



Traffic and Transport Assessment

Mixed-use Development at Mooretown Phase 3 SHD, Swords,
Co. Dublin.

April 2022

Waterman Moylan Consulting Engineers Limited

Block S, East Point Business Park, Alfie Byrne Road, Dublin D03 H3F4
www.waterman-moylan.ie



Waterman Moylan
Engineering Consultants

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Waterman Group's IMS (BS EN ISO 9001: 2015 and BS EN ISO 14001: 2015)

Issue	Date	Prepared by	Checked by	Approved by
1	August 2021	Luke Byrne	Richard Miles / Fernando Silva	Mark Duignan
2	13 th April 2022	Luke Byrne	Richard Miles	<i>Mark Duignan</i>

Comments

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1. Introduction

1.1 Background

This Traffic and Transport Assessment (TTA) has been prepared by Waterman Moylan to accompany a planning application to An Bord Pleanála for a proposed Strategic Housing Development (SHD) at Mooretown, Swords, Co. Dublin.

The proposed development consists of 650 no. residential units, comprising 265 no. Houses, 119 no. Duplex/Triplex units and 266 no. Apartments, together with a creche (519 sqm) and c.946 sqm of commercial space. Table 1 below shows the breakdown of the residential units proposed.

<i>Unit Type</i>	<i>1 – Bed</i>	<i>2 – Bed</i>	<i>3 – Bed</i>	<i>4 – Bed</i>	<i>Total</i>
<i>Apartment</i>	76	190	-	-	266
<i>Duplex</i>	-	3	110	-	113
<i>Triplex</i>	-	-	6	-	6
<i>House</i>	-	-	240	25	265
<i>Total</i>	76	193	356	25	650

Table 1 | Proposed Development – Breakdown of Residential Units.

This subject application is Mooretown Phase 3 of the Oldtown–Mooretown LAP. The development of Oldtown-Mooretown LAP lands commenced in 2011 and is expected to be complete by 2032. The overall Oldtown-Mooretown development is estimated to comprise approximately 3,200 dwellings units, 11,510 sqm of commercial floorspace and a 1,624 pupils primary and post-primary school on a 111 hectares site.

1.2 Scope

This TTA is a comprehensive review of all the potential transport impacts of the overall Oldtown-Mooretown LAP development, including a detailed assessment of the existing and future transportation systems and the impact of the overall LAP lands on the surrounding environment and transportation network.

1.3 Standards

This Traffic and Transport Assessment has been prepared in accordance with the requirements of the Traffic and Transport Assessment Guidelines published by National Roads Authority in May 2014.

1.4 Threshold for Transport Assessment

Section 2.1 of the Traffic and Transport Assessment Guidelines (May 2014) requires submission of a Transport Assessment where a proposed development meets one or more of the following criteria:

- 1- Traffic to and from the development exceeds 10% of the traffic flow on the adjoining road;
- 2- Traffic to and from the development exceeds 5% of the traffic flow on the adjoining road where congestion exists, or the location is sensitive;

- 3- Residential development in excess of 200 dwellings;
- 4- Retail and leisure development in excess of 1,000sqm;
- 5- Office, education and hospital development in excess of 2,500sqm;
- 6- Industrial development in excess of 5,000sqm;
- 7- Distribution and warehousing in excess of 10,000sqm.

In the case of the subject proposed development, threshold no. 3 is exceeded.

1.5 Contents of the Transport Assessment

In accordance with Section 3.3 of the Traffic and Transport Assessment Guidelines (May 2014), the contents of this TTA include:

- Description of the receiving environment including information on the current traffic, critical junctions, pedestrians, cycle and public transport facilities;
- Description of transportation improvements to road, junctions, public transport and cycle/pedestrian facilities;
- A description of the proposed development;
- Description of under construction, permitted and future developments in the area;
- The traffic and transportation implications of the developments including consideration of trip generation/attraction, mode choice and trip distribution;
- The time periods applicable to the TTA;
- The impact of the development on the surrounding road network including analysis of junction's capacity;
- Review of the historical data related to road safety;
- Description of car and cycle parking requirements and proposals.

1.6 Location of Development

The area of the Oldtown-Mooretown LAP lands is approximately 111 hectares. The lands are located at the western development edge of Swords, within the catchment of the Broadmeadow River. The Oldtown-Mooretown lands are divided by R125 Rathbeale Road, with Oldtown lands to the north (circa 50 ha) and Mooretown to the south (circa 61 ha).

The proposed development site is located in Mooretown, Swords, Co. Dublin, south of the R125 Rathbeale Road, as shown in Figure 1, and is part of the Oldtown-Mooretown LAP lands as shown in Figure 2.



Figure 1 | Site Location (Source: Google Earth).

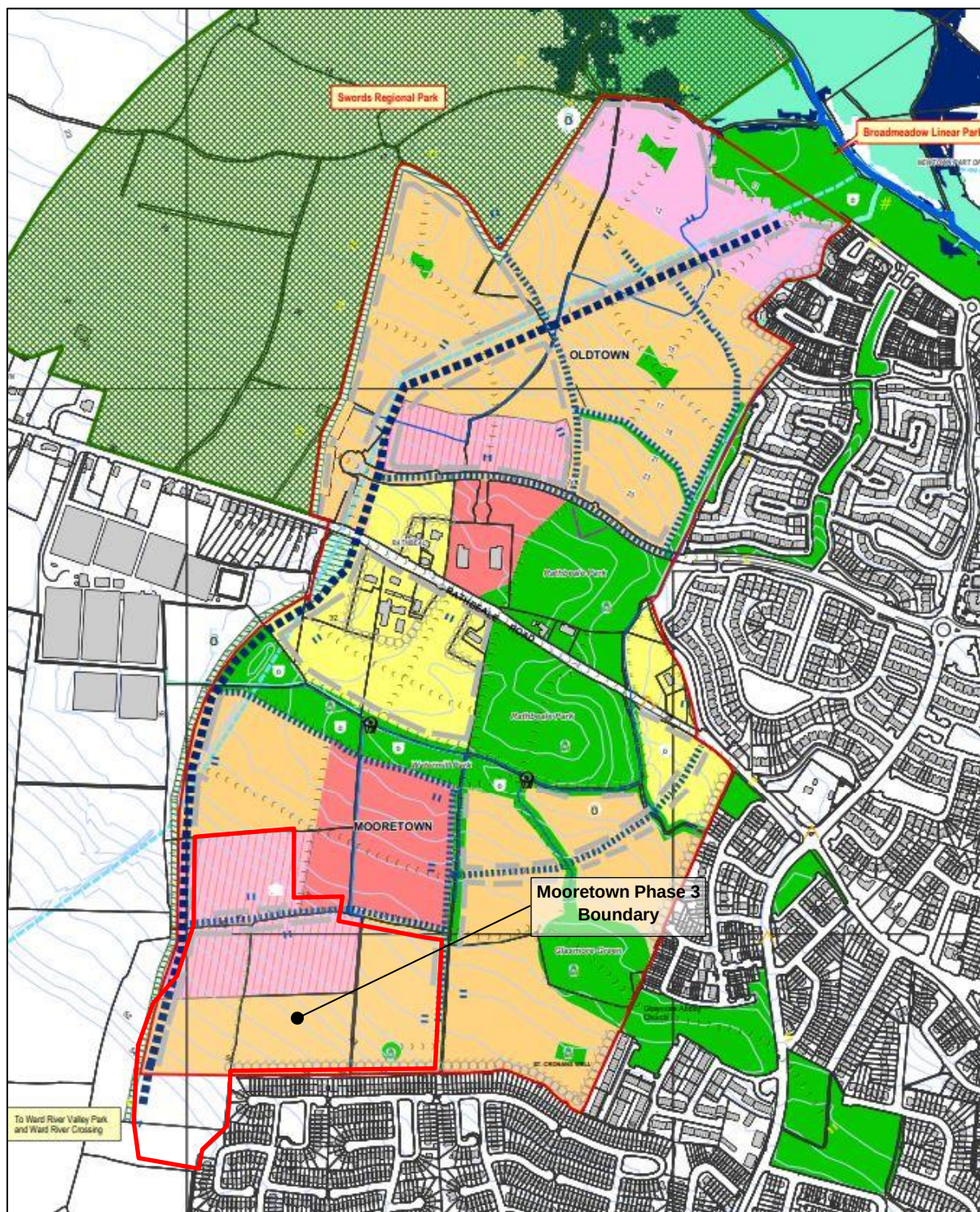


Figure 2 | Image extracted from the Oldtown-Mooretown LAP 2010.

1.7 Programme

It is expected that construction of the proposed development will commence in 2023 for completion in 2027.

1.8 Assessment Years

In line with the 'Transport Assessment Guidelines (May 2014)' the years assessed in this TTA are the following:

Base Year	:	2022
Opening Year	:	2027
Opening Year + 5 Years Forecast	:	2032
Opening Year + 15 Years Forecast	:	2042

2. Policy Framework

2.1 Fingal Development Plan (2017 – 2023)

The Fingal Development Plan (2017 – 2023) sets out the authority's policies and objectives for the development of the County for the period of 2017 to 2023. The Plan seeks to develop and improve in a sustainable manner the social, economic, cultural and environments assets of the county. In the context of the subject development site and the proposed residential scheme a number of most relevant policies include:

2.1.1 Strategic Policy

“Seek the development of a high-quality public transport system throughout the County and linking to adjoining counties, including the development of the indicative route for New Metro North and Light Rail Corridor, improvements to railway infrastructure including the DART Expansion Programme, Quality Bus Corridors (QBCs) and Bus Rapid Transit (BRT) systems, together with enhanced facilities for walking and cycling.”

“Promote, improve and develop a well-connected national, regional and local road and public transport infrastructure system, geared to meet the needs of the County and the Region, and providing for all road users, prioritising walking, cycling and public transport.”

2.1.2 Integrated Land Use and Transportation

“Objective MT05: *Integrate land use with transportation by allowing higher density development along higher capacity public transport corridors.”*

2.1.3 Parking

“Objective MT08: *Control on-street parking in the interests of the viability, vitality and amenity of commercial centres by maximising the supply of short stay parking for shoppers, while providing appropriate levels of long-term parking within a reasonable distance for employees.”*

2.1.4 Walking and Cycling

“Objective MT13: *Promote walking and cycling as efficient, health, and environmentally-friendly modes of transport by securing the development of a network of direct, comfortable, convenient and safe cycle routes and footpaths, particularly in urban areas.”*

“Objective MT19: *Design roads and promote the design of roads, including cycle infrastructure, in line with the Principals of Sustainable Safety in a manner consistent with the National Cycle Manual and the Design Manual for Urban Roads and Streets.”*

“Objective MT22: *Improve pedestrian and cycle connectivity to stations and other public transport interchanges.”*

2.1.5 Traffic Calming

“Objective MT37: Implement traffic calming on particular roads and in appropriate areas of the County, especially residential areas, to reduce vehicle speeds in the interests of road safety and residential amenity. Ensure that where appropriate, traffic calming is included as a pre-condition as part of the development of all new estates or extensions to existing estates.”

2.1.6 Road Construction and Improvement Measures

“Objective MT40: Implement a programme of road construction and improvement works closely integrated with existing and planned land uses, taking into account both car and non-car modes of transport whilst promoting road safety as a high priority. Major road construction and improvement works will include an appraisal of environmental impacts.”

“Objective MT41: Seek to implement the Road Improvement Schemes indicated in Table 7.1 within the Plan period, subject to assessment against the criteria set out in Section 5.8.3 of the NTA Transport Strategy for the GDA, where appropriate and where resources permit. Reserve the corridor of the proposed road improvements free of development”.

R125 Rathbeale Road Improvements and Swords Western Distributor Road are included in the aforementioned Table 7.1 within the Plan.

2.1.7 Green Infrastructure and Planning

“Objective GI18: Require all Local Area Plans to protect, enhance, provide and manage green infrastructure in an integrated and coherent manner addressing the five GI themes set out in the Development Plan – Biodiversity, Parks, Open Space and Recreation, Sustainable Water Management, Archaeological and Architectural Heritage, and Landscape.”

“Objective GI20: Require all new development to contribute to the protection and enhancement of existing green infrastructure and the delivery of new green infrastructure, as appropriate.”

2.1.8 Local Area Plans and Masterplans

“Objective SWORDS 27: Prepare and/or implement the following Local Area Plans and Masterplans during the lifetime of this Plan:

- Oldtown / Mooretown Local Area Plan.”

The proposed development falls within the Oldtown / Mooretown Local Area Plan lands.

2.2 Oldtown / Mooretown Local Area Plan (2010 – 2016)

The Oldtown / Mooretown Local Area Plan, published by the Planning Department of Fingal County Council in 2010 sets out the development strategy to develop the Oldtown-Mooretown lands in a phased, coordinated and sustainable manner for the period of 2010 to 2016.

On 28th July 2015 an extension of duration of the LAP's life has been approved for an additional period of 5 years, from the 13th of July 2015 up to the 12th of July 2020.

2.2.1 Purpose of Local Area Plan

“The Oldtown-Mooretown LAP sets out the optimum development strategy for the proper planning and sustainable development of the plan lands, and addresses the following elements:

- Phased and integrated development of LAP lands, primarily for residential use, with a supporting level of mixed uses in Local Centres to serve the needs of the area and support the development of a sustainable community;*
- Creation of a permeable and legible movement network for all modes of transport linking the site internally and with the surrounding area;*
- Provision of high quality recreational open space and amenity facilities to meet active and passive recreational needs of the expanding population in this area;*
- Increase in community facilities and health care facilities, in particular provision of additional schools;*
- Enhancement and preservation of existing archaeological sites and increase in appropriate usage and public acknowledgement of such sites;*
- Enhancement and protection of existing environmental features within the plan lands and Broadmeadow Linear Park north of the plan lands.”*

2.2.2 Strategic Vision

“The Oldtown-Mooretown lands will be developed in a coordinated, sustainable way, as a unique urban extension connected to the existing town of Swords – a place with its own character and identity, where people can live, work, recreate and access various local services within an accessible area and be part of a sustainable community.”

2.2.3 Movement Strategy and Transportation Infrastructure

“In order to facilitate development of the LAP lands, a tiered and phased approach to the improvement of the road network is required. The following elements are necessary:

- Development of a number of new roads/road links – in particular provision of the Western Distributor Link Road (WDLR) and the Inner Ward River Valley Crossing;*
- Enhancement of existing junctions and roads external to the lands;*
- Redesign of Glen Ellan Road as a main urban street within the lands and design of a main street within Mooretown lands;*
- Provision of a quality bus route to transport those living in northwest Swords into the Town Centre;*
- Provision of pedestrian and cyclist networks, associated with green corridors both within and into adjoining areas.”*

2.2.4 Phasing Programme

“Development of the LAP shall occur in 4 phases.”

The following is a list of road improvement works listed in the LAP for each phase. 1-4, and an update on each.

