lanes (%):	5.2	Total Delay Over All Lanes(pcuHr):		19.71

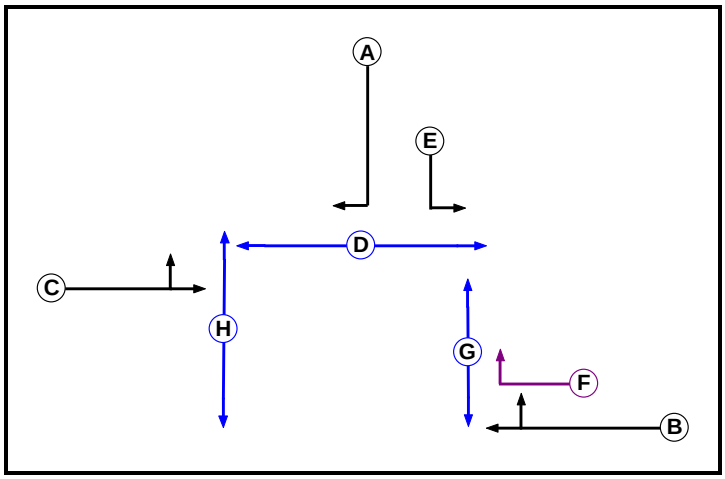
Scenario 14: '2030 DN + MASTERPLAN PM' (FG14: '2030 DN + MASTERPLAN PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



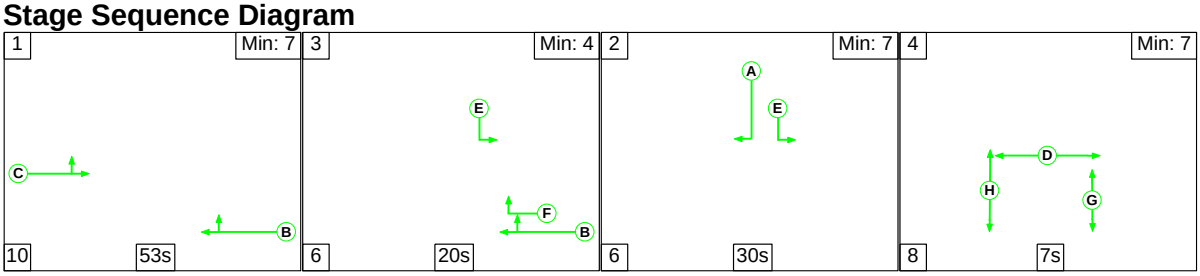
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		7	7
E	Traffic		7	7
F	Ind. Arrow	B	4	4
G	Pedestrian		7	7
H	Pedestrian		7	7

Phase Intergreens Matrix

		Starting Phase							
		A	B	C	D	E	F	G	H
Terminating Phase	A		5	5	5	-	5	-	8
	B	6		-	8	-	-	5	9
	C	5	-		7	6	6	9	5
	D	10	10	10		10	10	-	-
	E	-	-	5	5		-	8	-
	F	5	-	5	5	-		5	-
	G	-	10	10	-	10	10		-
	H	9	9	9	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / R409												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (R409 SB)	U	E	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Left	9.00
1/2 (R409 SB)	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Right	12.50
2/1 (R409 NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (R445 W EB)	U	C	2	3	34.8	Geom	-	3.85	0.00	Y	Arm 2 Left Arm 6 Ahead	12.50 Inf
4/1 (R445 W WB)	U		2	3	15.7	Inf	-	-	-	-	-	-
5/1 (R445 E WB)	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Ahead	Inf
5/2 (R445 E WB)	U	B F	2	3	17.7	Geom	-	3.00	0.00	Y	Arm 2 Right	12.50
6/1 (R445 E EB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / R409
There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
14: '2030 DN + MASTERPLAN PM'	17:00	18:00	01:00	

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	331	155	486
	B	404	0	420	824
	C	132	322	0	454
	Tot.	536	653	575	1764

Basic Results Summary

Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**62.0%**	**15.3**	**-**	**-**
R445 / R409	**62.0%**	**15.3**	**-**	**-**
1/2+1/1	62.0 : 62.0%	5.7	41.9	11.2
3/1	60.9%	5.1	40.7	14.9
5/1	38.4%	2.2	19.1	9.2
5/2	41.3%	2.2	20.0	9.1

C1	PRC for Signalled Lanes (%):	45.3	Total Delay for Signalled Lanes (pcuHr):	15.26
	PRC Over All Lanes (%):	45.3	Total Delay Over All Lanes(pcuHr):	15.26

Basic Results Summary

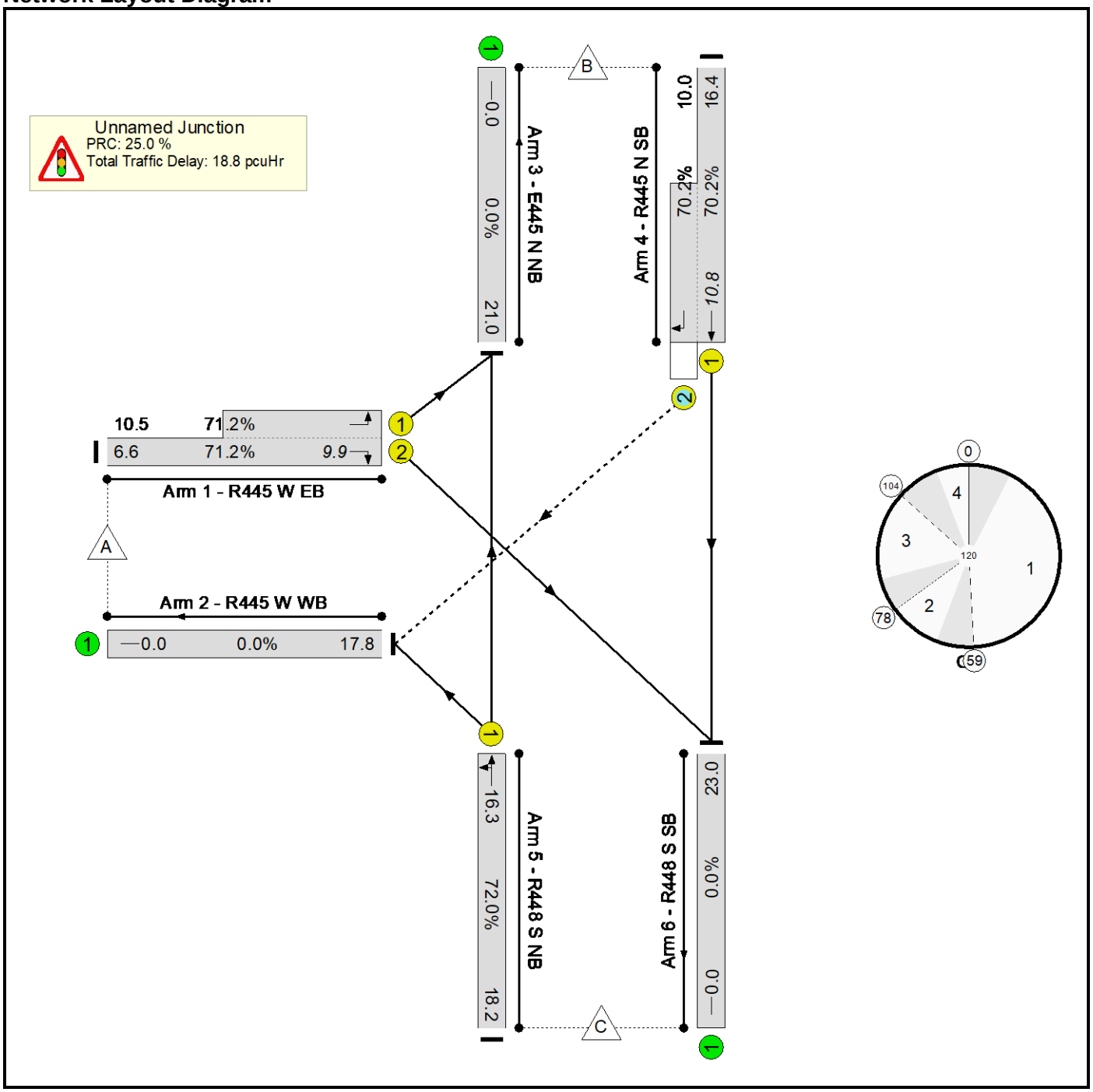
Project and User Details

Project:	**Finlay Park Residential**
Client:	Westar Homes Ltd
Site Ref(s):	R445 / R448 signalised junction
Additional detail:	
File name:	R445 x R448.lsg3x
Author:	Glen Moon
Company:	Systra Ltd
Address:	2nd Floor, Riverview House, 21-23 City Quay, Dublin Docklands, Dublin 2, Ireland
Linsig Version:	3, 2, 44, 1

Basic Results Summary

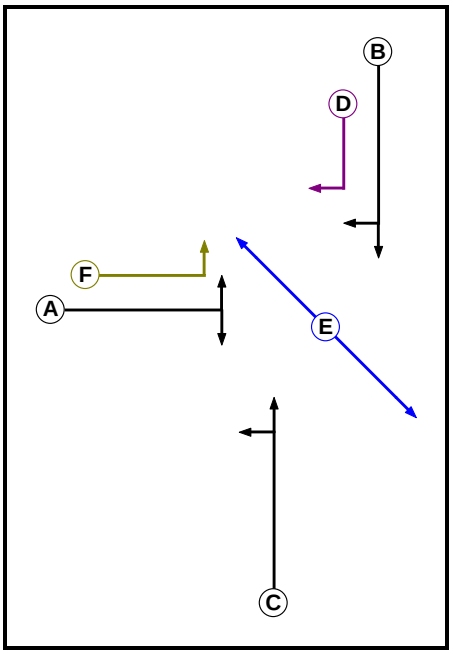
Scenario 1: '2022 DM AM' (FG1: '2022 Base AM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



Phase Input Data

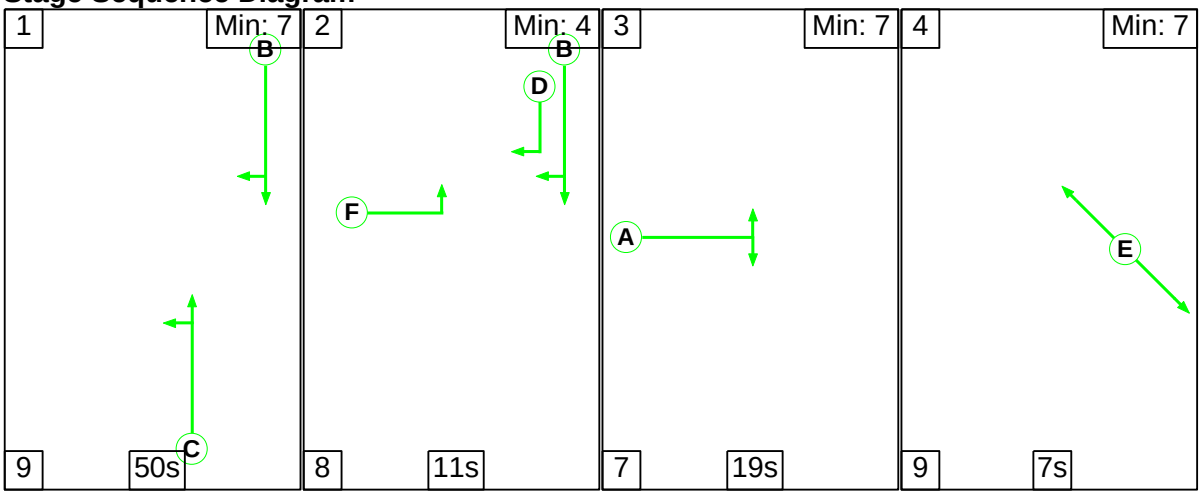
Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Ind. Arrow	B	4	4
E	Pedestrian		7	7
F	Filter	A	4	0

Basic Results Summary

Phase Intergreens Matrix

Terminating Phase	Starting Phase					
	A	B	C	D	E	F
A		7	7	8	9	-
B	-		-	-	9	-
C	-	-		8	9	8
D	7	-	8		9	-
E	-	9	9	8		-
F	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (R445 W EB)	U	A F	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 3 Left	12.50
1/2 (R445 W EB)	U	A	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 6 Right	8.50
2/1 (R445 W WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (E445 N NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
4/1 (R445 N SB)	U	B	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 N SB)	O	B D	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 2 Right	10.00
5/1 (R448 S NB)	U	C	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 2 Left	7.50
											Arm 3 Ahead	Inf
6/1 (R448 S SB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: Unnamed Junction

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
4/2 (R445 N SB)	2/1 (Right)	1439	0	5/1	1.09	All	2.00	-	0.50	2	2.00

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2022 Base AM'	08:00	09:00	01:00	

Basic Results Summary

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	314	197	511
	B	301	0	493	794
	C	232	315	0	547
	Tot.	533	629	690	1852

Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**72.0%**	**18.8**	**-**	**-**
Unnamed Junction	**72.0%**	**18.8**	**-**	**-**
1/2+1/1	71.2 : 71.2%	6.8	47.8	9.9
4/1+4/2	70.2 : 70.2%	6.4	28.9	10.8
5/1	72.0%	5.6	36.9	16.3

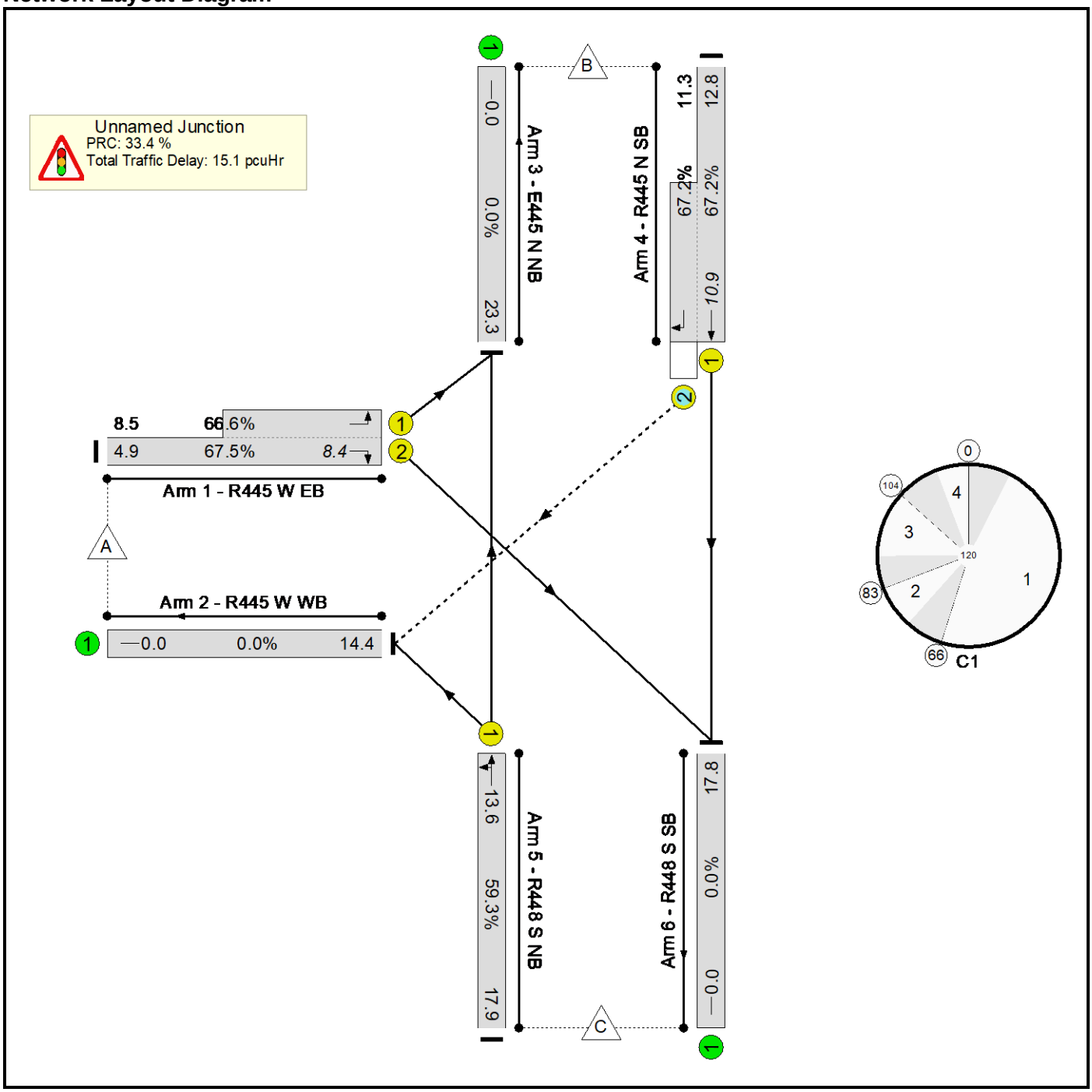
C1

PRC for Signalled Lanes (%): 25.0
PRC Over All Lanes (%): 25.0
Total Delay for Signalled Lanes (pcuHr): 18.78
Total Delay Over All Lanes(pcuHr): 18.78

Basic Results Summary

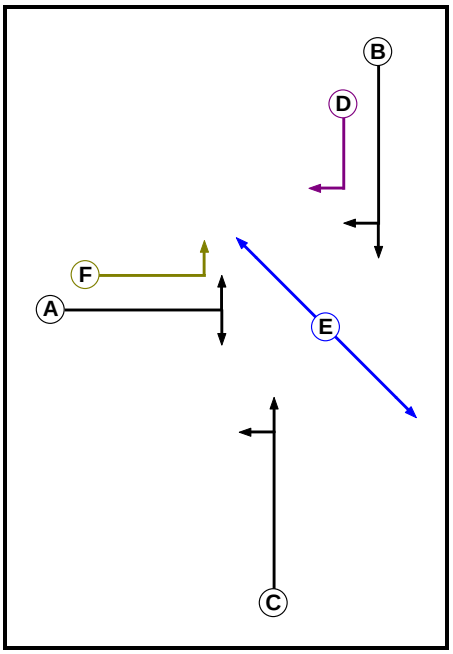
Scenario 2: '2022 DM PM' (FG2: '2022 Base PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



Phase Input Data

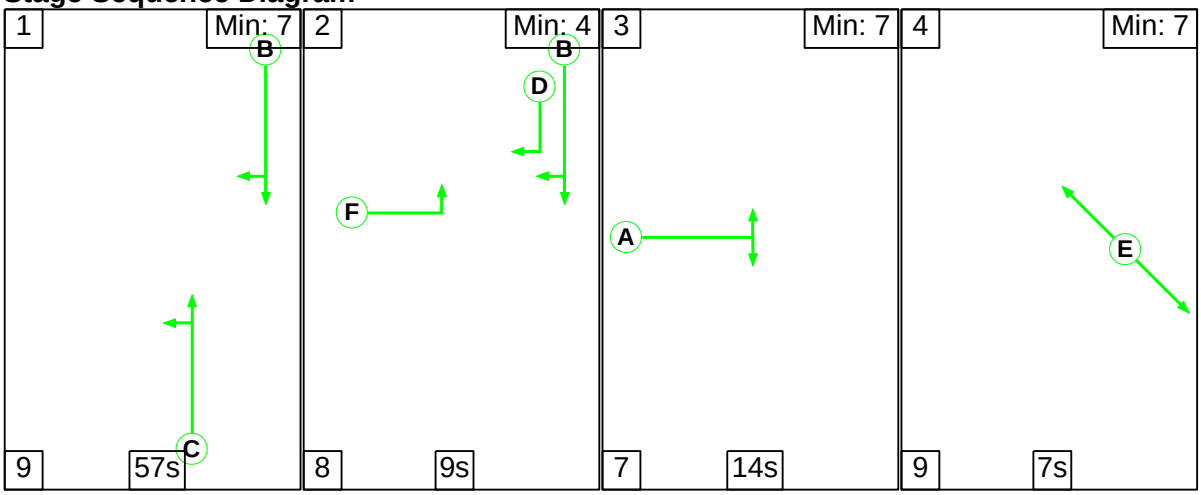
Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Ind. Arrow	B	4	4
E	Pedestrian		7	7
F	Filter	A	4	0

Basic Results Summary

Phase Intergreens Matrix

Terminating Phase	Starting Phase					
	A	B	C	D	E	F
A		7	7	8	9	-
B	-		-	-	9	-
C	-	-		8	9	8
D	7	-	8		9	-
E	-	9	9	8		-
F	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (R445 W EB)	U	A F	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 3 Left	12.50
1/2 (R445 W EB)	U	A	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 6 Right	8.50
2/1 (R445 W WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (E445 N NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
4/1 (R445 N SB)	U	B	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 N SB)	O	B D	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 2 Right	10.00
5/1 (R448 S NB)	U	C	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 2 Left	7.50
											Arm 3 Ahead	Inf
6/1 (R448 S SB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: Unnamed Junction

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
4/2 (R445 N SB)	2/1 (Right)	1439	0	5/1	1.09	All	2.00	-	0.50	2	2.00

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
2: '2022 Base PM'	17:00	18:00	01:00	

Basic Results Summary

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	255	148	403
	B	338	0	385	723
	C	93	444	0	537
	Tot.	431	699	533	1663

Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**67.5%**	**15.1**	**-**	**-**
Unnamed Junction	**67.5%**	**15.1**	**-**	**-**
1/2+1/1	67.5 : 66.6%	5.8	51.9	8.4
4/1+4/2	67.2 : 67.2%	5.3	26.2	10.9
5/1	59.3%	4.1	27.3	13.6

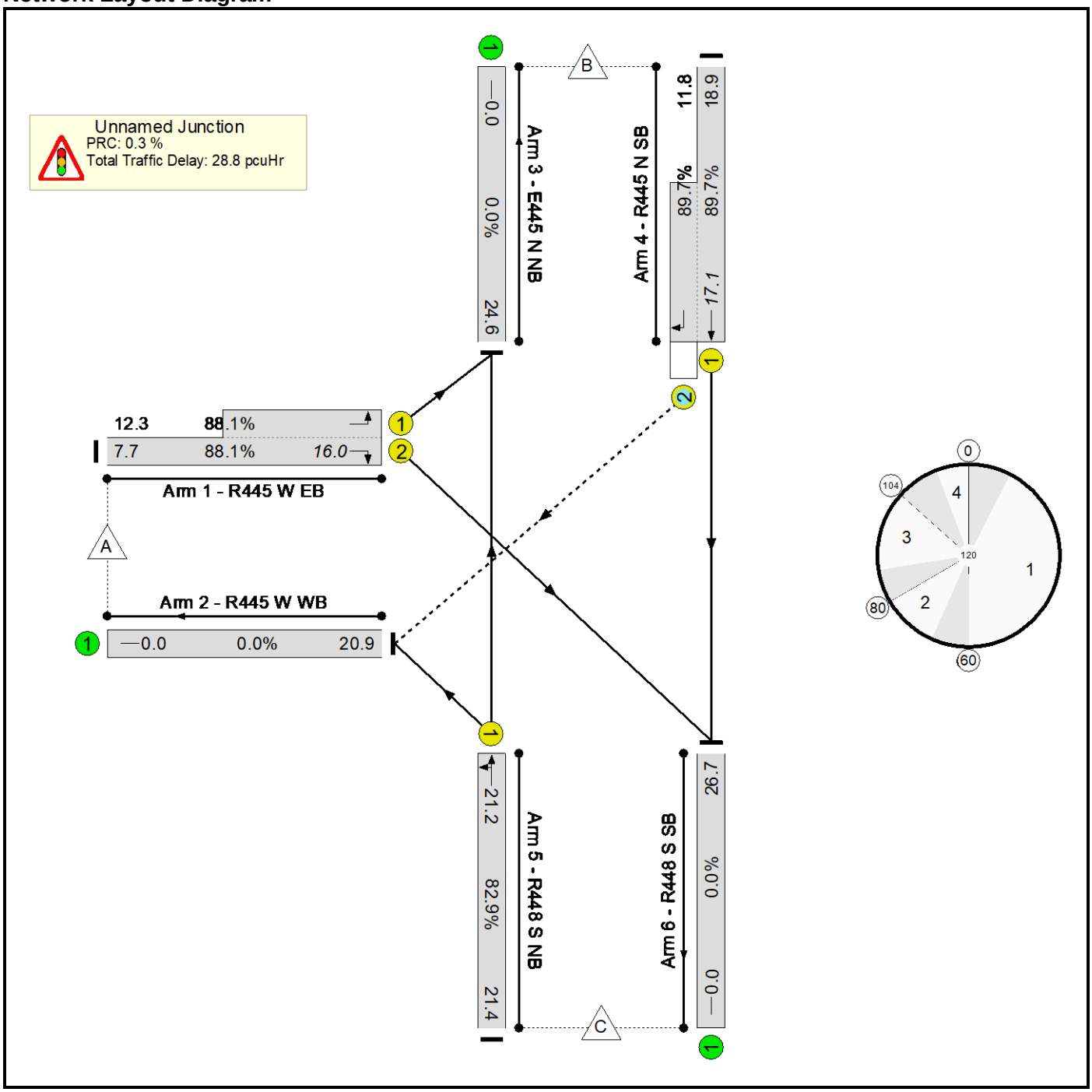
C1

PRC for Signalled Lanes (%): 33.4
PRC Over All Lanes (%): 33.4
Total Delay for Signalled Lanes (pcuHr): 15.14
Total Delay Over All Lanes(pcuHr): 15.14

Basic Results Summary

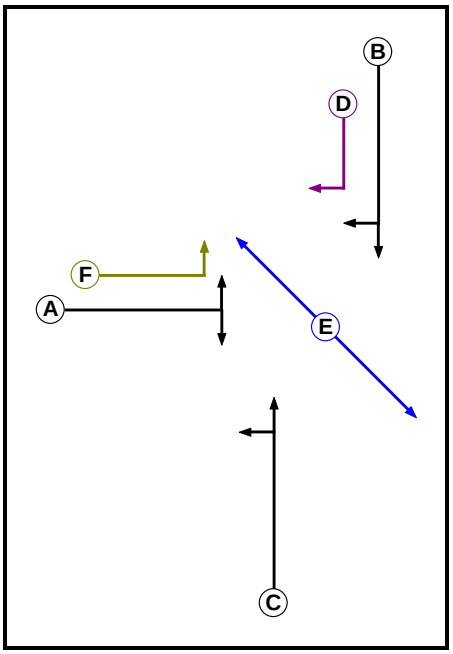
Scenario 3: '2030 DN AM' (FG3: '2030 DN AM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



Phase Input Data

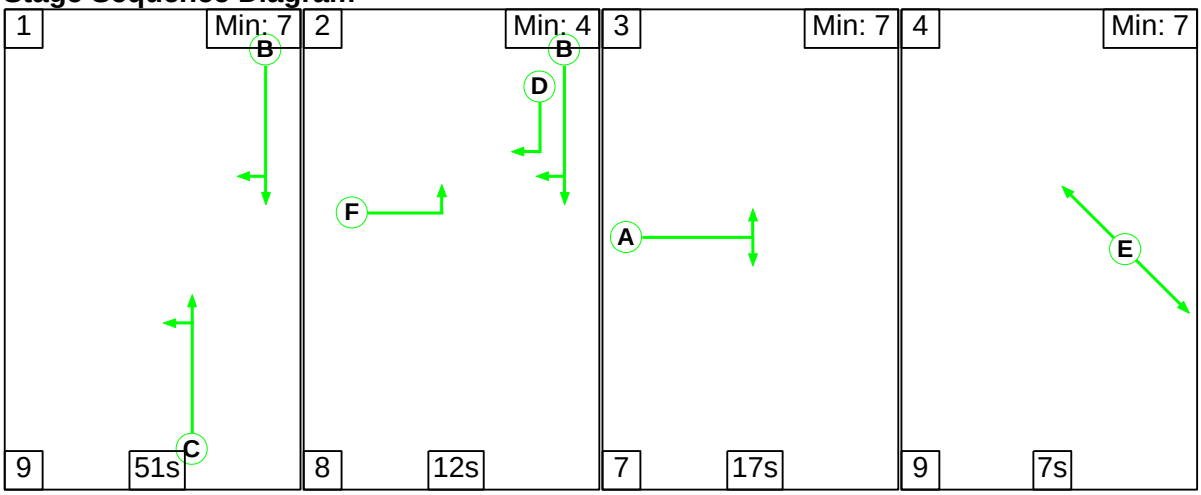
Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Ind. Arrow	B	4	4
E	Pedestrian		7	7
F	Filter	A	4	0

Basic Results Summary

Phase Intergreens Matrix

Terminating Phase	Starting Phase					
	A	B	C	D	E	F
A		7	7	8	9	-
B	-		-	-	9	-
C	-	-		8	9	8
D	7	-	8		9	-
E	-	9	9	8		-
F	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (R445 W EB)	U	A F	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 3 Left	12.50
1/2 (R445 W EB)	U	A	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 6 Right	8.50
2/1 (R445 W WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (E445 N NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
4/1 (R445 N SB)	U	B	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 N SB)	O	B D	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 2 Right	10.00
5/1 (R448 S NB)	U	C	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 2 Left	7.50
											Arm 3 Ahead	Inf
6/1 (R448 S SB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: Unnamed Junction

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
4/2 (R445 N SB)	2/1 (Right)	1439	0	5/1	1.09	All	2.00	-	0.50	2	2.00

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
3: '2030 DN AM'	08:00	09:00	01:00	

Basic Results Summary

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	369	232	601
	B	354	0	568	922
	C	272	370	0	642
	Tot.	626	739	800	2165

Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**89.7%**	**28.8**	**-**	**-**
Unnamed Junction	**89.7%**	**28.8**	**-**	**-**
1/2+1/1	88.1 : 88.1%	10.4	62.4	16.0
4/1+4/2	89.7 : 89.7%	10.7	41.8	17.1
5/1	82.9%	7.7	43.2	21.2

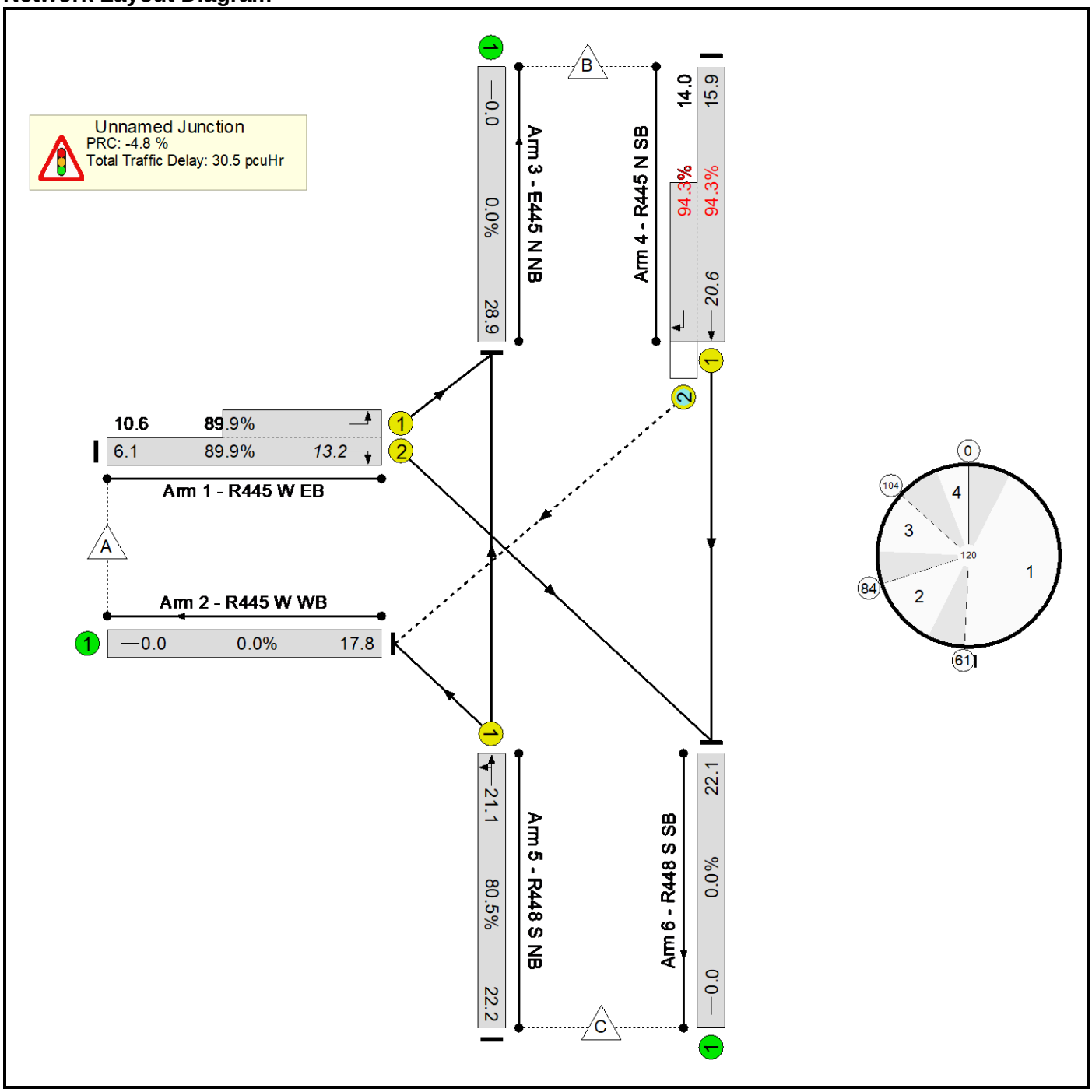
C1

PRC for Signalled Lanes (%): 0.3
PRC Over All Lanes (%): 0.3
Total Delay for Signalled Lanes (pcuHr): 28.81
Total Delay Over All Lanes(pcuHr): 28.81

Basic Results Summary

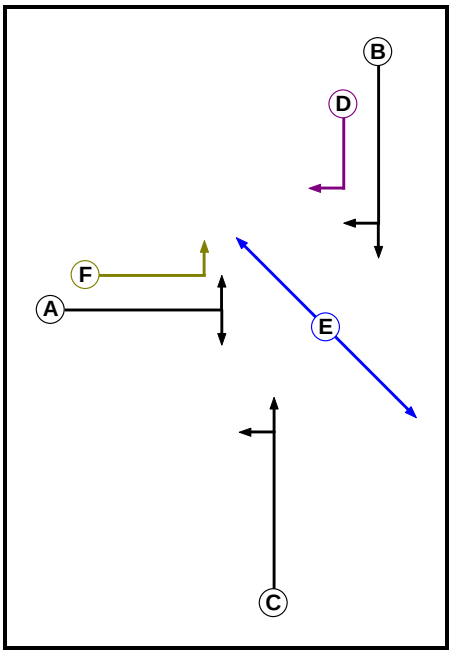
Scenario 4: '2030 DN PM' (FG4: '2030 DN PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



Phase Input Data

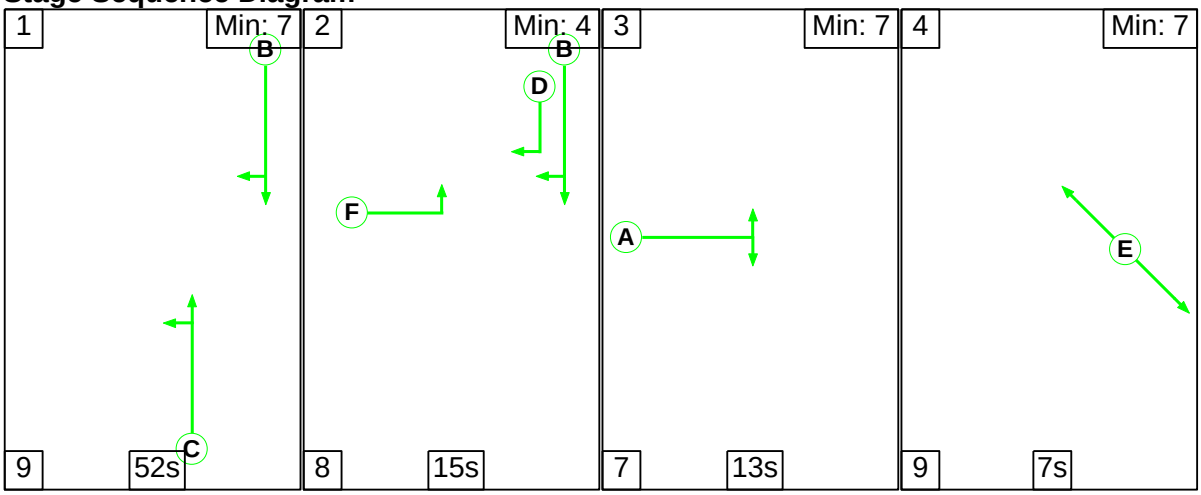
Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Ind. Arrow	B	4	4
E	Pedestrian		7	7
F	Filter	A	4	0

Basic Results Summary

Phase Intergreens Matrix

Terminating Phase	Starting Phase					
	A	B	C	D	E	F
A		7	7	8	9	-
B	-		-	-	9	-
C	-	-		8	9	8
D	7	-	8		9	-
E	-	9	9	8		-
F	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (R445 W EB)	U	A F	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 3 Left	12.50
1/2 (R445 W EB)	U	A	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 6 Right	8.50
2/1 (R445 W WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (E445 N NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
4/1 (R445 N SB)	U	B	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 N SB)	O	B D	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 2 Right	10.00
5/1 (R448 S NB)	U	C	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 2 Left	7.50
											Arm 3 Ahead	Inf
6/1 (R448 S SB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: Unnamed Junction

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
4/2 (R445 N SB)	2/1 (Right)	1439	0	5/1	1.09	All	2.00	-	0.50	2	2.00

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
4: '2030 DN PM'	17:00	18:00	01:00	

Basic Results Summary

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	317	184	501
	B	419	0	478	897
	C	116	551	0	667
	Tot.	535	868	662	2065

Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**94.3%**	**30.5**	**-**	**-**
Unnamed Junction	**94.3%**	**30.5**	**-**	**-**
1/2+1/1	89.9 : 89.9%	9.7	70.0	13.2
4/1+4/2	94.3 : 94.3%	13.4	53.6	20.6
5/1	80.5%	7.4	39.9	21.1

C1

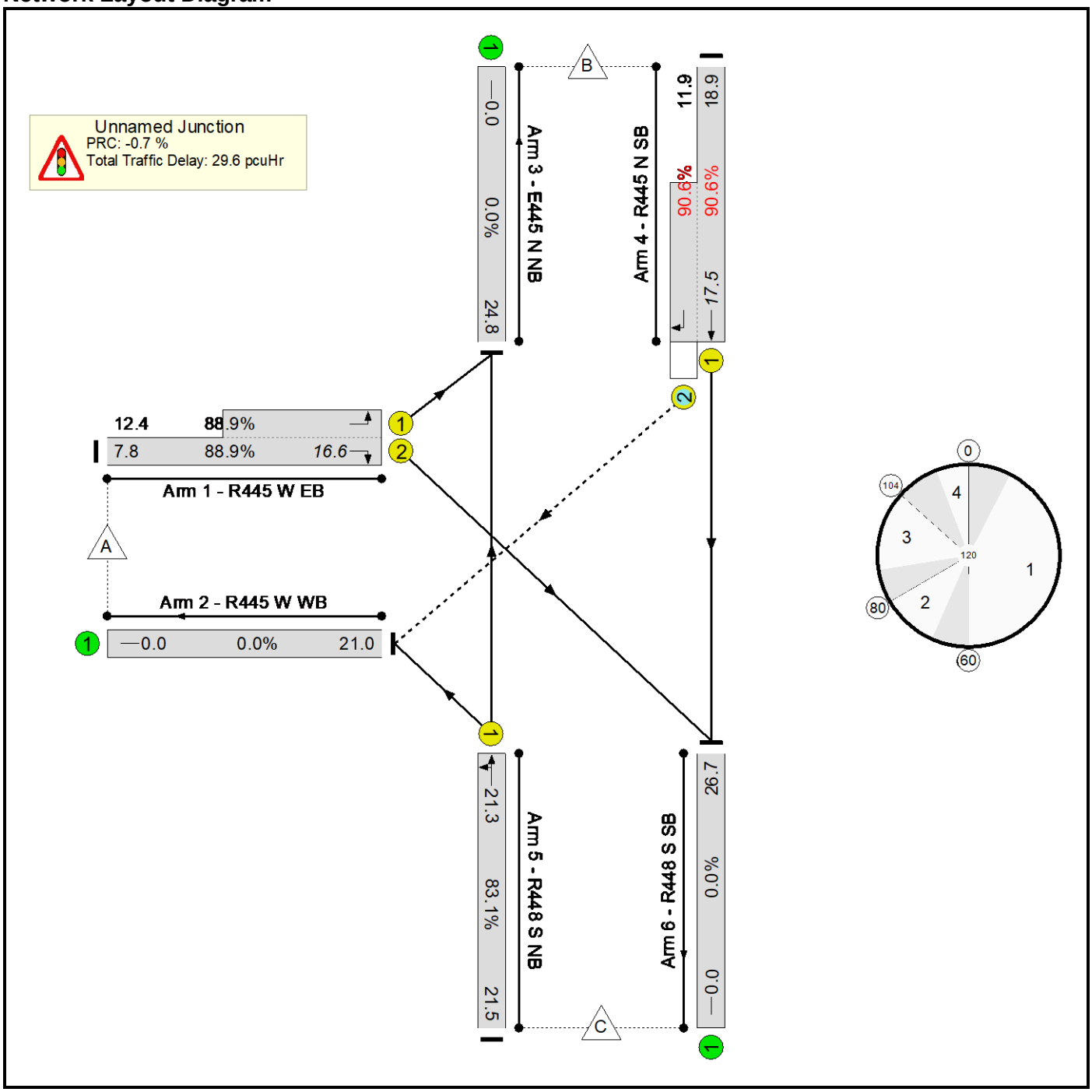
PRC for Signalled Lanes (%): -4.8
PRC Over All Lanes (%): -4.8

Total Delay for Signalled Lanes (pcuHr): 30.50
Total Delay Over All Lanes(pcuHr): 30.50

Basic Results Summary

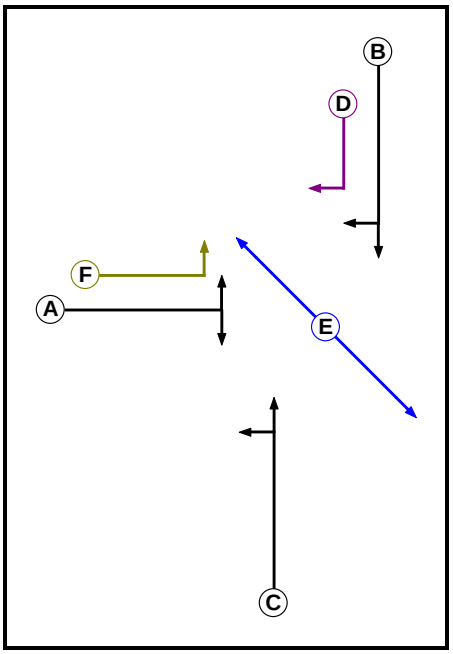
Scenario 5: '2030 DN AM + PH1' (FG5: '2030 DN + PH1 AM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



Phase Input Data

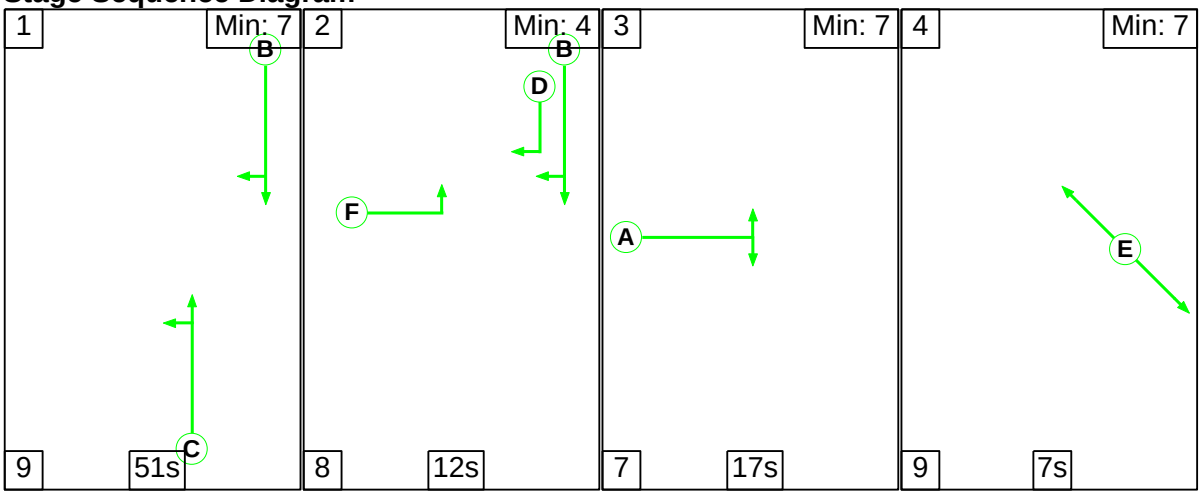
Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Ind. Arrow	B	4	4
E	Pedestrian		7	7
F	Filter	A	4	0

Basic Results Summary

Phase Intergreens Matrix

Terminating Phase	Starting Phase					
	A	B	C	D	E	F
A		7	7	8	9	-
B	-		-	-	9	-
C	-	-		8	9	8
D	7	-	8		9	-
E	-	9	9	8		-
F	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (R445 W EB)	U	A F	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 3 Left	12.50
1/2 (R445 W EB)	U	A	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 6 Right	8.50
2/1 (R445 W WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (E445 N NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
4/1 (R445 N SB)	U	B	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 N SB)	O	B D	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 2 Right	10.00
5/1 (R448 S NB)	U	C	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 2 Left	7.50
											Arm 3 Ahead	Inf
6/1 (R448 S SB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: Unnamed Junction

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
4/2 (R445 N SB)	2/1 (Right)	1439	0	5/1	1.09	All	2.00	-	0.50	2	2.00

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
5: '2030 DN + PH1 AM'	08:00	09:00	01:00	

Basic Results Summary

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	373	234	607
	B	356	0	568	924
	C	274	370	0	644
	Tot.	630	743	802	2175

Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**90.6%**	**29.6**	**-**	**-**
Unnamed Junction	**90.6%**	**29.6**	**-**	**-**
1/2+1/1	88.9 : 88.9%	10.7	63.6	16.6
4/1+4/2	90.6 : 90.6%	11.1	43.3	17.5
5/1	83.1%	7.8	43.4	21.3

C1

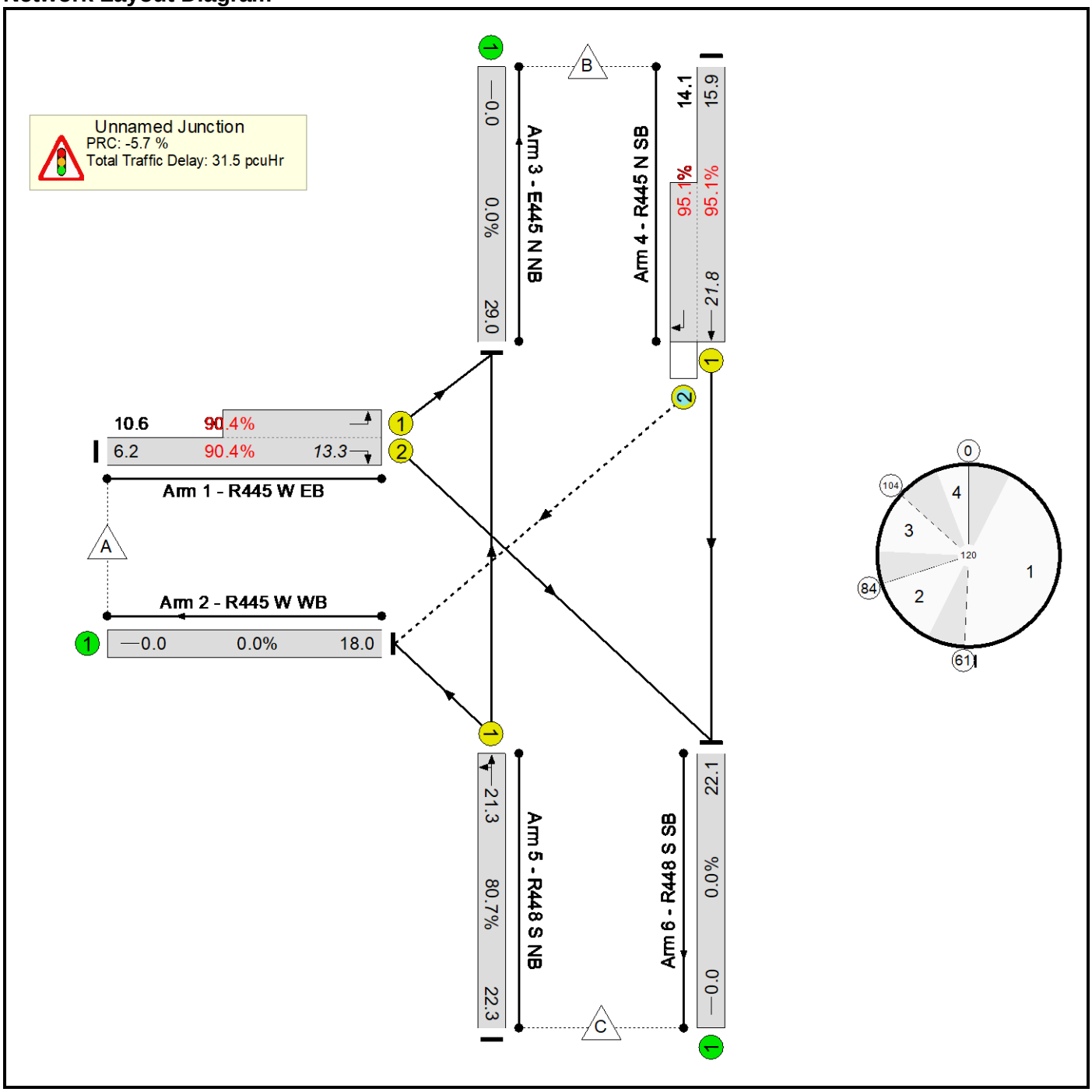
PRC for Signalled Lanes (%): -0.7
PRC Over All Lanes (%): -0.7

Total Delay for Signalled Lanes (pcuHr): 29.61
Total Delay Over All Lanes(pcuHr): 29.61

Basic Results Summary

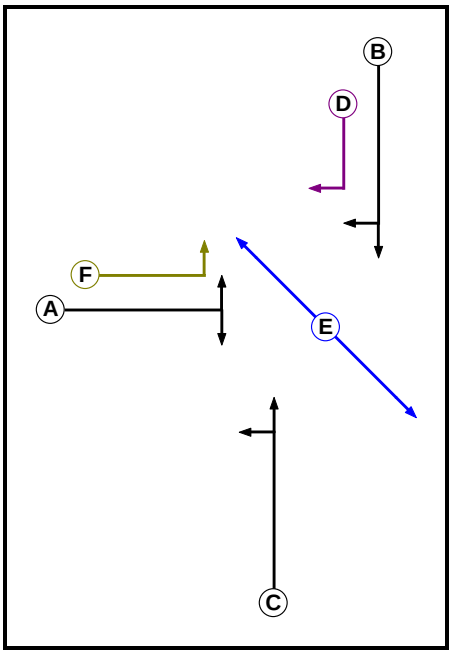
Scenario 6: '2030 DN PM + PH1' (FG6: '2030 DN + PH1 PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



Phase Input Data

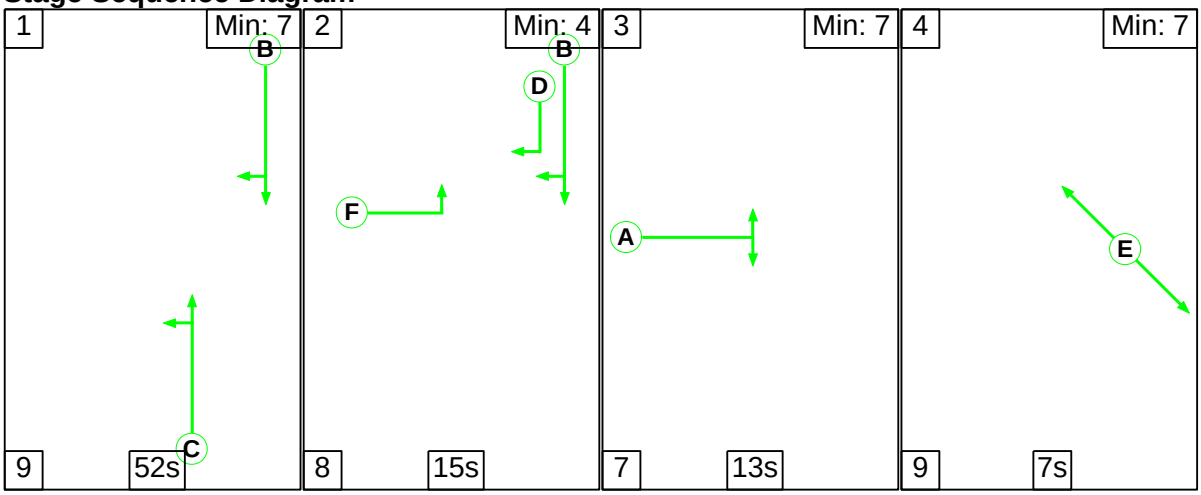
Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Ind. Arrow	B	4	4
E	Pedestrian		7	7
F	Filter	A	4	0

Basic Results Summary

Phase Intergreens Matrix

Terminating Phase	Starting Phase					
	A	B	C	D	E	F
A		7	7	8	9	-
B	-		-	-	9	-
C	-	-		8	9	8
D	7	-	8		9	-
E	-	9	9	8		-
F	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (R445 W EB)	U	A F	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 3 Left	12.50
1/2 (R445 W EB)	U	A	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 6 Right	8.50
2/1 (R445 W WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (E445 N NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
4/1 (R445 N SB)	U	B	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 N SB)	O	B D	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 2 Right	10.00
5/1 (R448 S NB)	U	C	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 2 Left	7.50
											Arm 3 Ahead	Inf
6/1 (R448 S SB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: Unnamed Junction

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
4/2 (R445 N SB)	2/1 (Right)	1439	0	5/1	1.09	All	2.00	-	0.50	2	2.00

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
6: '2030 DN + PH1 PM'	17:00	18:00	01:00	

Basic Results Summary

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	318	185	503
	B	423	0	478	901
	C	117	551	0	668
	Tot.	540	869	663	2072

Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**95.1%**	**31.5**	**-**	**-**
Unnamed Junction	**95.1%**	**31.5**	**-**	**-**
1/2+1/1	90.4 : 90.4%	9.9	71.2	13.3
4/1+4/2	95.1 : 95.1%	14.2	56.6	21.8
5/1	80.7%	7.4	40.1	21.3

C1

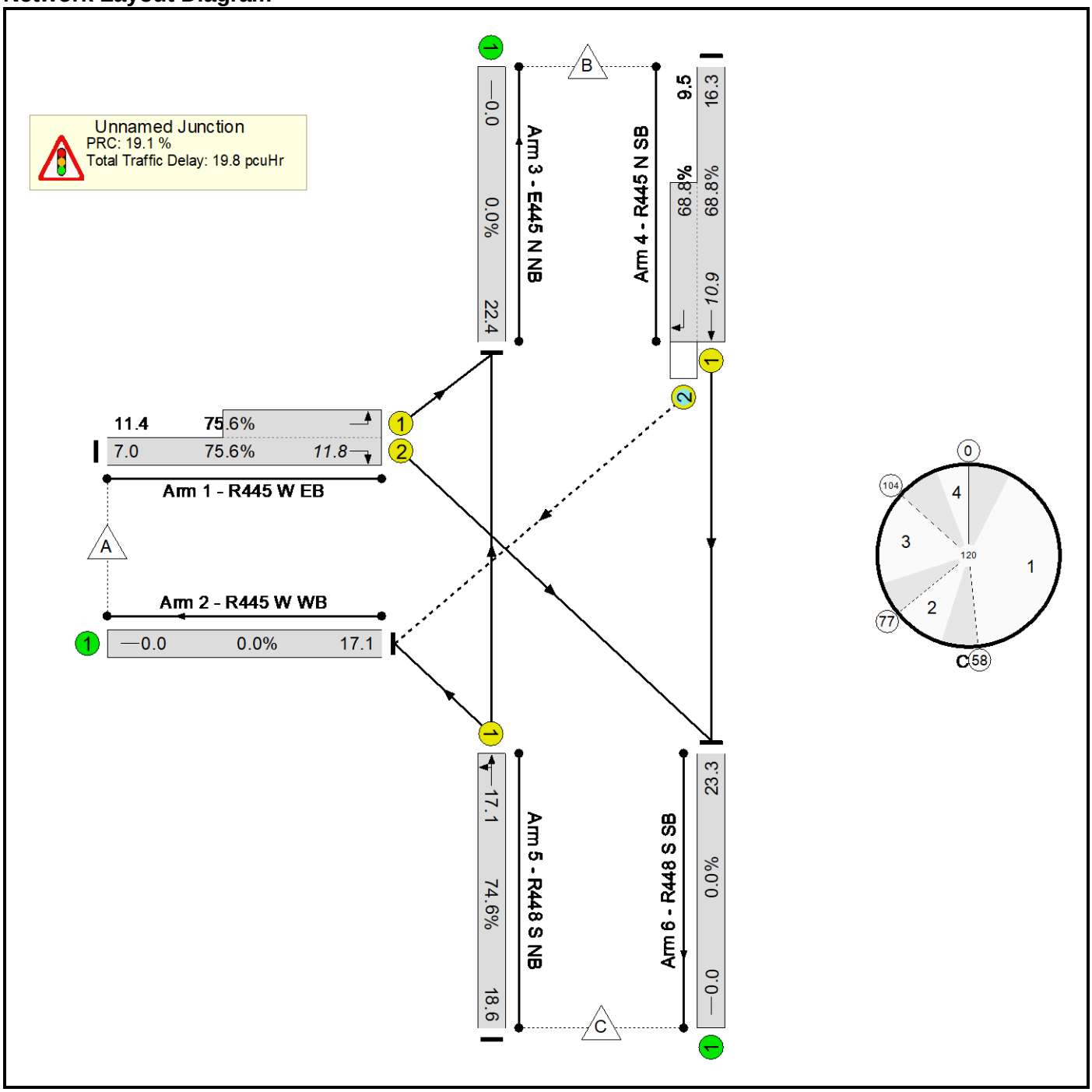
PRC for Signalled Lanes (%): -5.7
PRC Over All Lanes (%): -5.7

Total Delay for Signalled Lanes (pcuHr): 31.55
Total Delay Over All Lanes(pcuHr): 31.55

Basic Results Summary

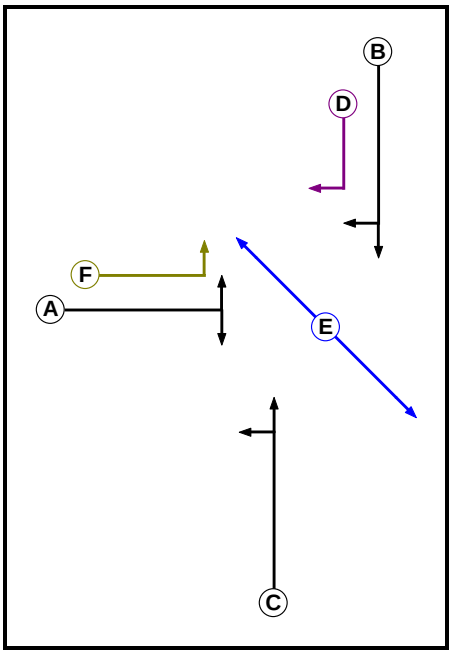
Scenario 7: '2030 DM AM + LINK' (FG7: '2030 DM + LINK AM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



Phase Input Data

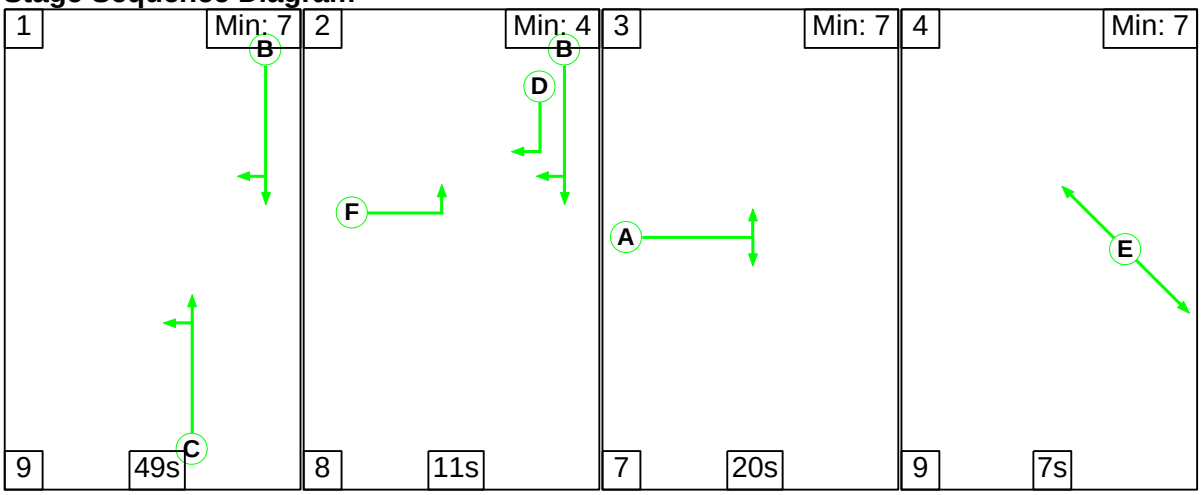
Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Ind. Arrow	B	4	4
E	Pedestrian		7	7
F	Filter	A	4	0

Basic Results Summary

Phase Intergreens Matrix

Terminating Phase	Starting Phase					
	A	B	C	D	E	F
A		7	7	8	9	-
B	-		-	-	9	-
C	-	-		8	9	8
D	7	-	8		9	-
E	-	9	9	8		-
F	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: Unnamed Junction												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (R445 W EB)	U	A F	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 3 Left	12.50
1/2 (R445 W EB)	U	A	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 6 Right	8.50
2/1 (R445 W WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (E445 N NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
4/1 (R445 N SB)	U	B	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 N SB)	O	B D	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 2 Right	10.00
5/1 (R448 S NB)	U	C	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 2 Left	7.50
											Arm 3 Ahead	Inf
6/1 (R448 S SB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: Unnamed Junction											
Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
4/2 (R445 N SB)	2/1 (Right)	1439	0	5/1	1.09	All	2.00	-	0.50	2	2.00

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
7: '2030 DM + LINK AM'	08:00	09:00	01:00	

Basic Results Summary

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	341	211	552
	B	285	0	488	773
	C	227	331	0	558
	Tot.	512	672	699	1883

Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**75.6%**	**19.8**	**-**	**-**
Unnamed Junction	**75.6%**	**19.8**	**-**	**-**
1/2+1/1	75.6 : 75.6%	7.5	48.8	11.8
4/1+4/2	68.8 : 68.8%	6.3	29.2	10.9
5/1	74.6%	6.0	39.0	17.1