The Expired LAP Notes that Phase 1: Residential Development of approximately 800 units, representing circa 25% of the overall LAP development.

The following road network improvements shall be completed within Phase 1.

Western Distributor Link Road (WDLR)

1. 0.3 km of new single carriageway distributor road from Rathbeale Road to Glen Ellan Road Extension;
2. a signal-controlled junction including a pedestrian and cyclist crossing at the junction with Glen Ellan Road Extension;
3. a roundabout junction on the Rathbeale Road at the western edge of Oldtown-Mooretown lands.
4. a signal-controlled toucan crossing for pedestrians and cyclists on Rathbeale Road a short distance east of the new roundabout with provision for connection northward and southward along Swords Western Distributor Link Road.

Update:

Road network improvement No. 1 has been constructed as part of the Oldtown Planning 01 development works.

Road network improvements No. 2 serves Oldtown Planning 02 area and is substantially complete by the applicant as part of the Glen Ellan Road Extension works.

Regarding road network improvements No. 3 and No. 4, it was agreed with FCC to replace the roundabout with a signalised junction. The pedestrian crossing was required in the event that the junction at this location was to be a roundabout. The crossing has been incorporated into WDLR / Rathbeale signalised junction agreed with FCC.

This signalised junction will serve Mooretown and Oldtown lands and was subject to a Part 8 planning application by FCC which was subject to a LIHAF funding.

This Part 8 planning application received approval in 2017. Works were approved for LIHAF funding and are now complete and open to the public.

R125 Rathbeale Road

5. R125 Rathbeale Road was upgraded to urban road standard with footpaths and cycle lanes from the new junction with the WDLR to the Cianlea estate.
6. a signal-controlled junction with right-turn lanes shall be provided at a new access into the Mooretown lands at the north-eastern corner.
7. a priority-controlled junction with right-turn lane at a new access into the Oldtown lands at the south-eastern corner shall be provide.

8. a signal-controlled junction with right-turn lanes at a new access into the north-western portion of the Mooretown lands shall be provided.
9. a signal-controlled toucan crossing for pedestrians and cyclists between the two public park areas on either side of Rathbeale Road approximately midway along the frontage of the LAP lands shall be provided.

Update:

All the road network improvements required for R125 Rathbeale Road were subject to the mentioned Part 8 planning application by FCC which are now complete and open to the public.

Glen Ellan Road Extension/Street

10. upgrade of Glen Ellan Road Extension to a Street, providing 4m wide footpaths and 2.5m wide off-road cycle tracks through local centre and 2m wide footpaths, 2m wide verges and 2.5m wide off-road cycle tracks elsewhere with 3m wide landscaped medians provided at 150m centres.
11. provide signal-controlled toucan crossing for pedestrians and cyclists at 3 locations along Glen Ellan Street to cater for pedestrians and cyclists.

Update:

The road network improvements No. 10 and No. 11 are within the Oldtown Planning 01 and Oldtown Planning 02. They were complete by the Applicant and are now open to public.

Outside of Plan Lands

12. Rathbeale Road / Murrough Road junction upgrades.
13. Castlegrange Junction upgrades.

Update:

The required upgrades on Rathbeale Road / Murrough Road junction were also subject to the mentioned Pat 8 planning application by FCC and are now complete and open to the public.

The required upgrades on Castlegrange junction are remote from the site and not considered to be under the remit of the applicant, as detailed in the Engineering Assessment Report. This was agreed with Linda Lally of FCC Transportation & Planning Department on 4 March 2022.

The Expired LAP Notes that Phase 2: Residential Development of approximately 1,000 units, representing circa 30% of the overall LAP development.

The following road network improvements shall be completed within Phase 2.

Western Distributor Link Road (WDLR)

14. development of Western Distributor Link Road from Rathbeale Road southwards to Brackenstown Road shall be developed, including provisions for cyclists and pedestrians.

15. upgrade of Brackenstown Road from Swords Manor to R108 Naul Road junction to urban single carriageway road standard with footpaths and cycle tracks.
16. provision of a pedestrian and cycle link along the eastern side of the R108 Naul Road from the junction with Brackenstown Road southward to the Knocksedan housing estate.

Update:

Road network improvements No. 14 have commenced under Planning Reference F12A/0270 and are currently substantially complete.

Road network improvements No. 15 and No. 16 are remote from the site and not considered to be under the remit of the applicant, as detailed in the Engineering Assessment Report. This was agreed with Linda Lally of FCC Transportation & Planning Department on 4 March 2022.

Internal Road Network

17. Local access roads and pedestrian/cyclist links shall be provided to open up the LAP lands development as per plan layout.

Update:

The internal road network and pedestrian / cycle links are being provided as the overall LAP development progresses. Footpaths and cycle tracks are being provided as part of Phase 1 along Glen Ellan Road, Oldtown Avenue, Mooretown Avenue and Rathbeale Road as far as the archaeological park. This will continue through Phase 2.

Outside of Plan Lands

18. upgrade 3 roundabouts on Glen Ellan Road to cyclist friendly roundabouts.
19. major upgrade and realignment of the junction of Glen Ellan Road with Balheray Road.
20. widen Balheary Road to 4 lanes between the Glen Ellan Road and Castlegrange junctions over 300m length. This will encroach on public park area to the east.
21. widen link road to 4 lanes between Castlegrange and R132 Estuary junctions.
22. major capacity improvement at the R132 Estuary junction (unless previously delivered by Metro North project).

Update:

Road network improvements No. 18 - 22 are remote from the site and not considered to be under the remit of the applicant, as detailed in the Engineering Assessment Report. This was agreed with Linda Lally of FCC Transportation & Planning Department on 4 March 2022.

Swords Western Quality Bus Corridor

23. bus priority measures within Oldtown LAP area and via Glen Ellan Road to Rathbeale Road junction.

24. bus lanes over 150m length on the northern approach to the junction of Rathbeale Road and Murrough Road.

Update:

Road network improvements No. 23 - 24 are remote from the site and not considered to be under the remit of the applicant, as detailed in the Engineering Assessment Report. This was agreed with Linda Lally of FCC Transportation & Planning Department on 4 March 2022.

The Expired LAP Notes that Phase 3: Residential Development of approximately 600 units, representing circa 20% of the overall LAP development.

The following road network improvements shall be completed within Phase 3.

Western Distributor Link Road (WDLR)

25. northern extension of road through lands at Oldtown adjoining this phase of development.
26. undertake remaining road network improvements/connections to complete Western Distributor Link Road south of Brackenstown/Naul Road junction, including its connection to Forrest Road.

Update:

The northern extension of WDLR is substantially complete as part of Oldtown Planning 03 development works.

Road network improvements No. 26 is remote from the site and not considered to be under the remit of the applicant, as detailed in the Engineering Assessment Report. This was agreed with Linda Lally of FCC Transportation & Planning Department on 4 March 2022.

Internal Road Network

27. local access roads and pedestrians/cyclist routes shall be provided as per plan layout.

Update:

The internal road network and pedestrian / cycle links are being provided as the overall LAP development progresses. Footpaths and cycle tracks are being provided as part of Phase 1 along Glen Ellan Road, Oldtown Avenue, Mooretown Avenue and Rathbeale Road as far as the archaeological park. This will continue through Phase 3.

Outside of Plan Lands

28. capacity improvement at the junction of R125 Rathbeale Road with Watery Lane shall be carried out.
29. capacity improvement at the junction of Watery Lane with Balheary Road shall be carried out.

Update:

Road network improvements No. 28 & No. 29 are remote from the site and not considered to be under the remit of the applicant, as detailed in the Engineering Assessment Report. This was agreed with Linda Lally of FCC Transportation & Planning Department on 4 March 2022.

Swords Western Quality Bus Corridor

- 30. the main elements of the 6km long QBC shall be developed during this phase.
- 31. a new link road from Brackenstown to Dublin Road at Swords Town Centre (Lord Mayor Link Road) shall be delivered in conjunction with the third phase of development.

Update:

Road network improvements No. 30 & No. 31 are remote from the site and not considered to be under the remit of the applicant, as detailed in the Engineering Assessment Report. This was agreed with Linda Lally of FCC Transportation & Planning Department on 4 March 2022.

The Expired LAP Notes that Phase 4: Residential Development of approximately 800 units, representing circa 25% of the overall LAP development.

The following road network improvements shall be completed within Phase 4.

Western Distributor Link Road (WDLR)

- 32. northern extension of road through lands at Oldtown to the edge of the Broadmeadow Linear Park shall be provided (with provision in design for future extension into the Lissenhall development lands and for connection to the Swords Western Ring Road).

Update:

The northern extension of WDLR as far as Broadmeadow Linear Park is substantially complete as part of Oldtown Planning 03 development works.

Internal Road Network

- 33. local access roads and pedestrian/cyclist routes as per plan layout shall be provided.

Update:

The internal road network and pedestrian / cycle links are being provided as the overall LAP development progresses. Footpaths and cycle tracks are being provided as part of Phase 1 along Glen Ellan Road, Oldtown Avenue, Mooretown Avenue and Rathbeale Road as far as the archaeological park. This will continue through Phase 4.

3. Receiving Environment

3.1 Existing Roads and Junctions

3.1.1 Roads

The site is to be accessed from the Rathbeale Road via the Mooretown Distributor Road, with direct access from the Mooretown Distributor Road Extension and the Mooretown School Campus Access Road, as shown in Figure 1.

The Rathbeale Road (R125), has recently undergone extensive upgrade works, completed in 2020, so as to ensure its suitability for the increase in usage due to additional residents and construction works being undertaken as part of the LAP. It has a posted speed limit of 50 kph and is comprised of a 5m wide, 2-lane carriageway, a 1.8m wide pedestrian footpath & 2.25m cycleway on the northern side and a 3.5m shared surface for pedestrians/cyclists on the southern side. The upgraded Rathbeale Road offers a vastly improved and safer connection for the Oldtown Mooretown development LAP lands with the town of Swords and local schools in the area.

The junction of the Mooretown Distributor Road and the Rathbeale Road has been fully upgraded in advance of the proposed development of Mooretown Phases 1, 2 & 3. The junction is a signalised 4-way intersection, pedestrian/cyclist crossings and right turn stacking lanes have been incorporated.

The Mooretown Distributor Road has been designed in accordance with the requirements of the LAP. It is envisaged that this road will later connect to the Brackenstown Road (L2030) as part of future LAPs to neighbouring areas.

The nearest motorway is the M1, which can be joined at Junction 3, near Feltrim, approximately 3.75km southeast of the site.

3.1.2 Junctions

The primary junctions in the local area surrounding the site are:

- **Junction 1:** An existing priority T-Junction between R125 Rathbeale Road and R108.
- **Junction 2:** A new signalised crossroads junction between R125 Rathbeale Road and Western Distributor Link Road.

Junction 2 was recently constructed under a Part 8 planning application by FCC.

- **Junction 3:** An existing signalised crossroads between R125 Rathbeale Road and Murrough Road.

As part of the same Part 8 planning application by FCC, a new right hand turn lane on the western approach was recently provided.

- **Junction 4:** An existing four-armed roundabout at Glen Ellan Road.

Figure 3 below shows the surrounding road network and location of each junction listed above.



Figure 3 | Existing Road Network and Junctions.

3.2 Existing Public Transport

3.2.1 Bus Network

The Mooretown Lands are currently served by bus services. The closest bus stops relative to the proposed development are situated along R125 Rathbeale Road. It is approximately 1.2 km (14-minute walk) to the R125 Rathbeale Road from the centre of the subject site. There are two bus routes along this road, being Dublin Bus 41B and Go-Ahead Bus 197. A summary of the frequency of these routes is shown in Table 2 below. Figure 4 shows the walking distance from the subject site to the subject nearest bus stops.

Route	From	To	Weekday Frequency	Saturday Frequency	Sunday Frequency
197	Swords, Airside Ind. Estate	Ashbourne (Pillo Hotel)	5 buses from 06:20 to 23:15* Every 4-6 hours	4 buses from 06:20 to 18:35* Every 4-6 hours	3 buses at 11:40, 19:10 and 23:15*
	Ashbourne (Pillo Hotel)	Swords, Airside Ind. Estate	5 buses from 07:30 to 19:45 Every 4-6 hours	4 buses from 07:00 to 18:15 Every 4-6 hours	2 buses at 12:45 and 20:20
41B	Rowlestown	Irish Life Mall	17 buses from 07:00 to 23:00 Every 60 to 75 mins	17 buses from 07:00 to 23:00 Every 60 to 75 mins	14 buses from 10:00 to 23:00 Every 60 to 75 mins
	Irish Life Mall	Rowlestown	17 buses from 07:00 to 23:00 Every 60 to 75 mins	17 buses from 07:00 to 23:00 Every 60 to 75 mins	14 buses from 10:00 to 23:00 Every 60 to 75 mins

Table 2 | Bus Routes 197 and 41B - Frequency Table.

*Last bus takes route variation through Liffey Valley



Figure 4 | Walking Distance to Nearest Bus Stops.

To the east of the proposed development site there are additional bus routes along Murrough Road and Glen Ellan Road. The bus stops serving these additional routes are approximately 1.9 km (23-minute walk) away from the proposed development as shown in Figure 5 below.



Figure 5 | Walking Distances to Bus Stops on Murrough Road and Glen Ellan Road.

The subject bus stops serve several routes to both Dublin and Swords. These are the Dublin Bus routes 41, 41C and 41X and Swords express routes 196, 500, 500-N, 500-X, 501, 503 and 506. These routes and associated frequencies are summarised below.

- **Dublin Bus Route 41:** from/to Lower Abbey Street in Dublin City Centre, this route operates every 15 to 20 minutes during the AM (07:00 to 09:00) and PM (17:00 to 19:00) peak periods.
- **Dublin Bus Route 41C:** from/to Abbey Street in Dublin City Centre, this route operates every 10 to 20 minutes during the AM and PM peak periods.
- **Dublin Bus Route 41X:** from/to UCD Belfield in South Dublin, this route operates Monday to Friday only, twice in the AM period (From Knocksedan) and twice in the PM Period (From UCD Belfield).
- **Swords Express Route 196:** from Knocksedan to Swords (Pavilions Shopping Centre), this route operates nine times during the AM peak period and six times during the PM peak period. This equates to approximately a bus running every 13 minutes in the morning and a bus running every 20 minutes in the evening.
- **Swords Express Route 500:** to/from Edan Quay in Dublin City Centre, this route operates 13 times during the day between 8:40 and 18:50. The bus comes approximately every 40-60 minutes.

- **Swords Express Route 503:** this route operates five times per day, three times in the AM peak period towards Marion Square in Dublin City Centre and two times in the PM peak period on the opposite direction – from Marion Square.
- **Swords Express Route 507:** this route operates three times per day, two times in the AM peak period (07:00 to 09:00) towards Eden Quay in Dublin City Centre and one time in the PM peak (17:00 to 19:00) on the opposite direction.
- **Swords Express Route 500X:** this route operates three times in the AM peak period (07:00 to 09:00) towards Eden Quay in Dublin City Centre and four times in the PM peak (17:00 to 19:00) on the opposite direction.

3.2.2 GoCar

There is one GoCar station in the vicinity of the proposed development located at an EuroSpar located in Braeburn Terrace, Applewood. At the time of writing this TTA there are 2 cars available at this station.

The GoCar station is approximately 2.6km away from the proposed development (31-minute walk).

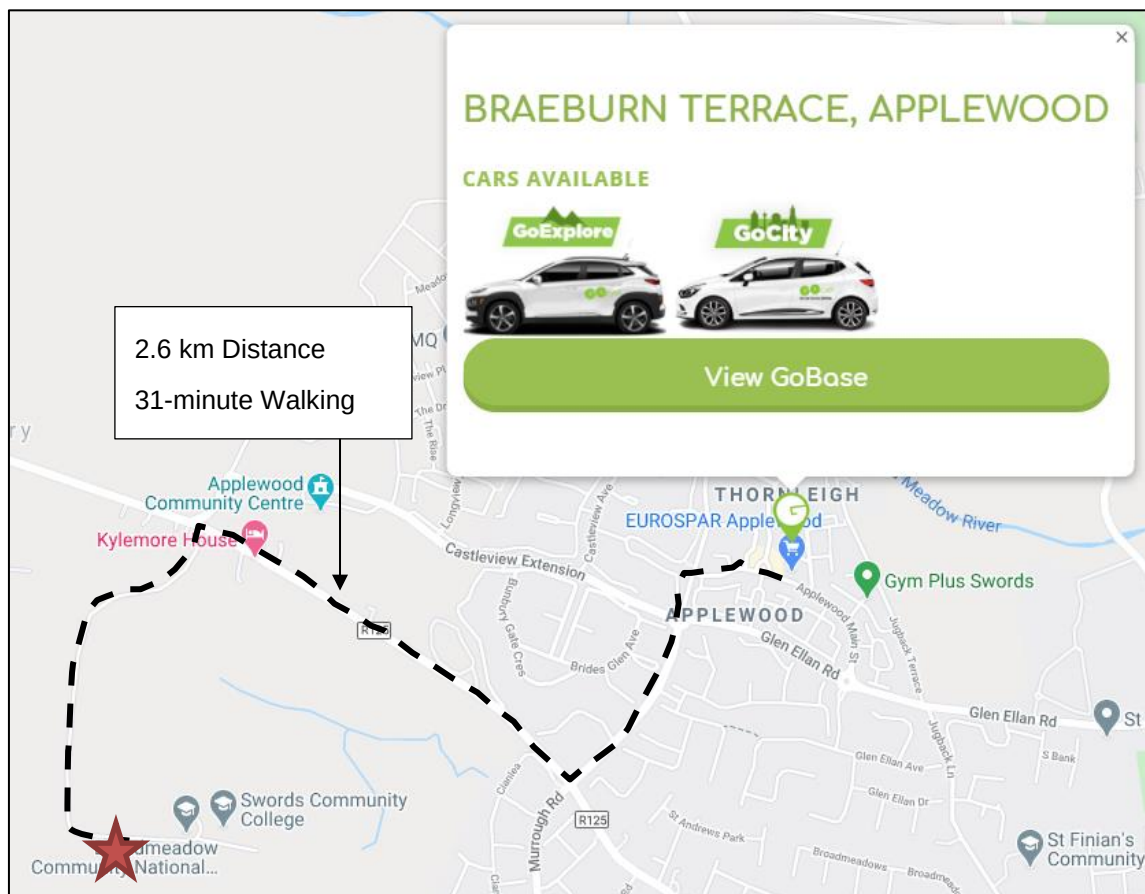


Figure 6 | Location of Nearest GoCar Station.

3.3 Existing Cycle Infrastructure

Cyclists can benefit from the provision of dedicated cycle lanes along both sides of the carriageway on Glen Ellan Road (and extension) for the entirety of its length (See Figure 7). These cycle lanes are generally separate from the carriageway by a grass verge, except for a small portion of the road extension section which comprises a cycle track immediately adjacent to the carriageway along the northern side.

As part of the development works that are now complete on the R125 Rathbeale Road within the Oldtown-Mooretown LAP lands, cycle lanes have been installed along both sides of the carriageway from the new signal-controlled junction with the Western Distributor Link Road to the eastern edge of the LAP lands.

These road upgrade works were subject to a Part 8 planning application by FCC which are now complete and open to the public.

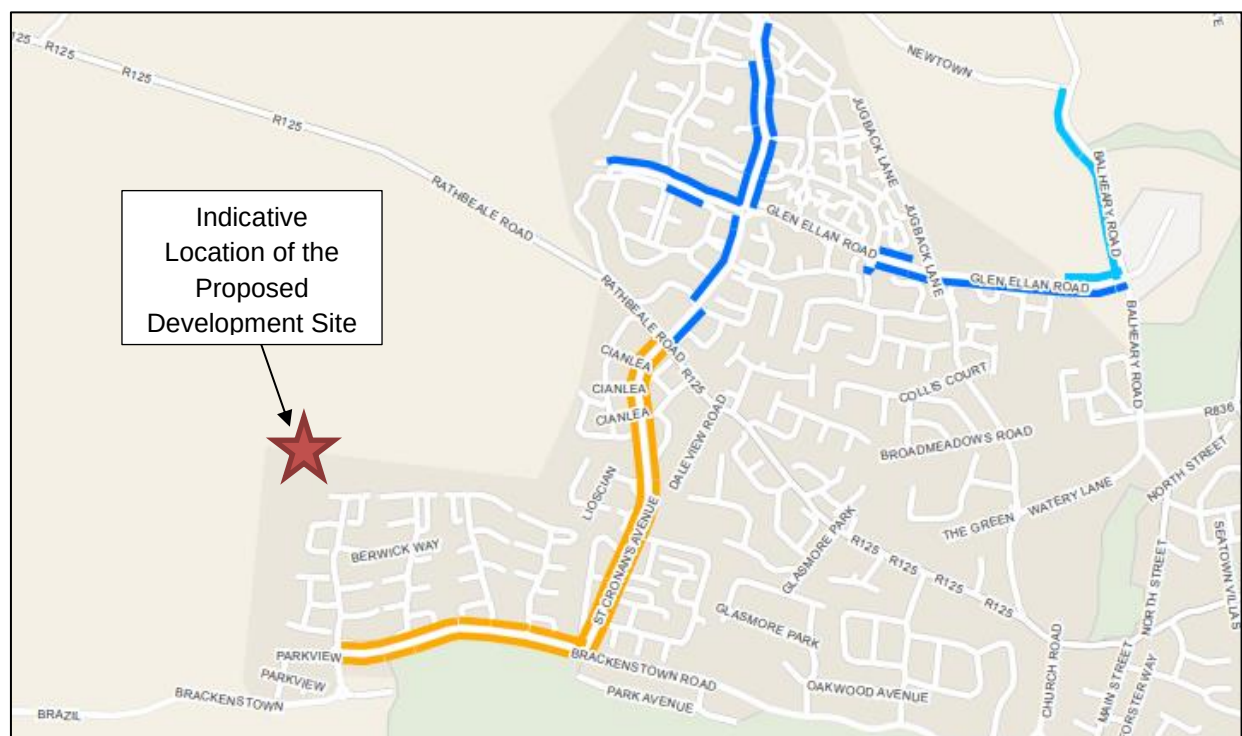


Figure 7 | Existing Cycle Network – extracted from GDA Cycle Network Plan.

3.4 Existing Pedestrian Infrastructure

The existing pedestrian facilities in the surrounding area comprise an inter-connected network of footways linking the various neighbourhoods to each other, to the existing schools, to the local bus stops and to the surrounding public network.

As part of the development works that are now complete on the R125 Rathbeale Road within the Oldtown-Mooretown LAP lands, footpaths have been constructed along both sides of the carriageway from the new signal-controlled junction with Western Distributor Link Road to the eastern edge of the LAP lands.

The newly constructed Western Distributor Road (within Mooretown) comprises a footpath with dedicated pedestrian crossings along the eastern side of the carriageway for its entirety.

4. Transportation Improvements

4.1 Oldtown-Mooretown LAP Road Improvements

4.1.1 Roads

All the road network improvements required as part of the Local Area Plan, both within and outside the LAP boundaries, have been presented earlier in Section 2.2 of this report. These road network improvements include:

- Development of a number of new roads/road links – in particular provision of the Western Distributor Link Road (WDLR) and the Inner Ward River Valley Crossing;
- Enhancement of existing junctions and roads external to the lands;
- Redesign of Glen Ellan Road as a main urban street within the lands and design of a main street within Mooretown lands;
- Provision of a quality bus route to transport those living in northwest Swords into the Town Centre;
- Provision of pedestrian and cyclist networks, associated with green corridors both within and into adjoining areas

At the time of writing this TTA, the WDLR is substantially complete within the Oldtown-Mooretown lands. These development works were undertaken as part of the previous phases of the LAP. The southern extension of the WDLR for c. 400m along the western boundary of the subject site received grant permission by FCC in May 2022 under Reg. Ref. F20A/0096 and will comprise access points to the proposed development.

The road upgrades along the R125 Rathbeale Road, both within and outside the LAP boundaries, were subject to a Part 8 planning application by FCC. This planning application received approval in 2017 and the associated works are now complete and open to the public.

The Glen Ellan Road Extension works are complete as part of the previous phases of Oldtown lands.

The works related to the Swords Quality Bus Corridor are not under the remit of the applicant, as detailed in Section 2.2.

4.2 Public Transport

4.2.1 Bus Connects

The Bus Connects project currently being promoted by the National Transport Assessment aims to deliver a much-enhanced bus service to the Greater Dublin Area (GDA). The routes proposed to serve the proposed development site are the Local Route 197, Local Route L89, Route X84 and route A4. A summary of the frequency of these routes is shown in Table 3. Service frequency of Route 197 will remain as it currently is (Refer to Table 2 above).

Bus Route	Monday – Friday	Saturday	Sunday
L89	Every 1 – 2 hours	Every 2 hours	Every 2 hours
X84	3 Buses at 07:00; 3 Buses at 17:00	-	-
A4	12-15 minutes	15-20 minutes	20-30 minutes

Table 3 | Summary of BusConnects Routes Frequency.

4.2.2 Metrolink

MetroLink is a proposed high-capacity, high-frequency rail line running from Swords to Charlemont. MetroLink is expected to carry up to 50 million passengers annually, current journey times from Swords to the city centre to 25 minutes. The preferred route for MetroLink is currently undergoing consultation and an application for planning approval for the MetroLink Scheme is expected to be made to An Bord Pleanala in 2022. It is expected that MetroLink service would be operational in 2027.

The Estuary Park & Ride station, which is also the terminus of the MetroLink is located approximately 3.5km east of the proposed site. This facility will offer 3,000 parking spaces and will facilitate and encourage a car-rail combined travel to be made. It is envisaged that the introduction of the MetroLink will see a significant modal shift towards public transport resulting in a lower dependence on the private car. Figure 8 below shows the location of the MetroLink terminus in relation to the proposed development site.

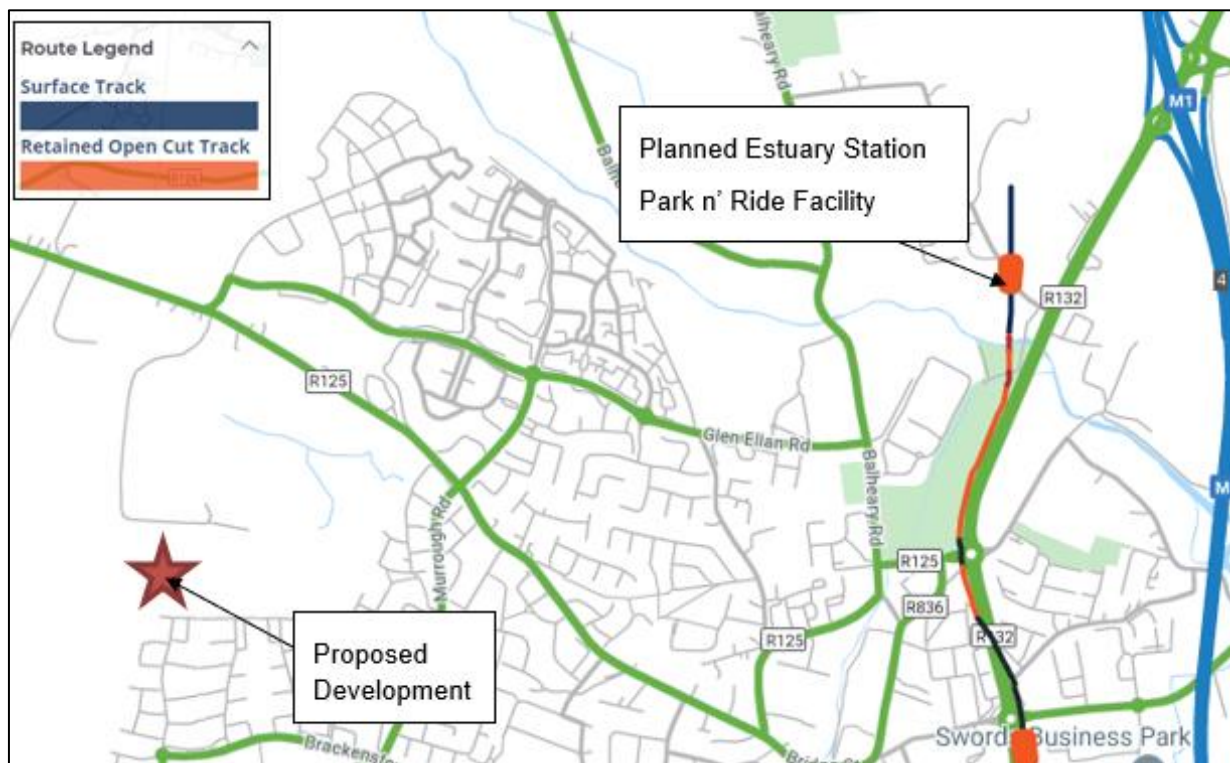


Figure 8 | Location Map for MetroLink Station with 'Park n' Ride' facility.

4.3 GoCar

It is expected that GoCar will provide 6 no. shared car club vehicles within the subject development site when fully constructed and occupied. A letter to confirm GoCar intentions to provide these new car club vehicles is included in Appendix D.

According to GoCar, *"Carsharing is a sustainable service. By allowing multiple people to use the same vehicle at different times, car sharing reduces car ownership, car dependency, congestion, noise and air*

pollution. It frees up land which would otherwise be used for additional parking spaces. Most GoCar users only use a car when necessary, and walk and use public transport more often than car owners.”

4.4 Pedestrian

Additional pedestrian facilities, such as footpaths, dedicated pedestrian crossings and green routes connecting the public parks, will continue to be provided at Mooretown as the development progresses.