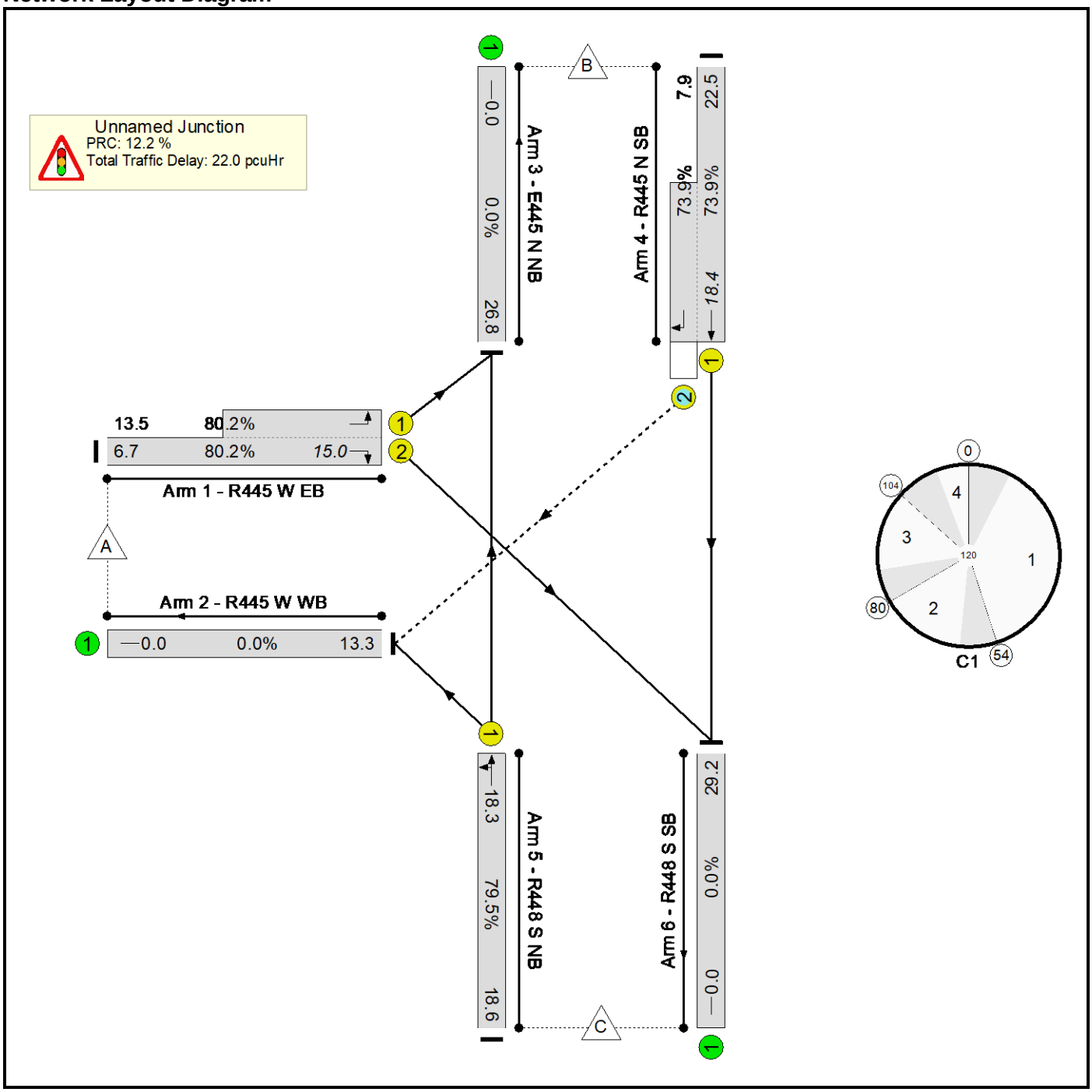
C1

PRC for Signalled Lanes (%): 19.1
PRC Over All Lanes (%): 19.1
Total Delay for Signalled Lanes (pcuHr): 19.78
Total Delay Over All Lanes(pcuHr): 19.78

Basic Results Summary

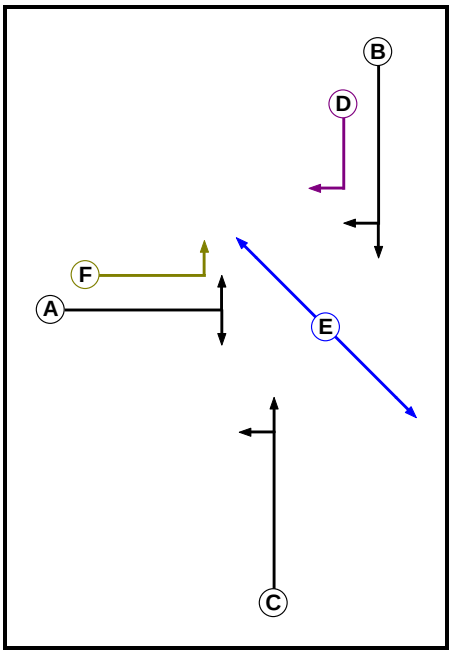
Scenario 8: '2030 DM PM + LINK' (FG8: '2030 DM + LINK PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



Phase Input Data

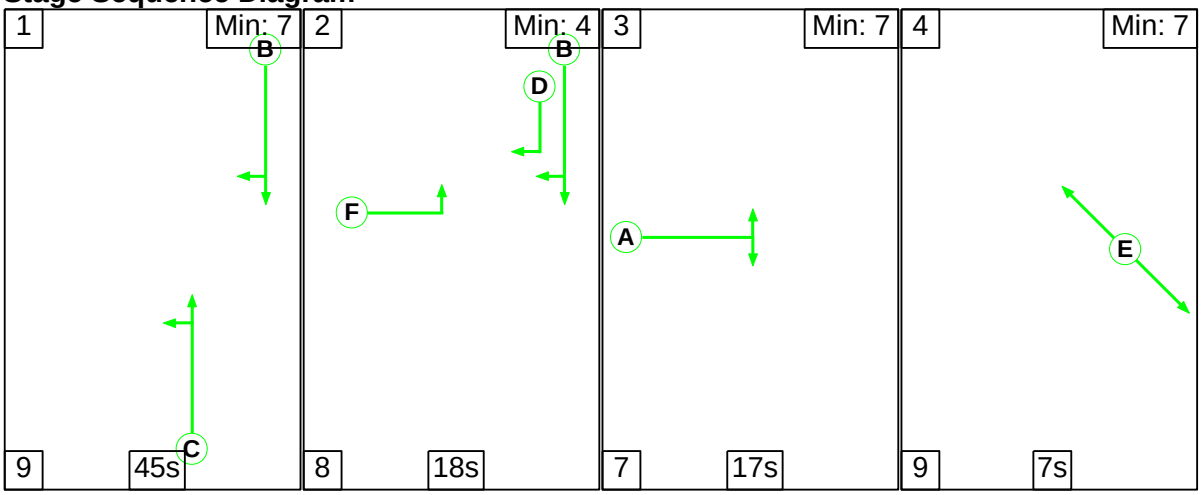
Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Ind. Arrow	B	4	4
E	Pedestrian		7	7
F	Filter	A	4	0

Basic Results Summary

Phase Intergreens Matrix

Terminating Phase	Starting Phase					
	A	B	C	D	E	F
A		7	7	8	9	-
B	-		-	-	9	-
C	-	-		8	9	8
D	7	-	8		9	-
E	-	9	9	8		-
F	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: Unnamed Junction												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (R445 W EB)	U	A F	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 3 Left	12.50
1/2 (R445 W EB)	U	A	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 6 Right	8.50
2/1 (R445 W WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (E445 N NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
4/1 (R445 N SB)	U	B	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 N SB)	O	B D	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 2 Right	10.00
5/1 (R448 S NB)	U	C	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 2 Left	7.50
											Arm 3 Ahead	Inf
6/1 (R448 S SB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: Unnamed Junction											
Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
4/2 (R445 N SB)	2/1 (Right)	1439	0	5/1	1.09	All	2.00	-	0.50	2	2.00

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
8: '2030 DM + LINK PM'	17:00	18:00	01:00	

Basic Results Summary

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	405	201	606
	B	238	0	675	913
	C	160	399	0	559
	Tot.	398	804	876	2078

Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**80.2%**	**22.0**	**-**	**-**
Unnamed Junction	**80.2%**	**22.0**	**-**	**-**
1/2+1/1	80.2 : 80.2%	8.4	49.7	15.0
4/1+4/2	73.9 : 73.9%	6.6	26.0	18.4
5/1	79.5%	7.0	45.0	18.3

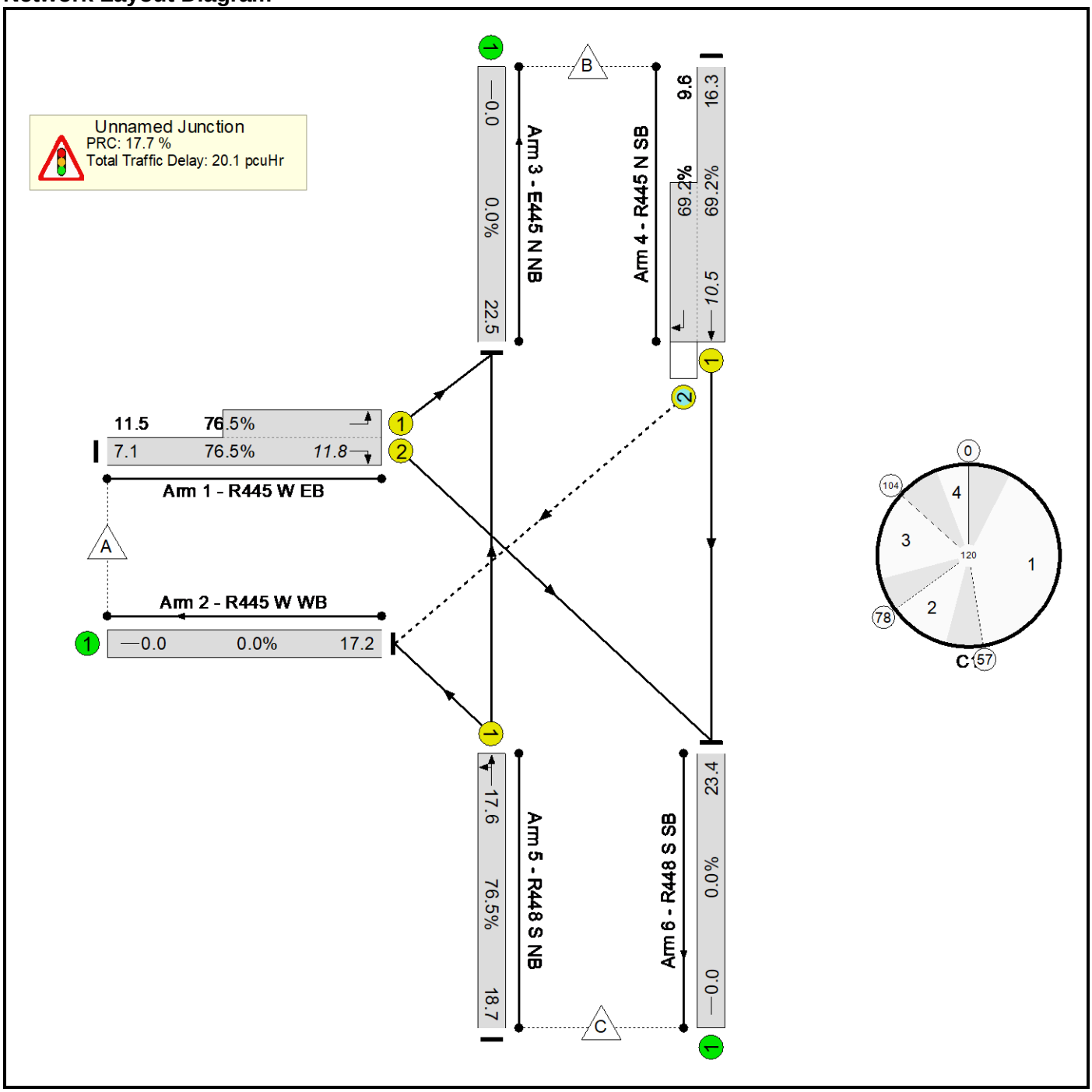
C1

PRC for Signalled Lanes (%): 12.2
PRC Over All Lanes (%): 12.2
Total Delay for Signalled Lanes (pcuHr): 21.95
Total Delay Over All Lanes(pcuHr): 21.95

Basic Results Summary

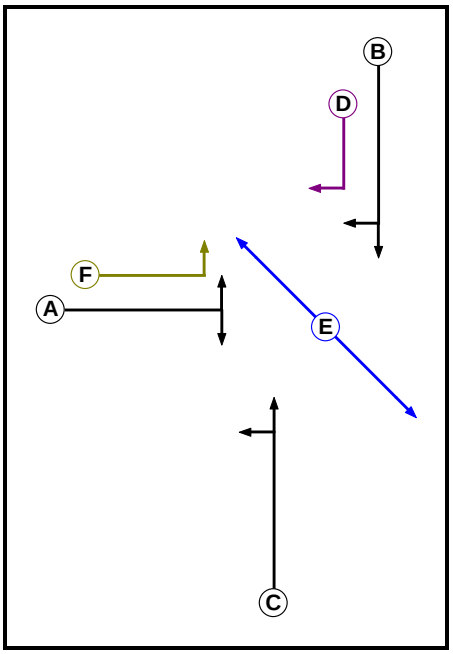
Scenario 9: '2030 DM AM + LINK +PH1' (FG9: '2030 DM + LINK +PH1 AM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



Phase Input Data

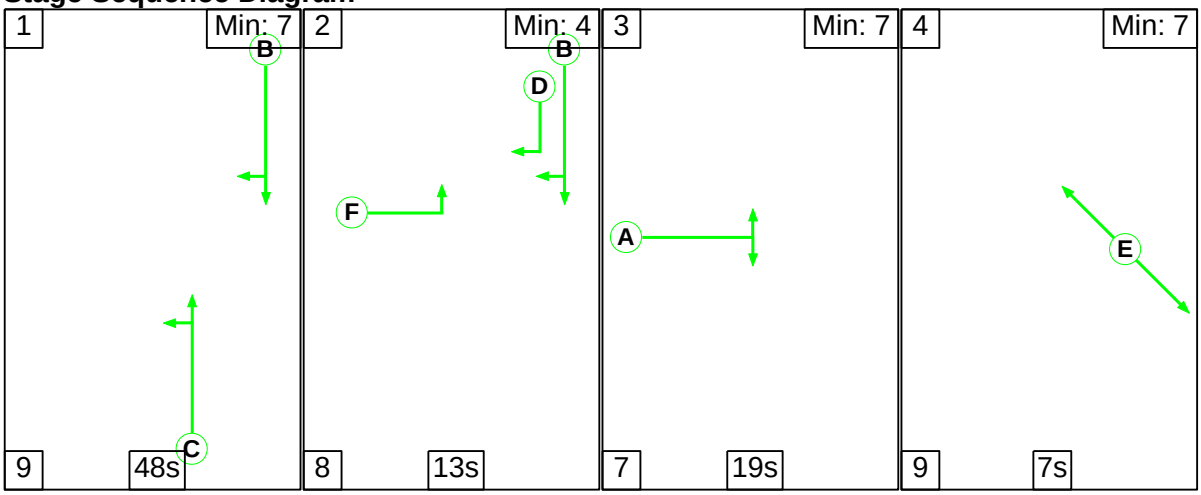
Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Ind. Arrow	B	4	4
E	Pedestrian		7	7
F	Filter	A	4	0

Basic Results Summary

Phase Intergreens Matrix

Terminating Phase	Starting Phase					
	A	B	C	D	E	F
A		7	7	8	9	-
B	-		-	-	9	-
C	-	-		8	9	8
D	7	-	8		9	-
E	-	9	9	8		-
F	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (R445 W EB)	U	A F	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 3 Left	12.50
1/2 (R445 W EB)	U	A	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 6 Right	8.50
2/1 (R445 W WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (E445 N NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
4/1 (R445 N SB)	U	B	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 N SB)	O	B D	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 2 Right	10.00
5/1 (R448 S NB)	U	C	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 2 Left	7.50
											Arm 3 Ahead	Inf
6/1 (R448 S SB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: Unnamed Junction

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
4/2 (R445 N SB)	2/1 (Right)	1439	0	5/1	1.09	All	2.00	-	0.50	2	2.00

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
9: '2030 DM + LINK +PH1 AM'	08:00	09:00	01:00	

Basic Results Summary

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	345	214	559
	B	287	0	488	775
	C	229	331	0	560
	Tot.	516	676	702	1894

Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**76.5%**	**20.1**	**-**	**-**
Unnamed Junction	**76.5%**	**20.1**	**-**	**-**
1/2+1/1	76.5 : 76.5%	7.6	49.1	11.8
4/1+4/2	69.2 : 69.2%	6.2	28.6	10.5
5/1	76.5%	6.3	40.8	17.6

C1

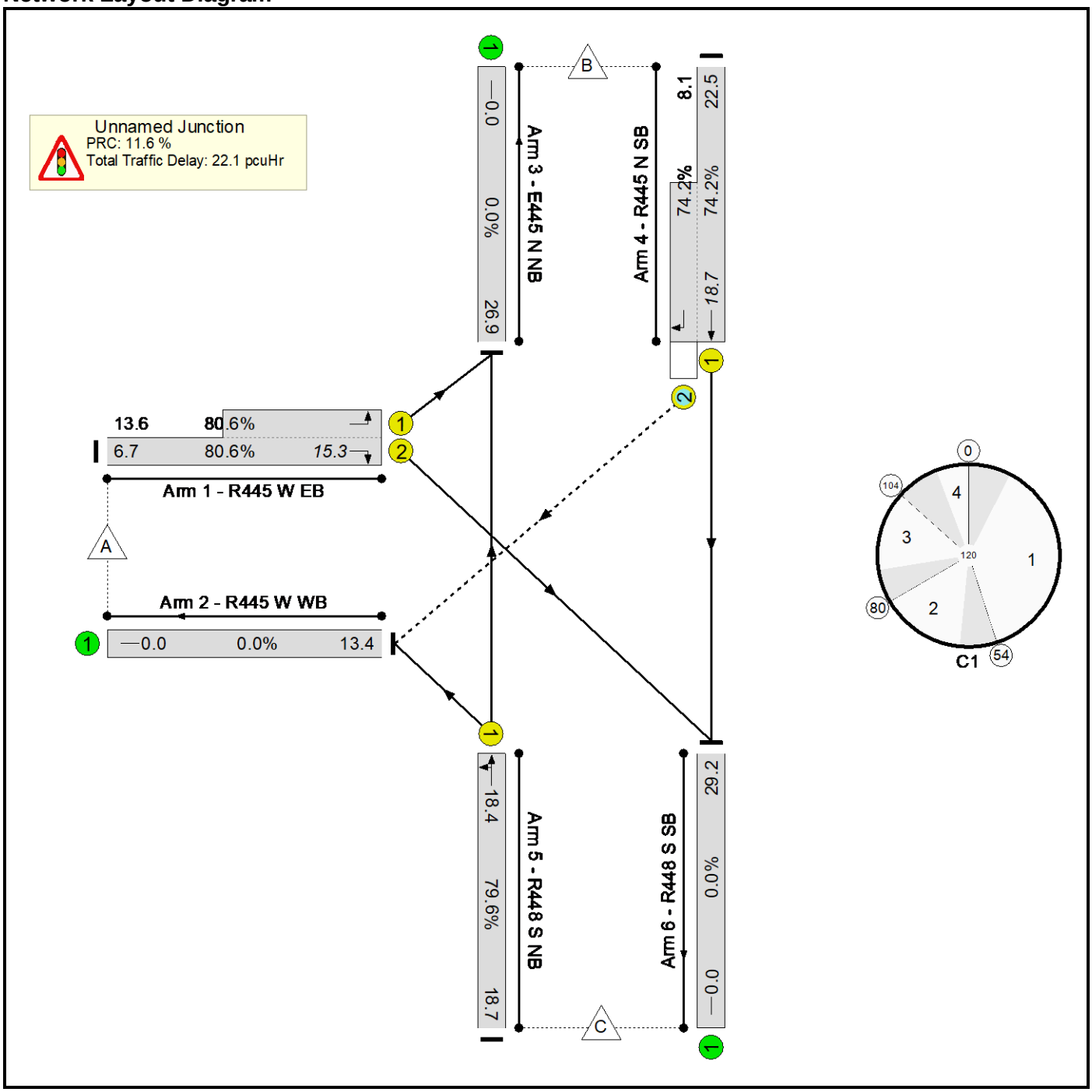
PRC for Signalled Lanes (%): 17.7
PRC Over All Lanes (%): 17.7

Total Delay for Signalled Lanes (pcuHr): 20.13
Total Delay Over All Lanes(pcuHr): 20.13

Basic Results Summary

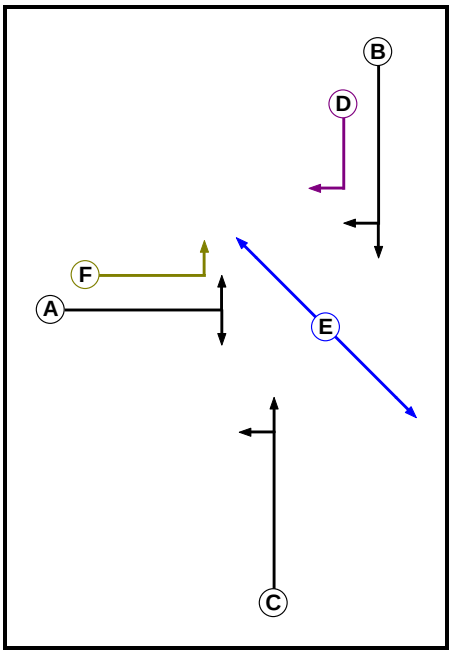
Scenario 10: '2030 DM PM + LINK +PH1' (FG10: '2030 DM + LINK + PH1 PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



Phase Input Data

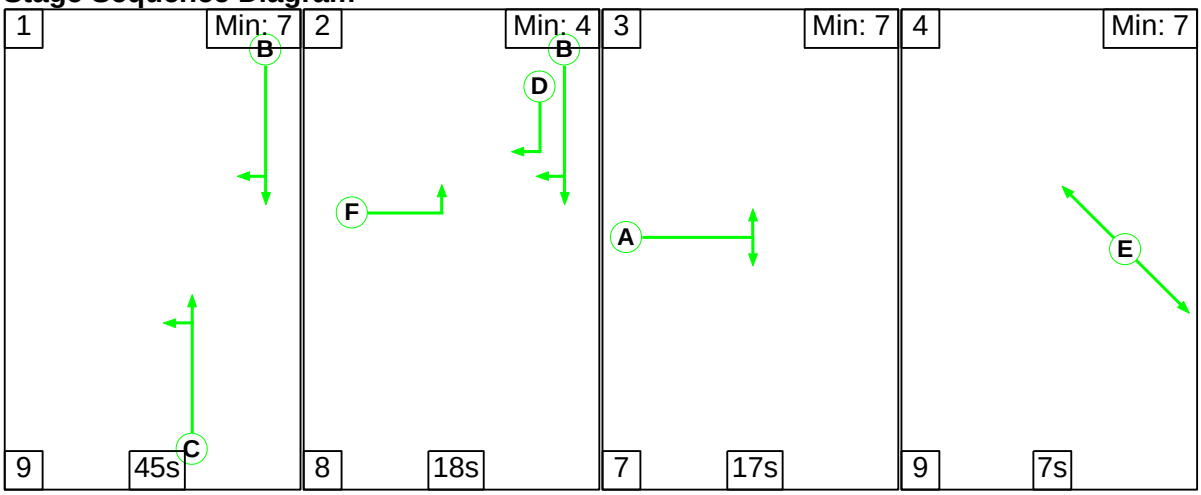
Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Ind. Arrow	B	4	4
E	Pedestrian		7	7
F	Filter	A	4	0

Basic Results Summary

Phase Intergreens Matrix

Terminating Phase	Starting Phase					
	A	B	C	D	E	F
A		7	7	8	9	-
B	-		-	-	9	-
C	-	-		8	9	8
D	7	-	8		9	-
E	-	9	9	8		-
F	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (R445 W EB)	U	A F	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 3 Left	12.50
1/2 (R445 W EB)	U	A	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 6 Right	8.50
2/1 (R445 W WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (E445 N NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
4/1 (R445 N SB)	U	B	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 N SB)	O	B D	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 2 Right	10.00
5/1 (R448 S NB)	U	C	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 2 Left	7.50
											Arm 3 Ahead	Inf
6/1 (R448 S SB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: Unnamed Junction

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
4/2 (R445 N SB)	2/1 (Right)	1439	0	5/1	1.09	All	2.00	-	0.50	2	2.00

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
10: '2030 DM + LINK + PH1 PM'	17:00	18:00	01:00	

Basic Results Summary

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	407	202	609
	B	242	0	675	917
	C	161	399	0	560
	Tot.	403	806	877	2086

Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**80.6%**	**22.1**	**-**	**-**
Unnamed Junction	**80.6%**	**22.1**	**-**	**-**
1/2+1/1	80.6 : 80.6%	8.5	50.0	15.3
4/1+4/2	74.2 : 74.2%	6.7	26.2	18.7
5/1	79.6%	7.0	45.1	18.4

C1

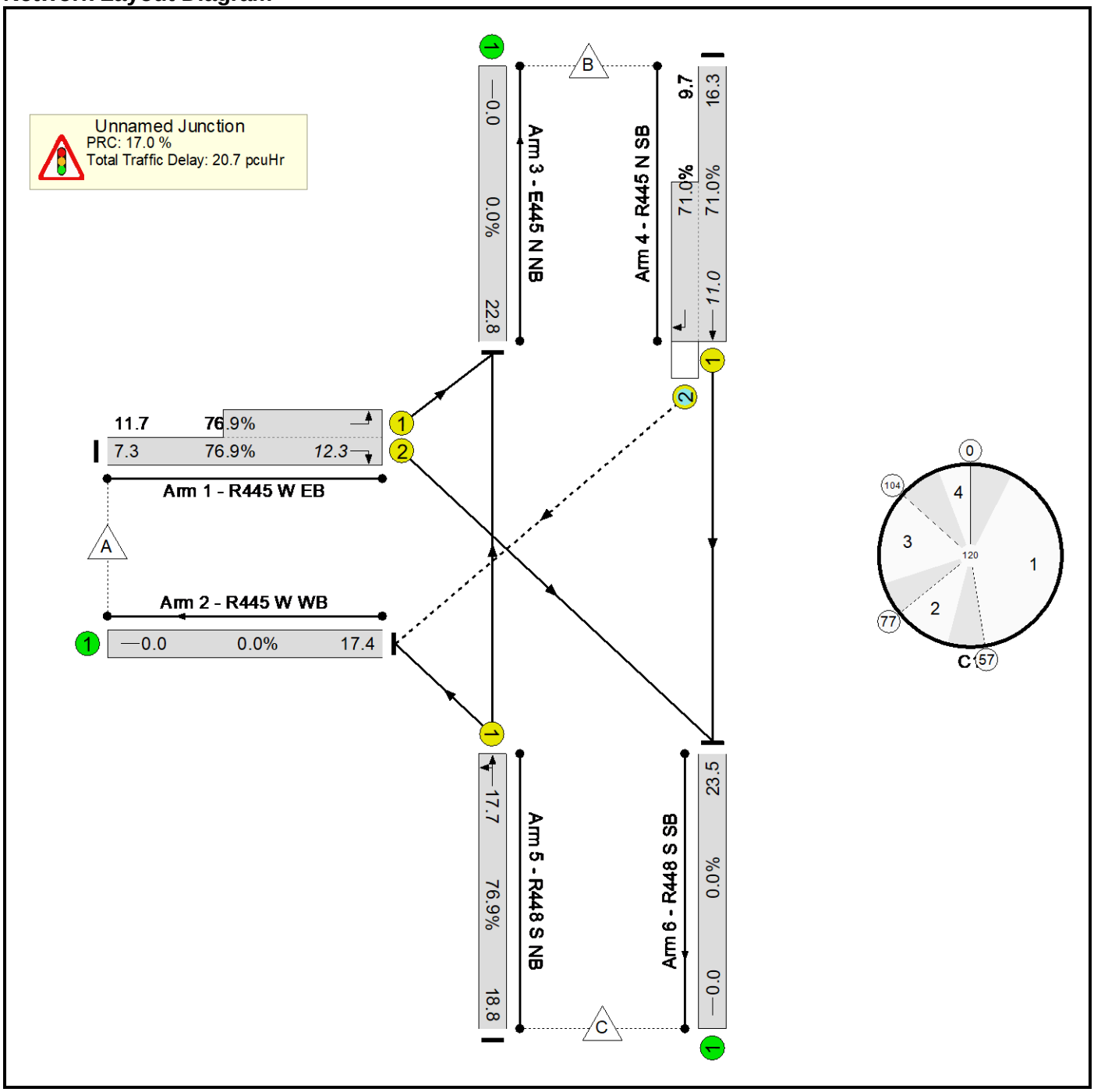
PRC for Signalled Lanes (%): 11.6
PRC Over All Lanes (%): 11.6

Total Delay for Signalled Lanes (pcuHr): 22.15
Total Delay Over All Lanes(pcuHr): 22.15

Basic Results Summary

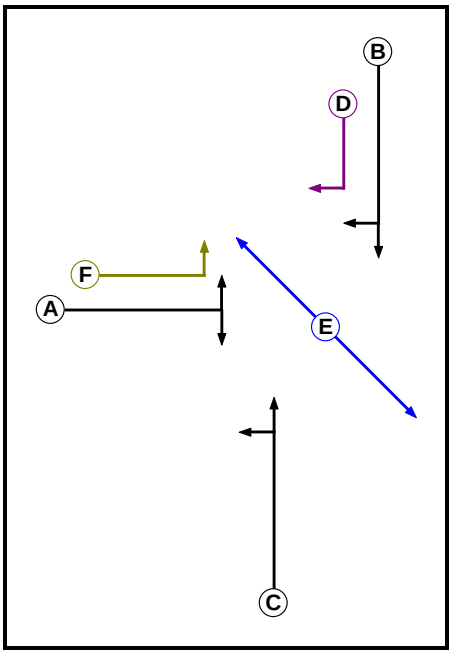
Scenario 11: '2030 DM AM + LINK + MASTERPLAN' (FG11: '2030 DM + LINK + MASTERPLAN AM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



Phase Input Data

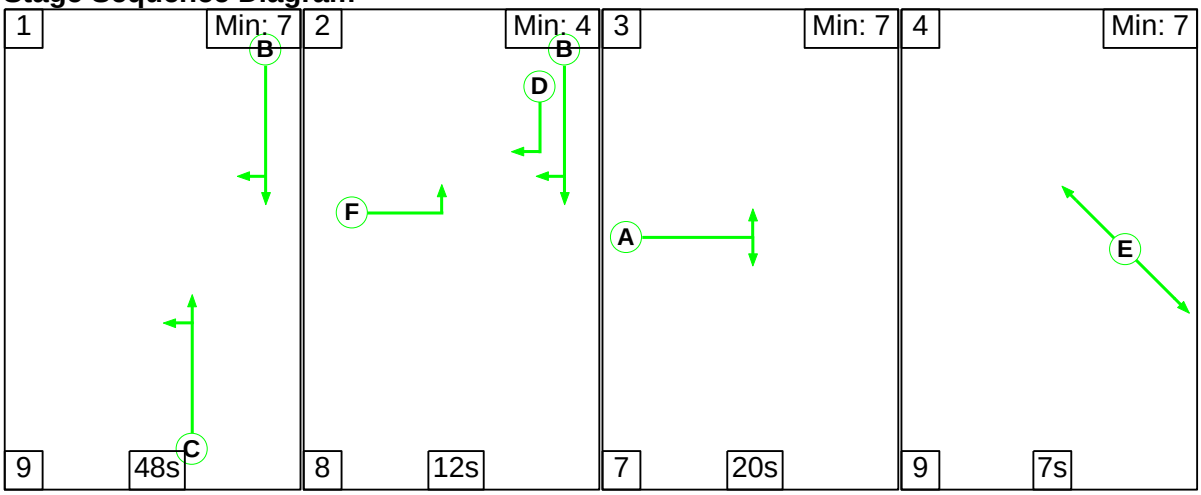
Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Ind. Arrow	B	4	4
E	Pedestrian		7	7
F	Filter	A	4	0

Basic Results Summary

Phase Intergreens Matrix

Terminating Phase	Starting Phase					
	A	B	C	D	E	F
A		7	7	8	9	-
B	-		-	-	9	-
C	-	-		8	9	8
D	7	-	8		9	-
E	-	9	9	8		-
F	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (R445 W EB)	U	A F	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 3 Left	12.50
1/2 (R445 W EB)	U	A	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 6 Right	8.50
2/1 (R445 W WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (E445 N NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
4/1 (R445 N SB)	U	B	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 N SB)	O	B D	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 2 Right	10.00
5/1 (R448 S NB)	U	C	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 2 Left	7.50
											Arm 3 Ahead	Inf
6/1 (R448 S SB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: Unnamed Junction