All footpaths for the proposed development will be provided in accordance with Section 4.3.1 of the DMURS which suggests that a minimum 1.8m wide footpath should be provided.

4.5 Cycle

The National Transport Authority published proposals for the Greater Dublin Area Cycle Network Plan in December 2013. The plan sets out a vision and a strategy for the construction and/or designation of a comprehensive network of cycling routes throughout the Greater Dublin Area (Counties Dublin, Meath, Kildare and Wicklow).

An extract from Sheet N9 (Proposed Cycle Network Swords & Malahide) is reproduced in Figure 9 below.

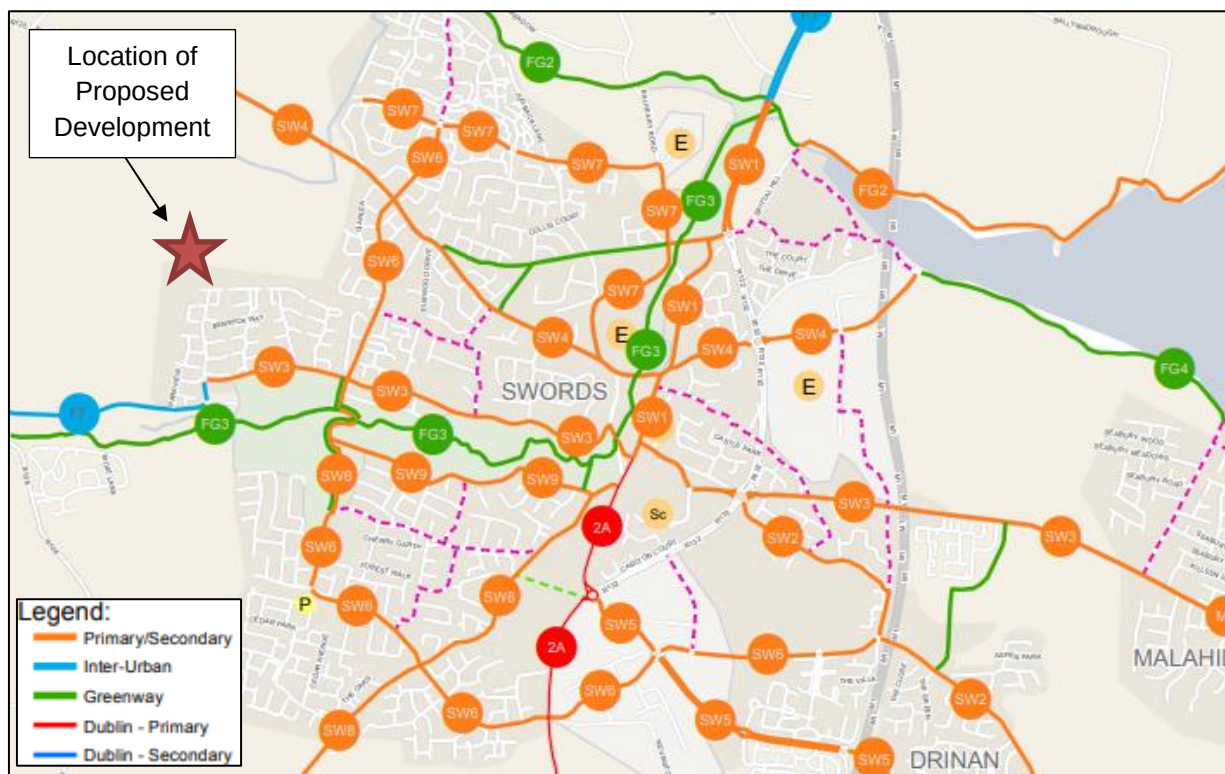


Figure 9 | GDA Proposed Cycle Network Plan: Sheet N9.

For further details on future cycle network in the locality (including those approved within Mooretown), please refer to Waterman Moylan Drawing 21-011-P1005 accompanying the documentation package.

5. Proposed Development

5.1 Development Description

The proposed development is labelled as phase three of the Mooretown development and consists of 650 residential units comprising of:

- 265 Houses
- 119 Duplexes/Simplex
- 266 Apartments

There will also be a creche with circa 519 sqm of area to attend 102 children and c. 15 staff, and 946 sqm of commercial space.

<i>Unit Type</i>	<i>1 – Bed</i>	<i>2 – Bed</i>	<i>3 – Bed</i>	<i>4 – Bed</i>	<i>Total</i>
<i>Apartment</i>	76	190	-	-	266
<i>Duplex</i>	-	3	110	-	113
<i>Triplex</i>	-	-	6	-	6
<i>House</i>	-	-	240	25	265
<i>Total</i>	76	193	356	25	650

Table 4 | *Proposed Development – Residential Units Breakdown.*

5.2 Site Location and Land Use

The site is 18.378 ha in size and is located approximately 3.0 km to the west of Swords. It is currently a greenfield site with the surrounding lands to the north and east being part of the Oldtown-Mooretown LAP. To the south of the site there is the Abbeyvale residential estate.

5.3 Internal Road Layout

All internal roads in the proposed development are designed for a speed limit of 30kph with typically 5.0m wide carriageways and footpaths along both sides. All intersections within the development itself will be priority junctions with raised tables where appropriate. The low design speeds and traffic calming measures will ensure the safe operation of these junctions and a safe/secure environment for pedestrians and cyclists.

The design and layout of the proposal has been prepared to fully comply with the current relevant design standards and specifications applicable to this form of development.

For general arrangement of internal roads, please refer to Waterman Moylan Drawings No's 21-011-P1100, 21-011-P1101, 21-011-P1102, 21-011-P1103 and 21-011-P1104 accompanying the subject application as part of the documentation package.

5.4 Site Access

The main vehicle access route to the site will be through the recently constructed Western Link Distributor Road, which, under planning ref. F20A/0096 is approved to be extended further south (for c. 400m) along the western boundary of the site to comprise two vehicular access points.

The Western Link Distributor Road runs north to south from the Oldtown lands to the proposed development further south. It crosses the R125 Rathbeale Road via a new signalised crossroads junction as seen in Figure 10 below – extracted from Oldtown Mooretown LAP.

Six additional vehicular access points to the site are also proposed via the recently constructed Main Street, developed as part of the Mooretown School Campus under Reg. Ref. F14A/0012.

A cycle/pedestrian link is proposed on the southeast boundary of the site to provide connectivity to the adjacent Abbeyvale residential estate.

An allowance for future traffic and pedestrian links has also been proposed to facilitate a connection between the site and the approved development to the north of the site (Mooretown Planning 02 – Reg. Ref. F16A/0505), and also to any potential future development to the east. See Figure 11 below.

5.5 Access to Refuse Vehicles

The proposed development of Mooretown Phase 3 will be accessible for refuse vehicles. Swept path layout is shown on the Waterman Moylan Drawing No. 21-011-P1110 accompanying the document package.

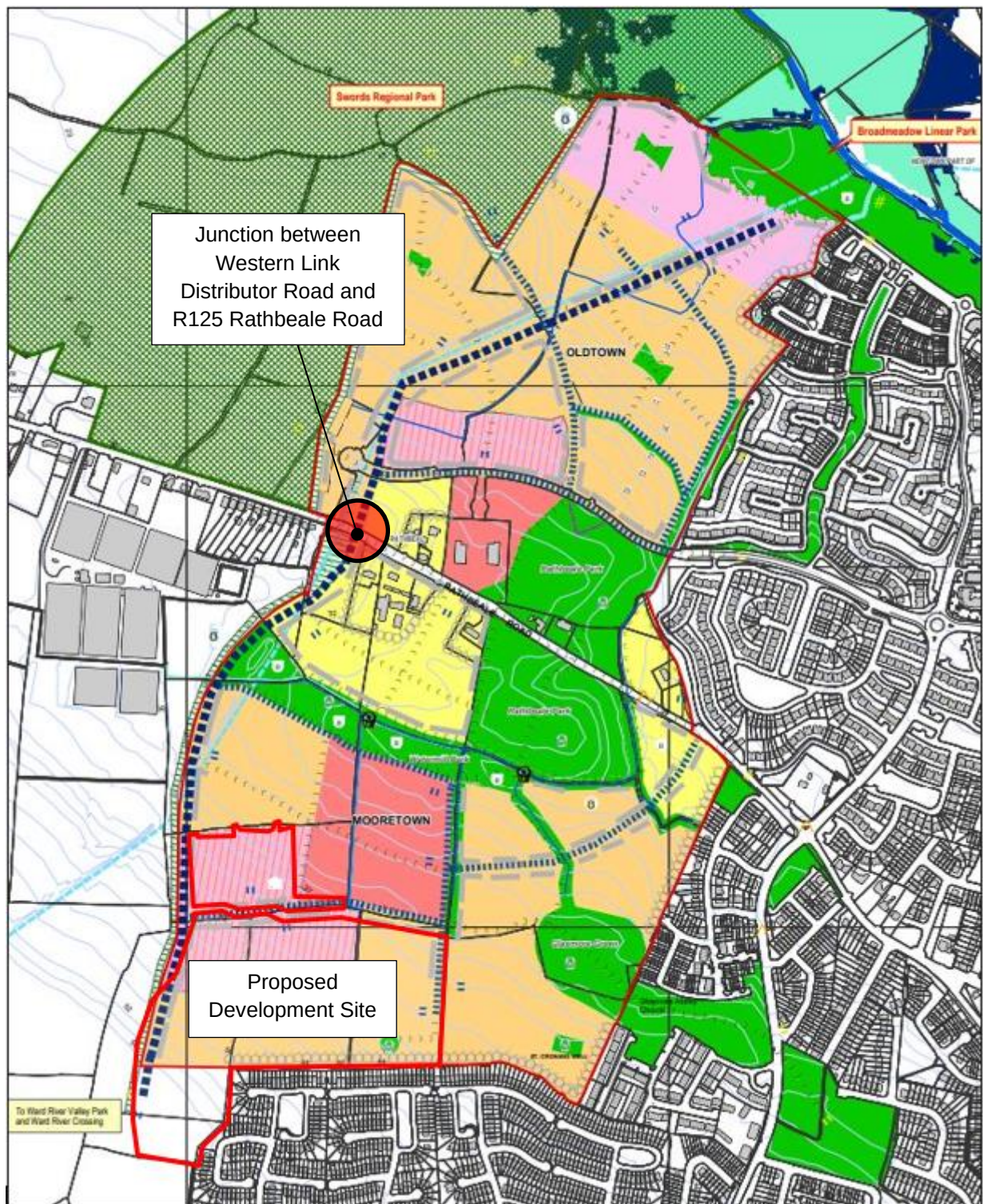


Figure 10 | R125/WLDR Junction in Relation to the Subject Site – extract from the LAP.

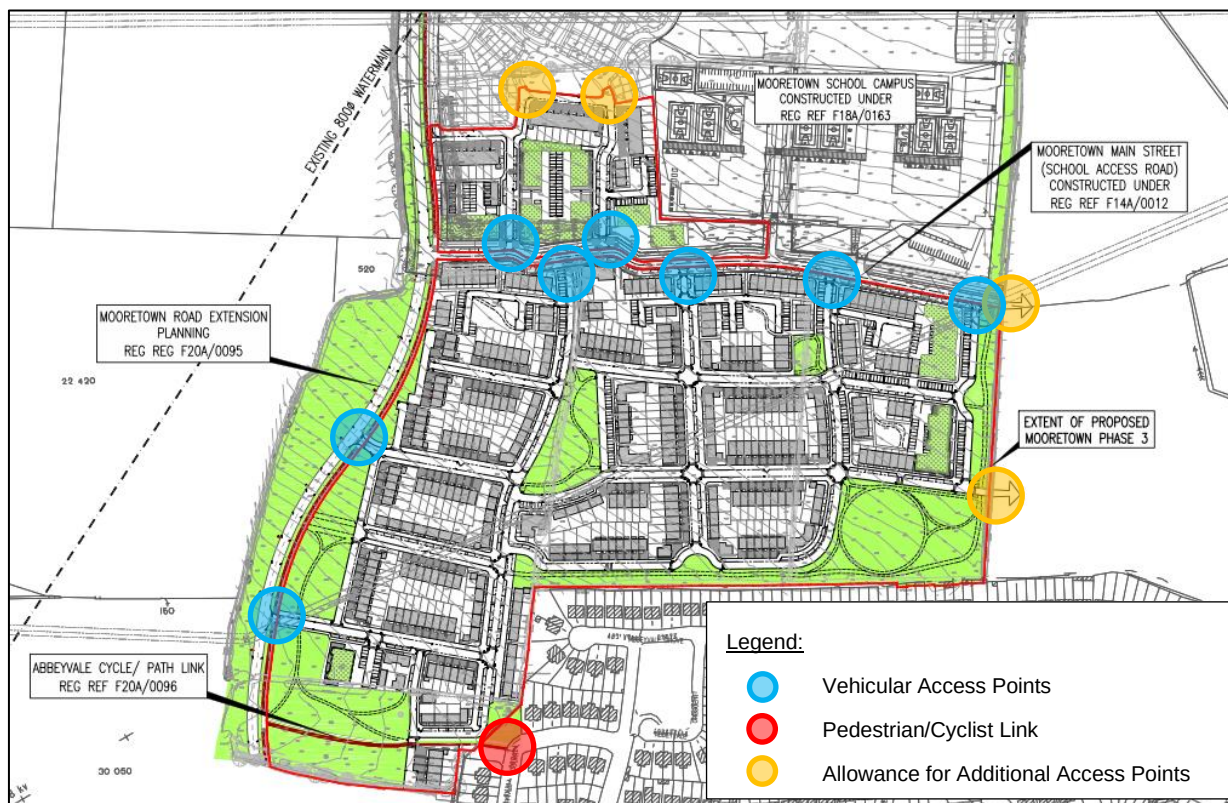


Figure 11 | Proposed Development Site Access.

5.6 Accessibility of the Site

5.6.1 Walking Accessibility

The “Guidelines for Providing for Journeys on Foot” published by the Institution of Highways & Transportation in 2000 indicates that acceptable walking distances will vary between individuals and circumstances, such as an individual’s fitness, physical ability and personal motivation; the size of the city itself and the quality of the surrounding footpath network. This document also suggests walking distances and times based on an average walking speed of 1.4m/sec (approximately 400m in five minutes). Table 5 below summarises these suggestions.

	Town Centre	Commuting / School / Site Seeing	Elsewhere
Desirable	200m (2.5-minutes)	500m (6-minutes)	400m (5-minutes)
Acceptable	400m (5-minutes)	1,000m (12-minutes)	800m (12-minutes)
Preferred Maximum	800m (10-minutes)	2,000m (24-minutes)	1,200 (15-minutes)

Table 5 | Ideal Walking Distances - Source: "Guidelines for Providing for Journeys on Foot"

As can be in Figure 12 below, within the 10-minute walking catchment there are two schools, these are Broadmeadow Community National School and Swords Community College. Within the 20-minute walking distance there are four bus stops for travels in both directions. These bus stops are for the 197

and 41B as seen in Section 3.2.1. Further north of the proposed development within the 20-minute isochrone there is another school, Gaelscoil Bhrian Bóroimhe and Applewood Community Centre which can offer leisure and sporting activities for the area.