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
4/2 (R445 N SB)	2/1 (Right)	1439	0	5/1	1.09	All	2.00	-	0.50	2	2.00

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
11: '2030 DM + LINK + MASTERPLAN AM'	08:00	09:00	01:00	

Basic Results Summary

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	352	218	570
	B	291	0	488	779
	C	232	331	0	563
	Tot.	523	683	706	1912

Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**76.9%**	**20.7**	**-**	**-**
Unnamed Junction	**76.9%**	**20.7**	**-**	**-**
1/2+1/1	76.9 : 76.9%	7.7	48.9	12.3
4/1+4/2	71.0 : 71.0%	6.5	30.0	11.0
5/1	76.9%	6.4	41.1	17.7

C1

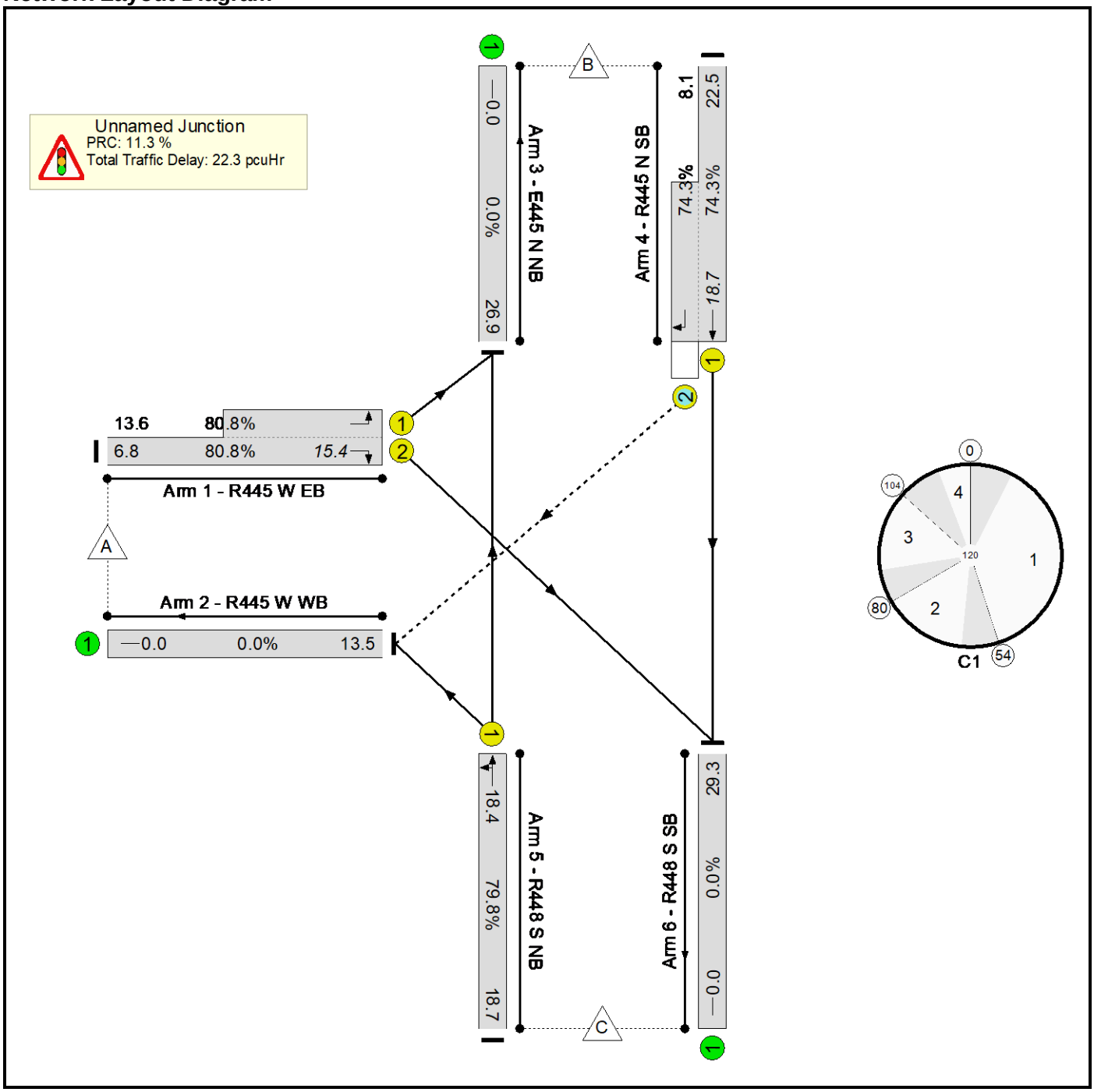
PRC for Signalled Lanes (%): 17.0
PRC Over All Lanes (%): 17.0

Total Delay for Signalled Lanes (pcuHr): 20.67
Total Delay Over All Lanes(pcuHr): 20.67

Basic Results Summary

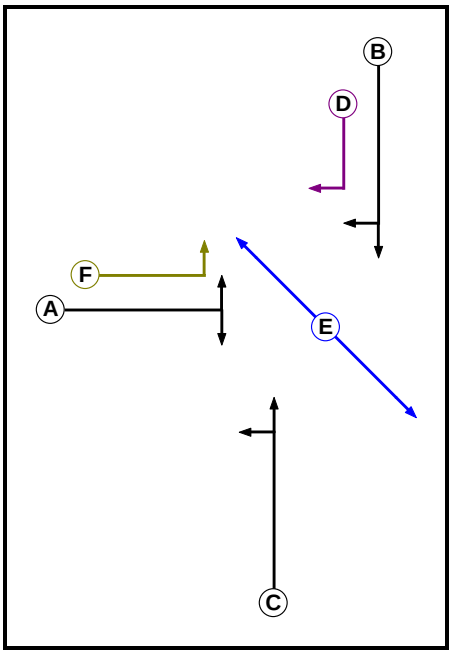
Scenario 12: '2030 DM PM + LINK + MASTERPLAN' (FG12: '2030 DM + LINK + MASTERPLAN PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



Phase Input Data

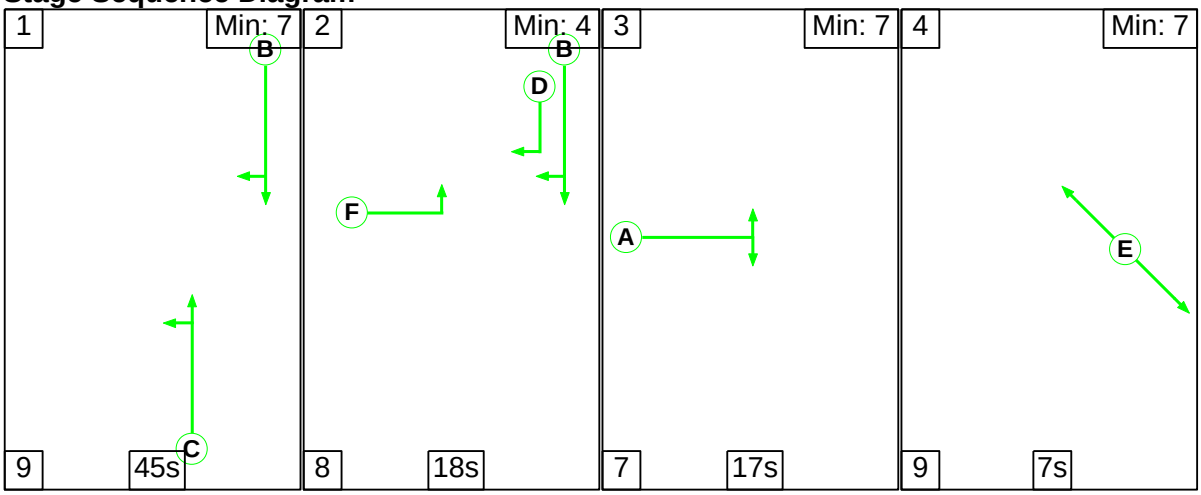
Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Ind. Arrow	B	4	4
E	Pedestrian		7	7
F	Filter	A	4	0

Basic Results Summary

Phase Intergreens Matrix

Terminating Phase	Starting Phase					
	A	B	C	D	E	F
A		7	7	8	9	-
B	-		-	-	9	-
C	-	-		8	9	8
D	7	-	8		9	-
E	-	9	9	8		-
F	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (R445 W EB)	U	A F	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 3 Left	12.50
1/2 (R445 W EB)	U	A	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 6 Right	8.50
2/1 (R445 W WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (E445 N NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
4/1 (R445 N SB)	U	B	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 N SB)	O	B D	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 2 Right	10.00
5/1 (R448 S NB)	U	C	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 2 Left	7.50
											Arm 3 Ahead	Inf
6/1 (R448 S SB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: Unnamed Junction

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
4/2 (R445 N SB)	2/1 (Right)	1439	0	5/1	1.09	All	2.00	-	0.50	2	2.00

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
12: '2030 DM + LINK + MASTERPLAN PM'	17:00	18:00	01:00	

Basic Results Summary

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	408	203	611
	B	244	0	675	919
	C	162	399	0	561
	Tot.	406	807	878	2091

Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**80.8%**	**22.3**	**-**	**-**
Unnamed Junction	**80.8%**	**22.3**	**-**	**-**
1/2+1/1	80.8 : 80.8%	8.5	50.2	15.4
4/1+4/2	74.3 : 74.3%	6.7	26.3	18.7
5/1	79.8%	7.0	45.2	18.4

C1

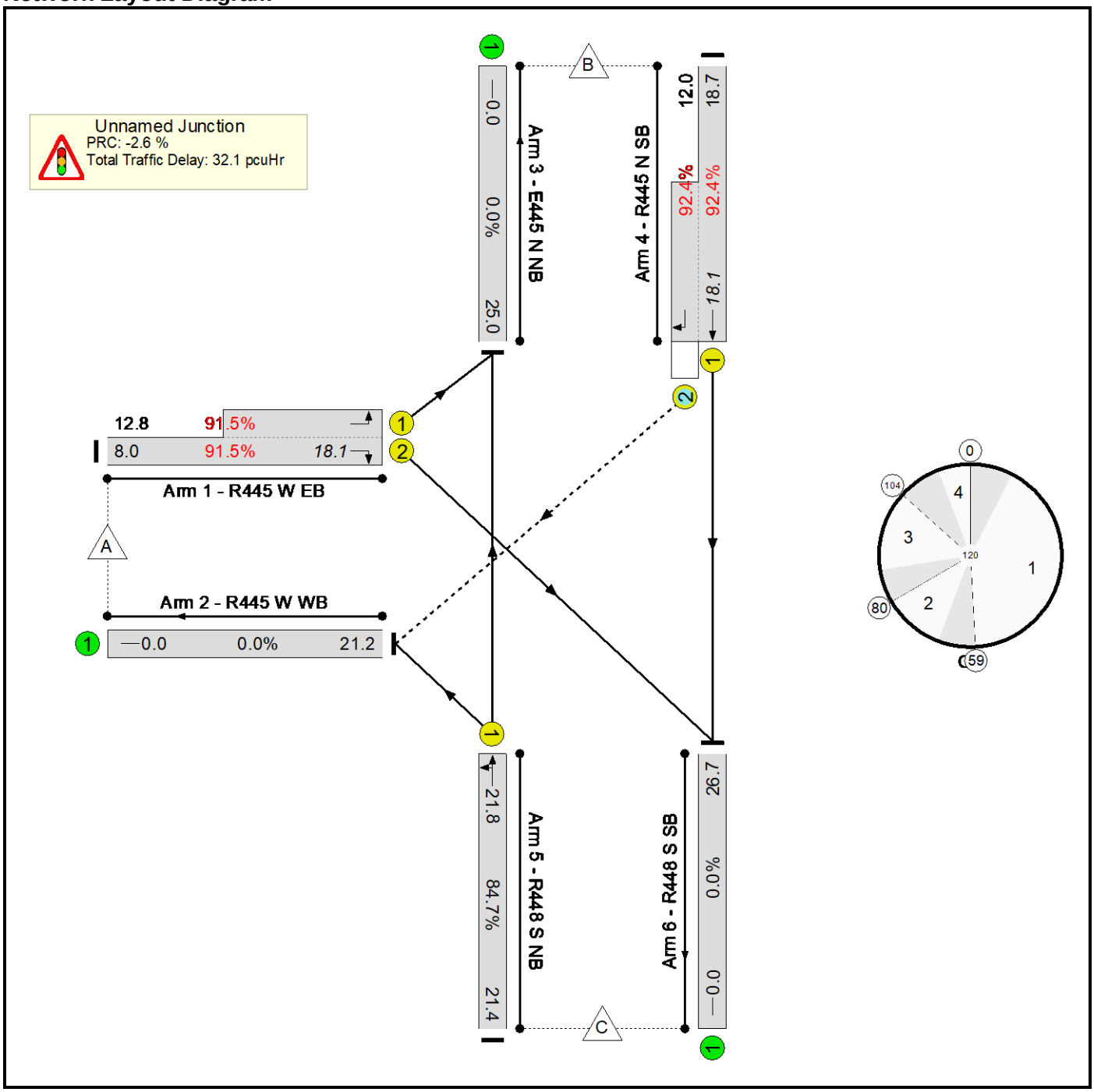
PRC for Signalled Lanes (%): 11.3
PRC Over All Lanes (%): 11.3

Total Delay for Signalled Lanes (pcuHr): 22.28
Total Delay Over All Lanes(pcuHr): 22.28

Basic Results Summary

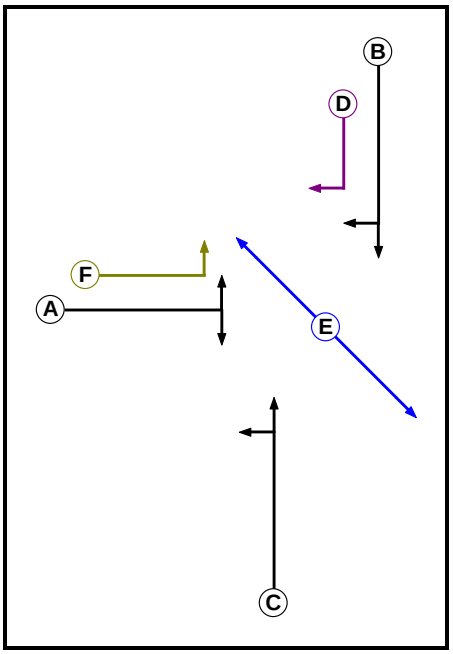
Scenario 13: '2030 DN + MASTERPLAN AM' (FG13: '2030 DN + MASTERPLAN AM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



Phase Input Data

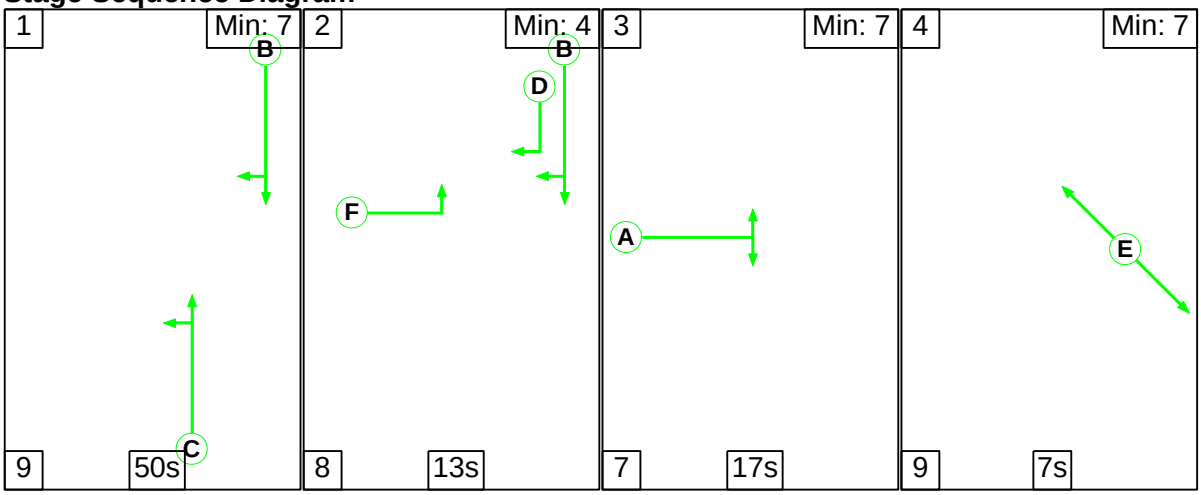
Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Ind. Arrow	B	4	4
E	Pedestrian		7	7
F	Filter	A	4	0

Basic Results Summary

Phase Intergreens Matrix

Terminating Phase	Starting Phase					
	A	B	C	D	E	F
A		7	7	8	9	-
B	-		-	-	9	-
C	-	-		8	9	8
D	7	-	8		9	-
E	-	9	9	8		-
F	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (R445 W EB)	U	A F	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 3 Left	12.50
1/2 (R445 W EB)	U	A	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 6 Right	8.50
2/1 (R445 W WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (E445 N NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
4/1 (R445 N SB)	U	B	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 N SB)	O	B D	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 2 Right	10.00
5/1 (R448 S NB)	U	C	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 2 Left	7.50
											Arm 3 Ahead	Inf
6/1 (R448 S SB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: Unnamed Junction

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
4/2 (R445 N SB)	2/1 (Right)	1439	0	5/1	1.09	All	2.00	-	0.50	2	2.00

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
13: '2030 DN + MASTERPLAN AM'	08:00	09:00	01:00	

Basic Results Summary

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	383	241	624
	B	360	0	561	921
	C	277	366	0	643
	Tot.	637	749	802	2188

Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**92.4%**	**32.1**	**-**	**-**
Unnamed Junction	**92.4%**	**32.1**	**-**	**-**
1/2+1/1	91.5 : 91.5%	11.9	68.6	18.1
4/1+4/2	92.4 : 92.4%	12.0	47.0	18.1
5/1	84.7%	8.2	45.8	21.8

C1

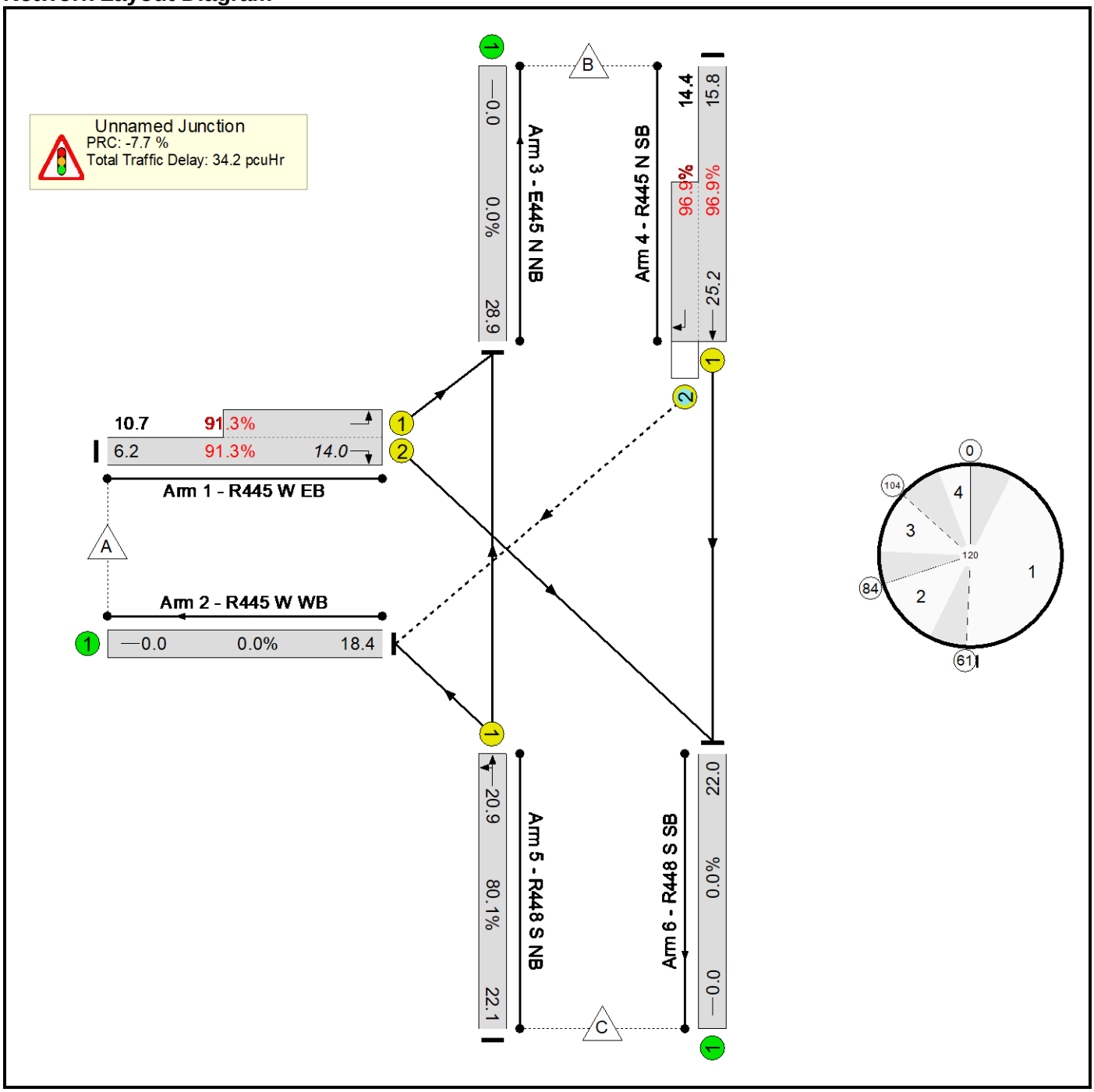
PRC for Signalled Lanes (%): -2.6
PRC Over All Lanes (%): -2.6

Total Delay for Signalled Lanes (pcuHr): 32.10
Total Delay Over All Lanes(pcuHr): 32.10

Basic Results Summary

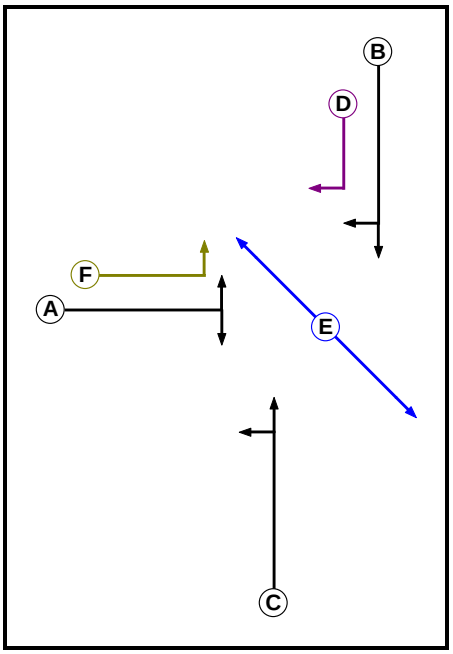
Scenario 14: '2030 DN + MASTERPLAN PM' (FG14: '2030 DN + MASTERPLAN PM', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Phase Diagram



Phase Input Data

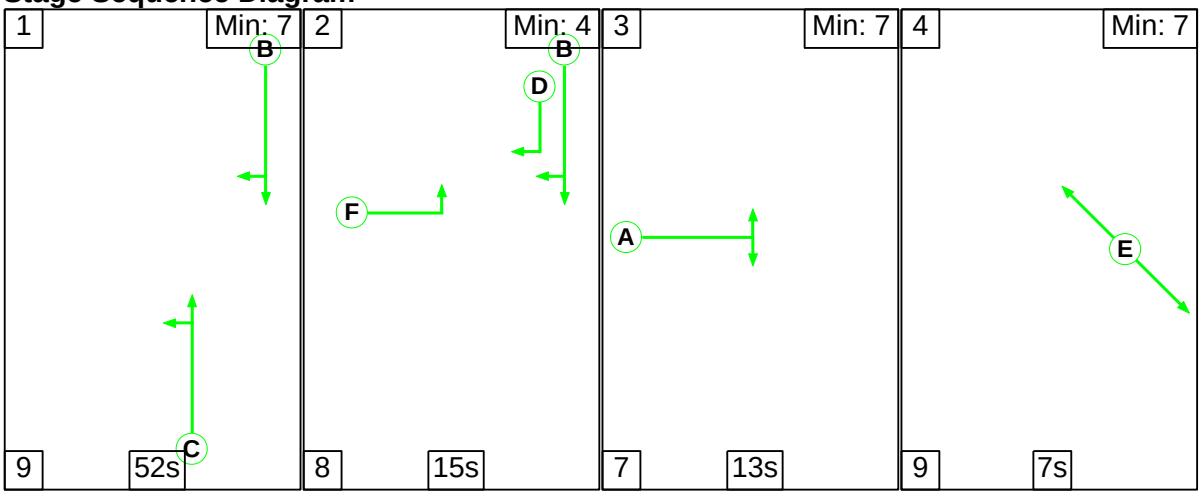
Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Ind. Arrow	B	4	4
E	Pedestrian		7	7
F	Filter	A	4	0

Basic Results Summary

Phase Intergreens Matrix

Terminating Phase	Starting Phase					
	A	B	C	D	E	F
A		7	7	8	9	-
B	-		-	-	9	-
C	-	-		8	9	8
D	7	-	8		9	-
E	-	9	9	8		-
F	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (R445 W EB)	U	A F	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 3 Left	12.50
1/2 (R445 W EB)	U	A	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 6 Right	8.50
2/1 (R445 W WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (E445 N NB)	U		2	3	60.0	Inf	-	-	-	-	-	-
4/1 (R445 N SB)	U	B	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 N SB)	O	B D	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 2 Right	10.00
5/1 (R448 S NB)	U	C	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 2 Left	7.50
											Arm 3 Ahead	Inf
6/1 (R448 S SB)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: Unnamed Junction

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
4/2 (R445 N SB)	2/1 (Right)	1439	0	5/1	1.09	All	2.00	-	0.50	2	2.00

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
14: '2030 DN + MASTERPLAN PM'	17:00	18:00	01:00	

Basic Results Summary

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	322	187	509
	B	433	0	473	906
	C	119	544	0	663
	Tot.	552	866	660	2078

Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**96.9%**	**34.2**	**-**	**-**
Unnamed Junction	**96.9%**	**34.2**	**-**	**-**
1/2+1/1	91.3 : 91.3%	10.4	73.6	14.0
4/1+4/2	96.9 : 96.9%	16.5	65.4	25.2
5/1	80.1%	7.3	39.7	20.9

C1

PRC for Signalled Lanes (%): -7.7
PRC Over All Lanes (%): -7.7

Total Delay for Signalled Lanes (pcuHr): 34.18
Total Delay Over All Lanes(pcuHr): 34.18

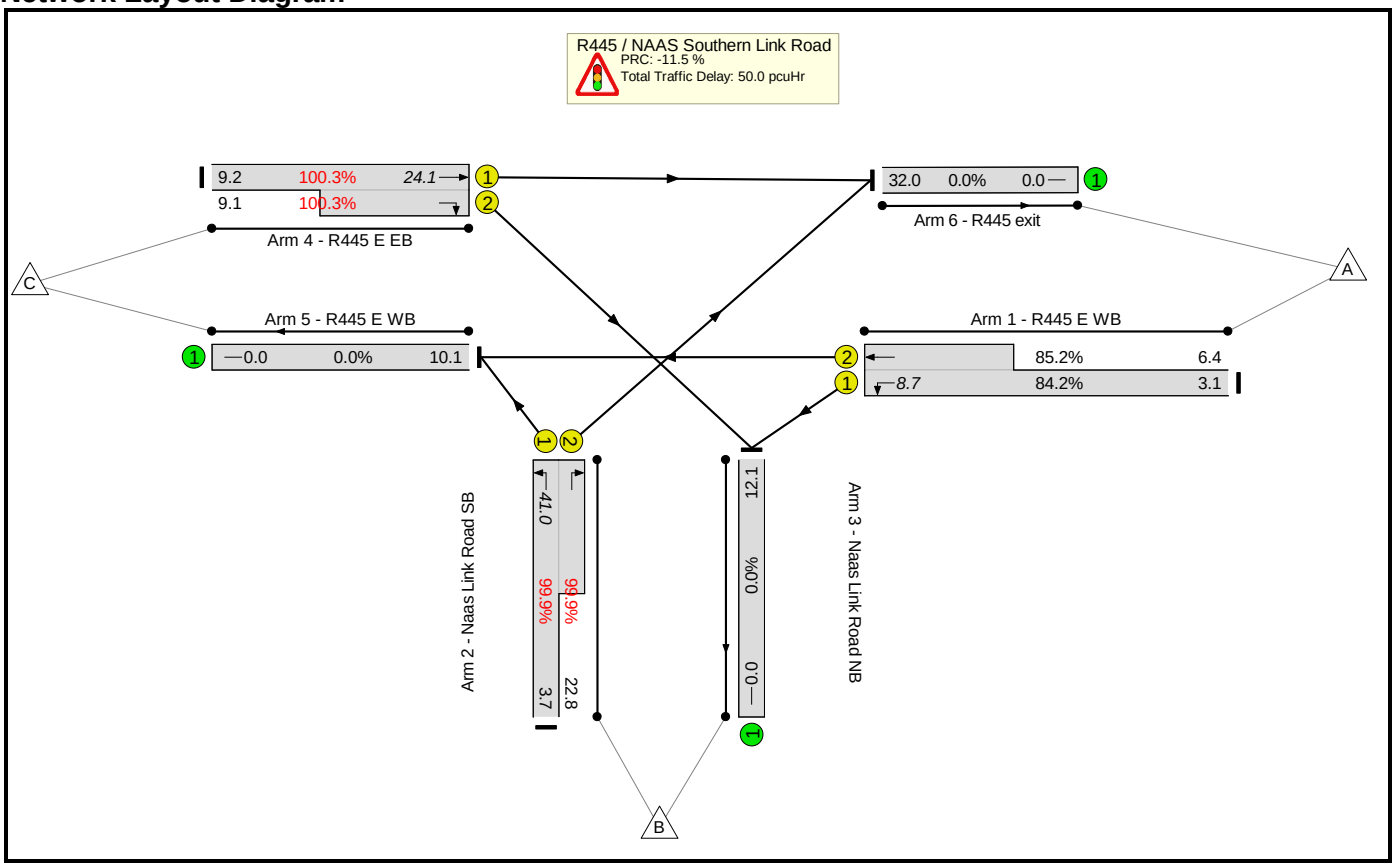
Basic Results Summary

Project and User Details

Project:	**Finlay Park Residential**
Client:	Wester Homes Ltd
Site Ref(s):	R445 / Soutern Link Road signalised junction
Additional detail:	
File name:	R445 x Naas Southern Link Road.lsg3x
Author:	Glen Moon
Company:	SYSTRA Ltd
Address:	2nd Floor, Riverview House, 21-23 City Quay, Dublin Docklands, Dublin 2, Ireland
Linsig Version:	3, 2, 44, 1

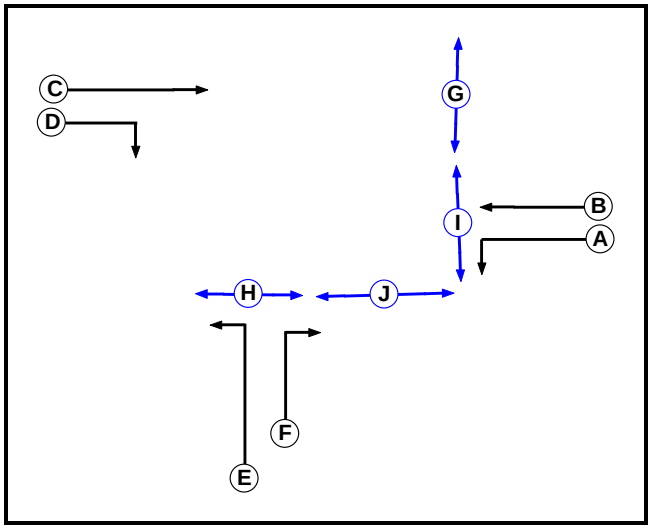
Scenario 1: '2022 Base AM' (FG1: '2022 Base AM', Plan 2: 'Three Stage')