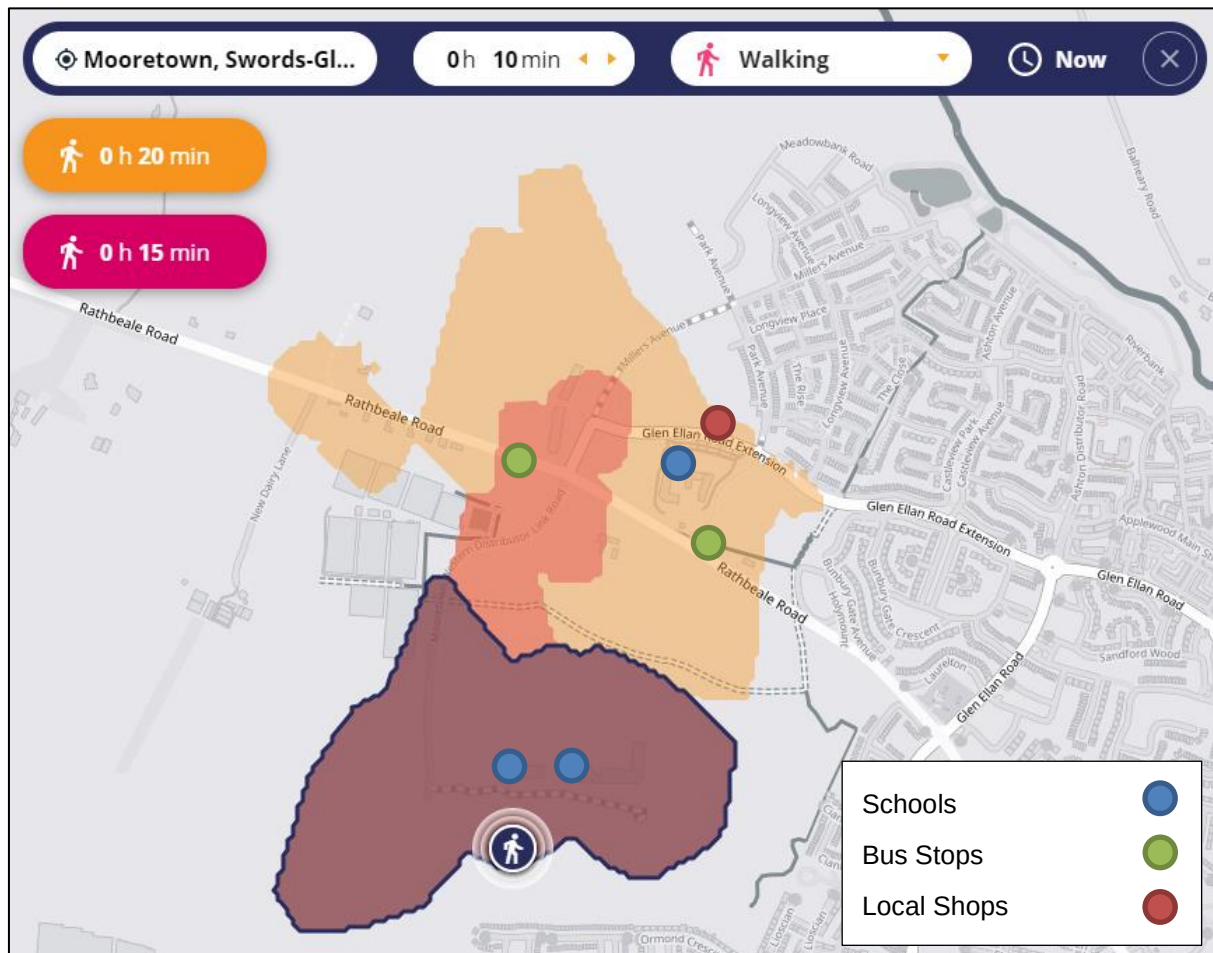


Figure 12 | Site Accessibility - Walking Distances.

5.6.2 Cycling Accessibility

As presented for walking, a similar catchment exercise has also been undertaken for the cycling mode of transport. Based on an average cycling speed of 3.3m/sec (i.e., 15km/h), Figure 13 below illustrates a 15-minute cycling isochrone to summarise the accessibility of the site by bicycle. A 15-minute cycling time equates to a distance of approximately 3.0km.

As can be seen in Figure 13 below, a 15-minute cycling isochrone give access to several schools, services and amenities in the area. There are several schools with the area with two school adjacent to the proposed development, Broadmeadow Community National School and Swords Community College and further north is Gaelscoil Bhrian Bóroimhe. There are two more schools within Swords to the East of the proposed development, being St Finian's Community College to the north east and Fingal Community College.

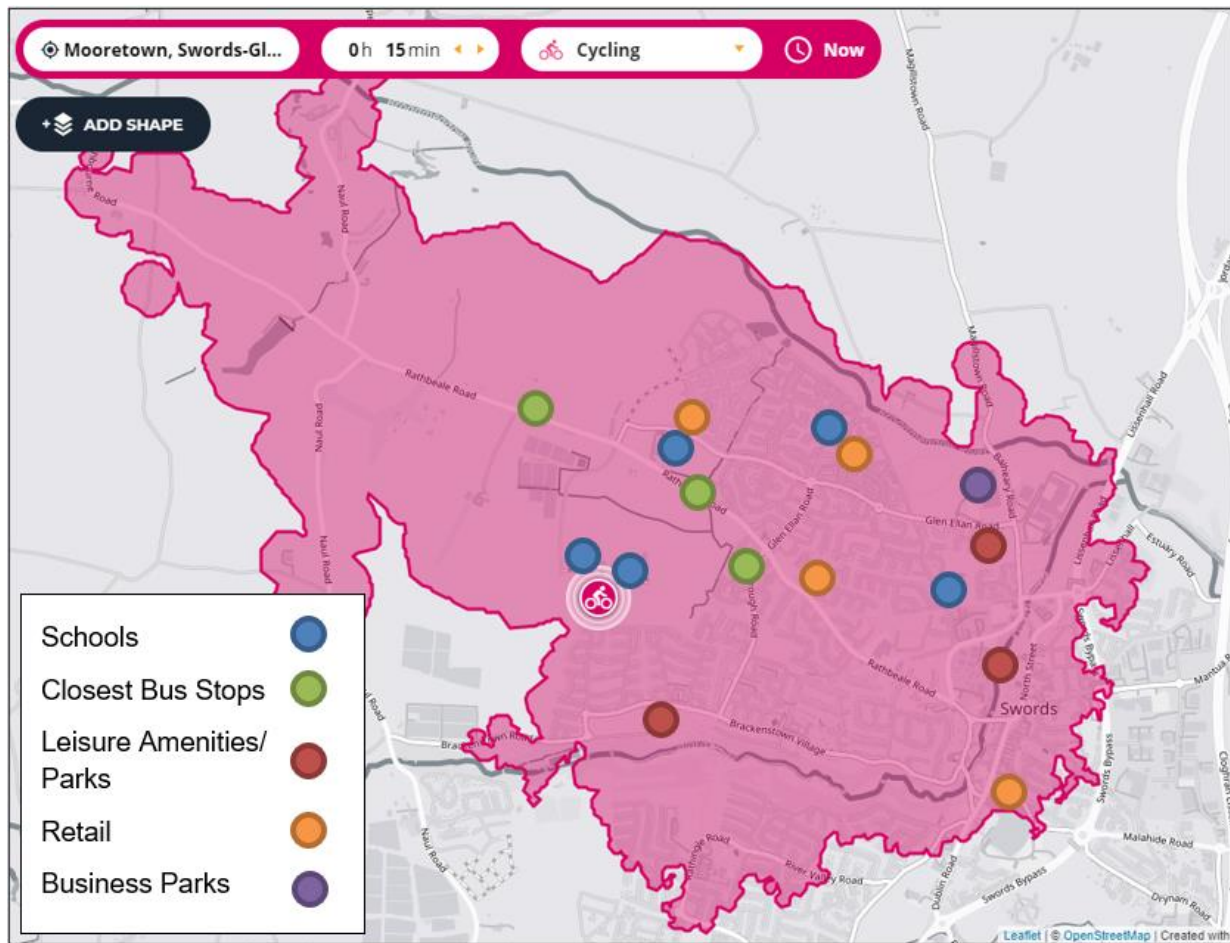


Figure 13 | Site Accessibility - Cycling Distances.

There are several bus-stops also available to the north and east of the catchment that offer access to Dublin City Centre and Swords Main Street.

There are several retail facilities within the catchment, the most significant being Pavilion Shopping centre to the south east of the proposed development. To the east and closer to the proposed development is a large supermarket and to the north of this is a small area of shops and restaurants in Applewood.

There are several leisure and sports facilities in the area. There are two parks in the area, one to the south called Windmill lands and has Ward River running through it. St. Colmcilles GAA club is to the East of the proposed development. Directly north of the site is the Applewood Community Centre which can offer leisure and sporting activities for the area.

To the north east of the proposed development at the edge of the catchment, there is a small business park which offers employment opportunities.

6. Planning Background

6.1 Mooretown Previous Applications

6.1.1 Mooretown Planning 01 (2015)

Mooretown Planning 01 (Reg. Ref:) was granted by Fingal County Council in December 2015. The approved residential development forms part of the Oldtown and Mooretown lands and are subject to the Oldtown-Mooretown Local Area Plan (LAP). The permission provided for 190 houses and 60 apartments.

6.1.2 Mooretown Planning 01 – Amending Applications (2018 and 2019)

In the period between 2018 and 2019, there have been three amending applications to revise the Mooretown Planning 01 approved under Reg. Ref: F15A/0183. These amending applications, which received grant permission by FCC, are as follows:

Mooretown Planning 01A (Reg. Ref: F18A/0701): Permission to omit 43 no. houses comprising 18 no. 4-bedroom 2-storey houses, 23 no. 3-bedroom 2-storey houses, 2 no. 3-bedroom 3-storey houses and a single 3 storey with penthouse level block of 15 apartments comprising 4 no. 1-bedroom apartments and 11 no. 2-bedroom apartments (58 units in total) and to now provide 2 no. 2-bedroom 2-storey houses, 33 no. 3-bedroom 2-storey houses and 4 no. 4-bedroom 2-storey houses. It also proposes 2 no. 3-storey with penthouse level apartment blocks comprising 40 no. 2-bedroom apartments and 20 no. 1-bedroom apartments (99 units in total) and a 352m² crèche.

Mooretown Planning 01B (Reg. Ref: F18A/0751): Revisions to part of previously permitted development Reg. Ref. F15A/0183 to omit 77 no. houses comprising 28 no. 4-bedroom 2-storey houses and 49 no. 3-bedroom 2-storey houses and a single 3-storey with penthouse level block of 15 apartments comprising 4 no. 1-bedroom apartments and 11 no. 2-bedroom apartments (92 units in total) and to now provide 5 no. 2-bedroom 2-storey houses, 78 no. 3-bedroom 2-storey houses and 7 no. 4-bedroom 2 storey houses (90 units in total).

Mooretown Planning 01C (Reg. Ref: F19A/0029): Revisions to part of previously permitted development Reg. Ref. F15A/0183 to omit a crèche and 69 no. houses comprising 23 no. 4-bedroom 2-storey houses and 46 no. 3-bedroom 2-storey houses and two 3-storey with penthouse level blocks of 15 apartments comprising 8 no. 1-bedroom apartments and 22 no. 2-bedroom apartments (99 units in total) and to now provide 81 no. 3-bedroom 2-storey houses and 13 no. 4-bedroom 2-storey houses (94 units in total).

At the time of writing this report, Mooretown Planning 01 is under-construction.

6.1.3 Mooretown Planning 02 (2016)

Mooretown Planning 02 (Reg. Ref: F16A/0505) was granted by Fingal County Council in November 2017. The approved residential development forms part of the Mooretown lands and are subject to the Oldtown-Mooretown Local Area Plan (LAP). The permission provided for 188 houses and 50 apartments.

At the time of writing this report, Mooretown Planning 02 is at compliance stage.

6.1.4 Mooretown School Site (2018)

Mooretown School Site (Reg. Ref: F18A/0163) was granted by Fingal County Council in June 2018. The approved school development forms part of the Mooretown lands and is subject to the Oldtown-Mooretown Local Area Plan (LAP). The permission provided for one primary and one post-primary school to cater for a total population of 1,624 pupils.

At the time of writing this report, Mooretown School Site is operational.

6.2 Current Application

6.2.1 Mooretown Phase 3

The development proposed under the subject planning application (referred to as Mooretown Phase 3) will comprise a total of 650 residential units (265 houses, 266 apartments, 119 duplex/triplex units), a creche (519 sqm) and 946 sqm of commercial space.

The applicant will also deliver all the associate infrastructure necessary to serve the proposed development, including internal roads, footpaths, cycle-paths, public lighting and parking spaces.

6.3 Oldtown Previous Applications

6.3.1 Oldtown Planning 01 & 02 (2011)

The first planning permission for Oldtown lands (Oldtown Planning 01 & 02) was granted by FCC in December 2011 subject to 39 conditions (Reg Ref: F11A/0436).

The permission provided for:

Oldtown Planning 01: 245 residential units comprising 230 houses and 15 apartments.

Oldtown Planning 02: 224 residential units comprising 162 houses and 62 apartments and 1,510 sqm of commercial area.

6.3.2 Oldtown Planning 01 – Amending Applications (2013 to 2016)

In the period following the first planning permission in Oldtown, there have been a number of amending applications between the period of 2013 and 2016 to revise the Oldtown Planning 01 approved under Reg. Ref: F11A/0436. These amending applications, which received grant permission by FCC, are as follows:

Oldtown Planning 01A - (Reg Ref: F13A/0185): Revisions to approved development (Reg. Ref. F11A/0436), to omit 34 four bedroom 2 storey houses and 28 three bedroom 2 storey houses and to now provide 9 four bedroom houses, 45 three bedroom houses and 6 two bedroom houses, all of which are two storey dwellings.

Oldtown Planning 01B (Reg. Ref: F14A/0486): Revisions to approved development (Reg. Ref. F11A/0436), to omit 7 four bedroom 2-storey houses and 25 three bedroom 2-storey houses and to now provide 3 four bedroom houses and 32 three bedroom houses, all of which are 2-storey dwellings.

Oldtown Planning 01C (Reg. Ref: F14A/0419): Revisions to approved development (Reg. Ref. F11A/0436), to omit 12 four bedroom 2-storey houses, 11 three bedroom 2-storey houses and 11 three bedroom 3-storey houses and to now provide 3 four bedroom houses and 28 two bedroom houses, all of which are 2-storey dwellings.