Network Layout Diagram



Basic Results Summary

Phase Diagram



Phase Input Data

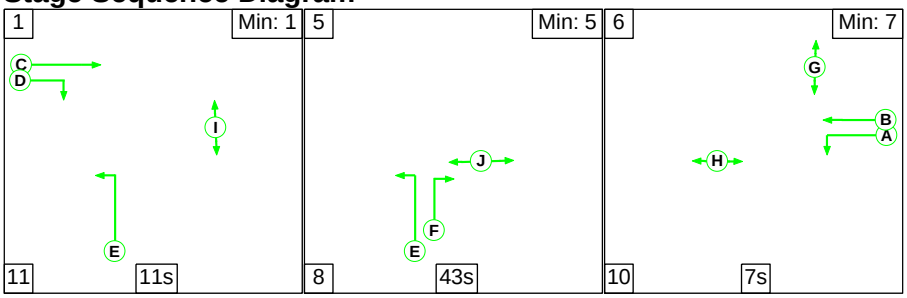
Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Traffic		7	7
G	Pedestrian		5	5
H	Pedestrian		5	5
I	Pedestrian		5	5
J	Pedestrian		5	5

Basic Results Summary

Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D	E	F	G	H	I	J
A		-	-	5	-	-	-	-	5	7
B	-		-	5	7	5	-	-	5	-
C	-	-		-	-	5	9	-	-	-
D	6	5	-		-	5	-	-	-	8
E	-	5	-	-		-	-	5	-	-
F	-	5	5	5	-		9	5	-	-
G	-	-	5	-	-	5		-	-	-
H	-	-	-	-	9	9	-		-	-
I	9	9	-	-	-	-	-	-		-
J	10	-	-	8	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / NAAS Southern Link Road												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (R445 E WB)	U	A	2	3	15.7	Geom	-	4.50	0.00	Y	Arm 2 Left	15.00
1/2 (R445 E WB)	U	B	2	3	8.7	Geom	-	4.50	0.00	Y	Arm 5 Ahead	Inf
2/1 (Naas Link Road SB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (Naas Link Road NB)	U	E	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Left	16.00
3/2 (Naas Link Road NB)	U	F	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Right	Inf
4/1 (R445 E EB)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 E EB)	U	D	2	3	8.7	Geom	-	3.50	0.00	Y	Arm 2 Right	18.00
5/1 (R445 E WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (R445 exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / NAAS Southern Link Road
There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2022 Base AM'	08:00	09:00	01:00	

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	123	254	377
	B	911	0	149	1060
	C	369	364	0	733
	Tot.	1280	487	403	2170

Basic Results Summary

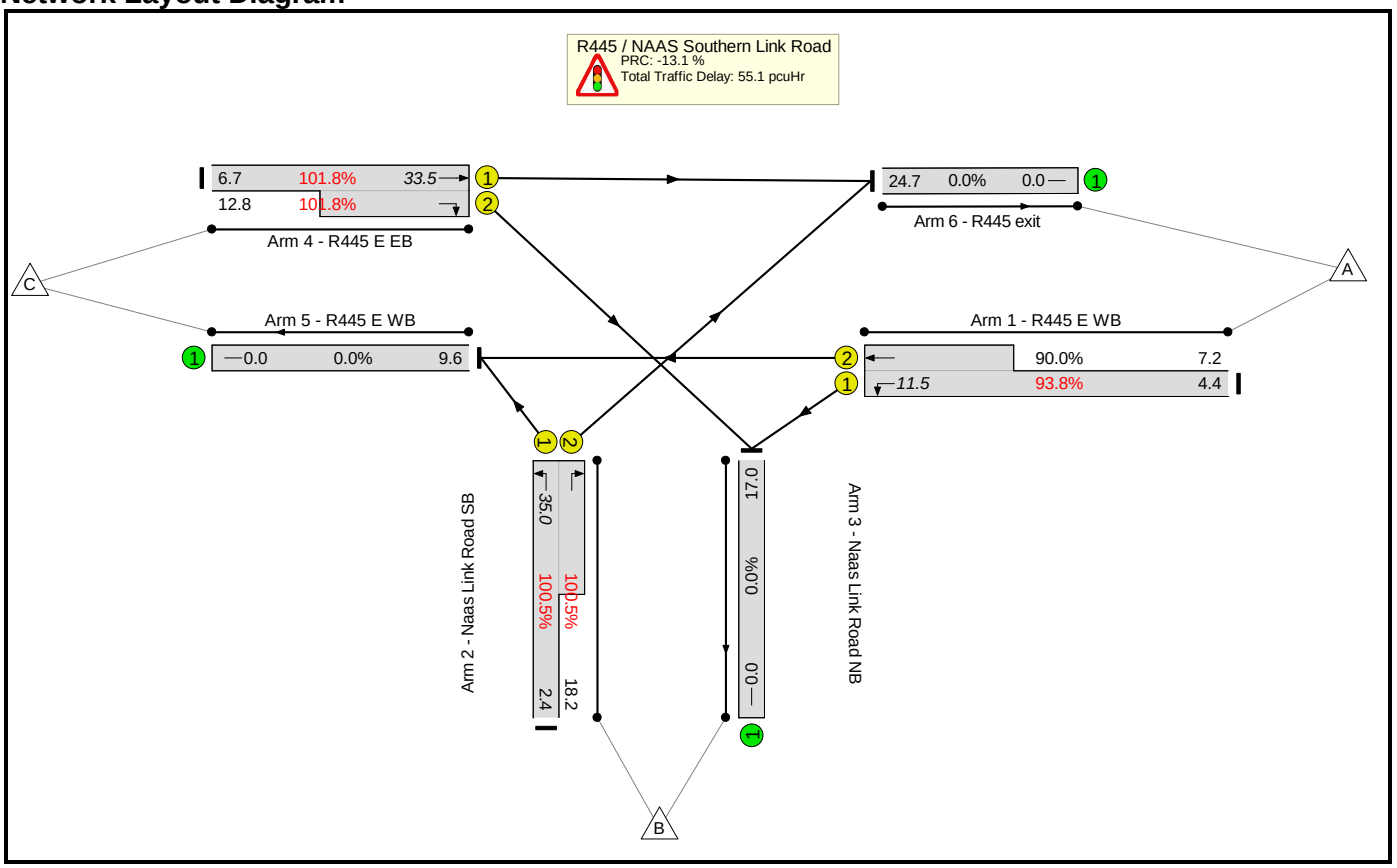
Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**100.3%**	**50.0**	**-**	**-**
R445 / NAAS Southern Link Road	**100.3%**	**50.0**	**-**	**-**
1/1+1/2	84.2 : 85.2%	6.6	63.2	8.7
3/1+3/2	99.9 : 99.9%	21.8	74.1	41.0
4/1+4/2	100.3 : 100.3%	21.6	105.9	24.1

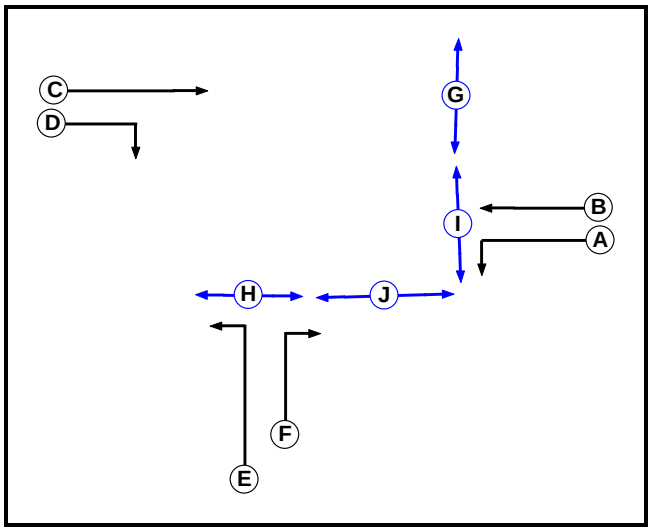
C1	PRC for Signalled Lanes (%):	-11.5	Total Delay for Signalled Lanes (pcuHr):		49.99
	PRC Over All Lanes (%):	-11.5	Total Delay Over All Lanes(pcuHr):		49.99

Scenario 2: '2022 Base PM' (FG2: '2022 Base PM', Plan 2: 'Three Stage')

Network Layout Diagram



Phase Diagram



Basic Results Summary

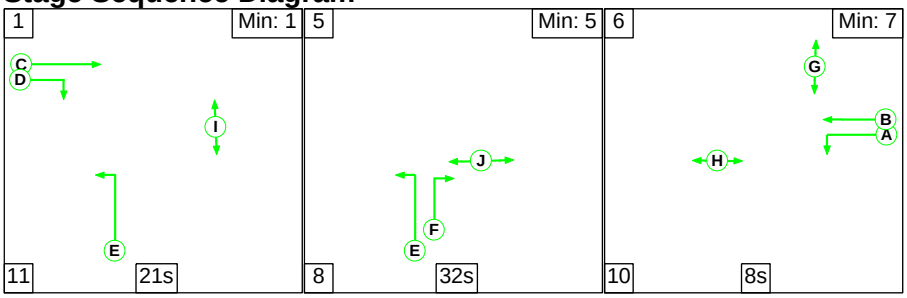
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Traffic		7	7
G	Pedestrian		5	5
H	Pedestrian		5	5
I	Pedestrian		5	5
J	Pedestrian		5	5

Phase Intergreens Matrix

		Starting Phase									
		A	B	C	D	E	F	G	H	I	J
Terminating Phase	A		-	-	5	-	-	-	-	5	7
	B	-		-	5	7	5	-	-	5	-
	C	-	-		-	-	5	9	-	-	-
	D	6	5	-		-	5	-	-	-	8
	E	-	5	-	-		-	-	5	-	-
	F	-	5	5	5	-		9	5	-	-
	G	-	-	5	-	-	5		-	-	-
	H	-	-	-	-	9	9	-		-	-
	I	9	9	-	-	-	-	-	-		-
	J	10	-	-	8	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / NAAS Southern Link Road												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (R445 E WB)	U	A	2	3	15.7	Geom	-	4.50	0.00	Y	Arm 2 Left	15.00
1/2 (R445 E WB)	U	B	2	3	8.7	Geom	-	4.50	0.00	Y	Arm 5 Ahead	Inf
2/1 (Naas Link Road SB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (Naas Link Road NB)	U	E	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Left	16.00
3/2 (Naas Link Road NB)	U	F	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Right	Inf
4/1 (R445 E EB)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 E EB)	U	D	2	3	8.7	Geom	-	3.50	0.00	Y	Arm 2 Right	18.00
5/1 (R445 E WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (R445 exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / NAAS Southern Link Road
There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
2: '2022 Base PM'	17:00	18:00	01:00	

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	176	289	465
	B	728	0	97	825
	C	267	512	0	779
	Tot.	995	688	386	2069

Basic Results Summary

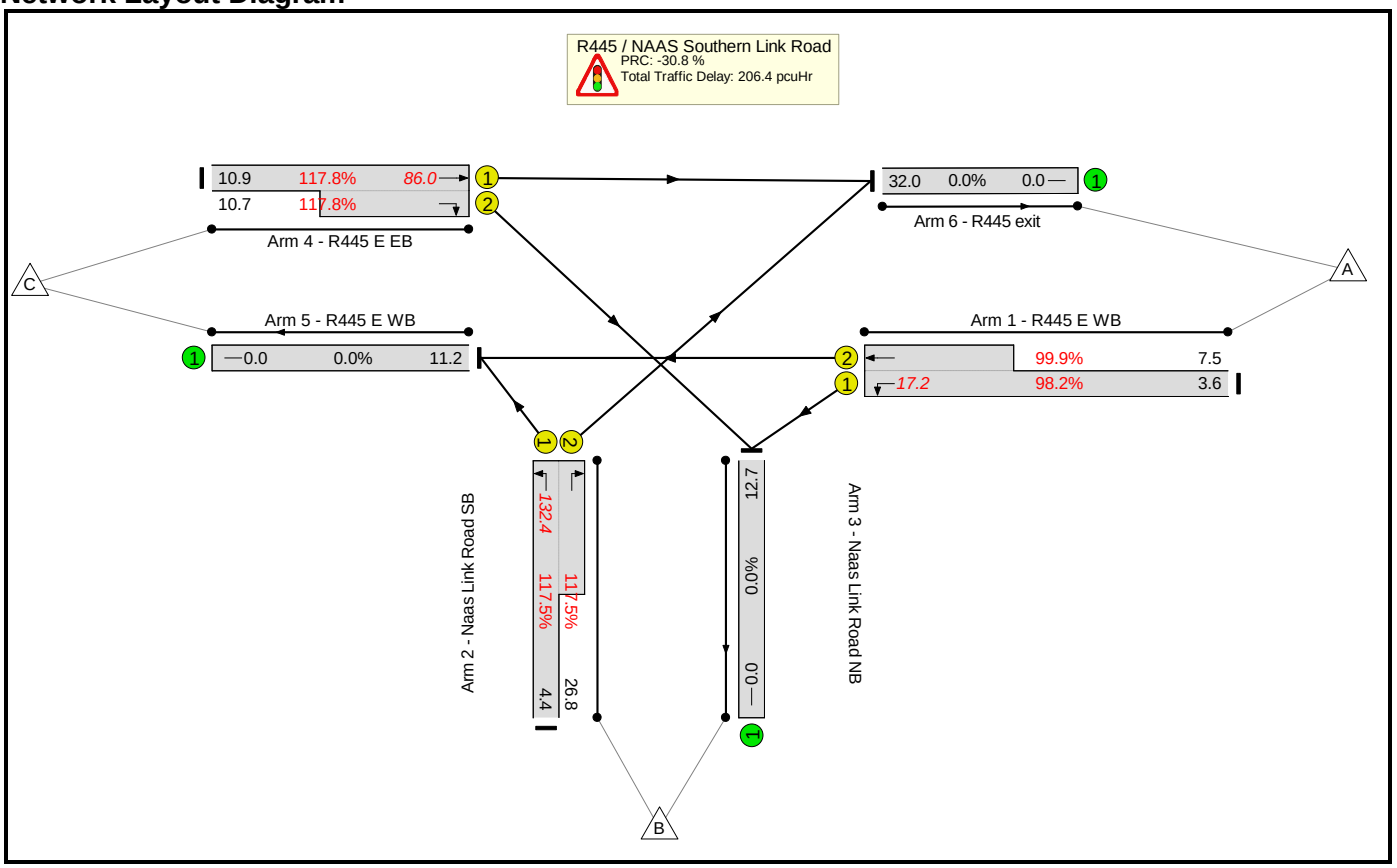
Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**101.8%**	**55.1**	**-**	**-**
R445 / NAAS Southern Link Road	**101.8%**	**55.1**	**-**	**-**
1/1+1/2	93.8 : 90.0%	9.4	72.6	11.5
3/1+3/2	100.5 : 100.5%	21.2	92.3	35.0
4/1+4/2	101.8 : 101.8%	24.6	113.6	33.5

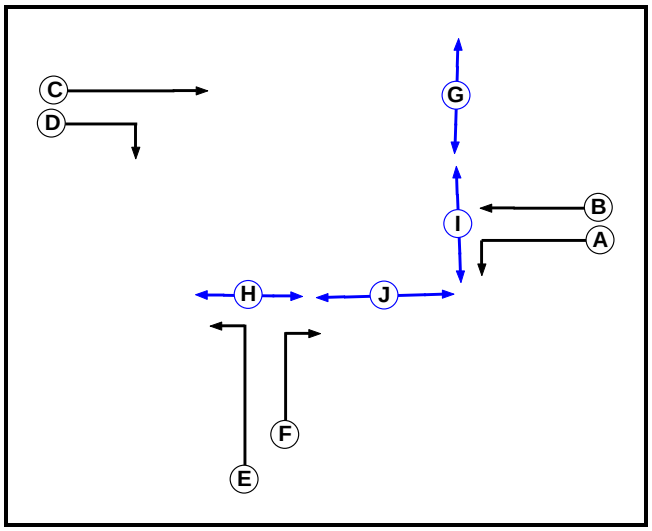
C1 PRC for Signalled Lanes (%): -13.1 Total Delay for Signalled Lanes (pcuHr): 55.10
PRC Over All Lanes (%): -13.1 Total Delay Over All Lanes(pcuHr): 55.10

Scenario 3: '2030 DN AM' (FG3: '2030 DN AM', Plan 2: 'Three Stage')

Network Layout Diagram



Phase Diagram



Basic Results Summary

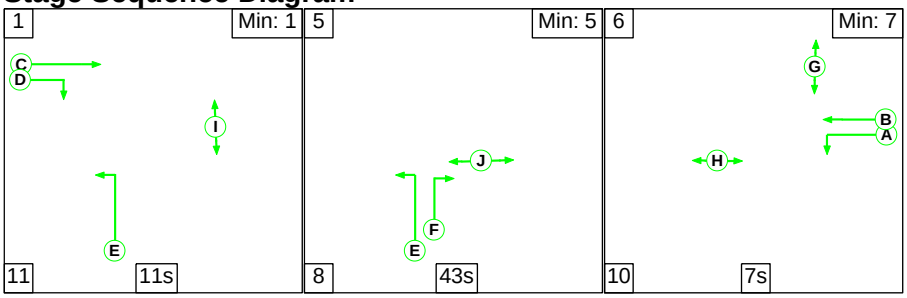
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Traffic		7	7
G	Pedestrian		5	5
H	Pedestrian		5	5
I	Pedestrian		5	5
J	Pedestrian		5	5

Phase Intergreens Matrix

		Starting Phase									
		A	B	C	D	E	F	G	H	I	J
Terminating Phase	A		-	-	5	-	-	-	-	5	7
	B	-		-	5	7	5	-	-	5	-
	C	-	-		-	-	5	9	-	-	-
	D	6	5	-		-	5	-	-	-	8
	E	-	5	-	-		-	-	5	-	-
	F	-	5	5	5	-		9	5	-	-
	G	-	-	5	-	-	5		-	-	-
	H	-	-	-	-	9	9	-		-	-
	I	9	9	-	-	-	-	-	-		-
	J	10	-	-	8	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / NAAS Southern Link Road												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (R445 E WB)	U	A	2	3	15.7	Geom	-	4.50	0.00	Y	Arm 2 Left	15.00
1/2 (R445 E WB)	U	B	2	3	8.7	Geom	-	4.50	0.00	Y	Arm 5 Ahead	Inf
2/1 (Naas Link Road SB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (Naas Link Road NB)	U	E	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Left	16.00
3/2 (Naas Link Road NB)	U	F	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Right	Inf
4/1 (R445 E EB)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 E EB)	U	D	2	3	8.7	Geom	-	3.50	0.00	Y	Arm 2 Right	18.00
5/1 (R445 E WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (R445 exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / NAAS Southern Link Road
There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
3: '2030 DN AM'	08:00	09:00	01:00	

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	145	298	443
	B	1071	0	175	1246
	C	434	427	0	861
	Tot.	1505	572	473	2550

Basic Results Summary

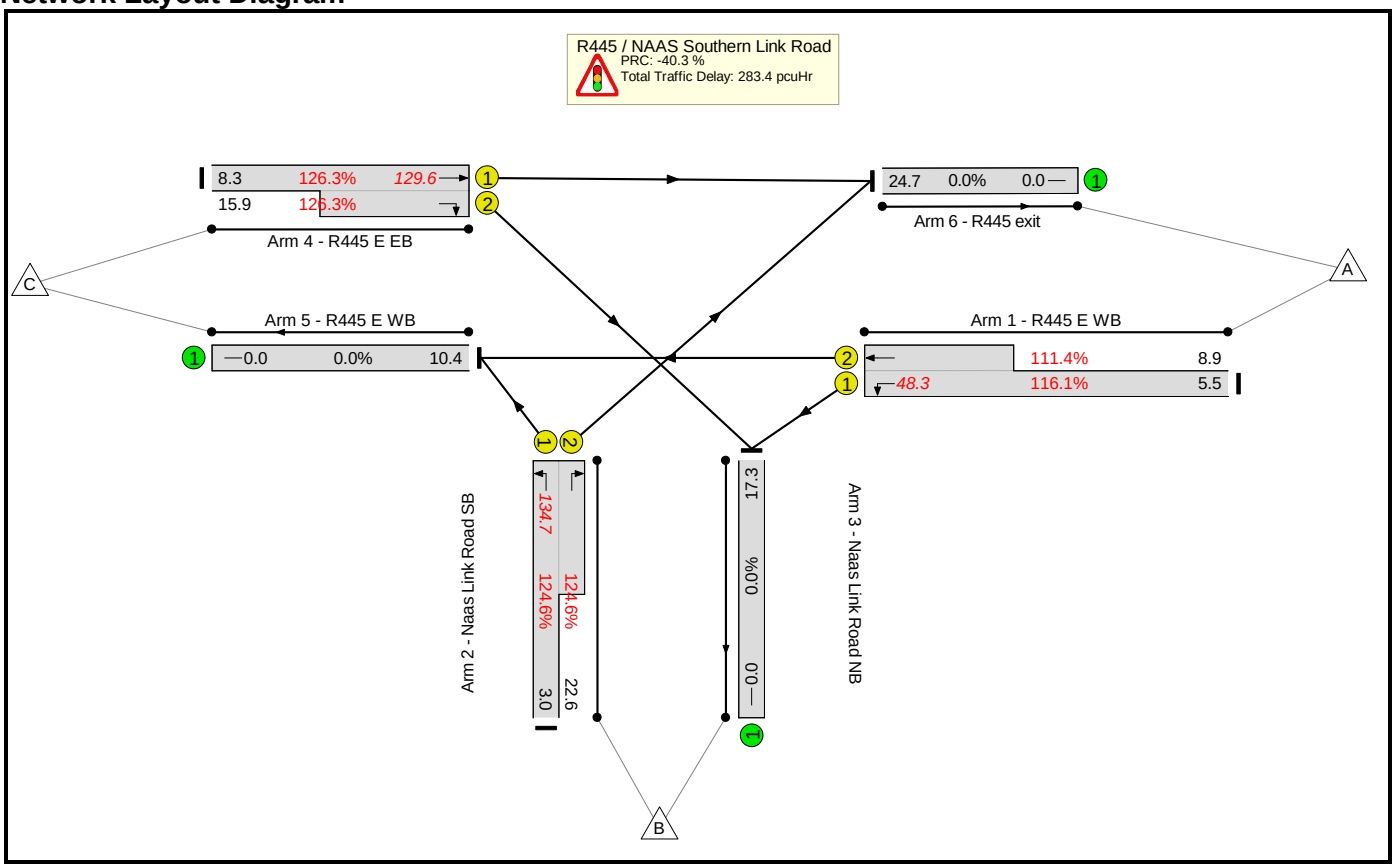
Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**117.8%**	**206.4**	**-**	**-**
R445 / NAAS Southern Link Road	**117.8%**	**206.4**	**-**	**-**
1/1+1/2	98.2 : 99.9%	14.6	119.0	17.2
3/1+3/2	117.5 : 117.5%	109.3	315.7	132.4
4/1+4/2	117.8 : 117.8%	82.5	345.0	86.0

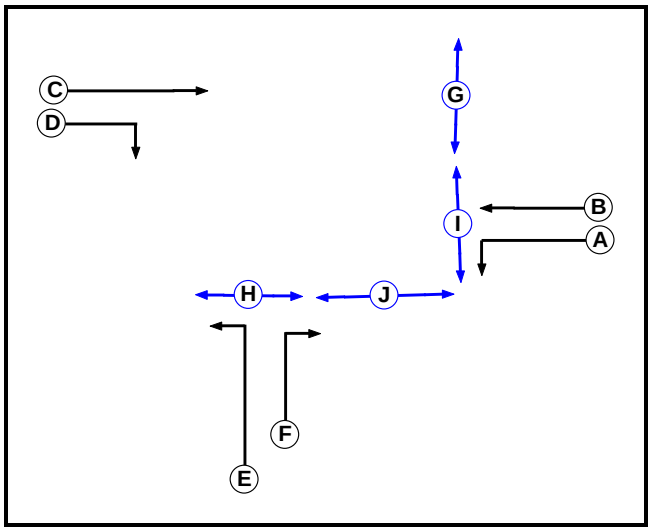
C1	PRC for Signalled Lanes (%):	-30.8	Total Delay for Signalled Lanes (pcuHr):		206.43
	PRC Over All Lanes (%):	-30.8	Total Delay Over All Lanes(pcuHr):		206.43

Scenario 4: '2030 DN PM' (FG4: '2030 DN PM', Plan 2: 'Three Stage')

Network Layout Diagram



Phase Diagram



Basic Results Summary

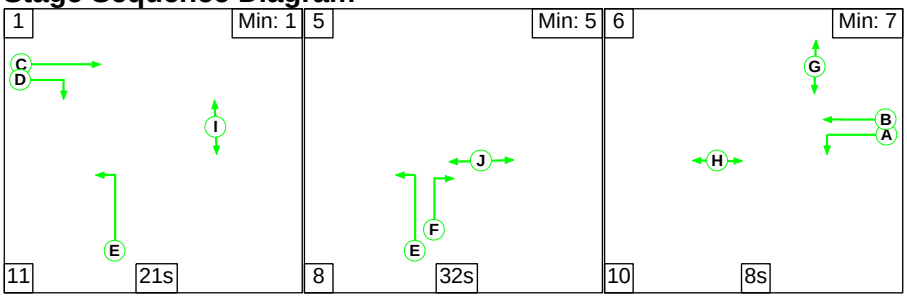
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Traffic		7	7
G	Pedestrian		5	5
H	Pedestrian		5	5
I	Pedestrian		5	5
J	Pedestrian		5	5

Phase Intergreens Matrix

		Starting Phase									
		A	B	C	D	E	F	G	H	I	J
Terminating Phase	A		-	-	5	-	-	-	-	5	7
	B	-		-	5	7	5	-	-	5	-
	C	-	-		-	-	5	9	-	-	-
	D	6	5	-		-	5	-	-	-	8
	E	-	5	-	-		-	-	5	-	-
	F	-	5	5	5	-		9	5	-	-
	G	-	-	5	-	-	5		-	-	-
	H	-	-	-	-	9	9	-		-	-
	I	9	9	-	-	-	-	-	-		-
	J	10	-	-	8	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / NAAS Southern Link Road												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (R445 E WB)	U	A	2	3	15.7	Geom	-	4.50	0.00	Y	Arm 2 Left	15.00
1/2 (R445 E WB)	U	B	2	3	8.7	Geom	-	4.50	0.00	Y	Arm 5 Ahead	Inf
2/1 (Naas Link Road SB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (Naas Link Road NB)	U	E	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Left	16.00
3/2 (Naas Link Road NB)	U	F	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Right	Inf
4/1 (R445 E EB)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 E EB)	U	D	2	3	8.7	Geom	-	3.50	0.00	Y	Arm 2 Right	18.00
5/1 (R445 E WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (R445 exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / NAAS Southern Link Road
There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
4: '2030 DN PM'	17:00	18:00	01:00	

Traffic Flows, Actual

Actual Flow :

	Destination				
		A	B	C	Tot.
Origin	A	0	218	358	576
	B	903	0	120	1023
	C	331	635	0	966
	Tot.	1234	853	478	2565

Basic Results Summary

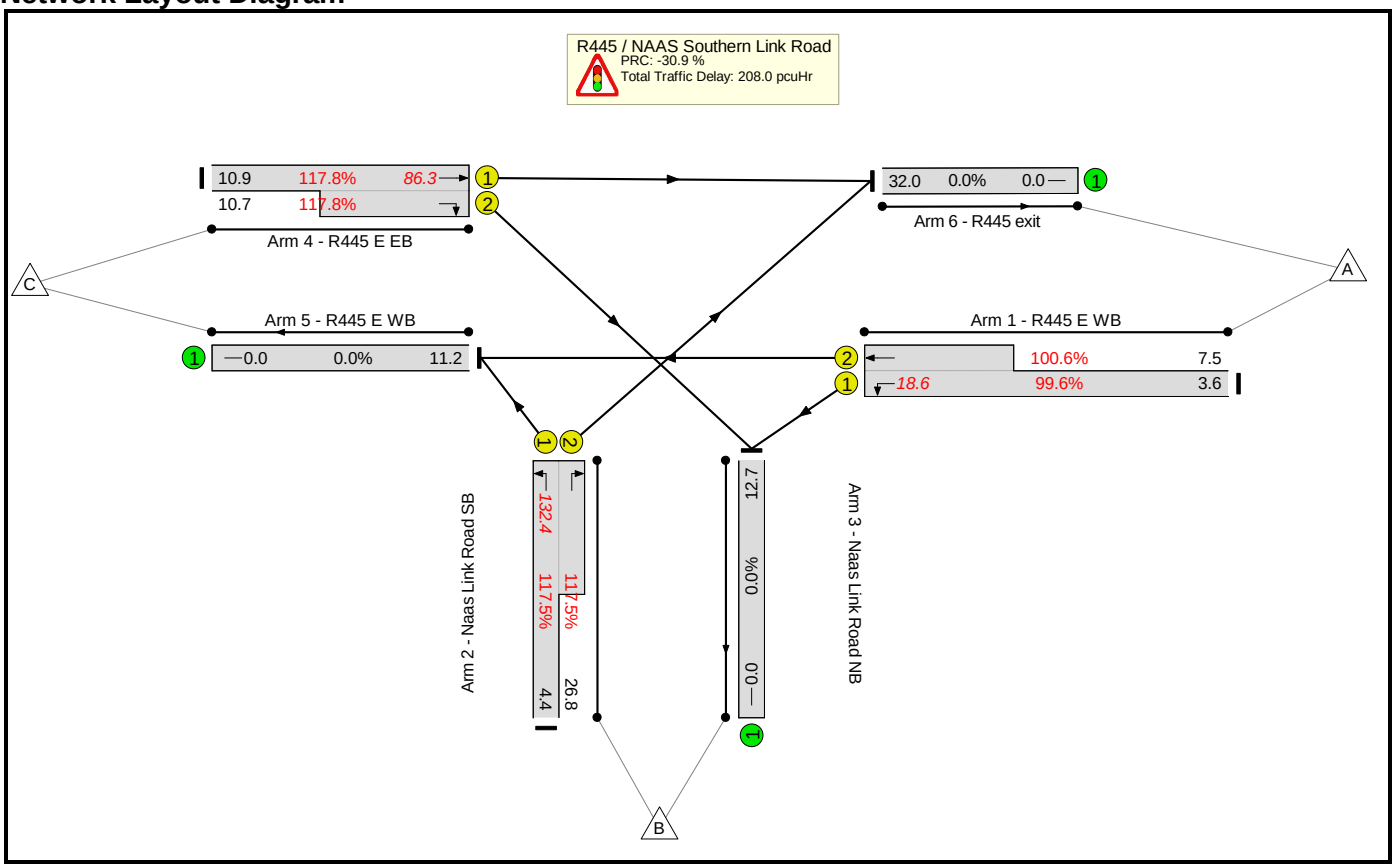
Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**126.3%**	**283.4**	**-**	**-**
R445 / NAAS Southern Link Road	**126.3%**	**283.4**	**-**	**-**
1/1+1/2	116.1 : 111.4%	46.5	290.6	48.3
3/1+3/2	124.6 : 124.6%	117.5	413.4	134.7
4/1+4/2	126.3 : 126.3%	119.5	445.2	129.6

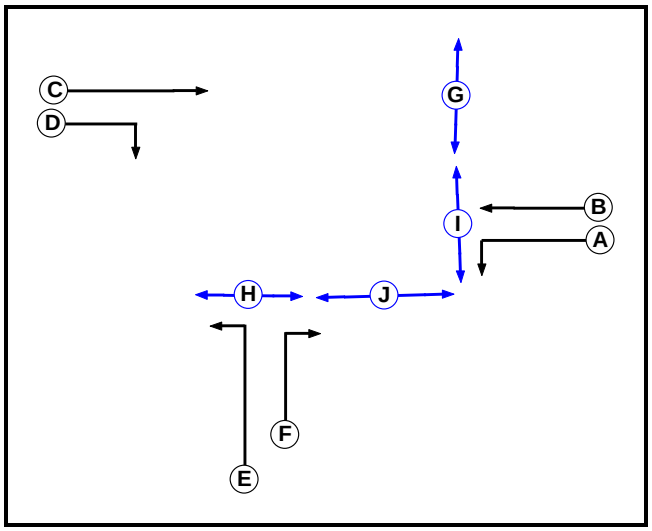
C1	PRC for Signalled Lanes (%):	-40.3	Total Delay for Signalled Lanes (pcuHr):		283.43
	PRC Over All Lanes (%):	-40.3	Total Delay Over All Lanes(pcuHr):		283.43