Oldtown Planning 01D (Reg. Ref: F14A/0471): Revisions to approved development (Reg. Ref. F11A/0436), to omit 17 four bedroom 2-storey houses, 28 three bedroom 2-storey houses, 12 two bedroom 2-storey houses and a 316 sq.m. crèche and to now provide 8 four-bedroom houses and 46 three bedroom houses, all of which are 2-storey dwellings.

Oldtown Planning 01E (Reg. Ref: F15A/0136): Revisions to approved development (Reg. Ref. F11A/0436), to omit 17 three bedroom 2-storey houses, 7 four bedroom 2-storey houses, 17 four bedroom 3-storey houses, and now provide 33 three bedroom 2-storey houses, 8 four bedroom 3-storey houses.

Oldtown Planning 01F (Reg. Ref: F16A/0091): Revisions to approved development (Reg. Ref. F11A/0436), to omit 7 two bedroom apartments in a 3-storey plus penthouse block, 5 three bedroom triplex units and 2 two bedroom duplex units and now provide 2 four bedroom 3-storey houses, 4 one-bedroom apartments and 10 two bedroom apartments in a 3-storey plus penthouse block and a 253 sq.m. crèche.

Oldtown Planning 01 is completely constructed and occupied.

6.3.3 Oldtown Planning 02 – Amending Applications (2011, 2018 and 2019)

There have also been a number of amending applications in 2011, 2018 and 2019 to revise the Oldtown Planning 02 approved under Reg. Ref: F11A/0436. These amending applications, which received grant permission by FCC, are as follows:

Oldtown Planning 02 & Commercial Block (Reg. Ref: F11A/0473): This planning application was granted by Fingal County Council in November 2012. It comprised of 224 residential units and a commercial development of 1,510 sqm of area.

Oldtown Planning 02A (Reg. Ref: F18A/0410): Revisions to part of previously permitted development Reg. Ref. F11A/0473 to omit 45 no. 3-bedroom 2-storey houses, 16 no. 4-bedroom 2-storey houses, 10 no. 4-bedroom 2.5 storey houses, 1 no. 2-bedroom 2-storey house, 2 no. 1-bedroom apartments and 19 no. 2-bedroom apartments (93 units in total), an 83m² shop and a 174m² crèche and to now provide 53 no. 3-bedroom 2-storey houses and 11 no. 4-bedroom 2 storey houses, a 3-storey block comprising 2 no. 3-bedroom triplex units, 4 no. 3-bedroom duplex units and 2 no. 2-bedroom apartments, and a 4-storey block of 6 no. 1-bedroom, 6 no. 2-bedroom and 2 no. 3-bedroom apartments (86 units in total), a 162m² shop and a 183m² crèche.

Oldtown Planning 02B (Reg. Ref: F18A/0412): Revisions to part of previously permitted development Reg. Ref. F11A/0473 to omit 15 no. 4-bedroom 2-storey houses, 1 no. 4-bedroom 2.5 storey house and 50 no. 3-bedroom 2-storey houses (66 units in total) and to now provide 11 no. 4-bedroom 2-storey houses, 65 no. 3-bedroom 2-storey houses and 4 no. 1-bedroom and 11 no. 2-bedroom apartments in a single 4-storey block (91 units in total).

Oldtown Planning 02C (Reg. Ref: F19A/0101): Revisions to part of previously permitted development Reg. Ref. F11A/0473 to omit 10 no. 4-bedroom 2-storey houses, 10 no. 3-bedroom 2-storey houses, 6 no. 2-bedroom 2-storey houses, 18 no. 2-bedroom apartments in 3 blocks of 3-storeys each and 3 no. 2-bed

+ study own-door maisonettes (47 units in total) and to now provide 25 no. 3-bedroom 2-storey houses, 4 no. 1-bed apartments, 8 no. 2-bedroom apartments and 20 no. 3-bedroom duplex in 2 blocks of 3 storeys (57 units in total).

At the time of writing this report, the commercial block is fully constructed and operational under planning permission Reg. Ref. F11A/0473 and the amended residential units proposed under Oldtown Planning 02A and 02B are at construction stage and 02C is at the compliance stage.

6.3.4 Oldtown Planning 03 (2015)

Oldtown Planning 03 (Reg. Ref: F15A/0390) was granted by Fingal County Council in March 2016. The development, which is labelled as Oldtown Planning 03A, consisted of 246 residential units (134 houses and 112 apartments).

6.3.5 Oldtown Planning 03 – Amending Application (2017)

An amending application to revise the previously permitted development (Reg. Ref: F15A/0390) has been approved by FCC under the following planning application:

Oldtown Planning 03D (Reg. Ref: F17A/0216): Permission for revisions to part of approved development Reg. Ref. F15A/0390 on lands at Oldtown to omit 16 no. 3-bedroom duplex units, 1 no. 3-bedroom triplex unit and 8 no. 2-bedroom apartments on Miller's Avenue (25 units) and to now provide 13 no. 3-bedroom 2-storey houses and 1 no. 4-bedroom 2-storey house (14 units), and to also provide 4 no. 3-bedroom duplex units with 2no. bedroom apartments overhead in a 3-storey block, plus 3 no. 1-bedroom apartments, 10 no. 2-bedroom apartments and 1 no. 3-bedroom apartment in a 4 storey block on Longview Mews (20 units).

Oldtown Planning 03 is completely developed and occupied.

6.3.6 Oldtown Planning 04 (2017)

Oldtown Planning 04 received planning permission under the following planning Reg. Ref's:

Oldtown Planning 04A (Reg. Ref: F17A/0666): this application received planning permission in March 2018. The development consisted of 96 residential units (42 houses and 54 apartments).

Oldtown Planning 04B (Reg. Ref: F17A/0735): this application received planning permission in June 2018. The development consisted of 98 residential units (53 houses and 45 apartments).

Oldtown Planning 04C (Reg. Ref: F17A/0687): this application received planning permission in June 2018. The development consisted of 92 houses.

6.3.7 Oldtown Planning 04 – Amending Application (2018)

An amending application to revise the permitted development (Reg. Ref: F17A/0687) has been approved by FCC in February 2019 under the following planning application:

Oldtown Planning 04B (Ref. Ref. F19A/0486): Revisions to part of previously permitted development Reg. Ref. F17A/0735 to omit a single 3-storey plus penthouse block of 15 apartments comprising 4 no. 1 bedroom apartments, 10 no. 2-bedroom apartments and 1 no. 3-bedroom apartment, and to instead provide 7 no. 4-bedroom 3-storey houses.

Oldtown Planning 04D (Reg. Ref: F18A/0750): Revisions to part of previously permitted development Reg. Ref. F17A/0687 to omit 17 no. 3-bedroom 2-storey houses and 9 no. 4-bedroom 2-storey houses and to instead provide 26 no. different 4-bedroom 2-storey houses and to provide 9 no. new 4-bedroom 2-storey houses on the west side of Park Avenue.

At the time of writing this report, Oldtown Planning 04 is partially constructed.

6.4 Oldtown Previous Applications

6.4.1 Oldtown Planning 05 – Pending Approval

Oldtown Planning 05 is a potential future development subject to a future planning application and approval. It will comprise a total of c.377 residential units (173 houses, 169 apartments and 35 duplex units and a 519 sqm Creche) on a total area of c. 7.80 Ha.

The applicant will also deliver all the associate infrastructure necessary to serve the proposed development, including internal road, footpaths, cycle-paths, public lighting and parking spaces.

7. Oldtown-Mooretown Local Area Plan (2010)

7.1 Phasing of Development

As presented earlier in this report, the Oldtown-Mooretown LAP (2010) is required to be developed in 4 phases as follows:

- Phase 1: Residential Development of approximately 800 units, representing circa 25% of the overall LAP development.
- Phase 2: Residential Development of approximately 1,000 units, representing circa 30% of the overall LAP development.
- Phase 3: Residential Development of approximately 600 units, representing circa 20% of the overall LAP development.
- Phase 4: Residential Development of approximately 800 units, representing circa 25% of the overall LAP development.

7.2 Phase 1 – Existing Developments

The existing developments completed and occupied in Oldtown-Mooretown LAP at the time of writing is summarised below.

Planning Area	Stage	Total Residential (Units)	Total Non-Residential (sqm or pupils)
Oldtown 01	234 Constructed and Occupied	234	-
Oldtown 03A&D	161 Constructed and Occupied	181	-
Oldtown 02 (Commercial Block)	48 Constructed and Occupied	249	1,510 sqm
Oldtown 04A	41 Constructed not fully occupied	95	-
Oldtown 04B	53 Constructed not fully occupied	98	-
Oldtown 04C&D	101 Constructed fully not occupied	101	-
Total Oldtown		958	1,510 sqm
Mooretown School	Constructed and operational	-	1,624 pupils
Mooretown Phase 1		223 under Constructed	283
Total Mooretown		283	1,624 pupils

Table 6 | Existing Developments (Occupied and Not Occupied) on the LAP Lands – 2022.

As shown in Section 7.1 above, Phase 1 of the LAP accounts for the first 800 residential units. The construction programme is to construct Oldtown Planning 05 after Oldtown Planning 04, which is now

completely constructed. The recently developed Oldtown Planning 04 together with the existing developments of Oldtown Planning 01 & 03 will approximate the LAP Phase 1 limit (800 units) with 756 units and will bring the Oldtown Planning 05 into the LAP Phase 2.

7.3 Phases 2 & 3 – New Developments (Approved and Proposed) - 2027

The new developments to be completed and occupied in the Oldtown-Mooretown LAP lands by 2027 (Opening Year of the subject application - Mooretown 03) is summarised in Table 7.

Planning Area	Stage	Total Residential (Units)	Total Non-Residential (sqm)
Oldtown 02A	Approved not constructed	86	-
Oldtown 02B	Approved not constructed	91	-
Oldtown 02C	Approved not constructed	56	-
Oldtown 05	Potential Future Development	377	519
Total Oldtown		610	519
Mooretown 01 (A, B and C)	Approved not constructed	283	-
Mooretown 02	Approved not constructed	208	-
Mooretown 03	Potential Future Development	650	1,482
Total Mooretown		1,141	1,482
Total Oldtown-Mooretown		1,751	2,001

Table 7 | New Developments (Approved and Proposed) on the LAP Lands – 2027.

7.4 Overall Oldtown-Mooretown LAP Development 2032

The development of the entire Oldtown lands, considering the developed Oldtown Planning 01, 03 and 04, the approved Oldtown Planning 02 and the proposed Oldtown Planning 05, will consist of 1,367 residential units, a 519 sqm creche and a total of 1,510 sqm of retail area. No further developments are envisaged for Oldtown lands.

The Mooretown lands, considering the approved Mooretown Planning 01 & 02 and the potential future development of Mooretown Planning 03 and the recently constructed School Site will consist of 521 residential units and two schools to cater for 1,624 pupils. These developments, when summed with the approved/proposed developments in Oldtown lands, will equate to:

- 2,485 residential units (1,344 in Oldtown and 1,141 in Mooretown);
- 1,510 sqm of retail area in Oldtown;

- 1,465 sqm of non-residential area in Mooretown; and
- School Site at Mooretown to attend 1,624 pupils.

The LAP Phasing Programme as briefly described in Section 7.1 above, indicates that the overall Oldtown-Mooretown will facilitate a total of 3,200 residential units. Tables 5 and 6, show that 1,511 units have already been constructed/approved within the LAP lands and 377 are proposed as part of Phase 5. As no further developments are envisaged for Oldtown lands, the remaining c. 1,300 residential units for the overall LAP are predicted on Mooretown.

'Section 3.3.7 Local Centres: Retail and Commercial Services' of the Oldtown-Mooretown LAP sets out the maximum quantum of retail and commercial (non-retail) areas to be facilitated in Oldtown and Mooretown lands. For Oldtown, the Local Centre should comprise no greater than 2,000 sqm of retail, whilst a max 10,000 sqm Local Centre should be facilitated in Mooretown, with max 7,500 sqm for retail and max 2,500 sqm for non-retail.

As shown above, a retail development comprising of 1,510 sqm of area is already constructed in Oldtown as part of Oldtown Planning 02. No additional retail units are envisaged for Oldtown lands.

In summary, the overall Oldtown-Mooretown LAP development is estimated to consist of:

- c. 2,485 residential units, of which:
 - 1,344 units in Oldtown, and
 - 1,141 units in Mooretown.
- 11,510 sqm of commercial development, of which:
 - 1,510 sqm of retail in Oldtown,
 - 946 sqm of commercial in Mooretown
- School Site to cater for 1,624 pupils in Mooretown.

For the purpose of this assessment, it has been assumed that the overall Oldtown-Mooretown LAP, including residential and non-residential, approved, proposed and potential future developments, will be fully constructed and occupied by 2032.

7.5 Overall Oldtown-Mooretown LAP Population 2030

During the 2016 Census, the resident population in the neighbourhoods to the east of Oldtown-Mooretown Lands (Figure 14) was 7,606 persons in 2,272 housing units equivalent to 3.35 persons per unit.

On the basis of 3,200 residential units (1,371 units on Oldtown Lands and c. 1,829 units on Mooretown Lands) and an average of 3.35 persons per unit as recorded by Census 2016, it is estimated that the overall Oldtown-Mooretown Lands will have a resident population of 10,720 persons when fully completed and occupied.