Scenario 5: '2030 DN + PH1 AM' (FG5: '2030 DN + PH1 AM', Plan 2: 'Three Stage')

Network Layout Diagram



Phase Diagram



Basic Results Summary

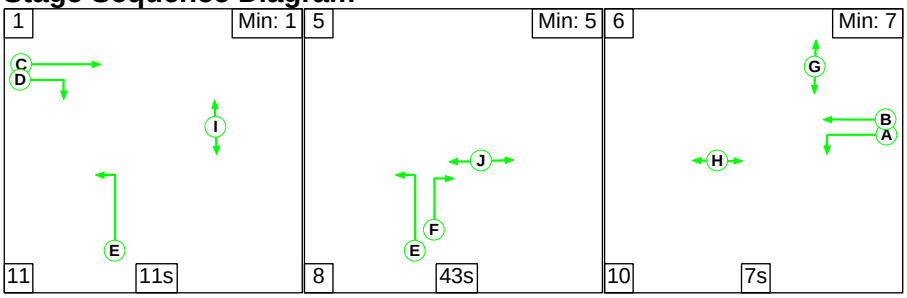
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Traffic		7	7
G	Pedestrian		5	5
H	Pedestrian		5	5
I	Pedestrian		5	5
J	Pedestrian		5	5

Phase Intergreens Matrix

		Starting Phase									
		A	B	C	D	E	F	G	H	I	J
Terminating Phase	A		-	-	5	-	-	-	-	5	7
	B	-		-	5	7	5	-	-	5	-
	C	-	-		-	-	5	9	-	-	-
	D	6	5	-		-	5	-	-	-	8
	E	-	5	-	-		-	-	5	-	-
	F	-	5	5	5	-		9	5	-	-
	G	-	-	5	-	-	5		-	-	-
	H	-	-	-	-	9	9	-		-	-
	I	9	9	-	-	-	-	-	-		-
	J	10	-	-	8	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / NAAS Southern Link Road												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (R445 E WB)	U	A	2	3	15.7	Geom	-	4.50	0.00	Y	Arm 2 Left	15.00
1/2 (R445 E WB)	U	B	2	3	8.7	Geom	-	4.50	0.00	Y	Arm 5 Ahead	Inf
2/1 (Naas Link Road SB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (Naas Link Road NB)	U	E	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Left	16.00
3/2 (Naas Link Road NB)	U	F	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Right	Inf
4/1 (R445 E EB)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 E EB)	U	D	2	3	8.7	Geom	-	3.50	0.00	Y	Arm 2 Right	18.00
5/1 (R445 E WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (R445 exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / NAAS Southern Link Road
There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
5: '2030 DN + PH1 AM'	08:00	09:00	01:00	

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	145	300	445
	B	1071	0	175	1246
	C	435	427	0	862
	Tot.	1506	572	475	2553

Basic Results Summary

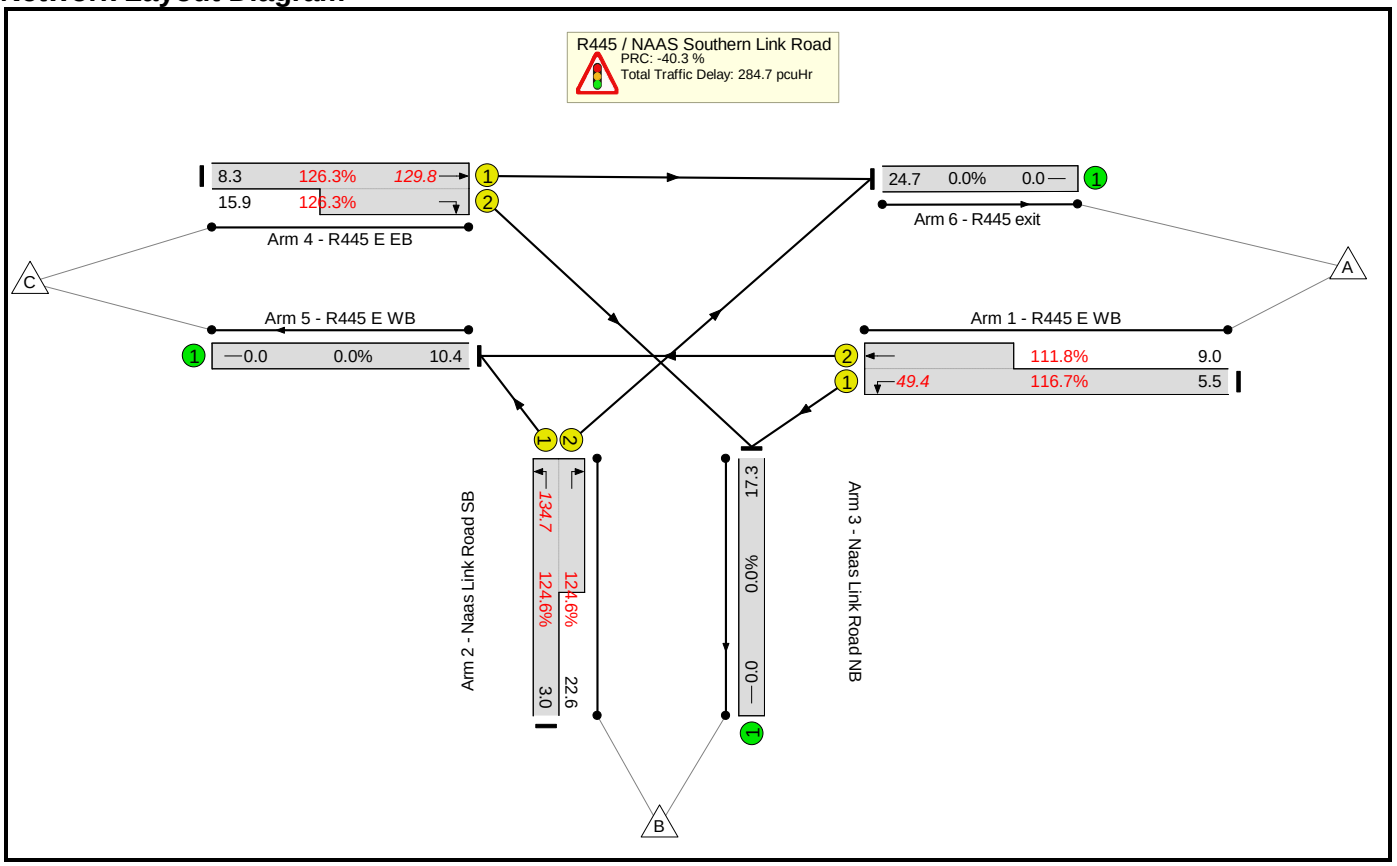
Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**117.8%**	**208.0**	**-**	**-**
R445 / NAAS Southern Link Road	**117.8%**	**208.0**	**-**	**-**
1/1+1/2	99.6 : 100.6%	16.0	129.4	18.6
3/1+3/2	117.5 : 117.5%	109.3	315.7	132.4
4/1+4/2	117.8 : 117.8%	82.8	345.6	86.3

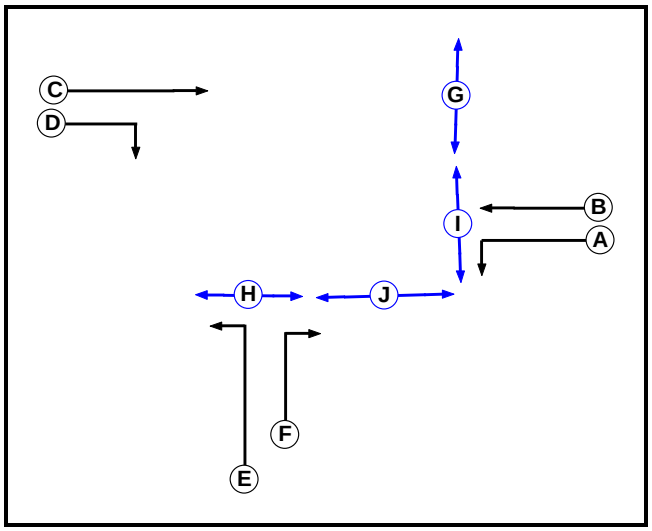
C1	PRC for Signalled Lanes (%):	-30.9	Total Delay for Signalled Lanes (pcuHr):		208.04
	PRC Over All Lanes (%):	-30.9	Total Delay Over All Lanes(pcuHr):		208.04

Scenario 6: '2030 DN + PH1 PM' (FG6: '2030 DN + PH1 PM', Plan 2: 'Three Stage')

Network Layout Diagram



Phase Diagram



Basic Results Summary

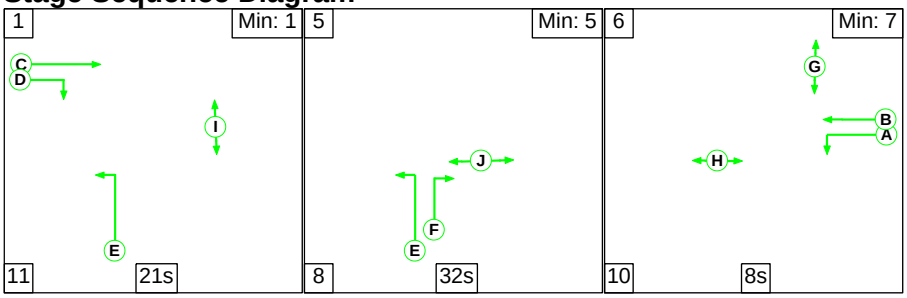
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Traffic		7	7
G	Pedestrian		5	5
H	Pedestrian		5	5
I	Pedestrian		5	5
J	Pedestrian		5	5

Phase Intergreens Matrix

		Starting Phase									
		A	B	C	D	E	F	G	H	I	J
Terminating Phase	A		-	-	5	-	-	-	-	5	7
	B	-		-	5	7	5	-	-	5	-
	C	-	-		-	-	5	9	-	-	-
	D	6	5	-		-	5	-	-	-	8
	E	-	5	-	-		-	-	5	-	-
	F	-	5	5	5	-		9	5	-	-
	G	-	-	5	-	-	5		-	-	-
	H	-	-	-	-	9	9	-		-	-
	I	9	9	-	-	-	-	-	-		-
	J	10	-	-	8	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / NAAS Southern Link Road												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (R445 E WB)	U	A	2	3	15.7	Geom	-	4.50	0.00	Y	Arm 2 Left	15.00
1/2 (R445 E WB)	U	B	2	3	8.7	Geom	-	4.50	0.00	Y	Arm 5 Ahead	Inf
2/1 (Naas Link Road SB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (Naas Link Road NB)	U	E	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Left	16.00
3/2 (Naas Link Road NB)	U	F	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Right	Inf
4/1 (R445 E EB)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 E EB)	U	D	2	3	8.7	Geom	-	3.50	0.00	Y	Arm 2 Right	18.00
5/1 (R445 E WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (R445 exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / NAAS Southern Link Road
There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
6: '2030 DN + PH1 PM'	17:00	18:00	01:00	

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	219	359	578
	B	903	0	120	1023
	C	332	635	0	967
	Tot.	1235	854	479	2568

Basic Results Summary

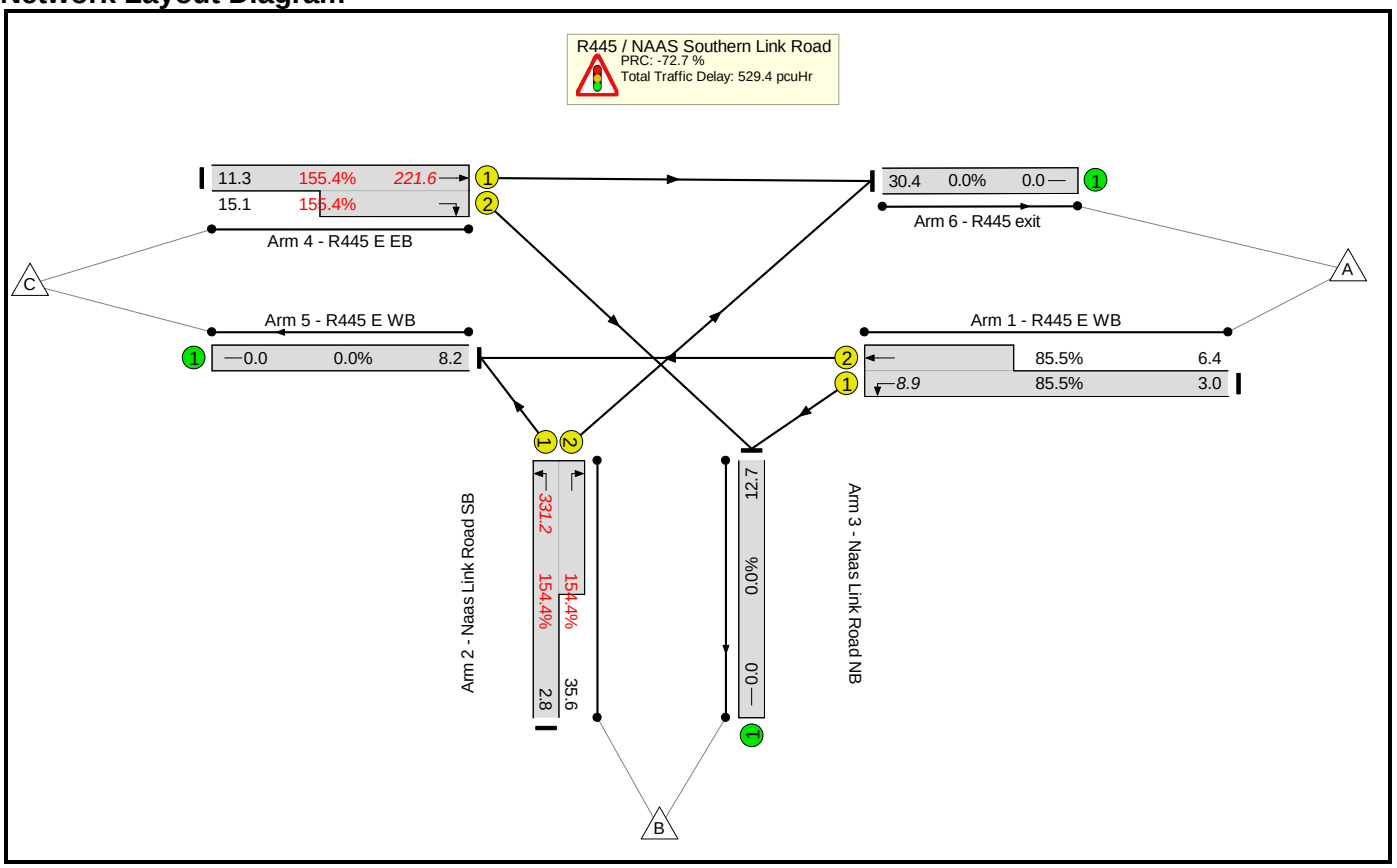
Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**126.3%**	**284.7**	**-**	**-**
R445 / NAAS Southern Link Road	**126.3%**	**284.7**	**-**	**-**
1/1+1/2	116.7 : 111.8%	47.5	296.1	49.4
3/1+3/2	124.6 : 124.6%	117.5	413.4	134.7
4/1+4/2	126.3 : 126.3%	119.7	445.6	129.8

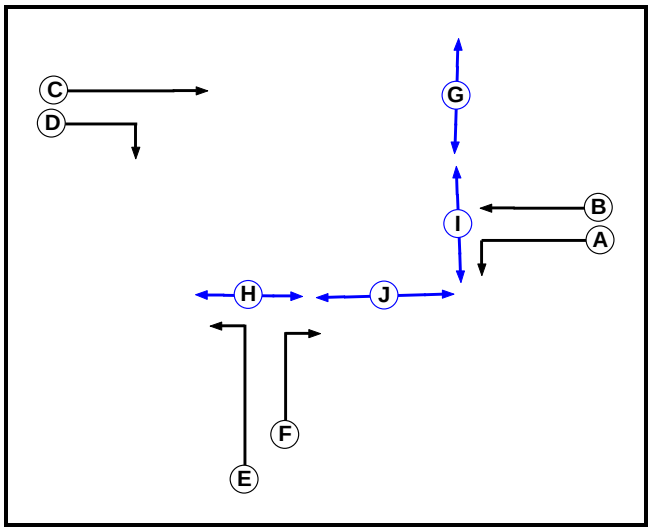
C1	PRC for Signalled Lanes (%):	-40.3	Total Delay for Signalled Lanes (pcuHr):		284.72
	PRC Over All Lanes (%):	-40.3	Total Delay Over All Lanes(pcuHr):		284.72

Scenario 7: '2030 DM + LINK AM' (FG7: '2030 DM + LINK AM', Plan 2: 'Three Stage')

Network Layout Diagram



Phase Diagram



Basic Results Summary

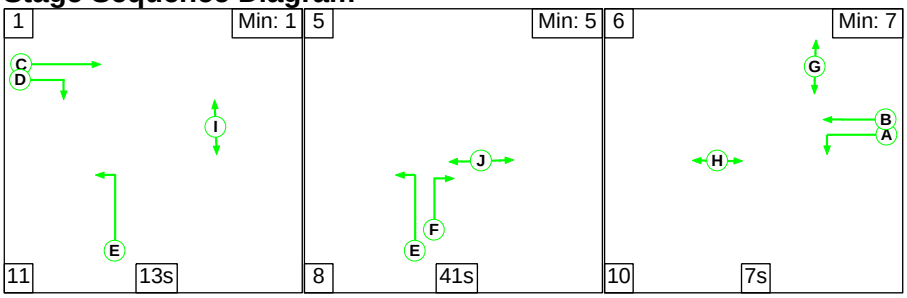
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Traffic		7	7
G	Pedestrian		5	5
H	Pedestrian		5	5
I	Pedestrian		5	5
J	Pedestrian		5	5

Phase Intergreens Matrix

		Starting Phase									
		A	B	C	D	E	F	G	H	I	J
Terminating Phase	A		-	-	5	-	-	-	-	5	7
	B	-		-	5	7	5	-	-	5	-
	C	-	-		-	-	5	9	-	-	-
	D	6	5	-		-	5	-	-	-	8
	E	-	5	-	-		-	-	5	-	-
	F	-	5	5	5	-		9	5	-	-
	G	-	-	5	-	-	5		-	-	-
	H	-	-	-	-	9	9	-		-	-
	I	9	9	-	-	-	-	-	-		-
	J	10	-	-	8	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / NAAS Southern Link Road												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (R445 E WB)	U	A	2	3	15.7	Geom	-	4.50	0.00	Y	Arm 2 Left	15.00
1/2 (R445 E WB)	U	B	2	3	8.7	Geom	-	4.50	0.00	Y	Arm 5 Ahead	Inf
2/1 (Naas Link Road SB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (Naas Link Road NB)	U	E	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Left	16.00
3/2 (Naas Link Road NB)	U	F	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Right	Inf
4/1 (R445 E EB)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 E EB)	U	D	2	3	8.7	Geom	-	3.50	0.00	Y	Arm 2 Right	18.00
5/1 (R445 E WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (R445 exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / NAAS Southern Link Road
There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
7: '2030 DM + LINK AM'	08:00	09:00	01:00	

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	121	255	376
	B	1425	0	113	1538
	C	454	604	0	1058
	Tot.	1879	725	368	2972

Basic Results Summary

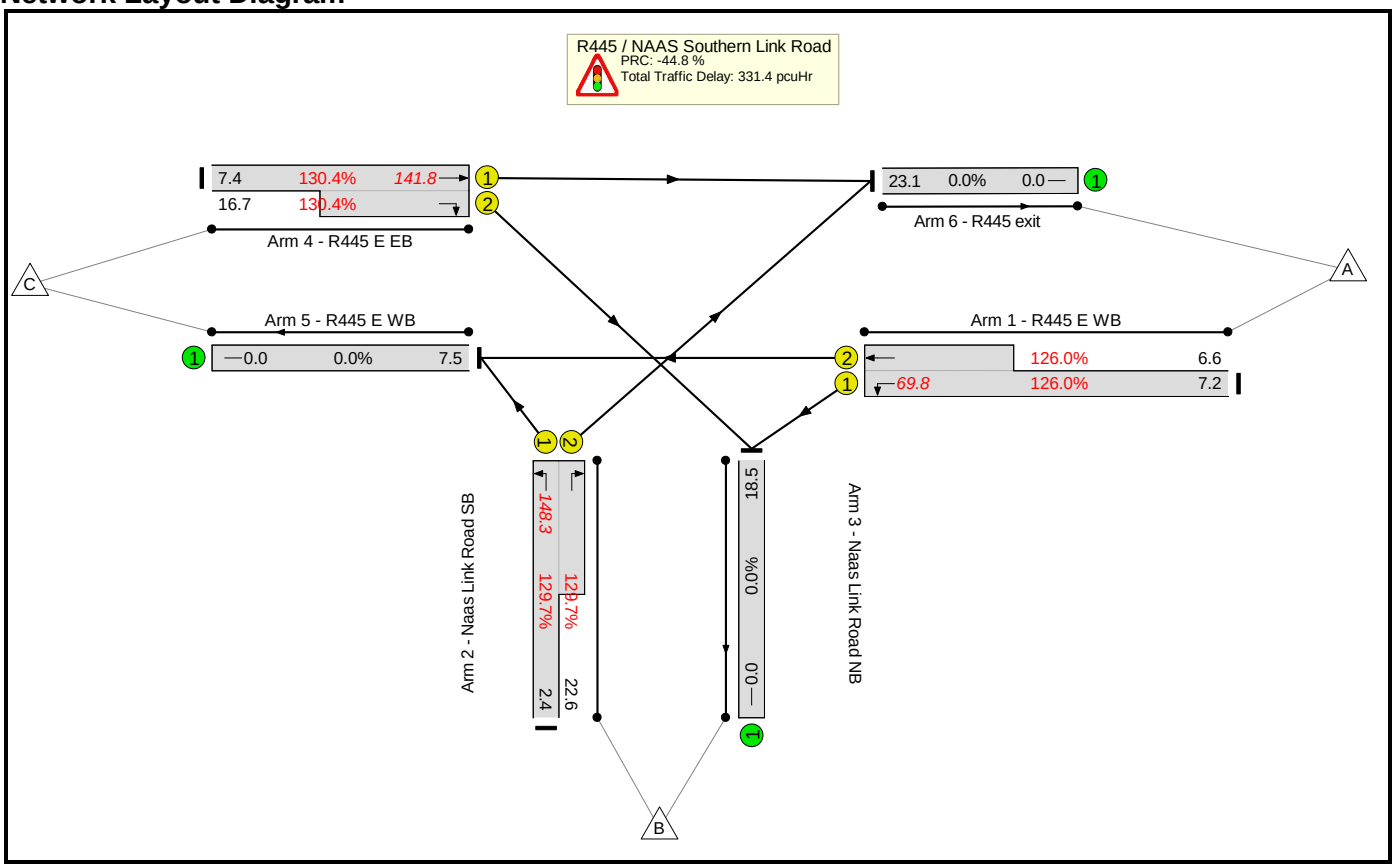
Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**155.4%**	**529.4**	**-**	**-**
R445 / NAAS Southern Link Road	**155.4%**	**529.4**	**-**	**-**
1/1+1/2	85.5 : 85.5%	6.7	64.3	8.9
3/1+3/2	154.4 : 154.4%	305.6	715.4	331.2
4/1+4/2	155.4 : 155.4%	217.0	738.5	221.6

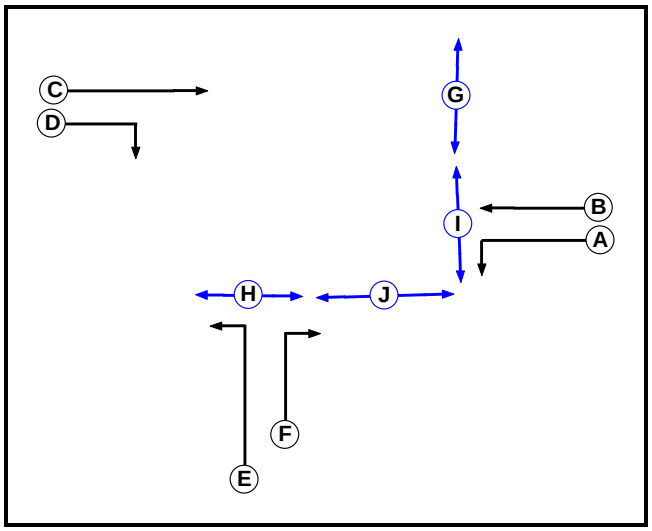
C1
PRC for Signalled Lanes (%): -72.7
PRC Over All Lanes (%): -72.7
Total Delay for Signalled Lanes (pcuHr): 529.39
Total Delay Over All Lanes(pcuHr): 529.39

Scenario 8: '2030 DM + LINK PM' (FG8: '2030 DM + LINK PM', Plan 2: 'Three Stage')

Network Layout Diagram



Phase Diagram



Basic Results Summary

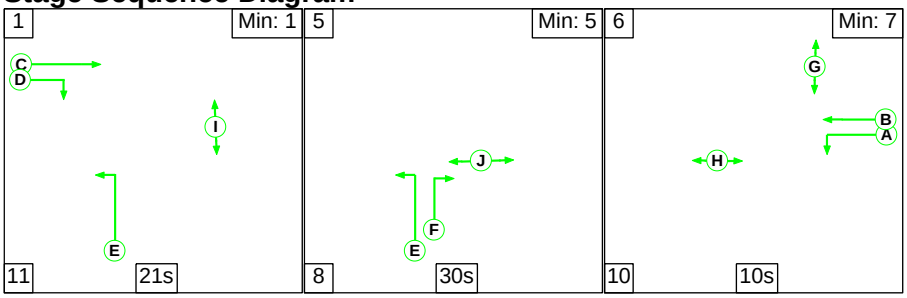
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Traffic		7	7
G	Pedestrian		5	5
H	Pedestrian		5	5
I	Pedestrian		5	5
J	Pedestrian		5	5

Phase Intergreens Matrix

		Starting Phase									
		A	B	C	D	E	F	G	H	I	J
Terminating Phase	A		-	-	5	-	-	-	-	5	7
	B	-		-	5	7	5	-	-	5	-
	C	-	-		-	-	5	9	-	-	-
	D	6	5	-		-	5	-	-	-	8
	E	-	5	-	-		-	-	5	-	-
	F	-	5	5	5	-		9	5	-	-
	G	-	-	5	-	-	5		-	-	-
	H	-	-	-	-	9	9	-		-	-
	I	9	9	-	-	-	-	-	-		-
	J	10	-	-	8	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / NAAS Southern Link Road												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (R445 E WB)	U	A	2	3	15.7	Geom	-	4.50	0.00	Y	Arm 2 Left	15.00
1/2 (R445 E WB)	U	B	2	3	8.7	Geom	-	4.50	0.00	Y	Arm 5 Ahead	Inf
2/1 (Naas Link Road SB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (Naas Link Road NB)	U	E	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Left	16.00
3/2 (Naas Link Road NB)	U	F	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Right	Inf
4/1 (R445 E EB)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 E EB)	U	D	2	3	8.7	Geom	-	3.50	0.00	Y	Arm 2 Right	18.00
5/1 (R445 E WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (R445 exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / NAAS Southern Link Road
There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
8: '2030 DM + LINK PM'	17:00	18:00	01:00	

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	289	264	553
	B	904	0	97	1001
	C	294	666	0	960
	Tot.	1198	955	361	2514

Basic Results Summary

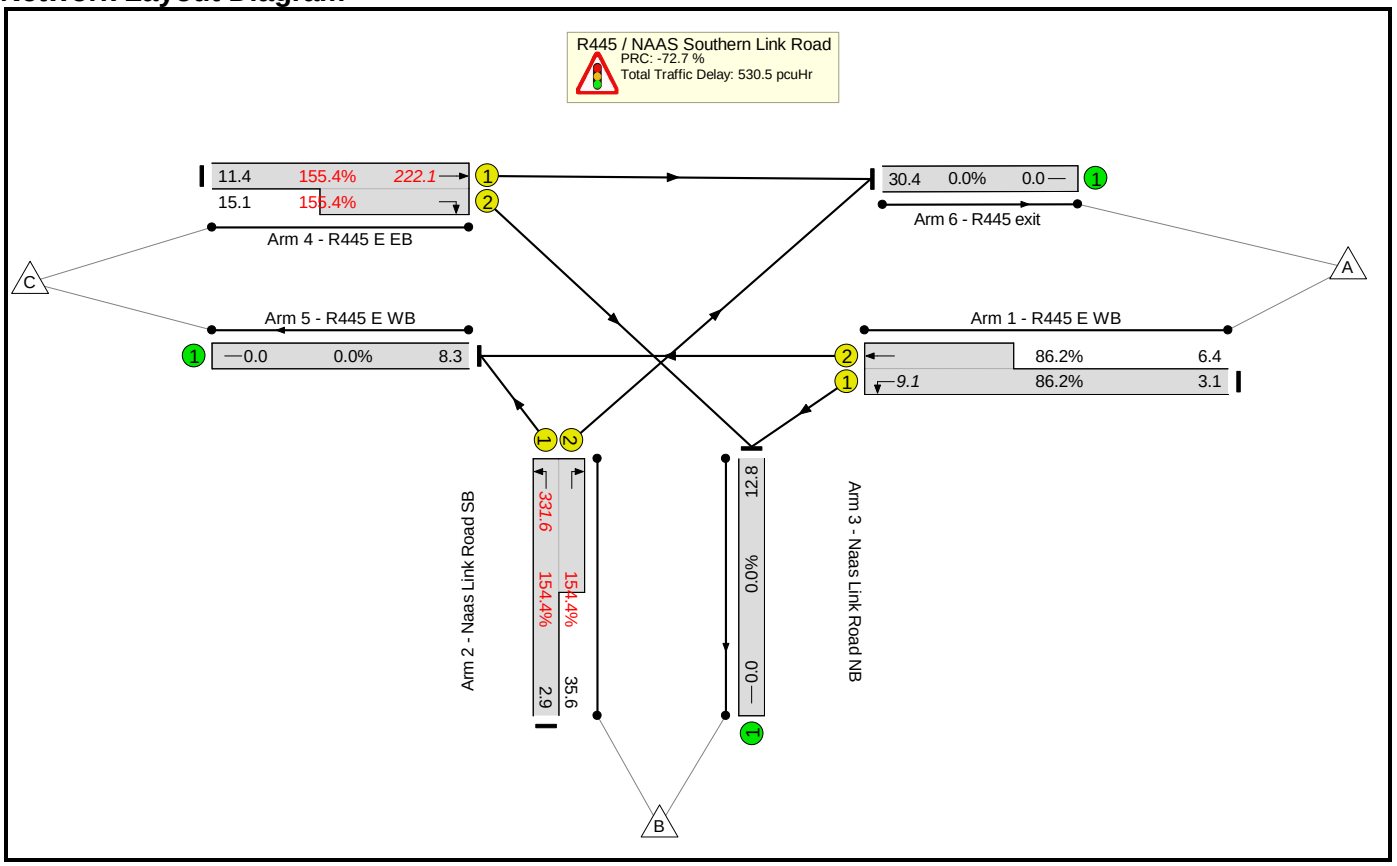
Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**130.4%**	**331.4**	**-**	**-**
R445 / NAAS Southern Link Road	**130.4%**	**331.4**	**-**	**-**
1/1+1/2	126.0 : 126.0%	67.8	441.4	69.8
3/1+3/2	129.7 : 129.7%	132.1	474.9	148.3
4/1+4/2	130.4 : 130.4%	131.6	493.4	141.8

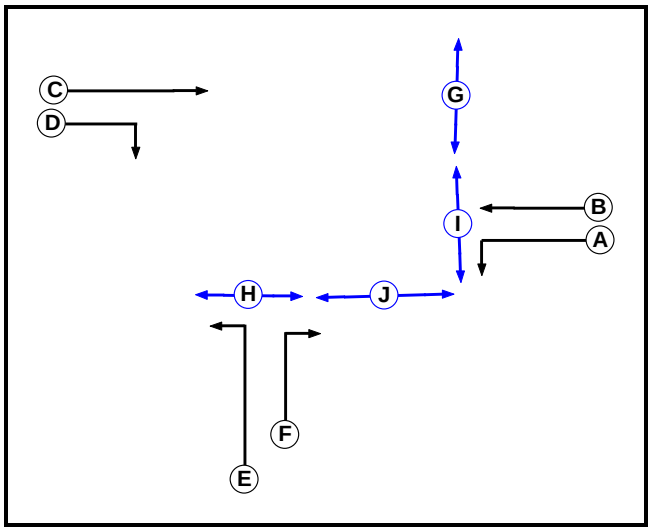
C1	PRC for Signalled Lanes (%):	-44.8	Total Delay for Signalled Lanes (pcuHr):		331.45
	PRC Over All Lanes (%):	-44.8	Total Delay Over All Lanes(pcuHr):		331.45

Scenario 9: '2030 DM + LINK + PH1 AM' (FG9: '2030 DM + LINK + PH1 AM', Plan 2: 'Three Stage')

Network Layout Diagram



Phase Diagram



Basic Results Summary

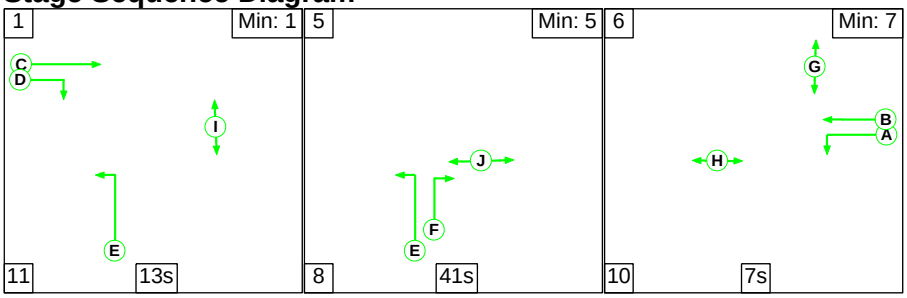
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Traffic		7	7
G	Pedestrian		5	5
H	Pedestrian		5	5
I	Pedestrian		5	5
J	Pedestrian		5	5

Phase Intergreens Matrix

		Starting Phase									
		A	B	C	D	E	F	G	H	I	J
Terminating Phase	A		-	-	5	-	-	-	-	5	7
	B	-		-	5	7	5	-	-	5	-
	C	-	-		-	-	5	9	-	-	-
	D	6	5	-		-	5	-	-	-	8
	E	-	5	-	-		-	-	5	-	-
	F	-	5	5	5	-		9	5	-	-
	G	-	-	5	-	-	5		-	-	-
	H	-	-	-	-	9	9	-		-	-
	I	9	9	-	-	-	-	-	-		-
	J	10	-	-	8	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / NAAS Southern Link Road												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (R445 E WB)	U	A	2	3	15.7	Geom	-	4.50	0.00	Y	Arm 2 Left	15.00
1/2 (R445 E WB)	U	B	2	3	8.7	Geom	-	4.50	0.00	Y	Arm 5 Ahead	Inf
2/1 (Naas Link Road SB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (Naas Link Road NB)	U	E	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Left	16.00
3/2 (Naas Link Road NB)	U	F	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Right	Inf
4/1 (R445 E EB)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 E EB)	U	D	2	3	8.7	Geom	-	3.50	0.00	Y	Arm 2 Right	18.00
5/1 (R445 E WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (R445 exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / NAAS Southern Link Road
There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
9: '2030 DM + LINK + PH1 AM'	08:00	09:00	01:00	

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	122	257	379
	B	1425	0	114	1539
	C	456	604	0	1060
	Tot.	1881	726	371	2978

Basic Results Summary

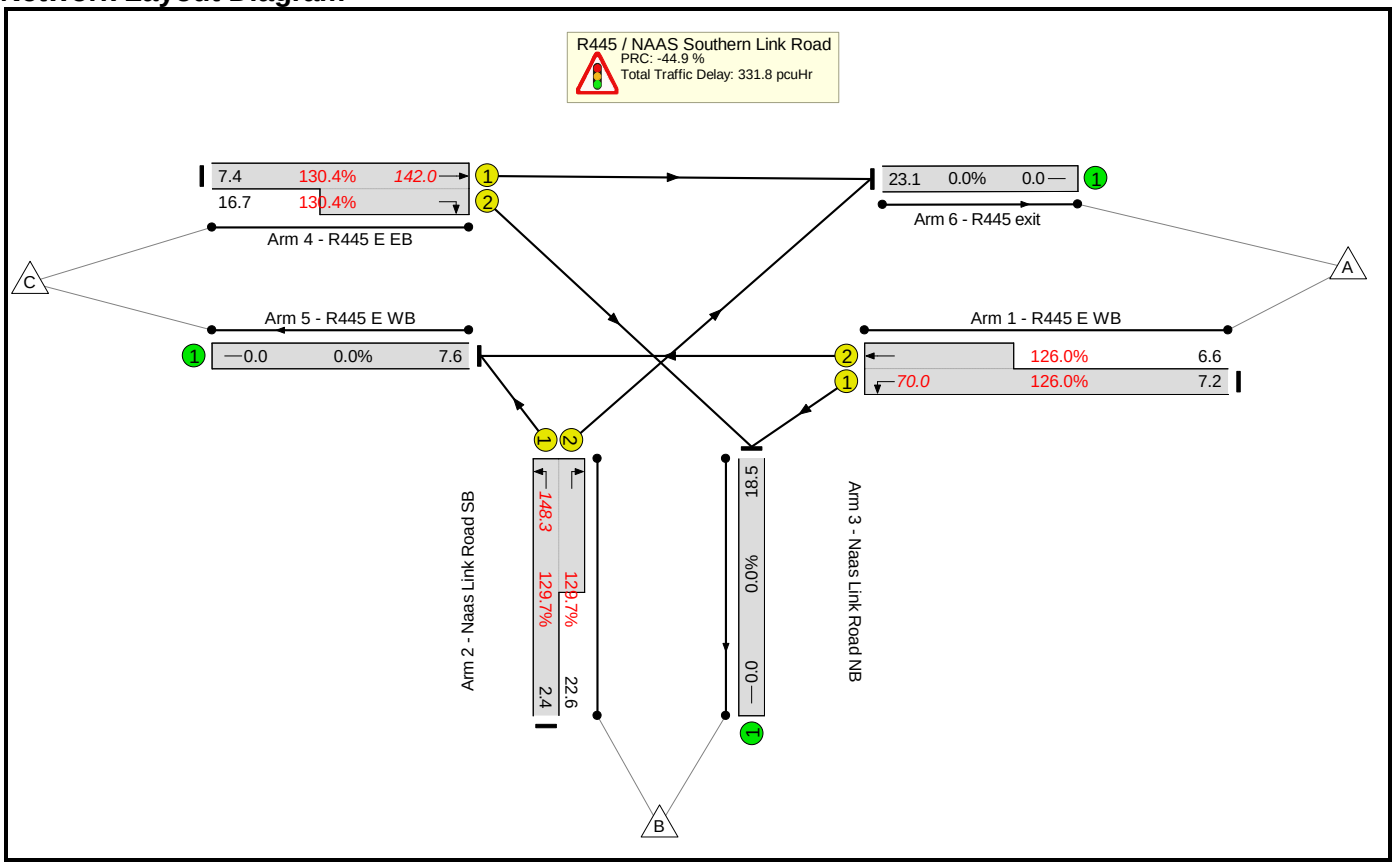
Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**155.4%**	**530.5**	**-**	**-**
R445 / NAAS Southern Link Road	**155.4%**	**530.5**	**-**	**-**
1/1+1/2	86.2 : 86.2%	6.9	65.4	9.1
3/1+3/2	154.4 : 154.4%	306.1	716.0	331.6
4/1+4/2	155.4 : 155.4%	217.5	738.7	222.1

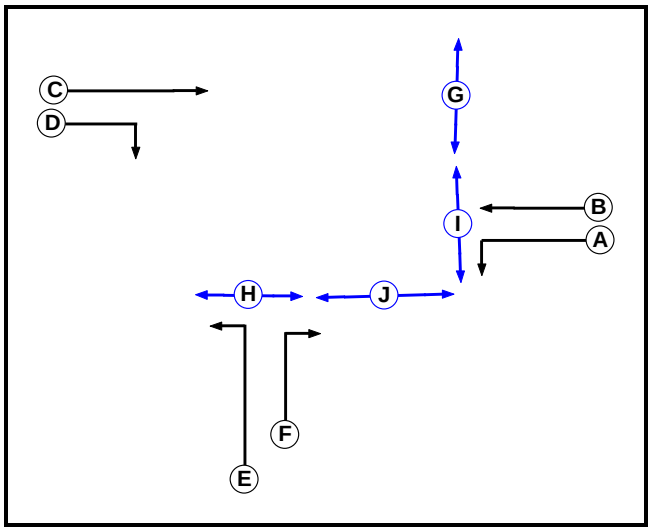
C1 PRC for Signalled Lanes (%): -72.7 Total Delay for Signalled Lanes (pcuHr): 530.49
PRC Over All Lanes (%): -72.7 Total Delay Over All Lanes(pcuHr): 530.49

Scenario 10: '2030 DM + LINK + PH1 PM' (FG10: '2030 DM + LINK + PH1 PM', Plan 2: 'Three Stage')

Network Layout Diagram



Phase Diagram



Basic Results Summary

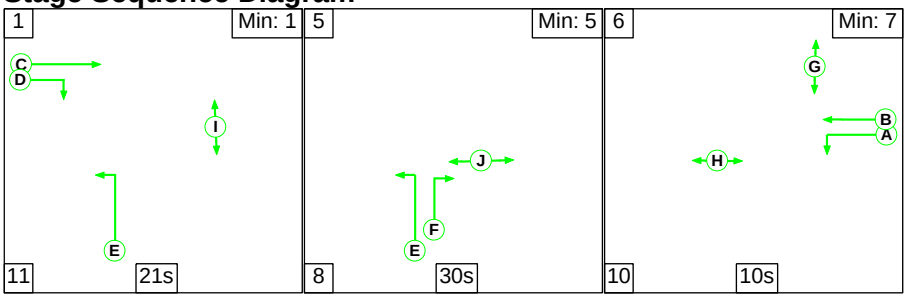
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Traffic		7	7
G	Pedestrian		5	5
H	Pedestrian		5	5
I	Pedestrian		5	5
J	Pedestrian		5	5

Phase Intergreens Matrix

		Starting Phase									
		A	B	C	D	E	F	G	H	I	J
Terminating Phase	A		-	-	5	-	-	-	-	5	7
	B	-		-	5	7	5	-	-	5	-
	C	-	-		-	-	5	9	-	-	-
	D	6	5	-		-	5	-	-	-	8
	E	-	5	-	-		-	-	5	-	-
	F	-	5	5	5	-		9	5	-	-
	G	-	-	5	-	-	5		-	-	-
	H	-	-	-	-	9	9	-		-	-
	I	9	9	-	-	-	-	-	-		-
	J	10	-	-	8	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / NAAS Southern Link Road												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (R445 E WB)	U	A	2	3	15.7	Geom	-	4.50	0.00	Y	Arm 2 Left	15.00
1/2 (R445 E WB)	U	B	2	3	8.7	Geom	-	4.50	0.00	Y	Arm 5 Ahead	Inf
2/1 (Naas Link Road SB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (Naas Link Road NB)	U	E	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Left	16.00
3/2 (Naas Link Road NB)	U	F	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Right	Inf
4/1 (R445 E EB)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 E EB)	U	D	2	3	8.7	Geom	-	3.50	0.00	Y	Arm 2 Right	18.00
5/1 (R445 E WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (R445 exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / NAAS Southern Link Road
There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
10: '2030 DM + LINK + PH1 PM'	17:00	18:00	01:00	

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	289	265	554
	B	904	0	97	1001
	C	295	666	0	961
	Tot.	1199	955	362	2516

Basic Results Summary

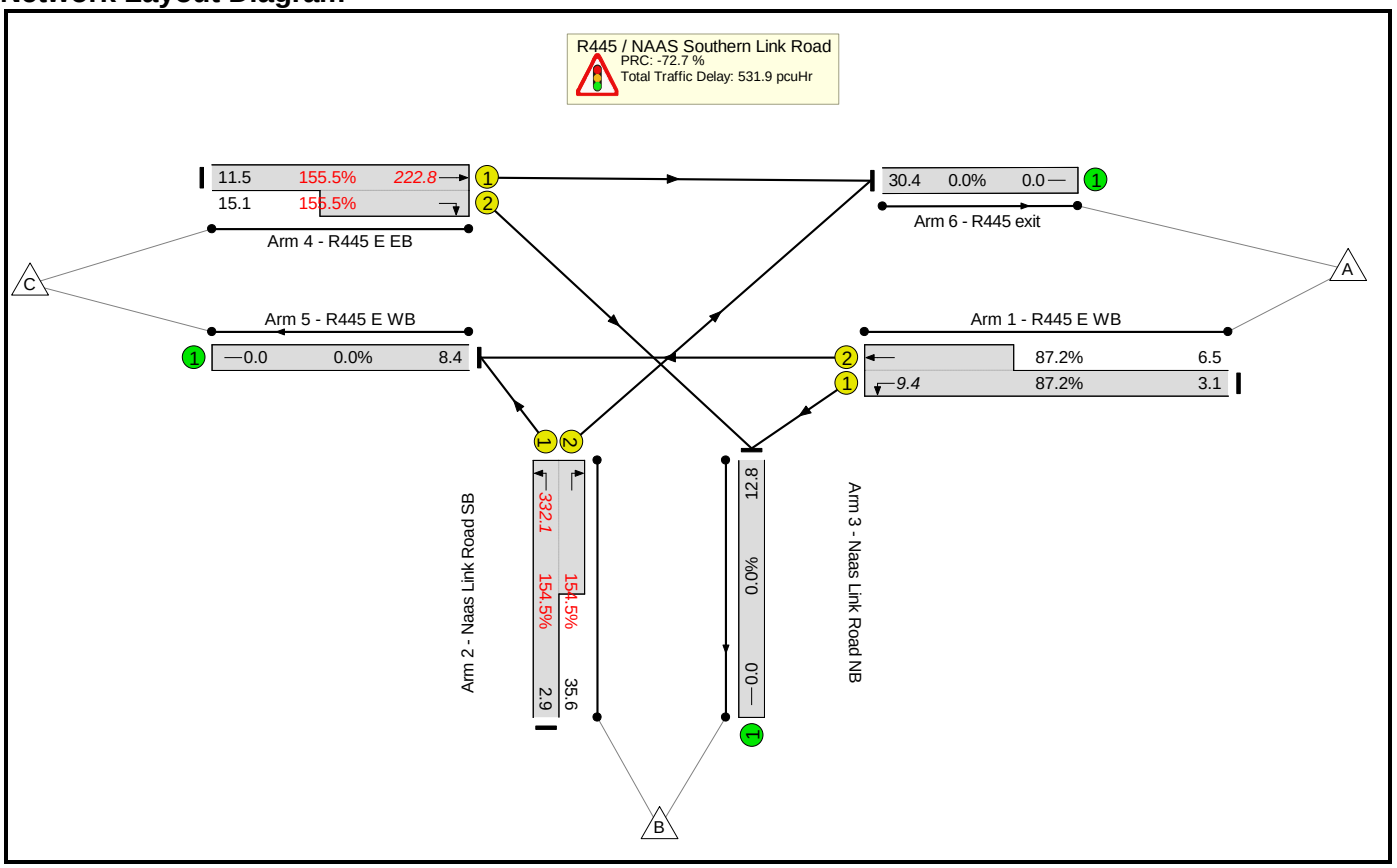
Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**130.4%**	**331.8**	**-**	**-**
R445 / NAAS Southern Link Road	**130.4%**	**331.8**	**-**	**-**
1/1+1/2	126.0 : 126.0%	67.9	441.4	70.0
3/1+3/2	129.7 : 129.7%	132.1	474.9	148.3
4/1+4/2	130.4 : 130.4%	131.8	493.9	142.0

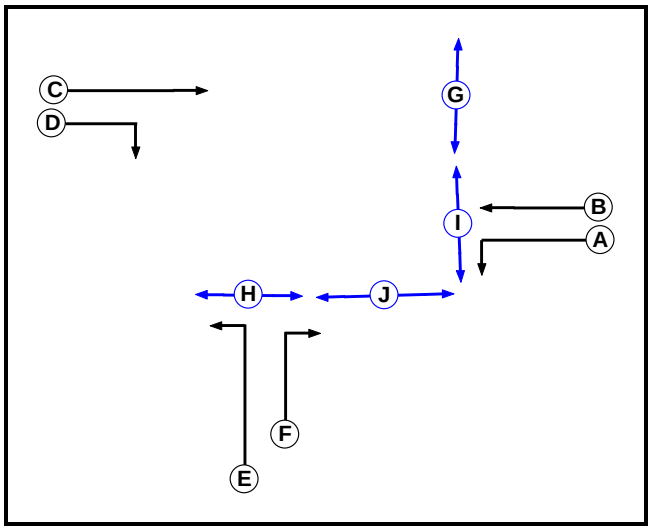
C1 PRC for Signalled Lanes (%): -44.9 Total Delay for Signalled Lanes (pcuHr): 331.82
PRC Over All Lanes (%): -44.9 Total Delay Over All Lanes(pcuHr): 331.82

Scenario 11: '2030 DM + LINK + MASTERPLAN AM' (FG11: '2030 DM + LINK + MASTERPLAN AM', Plan 2: 'Three Stage')

Network Layout Diagram



Phase Diagram



Basic Results Summary

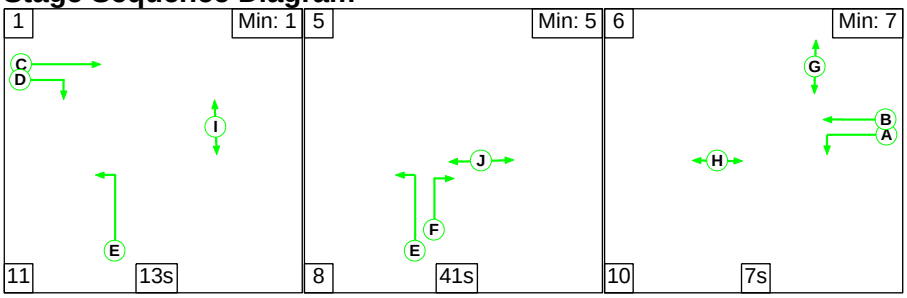
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Traffic		7	7
G	Pedestrian		5	5
H	Pedestrian		5	5
I	Pedestrian		5	5
J	Pedestrian		5	5

Phase Intergreens Matrix

		Starting Phase									
		A	B	C	D	E	F	G	H	I	J
Terminating Phase	A		-	-	5	-	-	-	-	5	7
	B	-		-	5	7	5	-	-	5	-
	C	-	-		-	-	5	9	-	-	-
	D	6	5	-		-	5	-	-	-	8
	E	-	5	-	-		-	-	5	-	-
	F	-	5	5	5	-		9	5	-	-
	G	-	-	5	-	-	5		-	-	-
	H	-	-	-	-	9	9	-		-	-
	I	9	9	-	-	-	-	-	-		-
	J	10	-	-	8	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / NAAS Southern Link Road												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (R445 E WB)	U	A	2	3	15.7	Geom	-	4.50	0.00	Y	Arm 2 Left	15.00
1/2 (R445 E WB)	U	B	2	3	8.7	Geom	-	4.50	0.00	Y	Arm 5 Ahead	Inf
2/1 (Naas Link Road SB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (Naas Link Road NB)	U	E	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Left	16.00
3/2 (Naas Link Road NB)	U	F	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Right	Inf
4/1 (R445 E EB)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 E EB)	U	D	2	3	8.7	Geom	-	3.50	0.00	Y	Arm 2 Right	18.00
5/1 (R445 E WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (R445 exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / NAAS Southern Link Road
There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
11: '2030 DM + LINK + MASTERPLAN AM'	08:00	09:00	01:00	

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	123	260	383
	B	1425	0	115	1540
	C	459	604	0	1063
	Tot.	1884	727	375	2986

Basic Results Summary

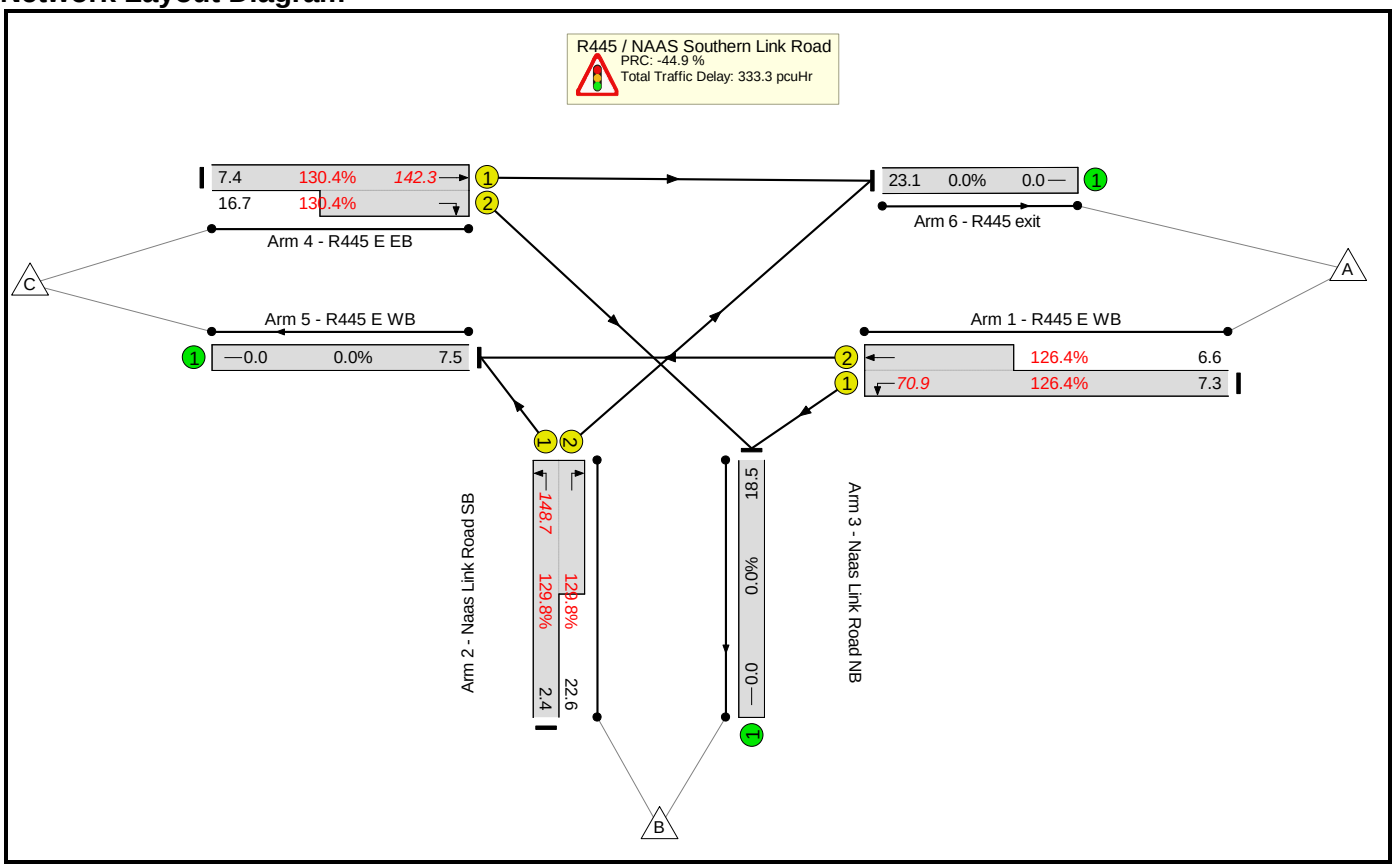
Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**155.5%**	**531.9**	**-**	**-**
R445 / NAAS Southern Link Road	**155.5%**	**531.9**	**-**	**-**
1/1+1/2	87.2 : 87.2%	7.2	67.2	9.4
3/1+3/2	154.5 : 154.5%	306.6	716.6	332.1
4/1+4/2	155.5 : 155.5%	218.2	739.0	222.8

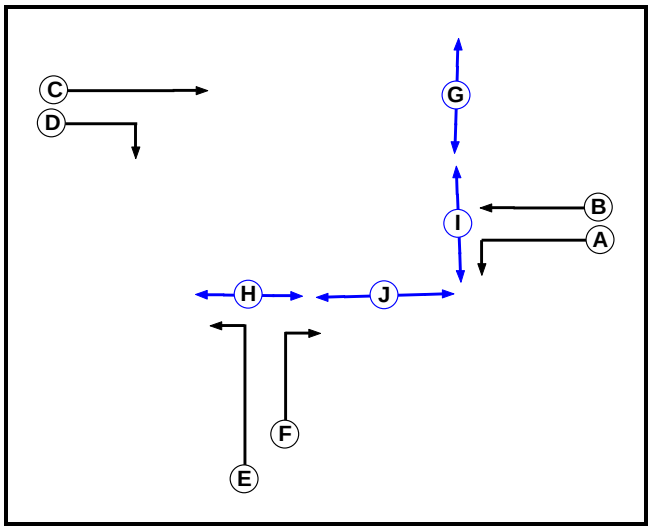
C1 PRC for Signalled Lanes (%): -72.7 Total Delay for Signalled Lanes (pcuHr): 531.92
PRC Over All Lanes (%): -72.7 Total Delay Over All Lanes(pcuHr): 531.92

Scenario 12: '2030 DM + LINK + MASTERPLAN PM' (FG12: '2030 DM + LINK + MASTERPLAN PM', Plan 2: 'Three Stage')

Network Layout Diagram



Phase Diagram



Basic Results Summary

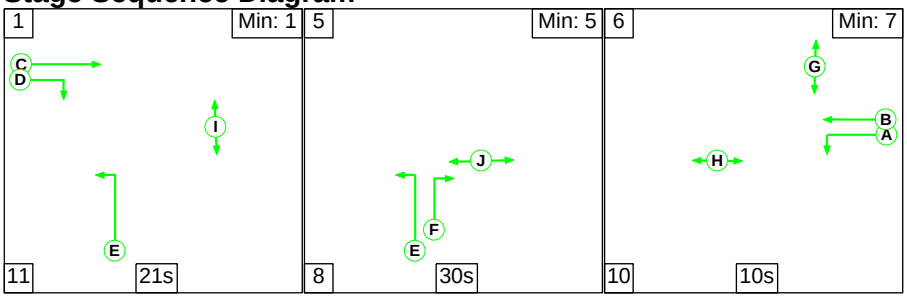
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Traffic		7	7
G	Pedestrian		5	5
H	Pedestrian		5	5
I	Pedestrian		5	5
J	Pedestrian		5	5

Phase Intergreens Matrix

		Starting Phase									
		A	B	C	D	E	F	G	H	I	J
Terminating Phase	A		-	-	5	-	-	-	-	5	7
	B	-		-	5	7	5	-	-	5	-
	C	-	-		-	-	5	9	-	-	-
	D	6	5	-		-	5	-	-	-	8
	E	-	5	-	-		-	-	5	-	-
	F	-	5	5	5	-		9	5	-	-
	G	-	-	5	-	-	5		-	-	-
	H	-	-	-	-	9	9	-		-	-
	I	9	9	-	-	-	-	-	-		-
	J	10	-	-	8	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / NAAS Southern Link Road												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (R445 E WB)	U	A	2	3	15.7	Geom	-	4.50	0.00	Y	Arm 2 Left	15.00
1/2 (R445 E WB)	U	B	2	3	8.7	Geom	-	4.50	0.00	Y	Arm 5 Ahead	Inf
2/1 (Naas Link Road SB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (Naas Link Road NB)	U	E	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Left	16.00
3/2 (Naas Link Road NB)	U	F	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Right	Inf
4/1 (R445 E EB)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 E EB)	U	D	2	3	8.7	Geom	-	3.50	0.00	Y	Arm 2 Right	18.00
5/1 (R445 E WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (R445 exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / NAAS Southern Link Road
There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
12: '2030 DM + LINK + MASTERPLAN PM'	17:00	18:00	01:00	

Traffic Flows, Actual

Actual Flow :

	Destination				
		A	B	C	Tot.
Origin	A	0	290	265	555
	B	904	0	98	1002
	C	296	666	0	962
	Tot.	1200	956	363	2519

Basic Results Summary

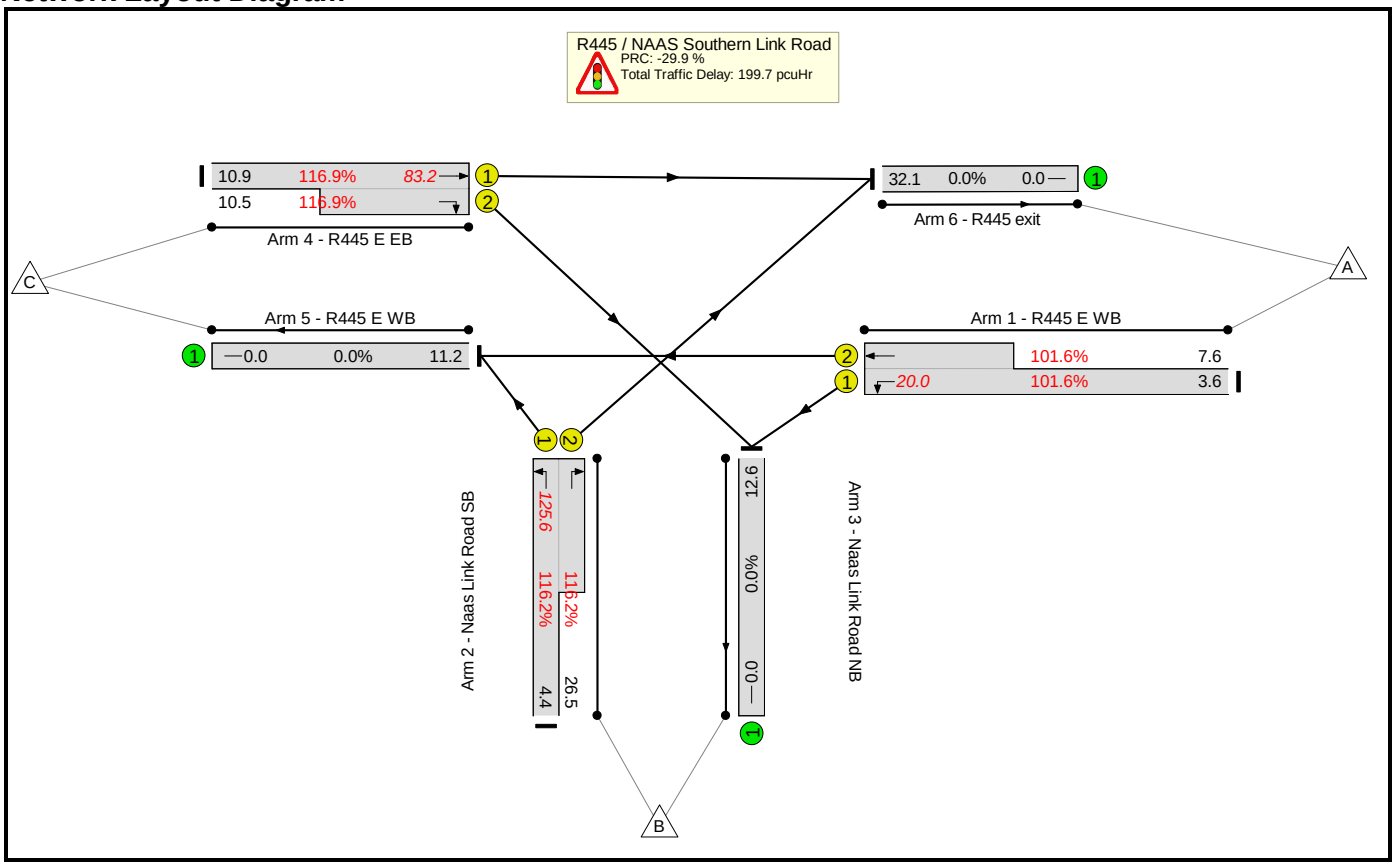
Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**130.4%**	**333.3**	**-**	**-**
R445 / NAAS Southern Link Road	**130.4%**	**333.3**	**-**	**-**
1/1+1/2	126.4 : 126.4%	68.8	446.4	70.9
3/1+3/2	129.8 : 129.8%	132.4	475.8	148.7
4/1+4/2	130.4 : 130.4%	132.1	494.3	142.3