- Oldtown Lands: 1,371 units x 3.35 persons per unit: 4,593 persons
- Mooretown Lands: 1,829 units x 3.35 persons per unit: 6,127 persons
- **Overall Development:** 3,200 units x 3.35 person per unit: **10,720 persons**

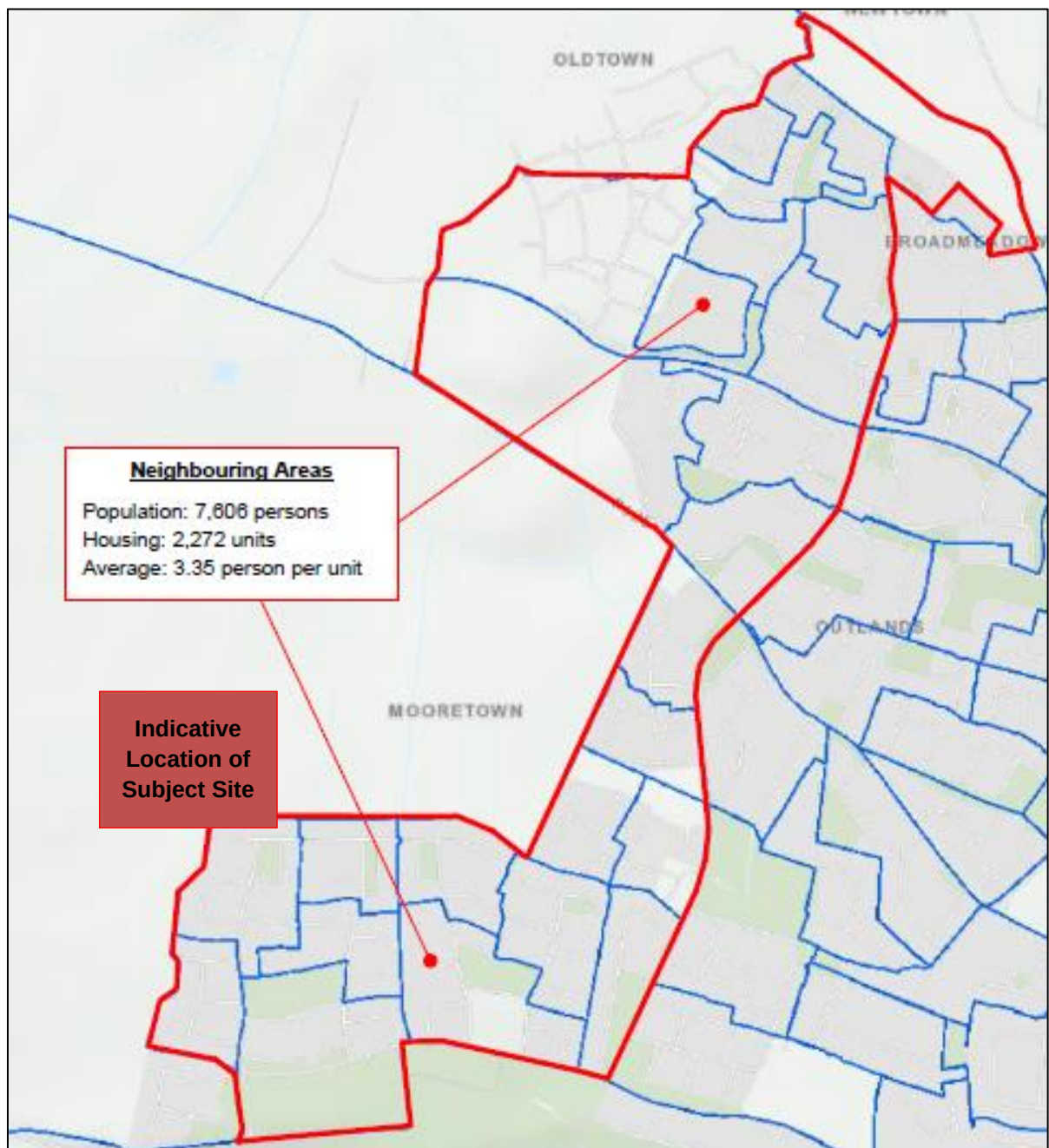


Figure 14 | Overall Oldtown-Mooretown LAP Estimated Population 2032.

8. Travel Characteristics

8.1 Road Traffic Survey

In order to determine the volume of traffic movements at key points on the road network surrounding the subject site, traffic count data has been assessed for the following four junctions in the vicinity of the site.

- **Junction 1 (Priority T-junction):** R125 Rathbeale Road / R108 Naul Road;
- **Junction 2 (Signalised Crossroads):** R125 Rathbeale Road / Western Distributor Link Road (WDLR);
- **Junction 3 (Signalised Crossroads):** R125 Rathbeale Road / Murrough Road;
- **Junction 4 (Four-armed Roundabout):** Glen Ellan Road / Glen Ellan Road Extension.

Due to the fact that a number of employees of the various companies in the country are still working on a remotely basis and not generating weekday commuting trips, as part of the subject application, no traffic survey was carried out. Instead, historic traffic count data from 2005/2006, 2017 and 2019 has been used to extrapolate current and anticipated volumes.

The 2017 and 2019 data used is taken from a traffic count survey which was carried by IDASO Ltd. on 03rd October 2017 and on 21st May 2019 at the two junctions indicated in Figure 15. The junctions surveyed were Junction 2 (2017) and Junction 4 (2019).

The 2005/2006 traffic volume data used is taken from the Environmental Impact Statement (EIS) prepared by Downey Hynes Partnership in November 2011 approved by FCC under Reg. Ref. F11A/0436. This data was based on extensive traffic and transportation studies that were carried out in 2010 on behalf of Fingal County Council.

It is recognised that traffic volume data from 2005/2006 are not appropriate to be used when preparing a report 15 years later as such data is likely to change as a reflex of many factors along the years. However, due to the absence of more recent traffic volume data and the fact that carrying out traffic survey in the current climate where not all employees are generating daily commuting trips, the 2005/2006 has been used for Junctions 1 and 3.

The survey identified the AM peak hour as 08h00 - 09h00 and the PM peak hour as 17h00 – 18h00 for all surveyed junctions, except Junction 4 which the PM Peak hour is identified as 18h00 – 19h00. The surveyed peak hour volumes are illustrated in Figure 16. The full results of the survey are included in Appendix A of this report:



Figure 15 | Location of Surveyed Junctions.

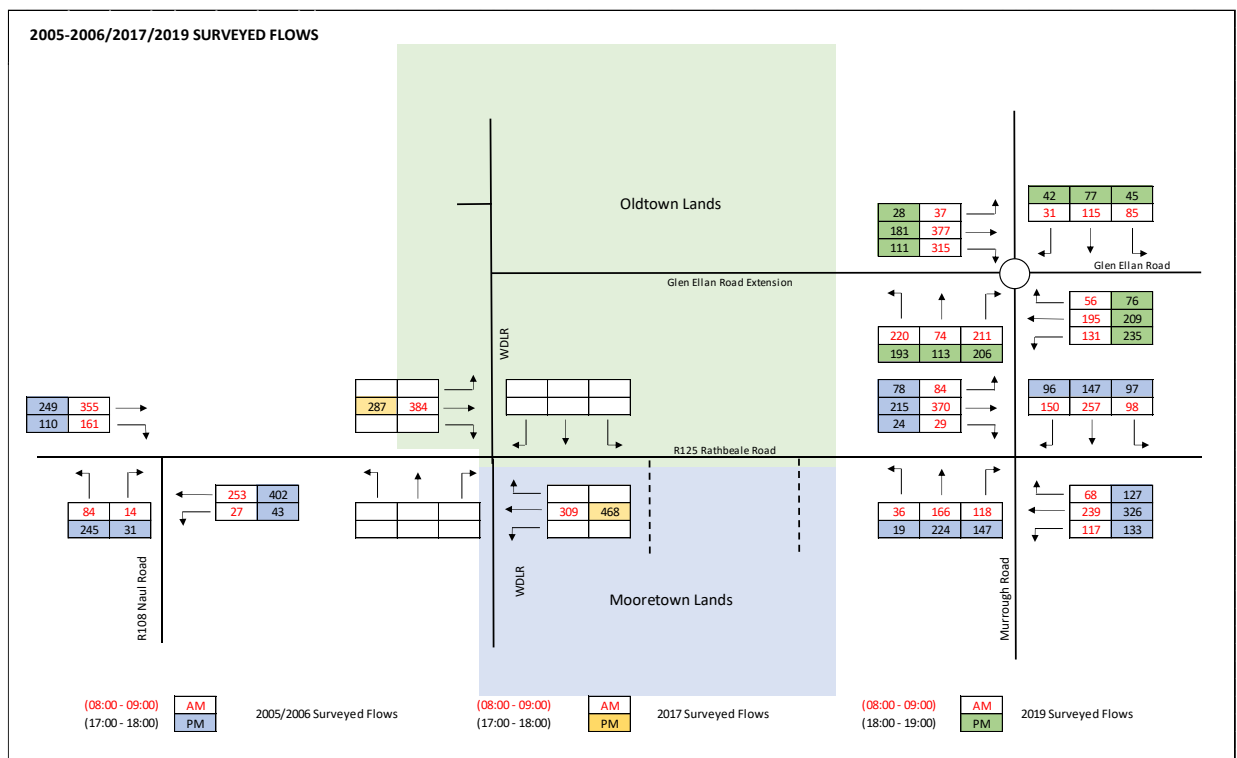


Figure 16 | Traffic Movements on Surveyed Junctions.

8.2 Small Area - Census 2016

Census 2016 was carried out by the Central Statistics Office on 24th July 2016.

With the objective to obtain information regarding 'car ownership', the existing residential areas to the east of the Oldtown-Mooretown LAP lands have been consulted. For the purpose of the 2016 survey, these areas have been divided in 25 Small Areas, 12 to the north and 13 to the south of R125 Rathbeale Road. These consulted Small Areas are illustrated in Figure 17.

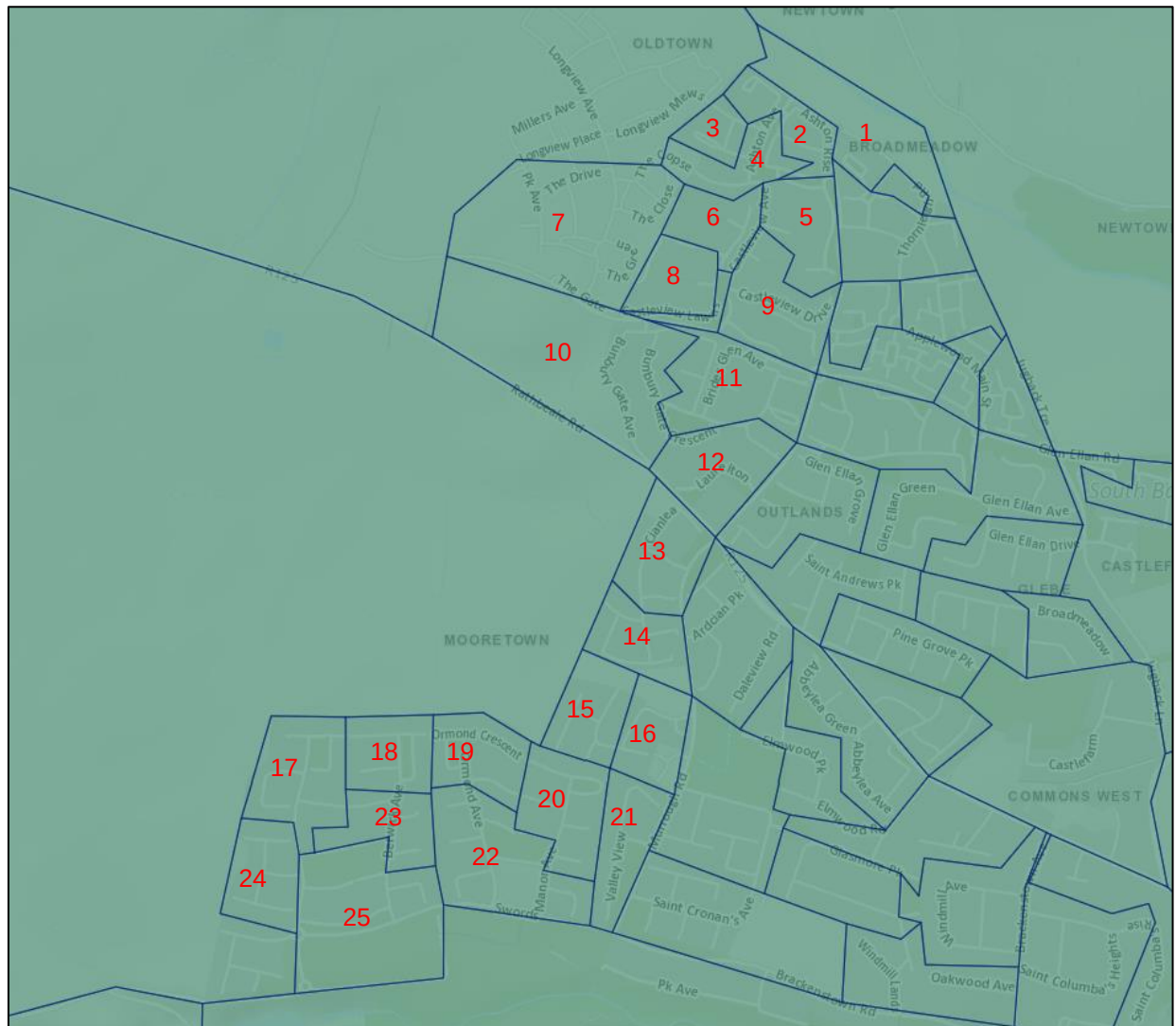


Figure 17 | Consulted Small Areas - Census 2016.

8.3 Car Ownership – Census 2016

The results of the Census for car ownership in the consulted Small Areas is presented in Table 8.

The survey recorded that the population of 7,606 persons living in these zones had a car ownership of 3,299 vehicles equivalent to 1 car per 2.3 persons or 1.45 car per residential unit.

Car Ownership										
Zone	Population	Housing	0	1	2	3	4+	Not Stated	Total	Total/ Housing
1	277	74	22	37	7	2	1	5	61	0.82
2	291	97	9	48	31	2	0	7	116	1.20
3	237	79	9	34	30	1	0	5	97	1.23
4	239	77	7	42	24	1	0	3	93	1.21
5	296	108	6	54	41	1	0	6	139	1.29
6	225	71	5	32	29	4	0	1	102	1.44
7	242	88	2	35	46	2	0	3	133	1.51
8	332	110	4	56	44	3	1	2	157	1.43
9	382	122	12	54	42	5	2	7	161	1.32
10	350	94	2	26	59	5	1	1	163	1.73
11	435	116	2	41	66	2	1	4	183	1.58
12	272	80	6	29	36	2	0	7	107	1.34
13	252	72	3	27	37	1	1	3	108	1.50
14	273	81	3	37	29	5	0	7	110	1.36
15	282	85	9	37	30	2	0	7	103	1.21
16	251	83	8	42	18	3	0	12	87	1.05
17	461	120	4	36	69	11	0	0	207	1.73
18	310	83	3	26	42	8	1	3	138	1.66
19	321	92	1	26	50	8	2	5	158	1.72
20	439	120	9	46	46	17	2	2	197	1.64
21	200	69	10	29	23	5	0	2	90	1.30
22	400	110	3	38	61	6	1	1	182	1.65
23	313	86	3	25	48	6	3	1	151	1.76
24	320	83	3	32	41	5	1	1	133	1.60
25	256	72	3	28	25	11	3	2	123	1.71
TOTAL	7,606	2,272	148	917	974	118	20	97	3,299	1.45

Table 8 | Car Ownership – Census 2016.

8.4 Modal Split – Swords Sub Area Report – South Fingal Transport Study

The Swords Sub Area Report, prepared by SYSTRA in 2019 as part of the overall South Fingal Transport Study, places emphasis on the NTA Statement of Strategy (2018 – 2022) which includes as a priority the promotion of more sustainable modes of transport (e.g. public transport and active modes of travel).

According to Section 2.3.1 of the Swords Sub Area Report, the proposed development of Mooretown 03 – and the overall Oldtown-Mooretown LAP lands, falls within the 'North West Sector' of Swords. See Figure 18 – extracted from 'Figure 2.2 Swords Sectors' of the Swords Sub Area Report.