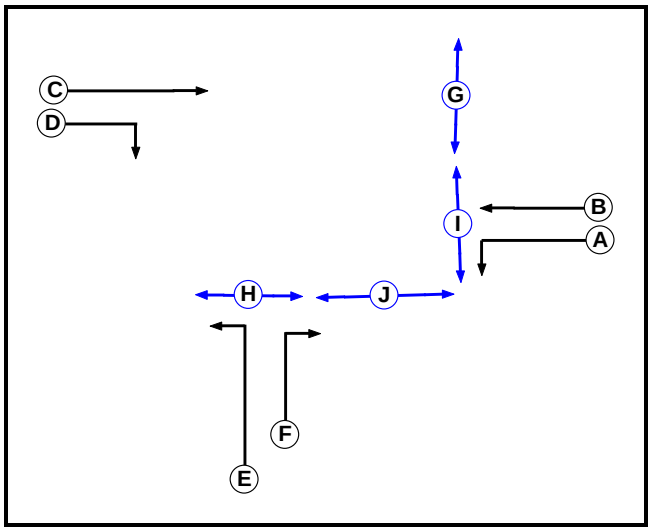
C1 PRC for Signalled Lanes (%): -44.9 Total Delay for Signalled Lanes (pcuHr): 333.34
PRC Over All Lanes (%): -44.9 Total Delay Over All Lanes(pcuHr): 333.34

Scenario 13: '2030 DN + MASTERPLAN AM' (FG13: '2030 DN + MASTERPLAN AM', Plan 2: 'Three Stage')

Network Layout Diagram



Phase Diagram



Basic Results Summary

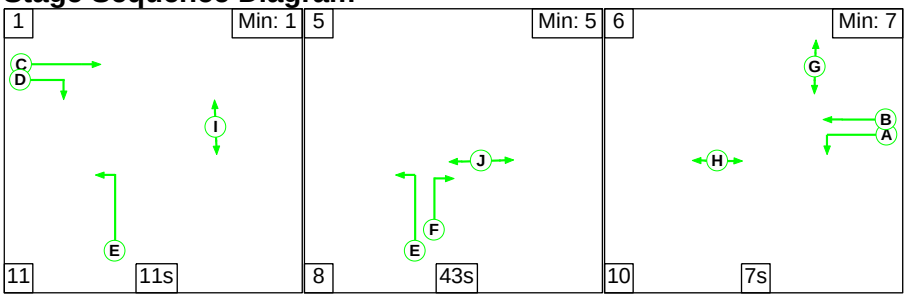
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Traffic		7	7
G	Pedestrian		5	5
H	Pedestrian		5	5
I	Pedestrian		5	5
J	Pedestrian		5	5

Phase Intergreens Matrix

		Starting Phase									
		A	B	C	D	E	F	G	H	I	J
Terminating Phase	A		-	-	5	-	-	-	-	5	7
	B	-		-	5	7	5	-	-	5	-
	C	-	-		-	-	5	9	-	-	-
	D	6	5	-		-	5	-	-	-	8
	E	-	5	-	-		-	-	5	-	-
	F	-	5	5	5	-		9	5	-	-
	G	-	-	5	-	-	5		-	-	-
	H	-	-	-	-	9	9	-		-	-
	I	9	9	-	-	-	-	-	-		-
	J	10	-	-	8	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / NAAS Southern Link Road												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (R445 E WB)	U	A	2	3	15.7	Geom	-	4.50	0.00	Y	Arm 2 Left	15.00
1/2 (R445 E WB)	U	B	2	3	8.7	Geom	-	4.50	0.00	Y	Arm 5 Ahead	Inf
2/1 (Naas Link Road SB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (Naas Link Road NB)	U	E	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Left	16.00
3/2 (Naas Link Road NB)	U	F	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Right	Inf
4/1 (R445 E EB)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 E EB)	U	D	2	3	8.7	Geom	-	3.50	0.00	Y	Arm 2 Right	18.00
5/1 (R445 E WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (R445 exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / NAAS Southern Link Road
There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
13: '2030 DN + MASTERPLAN AM'	08:00	09:00	01:00	

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	143	303	446
	B	1058	0	176	1234
	C	436	422	0	858
	Tot.	1494	565	479	2538

Basic Results Summary

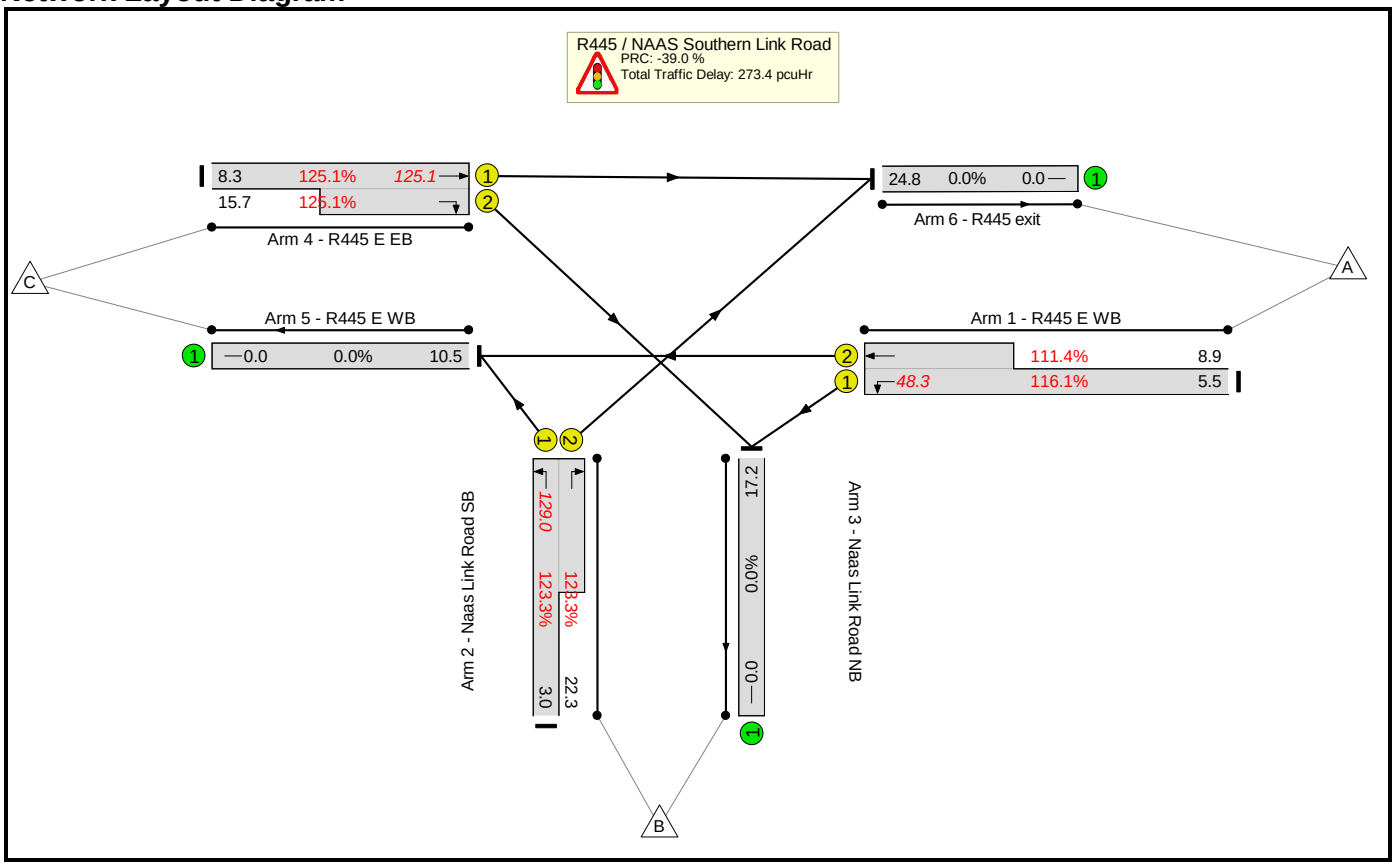
Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**116.9%**	**199.7**	**-**	**-**
R445 / NAAS Southern Link Road	**116.9%**	**199.7**	**-**	**-**
1/1+1/2	101.6 : 101.6%	17.4	140.5	20.0
3/1+3/2	116.2 : 116.2%	102.5	299.1	125.6
4/1+4/2	116.9 : 116.9%	79.7	334.5	83.2

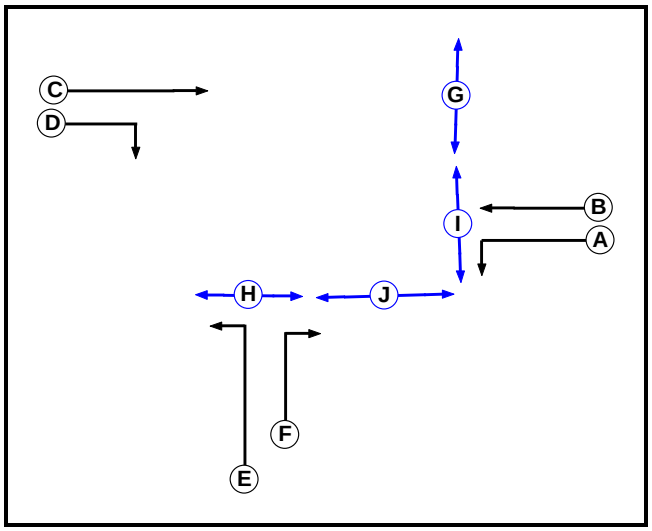
C1 PRC for Signalled Lanes (%): -29.9 Total Delay for Signalled Lanes (pcuHr): 199.67
PRC Over All Lanes (%): -29.9 Total Delay Over All Lanes(pcuHr): 199.67

Scenario 14: '2030 DN + MASTERPLAN PM' (FG14: '2030 DN + MASTERPLAN PM', Plan 2: 'Three Stage')

Network Layout Diagram



Phase Diagram



Basic Results Summary

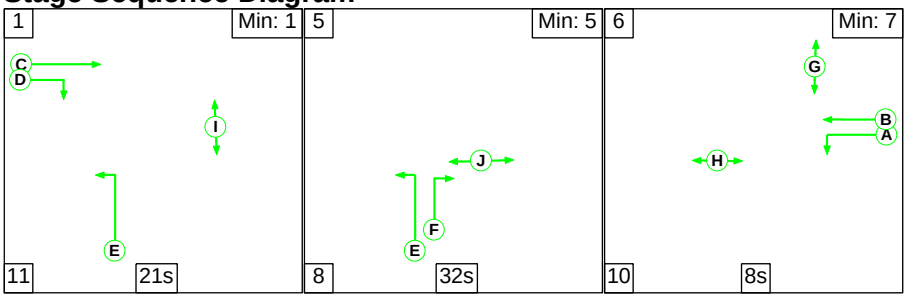
Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Traffic		7	7
G	Pedestrian		5	5
H	Pedestrian		5	5
I	Pedestrian		5	5
J	Pedestrian		5	5

Phase Intergreens Matrix

		Starting Phase									
		A	B	C	D	E	F	G	H	I	J
Terminating Phase	A		-	-	5	-	-	-	-	5	7
	B	-		-	5	7	5	-	-	5	-
	C	-	-		-	-	5	9	-	-	-
	D	6	5	-		-	5	-	-	-	8
	E	-	5	-	-		-	-	5	-	-
	F	-	5	5	5	-		9	5	-	-
	G	-	-	5	-	-	5		-	-	-
	H	-	-	-	-	9	9	-		-	-
	I	9	9	-	-	-	-	-	-		-
	J	10	-	-	8	-	-	-	-	-	

Stage Sequence Diagram



Basic Results Summary

Lane Input Data

Junction: R445 / NAAS Southern Link Road												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (R445 E WB)	U	A	2	3	15.7	Geom	-	4.50	0.00	Y	Arm 2 Left	15.00
1/2 (R445 E WB)	U	B	2	3	8.7	Geom	-	4.50	0.00	Y	Arm 5 Ahead	Inf
2/1 (Naas Link Road SB)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (Naas Link Road NB)	U	E	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Left	16.00
3/2 (Naas Link Road NB)	U	F	2	3	7.8	Geom	-	3.00	0.00	Y	Arm 6 Right	Inf
4/1 (R445 E EB)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/2 (R445 E EB)	U	D	2	3	8.7	Geom	-	3.50	0.00	Y	Arm 2 Right	18.00
5/1 (R445 E WB)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (R445 exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Give-Way Lane Input Data

Junction: R445 / NAAS Southern Link Road
There are no Opposed Lanes in this Junction

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
14: '2030 DN + MASTERPLAN PM'	17:00	18:00	01:00	

Traffic Flows, Actual

Actual Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	218	358	576
	B	893	0	120	1013
	C	333	628	0	961
	Tot.	1226	846	478	2550

Basic Results Summary

Network Results

Item	Deg Sat (%)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	**125.1%**	**273.4**	**-**	**-**
R445 / NAAS Southern Link Road	**125.1%**	**273.4**	**-**	**-**
1/1+1/2	116.1 : 111.4%	46.5	290.6	48.3
3/1+3/2	123.3 : 123.3%	111.9	397.8	129.0
4/1+4/2	125.1 : 125.1%	115.0	430.8	125.1

C1	PRC for Signalled Lanes (%):	-39.0	Total Delay for Signalled Lanes (pcuHr):	273.44
	PRC Over All Lanes (%):	-39.0	Total Delay Over All Lanes(pcuHr):	273.44

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Import of R409 x Old Caragh Road x Teampull Cearach Rbt.j10
Path: \\GLASGOWFILE\Jobs\SCT\2021\T&T\IE01T21A06 - Finlay Park, Naas\CALCULATIONS\TRAFFIC\ARCADY\TA Models Sept 22
Report generation date: 08/12/2022 10:20:10

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	A1 - 2022 Base									
Arm 1	D1	0.5	3.87	0.30	A	D2	0.6	4.34	0.39	A
Arm 2		0.2	3.57	0.15	A		0.1	3.07	0.05	A
Arm 3		0.1	3.03	0.12	A		0.3	3.21	0.20	A
Arm 4		0.1	5.31	0.09	A		0.1	5.60	0.13	A
	A1 - 2030 DN									
Arm 1	D3	0.6	4.19	0.36	A	D4	0.9	5.15	0.48	A
Arm 2		0.2	3.84	0.19	A		0.1	3.23	0.07	A
Arm 3		0.2	3.16	0.14	A		0.3	3.45	0.25	A
Arm 4		0.1	5.62	0.11	A		0.2	6.18	0.17	A
	A1 - 2030 DN + PH1									
Arm 1	D5	0.6	4.27	0.37	A	D6	1.1	5.55	0.52	A
Arm 2		0.3	4.15	0.25	A		0.1	3.29	0.08	A
Arm 3		0.2	3.27	0.15	A		0.4	3.50	0.26	A
Arm 4		0.1	5.90	0.12	A		0.2	6.30	0.17	A
	A1 - 2030 DM LINK									
Arm 1	D7	0.5	4.06	0.35	A	D8	8.7	26.40	0.91	D
Arm 2		4.3	15.94	0.82	C		0.5	5.64	0.33	A
Arm 3		0.4	5.73	0.29	A		0.3	3.59	0.21	A
Arm 4		0.3	12.89	0.21	B		0.2	6.52	0.14	A
	A1 - 2030 DM LINK + MASTERPLAN									
Arm 1	D9	0.6	4.28	0.38	A	D10	12.0	35.55	0.94	E
Arm 2		16.1	51.10	0.97	F		0.6	5.91	0.36	A
Arm 3		0.6	6.81	0.35	A		0.3	3.67	0.22	A
Arm 4		0.4	17.44	0.26	C		0.2	6.71	0.14	A
	A1 - 2030 DM LINK + PH1									
Arm 1	D11	0.6	4.13	0.36	A	D12	12.9	37.85	0.94	E
Arm 2		6.5	22.95	0.88	C		0.5	5.81	0.35	A
Arm 3		0.5	6.13	0.31	A		0.3	3.64	0.22	A
Arm 4		0.3	14.45	0.23	B		0.2	6.65	0.14	A
	A1 - 2030 DN + MASTERPLAN									
Arm 1	D13	0.7	4.61	0.41	A	D14	1.8	7.54	0.64	A
Arm 2		0.8	5.69	0.45	A		0.2	3.55	0.15	A
Arm 3		0.2	3.74	0.19	A		0.4	3.72	0.28	A
Arm 4		0.2	7.07	0.14	A		0.2	6.77	0.18	A

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

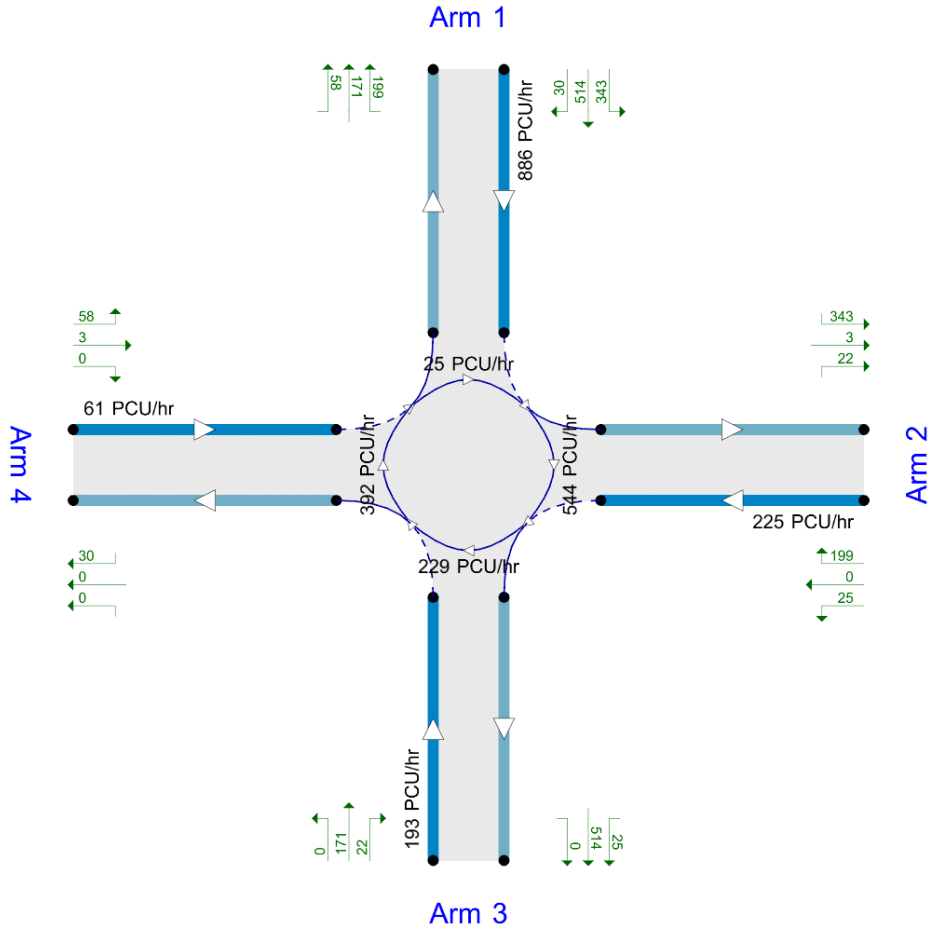
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	02/07/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	aspence1
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 modelled flow through junction (PCU/hr).
Time Segment: 17:00-17:15

The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		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)
D1	2022 Base	AM	ONE HOUR	08:00	09:30	15
D2	2022 Base	PM	ONE HOUR	17:00	18:30	15
D3	2030 DN	AM	ONE HOUR	08:00	09:30	15
D4	2030 DN	PM	ONE HOUR	17:00	18:30	15
D5	2030 DN + PH1	AM	ONE HOUR	08:00	09:30	15
D6	2030 DN + PH1	PM	ONE HOUR	17:00	18:30	15
D7	2030 DM LINK	AM	ONE HOUR	08:00	09:30	15
D8	2030 DM LINK	PM	ONE HOUR	17:00	18:30	15
D9	2030 DM LINK + MASTERPLAN	AM	ONE HOUR	08:00	09:30	15
D10	2030 DM LINK + MASTERPLAN	PM	ONE HOUR	17:00	18:30	15
D11	2030 DM LINK + PH1	AM	ONE HOUR	08:00	09:30	15
D12	2030 DM LINK + PH1	PM	ONE HOUR	17:00	18:30	15
D13	2030 DN + MASTERPLAN	AM	ONE HOUR	08:00	09:30	15
D14	2030 DN + MASTERPLAN	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	(Default Analysis Set)	100.000

(Default Analysis Set) - 2022 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	R409 / Old Caragh Road / Teampull Cearach	Standard Roundabout		1, 2, 3, 4	3.75	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.75	A

Arms

Arms

Arm	Name	Description	No give-way line
1	R409 N		
2	Old Caragh Road		
3	R409 S		
4	Teampull Cearach		

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
1	3.50	5.50	8.3	25.0	33.0	32.0		
2	3.25	5.80	16.8	20.0	33.0	48.5		
3	3.75	5.80	15.0	25.0	33.0	42.0		
4	3.00	3.50	5.0	15.0	33.0	63.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.595	1406
2	0.575	1408
3	0.608	1518
4	0.449	890

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)
D1	2022 Base	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	385	100.000
2		✓	164	100.000
3		✓	152	100.000
4		✓	62	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	41	313	31
	2	139	0	25	0
	3	132	20	0	0
	4	62	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	5	0
	2	0	0	0	0
	3	5	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.30	3.87	0.5	A
2	0.15	3.57	0.2	A
3	0.12	3.03	0.1	A
4	0.09	5.31	0.1	A

(Default Analysis Set) - 2022 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	R409 / Old Caragh Road / Teampull Cearach	Standard Roundabout		1, 2, 3, 4	4.04	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	4.04	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)
D2	2022 Base	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	485	100.000
2		✓	57	100.000
3		✓	265	100.000
4		✓	86	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	211	235	39
	2	44	0	13	0
	3	231	34	0	0
	4	86	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	5	0
	2	0	0	0	0
	3	5	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.39	4.34	0.6	A
2	0.05	3.07	0.1	A
3	0.20	3.21	0.3	A
4	0.13	5.60	0.1	A

(Default Analysis Set) - 2030 DN, 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	R409 / Old Caragh Road / Teampull Cearach	Standard Roundabout		1, 2, 3, 4	4.03	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	4.03	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)
D3	2030 DN	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	452	100.000
2		✓	194	100.000
3		✓	178	100.000
4		✓	73	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	48	368	36
	2	164	0	30	0
	3	155	23	0	0
	4	73	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	5	0
	2	0	0	0	0
	3	5	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.36	4.19	0.6	A
2	0.19	3.84	0.2	A
3	0.14	3.16	0.2	A
4	0.11	5.62	0.1	A

(Default Analysis Set) - 2030 DN, 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	R409 / Old Caragh Road / Teampull Cearach	Standard Roundabout		1, 2, 3, 4	4.62	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	4.62	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)
D4	2030 DN	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	602	100.000
2		✓	71	100.000
3		✓	328	100.000
4		✓	107	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	262	292	48
	2	55	0	16	0
	3	286	42	0	0
	4	107	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	5	0
	2	0	0	0	0
	3	5	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.48	5.15	0.9	A
2	0.07	3.23	0.1	A
3	0.25	3.45	0.3	A
4	0.17	6.18	0.2	A

(Default Analysis Set) - 2030 DN + PH1, 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	R409 / Old Caragh Road / Teampull Cearach	Standard Roundabout		1, 2, 3, 4	4.17	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	4.17	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)
D5	2030 DN + PH1	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	464	100.000
2		✓	259	100.000
3		✓	184	100.000
4		✓	73	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	60	368	36
	2	219	0	40	0
	3	155	29	0	0
	4	73	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	5	0
	2	0	0	0	0
	3	5	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.37	4.27	0.6	A
2	0.25	4.15	0.3	A
3	0.15	3.27	0.2	A
4	0.12	5.90	0.1	A

(Default Analysis Set) - 2030 DN + PH1, 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	R409 / Old Caragh Road / Teampull Cearach	Standard Roundabout		1, 2, 3, 4	4.87	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	4.87	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)
D6	2030 DN + PH1	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	646	100.000
2		✓	90	100.000
3		✓	335	100.000
4		✓	107	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	306	292	48
	2	70	0	20	0
	3	286	49	0	0
	4	107	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	5	0
	2	0	0	0	0
	3	5	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.52	5.55	1.1	A
2	0.08	3.29	0.1	A
3	0.26	3.50	0.4	A
4	0.17	6.30	0.2	A

(Default Analysis Set) - 2030 DM LINK, 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	R409 / Old Caragh Road / Teampull Cearach	Standard Roundabout		1, 2, 3, 4	11.15	B

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	11.15	B

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)
D7	2030 DM LINK	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	444	100.000
2		✓	917	100.000
3		✓	250	100.000
4		✓	67	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	168	243	33
	2	836	0	76	5
	3	243	7	0	0
	4	65	2	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	5	0
	2	0	0	0	0
	3	5	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.35	4.06	0.5	A
2	0.82	15.94	4.3	C
3	0.29	5.73	0.4	A
4	0.21	12.89	0.3	B

(Default Analysis Set) - 2030 DM LINK, 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	R409 / Old Caragh Road / Teampull Cearach	Standard Roundabout		1, 2, 3, 4	18.90	C

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	18.90	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)
D8	2030 DM LINK	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1143	100.000
2		✓	281	100.000
3		✓	250	100.000
4		✓	82	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	415	688	40
	2	251	0	30	0
	3	228	22	0	0
	4	78	4	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	5	0
	2	0	0	0	0
	3	5	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.91	26.40	8.7	D
2	0.33	5.64	0.5	A
3	0.21	3.59	0.3	A
4	0.14	6.52	0.2	A

(Default Analysis Set) - 2030 DM LINK + MASTERPLAN, 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	R409 / Old Caragh Road / Teampull Cearach	Standard Roundabout		1, 2, 3, 4	31.84	D

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	31.84	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)
D9	2030 DM LINK + MASTERPLAN	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	479	100.000
2		✓	1083	100.000
3		✓	267	100.000
4		✓	67	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	203	243	33
	2	977	0	101	5
	3	243	24	0	0
	4	65	2	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	5	0
	2	0	0	0	0
	3	5	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.38	4.28	0.6	A
2	0.97	51.10	16.1	F
3	0.35	6.81	0.6	A
4	0.26	17.44	0.4	C

(Default Analysis Set) - 2030 DM LINK + MASTERPLAN, 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	R409 / Old Caragh Road / Teampull Cearach	Standard Roundabout		1, 2, 3, 4	24.73	C

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	24.73	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)
D10	2030 DM LINK + MASTERPLAN	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1178	100.000
2		✓	309	100.000
3		✓	259	100.000
4		✓	82	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	450	688	40
	2	273	0	36	0
	3	228	31	0	0
	4	78	4	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	5	0
	2	0	0	0	0
	3	5	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.94	35.55	12.0	E
2	0.36	5.91	0.6	A
3	0.22	3.67	0.3	A
4	0.14	6.71	0.2	A

(Default Analysis Set) - 2030 DM LINK + PH1, 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	R409 / Old Caragh Road / Teampull Cearach	Standard Roundabout		1, 2, 3, 4	15.31	C

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	15.31	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)
D11	2030 DM LINK + PH1	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	456	100.000
2		✓	983	100.000
3		✓	256	100.000
4		✓	67	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	180	243	33
	2	892	0	86	5
	3	243	13	0	0
	4	65	2	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	5	0
	2	0	0	0	0
	3	5	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.36	4.13	0.6	A
2	0.88	22.95	6.5	C
3	0.31	6.13	0.5	A
4	0.23	14.45	0.3	B

(Default Analysis Set) - 2030 DM LINK + PH1, 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	R409 / Old Caragh Road / Teampull Cearach	Standard Roundabout		1, 2, 3, 4	26.37	D

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	26.37	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)
D12	2030 DM LINK + PH1	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1187	100.000
2		✓	300	100.000
3		✓	257	100.000
4		✓	82	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	459	688	40
	2	266	0	34	0
	3	228	29	0	0
	4	78	4	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	5	0
	2	0	0	0	0
	3	5	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.94	37.85	12.9	E
2	0.35	5.81	0.5	A
3	0.22	3.64	0.3	A
4	0.14	6.65	0.2	A

(Default Analysis Set) - 2030 DN + MASTERPLAN, 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	R409 / Old Caragh Road / Teampull Cearach	Standard Roundabout		1, 2, 3, 4	5.01	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	5.01	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)
D13	2030 DN + MASTERPLAN	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	511	100.000
2		✓	472	100.000
3		✓	207	100.000
4		✓	73	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	107	368	36
	2	400	0	72	0
	3	155	52	0	0
	4	73	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	5	0
	2	0	0	0	0
	3	5	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.41	4.61	0.7	A
2	0.45	5.69	0.8	A
3	0.19	3.74	0.2	A
4	0.14	7.07	0.2	A

(Default Analysis Set) - 2030 DN + MASTERPLAN, 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	R409 / Old Caragh Road / Teampull Cearach	Standard Roundabout		1, 2, 3, 4	6.06	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	6.06	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)
D14	2030 DN + MASTERPLAN	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	792	100.000
2		✓	163	100.000
3		✓	359	100.000
4		✓	107	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	452	292	48
	2	127	0	36	0
	3	286	73	0	0
	4	107	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	5	0
	2	0	0	0	0
	3	5	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.64	7.54	1.8	A
2	0.15	3.55	0.2	A
3	0.28	3.72	0.4	A
4	0.18	6.77	0.2	A

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For more information visit www.systra.co.uk

Birmingham – Newhall Street
5th Floor, Lancaster House, Newhall St,
Birmingham, B3 1NQ
T: +44 (0)121 393 4841

Birmingham – Edmund Gardens
1 Edmund Gardens, 121 Edmund Street,
Birmingham B3 2HJ
T: +44 (0)121 393 4841

Dublin
2nd Floor, Riverview House, 21-23 City Quay
Dublin 2,Ireland
T: +353 (0) 1 566 2028

Edinburgh – Thistle Street
Prospect House, 5 Thistle Street, Edinburgh EH2 1DF
United Kingdom
T: +44 (0)131 460 1847

Glasgow – St Vincent St
Seventh Floor, 124 St Vincent Street
Glasgow G2 5HF United Kingdom
T: +44 (0)141 468 4205

Glasgow – West George St
250 West George Street, Glasgow, G2 4QY
T: +44 (0)141 468 4205

Leeds
100 Wellington Street, Leeds, LS1 1BA
T: +44 (0)113 360 4842

London
3rd Floor, 5 Old Bailey, London EC4M 7BA United Kingdom
T: +44 (0)20 3855 0079

Manchester – 16th Floor, City Tower
16th Floor, City Tower, Piccadilly Plaza
Manchester M1 4BT United Kingdom
T: +44 (0)161 504 5026

Newcastle
Floor B, South Corridor, Milburn House, Dean Street, Newcastle, NE1 1LE
United Kingdom
T: +44 (0)191 249 3816

Perth
13 Rose Terrace, Perth PH1 5HA
T: +44 (0)131 460 1847

Reading
Soane Point, 6-8 Market Place, Reading,
Berkshire, RG1 2EG
T: +44 (0)118 206 0220

Woking
Dukes Court, Duke Street
Woking, Surrey GU21 5BH United Kingdom
T: +44 (0)1463 357705

Other locations:

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Bordeaux, Lille, Lyon, Marseille, Paris

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