Section 4.2.2.1 of the Swords Sub Area Report provides a comparison between three distinct scenarios (DoMin 2016, DoMin2027 and GDA Strategy No Metro 2027) to identify potential future changes in modal

choice for the 'Swords North West Sector' for the future year of 2027 with no intervention (DoMin 2027) and with the implementation of the GDA Strategy (2027 GDA Strategy No Metro). The GDA Strategy consists of NTA GDA Strategy improvements to the bus network and cycle facilities without the implementation of the MetroLink. Bus Connects Project is included as part of the NTA GDA Strategy.

The chart below – extracted from 'Figure 4.3 Trip Generation by Mode, Swords North West' within Swords Sub Area Report of the *South Fingal Transport Study*, indicates that during Census 2016, the modal split in the Swords North West sector was 52% by Car, 27% by Public Transport, 18% by Walk and 2% by Cycle. The chart also shows that for the 2027 DoMin, with the recognised housing in place (including the overall Oldtown-Mooretown LAP) without any intervention to the transportation network, the Swords North West area will face a large increase in the use of cars (to 62%), followed by a decrease in the use of Public Transport to 16%, 20% On Foot and the remaining 2% Cycle.

In the GDA Strategy scenario, with the recognised housing in place and an enhanced bus and cycle network (including Bus Connects), the results indicate that car trips will reduce considerably when compared to the 2027 DoMin, whilst public transport will increase. However, the absolute level of car trips in this scenario, with no further interventions, will remain higher than the current levels (DoMin 2016), and the identified modal split is predicted as the same recorded during Census 2016 – 52% by Car (8,528 trips), 27% by Public Transport (4,386 trips), 18% by Walk (2,958 trips) and 3% by Cycle (372 trips). This indicates that improvements to the bus/cycle network, will avoid a percentage increase in the Car usage in Swords North West sector, however the total number of car trips will still be higher than the current values (DoMin 2016).

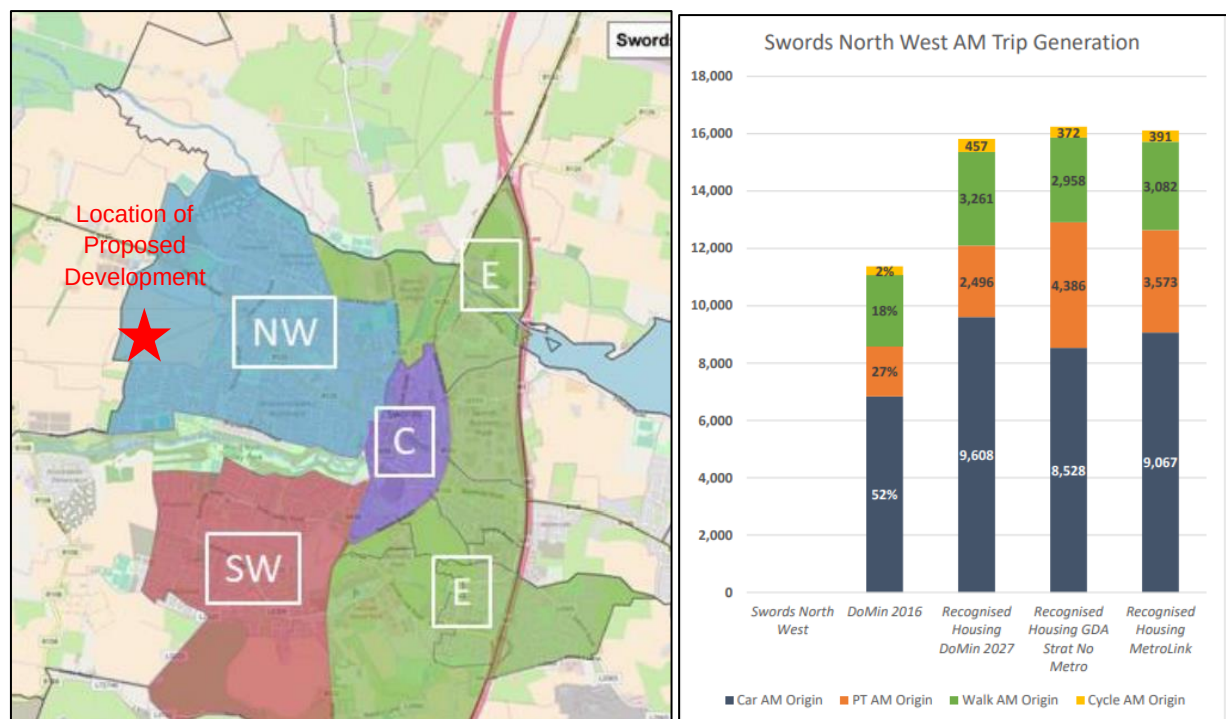


Figure 18 | South Fingal Transport Study - Swords North West Modal Split.

9. Trip Generation

9.1 TRICS Vehicle Trip Rates

In order to assess the likely impact of the traffic generation arising from the new developments at Oldtown-Mooretown LAP, TRICS software has been consulted. TRICS is the national standard of trip generation and analysis in Ireland. It is a database system which allows users to identify representative trip rates and to establish potential levels of trip generation for a wide variety of developments.

Full trip rates for each land use (residential and non-residential), which were taken from TRICS Database are included in Appendix B. A summary of the peak hour trip rates is presented in Table 9 below.

The output reports of TRICS indicated different AM&PM peak hours for each land use category. TRICS Peak Hours for the retail use, for example, are identified from 12:00 to 13:00 and from 14:00 to 15:00 which also do not coincide with the peak hours identified in the Traffic Surveys showed in Section 8.1 – Figure 16. Therefore, in order to represent a robust and more realistic trip generation of the new developments (approved, proposed and potential future) at the Oldtown-Mooretown LAP area, the following bullet pointed peak hours have been selected as being the TRICS trip rates considered appropriate for each use in relation to the Traffic Surveys peak hours and were selected carefully to avoid any over or underestimation of trips.

Land Use Category	AM Peak Hour	PM Peak Hour
• Residential	08:00 to 09:00*	17:00 to 18:00*
• Retail	09:00 to 10:00**	17:00 to 18:00**
• Commercial (Non-retail)	09:00 to 10:00**	18:00 to 19:00**
• Traffic Surveys	08:00 to 09:00	17:00 to 18:00

* Peak Hour indicated by TRICS consultation.

** Selected Peak Hour from TRICS

Land Use Category	AM Peak Hour		PM Peak Hour	
	Trip Rate IN	Trip Rate OUT	Trip Rate IN	Trip Rate OUT
Residential	0.107 per unit	0.284 per unit	0.237 per unit	0.136 per unit
Retail	2.373 per 100 sqm	1.594 per 100 sqm	2.637 per 100 sqm	2.912 per 100 sqm
Commercial (Non-retail)	0.780 per 100 sqm	0.314 per 100 sqm	2.352 per 100 sqm	1.874 per 100 sqm

Table 9 | TRICS – Vehicle Trip Rates.

9.2 Vehicle Trip Generation

9.2.1 2027 (Opening Year of Mooretown 03)

The vehicle trip generation calculation for the assessment year of 2027 (Opening Year of Proposed Development – Mooretown 03) is shown below. As presented earlier in Section 7 of this report, it is estimated that, in 2027, the following developments will be in place at Oldtown-Mooretown LAP:

Mooretown

- School development (constructed not occupied) to cater for 1,624 pupils on site.
- Residential development (approved not constructed) comprising a total of 521 residential units.
- Mooretown 03 (Development proposed under the subject application) comprising of 650 residential units, a creche (519 sqm) and 946 sqm of retail area.

The Mooretown School Site received permission from FCC to develop one primary school and one post-primary school to cater for a total population of 1,624 pupils. These schools are currently constructed but not yet occupied.

In order to understand the future travel patterns of the pupils attending these schools, the approved School Travel Plan (STP) prepared by Waterman Moylan for the school site (Reg. Ref: F18A/0163) has been consulted. In this consultation, it was identified two modal split scenarios of which trip generation calculation was based on, the Opening Modal Split, referent to the expected modal split during the opening year of the schools, and the Target Modal Split, which indicates a target pattern of commuting based on a reduced use of car which will be achieved through the methods described in the STP, such as promoting car-pooling / sharing, promoting private bus services, promoting of park and stride strategies and promoting walking and cycling.

For the Opening Modal Split, the usage of private car to commute to the school site was determined as 40%, which reduces to 35% for the Target Modal Split with the school fully operational.

As part of the STP, two other relevant commuting parameters were also used to calculate car trip generation for the schools during the opening and future years. These are showed below.

	<u>Average Car Occupancy</u>	<u>% Early Drop Off</u>
School Opening Year:	1.5	5%
Future Year:	1.75	10%

It is recognised that by the year of 2027 (Opening Year of Mooretown Phase 3 and assessment year of this TTA) the schools are unlikely to be operating at full capacity. However, in order to undertake a robust and conservative assessment of the surrounding road network and analysed junctions, as part of this TTA, trip generation for the Mooretown School site has been calculated based on the future year parameters as shown above and the schools operating at their full capacities. The estimated car trips for the Mooretown School development are presented below.

Development	Population	% Car (Future Year)	Average Car Occupancy	% Early Drop Off	AM Peak Hour Trips	
					Trips IN	Trips OUT
Mooretown School	1,624 pupils	35%	1.75	10%	292	292

Table 10 | AM Peak Hour Trip Generation – School Site – 2027.

As can be seen from above, based on the future travel patterns as indicated in the School Travel Plan for the Mooretown School, the site is estimated to generate a total of 584 car trips in the AM peak hour (292 inbound and 292 outbound). No PM peak hour trips were assumed for the school site, as the school collection period will not coincide with the road network peak hour.

Trip generation calculation for the residential and retail developments in Mooretown (approved but not constructed and proposed Mooretown 03) are shown below. It is envisaged that the creche proposed under the subject application (Mooretown 03) will serve the residents of the proposed development only. It is expected to attract only internal trips (within the Mooretown 03 development) and therefore no additional car trips have been assumed for this proposed land use.

Land Use	Phase Reference	Dev. Size	AM Peak Hour		PM Peak Hour	
			Trips IN	Trips OUT	Trips IN	Trips OUT
Residential	Mooretown 01A, B&C*	283 units	30	80	67	38
Residential	Mooretown 02*	238 units	25	68	56	32
Residential	Mooretown 03**	650 units	70	185	154	88
Retail	Mooretown 03**	946 sqm	7	3	22	18
Total	Overall Mooretown	1,171 units 938 sqm	132	336	299	176

Table 11 | AM and PM Peak Hour Trip Generation – Mooretown, 2027.

* Development Approved but not Constructed.

** Development proposed as part of subject application.

As can be seen from above, by 2027, it is estimated that the Mooretown development (considering the approved Mooretown 01 & 02 and the proposed Mooretown 03) will generate a total of 468 vehicle trips in the AM peak hour (132 inbound and 336 outbound) and a total of 475 vehicle trips in the PM peak hour (299 inbound and 176 outbound).

Oldtown

- Residential development (constructed and occupied, approved not constructed and Oldtown 05 (proposed under a separate planning application)) comprising a total of 1,371 residential units.
- Retail development (constructed not occupied) comprising of 1,510 sqm of area.

Land Use	Phase Reference	Dev. Size	AM Peak Hour		PM Peak Hour	
			Trips IN	Trips OUT	Trips IN	Trips OUT
Residential	Oldtown 01*	243 units	26	69	58	33
Residential	Oldtown 03A&D*	181 units	19	51	43	25
Residential	Oldtown 04A*	95 units	10	27	23	13
Residential	Oldtown 04B*	98 units	10	28	23	13
Residential	Oldtown 04C&D*	101 units	11	29	24	14
Residential	Oldtown 02A***	86 units	9	24	20	12
Residential	Oldtown 02B***	91 units	10	26	22	12
Residential	Oldtown 02C***	56 units	6	16	13	8
Residential	Oldtown 05****	377 units	40	107	89	51
Retail	Oldtown 02*	1,510sqm	36	24	40	44
Total	Overall Oldtown	1,344 units 1,510 sqm	178	401	355	225

Table 12 | AM and PM Peak Hour Trip Generation – Oldtown, 2027.

* Development Constructed and Occupied.

** Development Constructed but not Occupied.

*** Development Approved but not Constructed.

**** Potential Future Development Proposed by the Applicant under a separate Planning Application.

As can be seen from above, it is estimated that the Oldtown development (considering constructed, approved and proposed developments) will generate a total of 579 vehicle trips in the AM peak hour (178 inbound and 401 outbound) and a total of 579 vehicle trips in the PM peak hour (355 inbound and 225 outbound).

At the time of writing this report, the developments of Oldtown 01 and Oldtown 03A&D were fully constructed and occupied, which suggests that the trips associated with these developments already exist on the road network and the calculation of trip generation for them would not be necessary. In a typical and normal situation these trips would be accounted for in the traffic survey. However, as previously described, a traffic survey was not carried out as part of the subject application, and instead, historic traffic count data, extracted from previous assessments in the area, were used. At the time when the used traffic surveys were carried out, the development of the Oldtown 01 and Oldtown 03A&D were not in place and therefore their associated trips, were not existent. In this case, with the objective to undertake a complete assessment of the surrounding road network and analysed junctions, trip generation for Oldtown 01 and Oldtown 03A&D have been calculated and included in this assessment as part of the additional trips.

9.2.2 Summary of Trip Generation

Table 14 below shows a summary of the vehicle trips estimated to be generated by the Oldtown-Mooretown LAP lands during the assessment year of 2027 and the cumulative future year of 2032.

Year	Area	AM Peak Hour		PM Peak Hour	
		Trips IN	Trips OUT	Trips IN	Trips OUT
2027	Mooretown	424	628	299	176
	Oldtown	178	401	355	225
Total		602	1029	654	401

Table 13 | Summary of AM and PM Vehicle Trip Generation – Oldtown-Mooretown LAP.

10. Trip Distribution

In order to determine the amount of new car trips expected to travel through each assessed junction in the local road network, the calculated vehicle trips for Oldtown and Mooretown lands in the assessed years of 2027 (Opening Year of Proposed Development – Mooretown Phase 3) and 2032 (Opening Year of Proposed Development + 5 Years), presented in Table 14, have been distributed and are presented below.

10.1 Mooretown

Main vehicular access to the overall Mooretown lands will be provided via the new Signalised Crossroads between the R125 Rathbeale Road and the Western Distributor Link Road (WDLR). This junction was recently constructed as part of the R125 Rathbeale Road Upgrades scheme, which was subject to a Part 8 application by FCC and are now complete and open to public.

As part of the development works carried out under the Part 8 application, two additional priority-controlled T-junctions to provide access to Mooretown lands were also delivered on R125 Rathbeale Road, one approximately 225 metres east of the new signalised crossroads with the WDLR to provide a secondary access via the Mooretown Phase 1A approved under Plg. Ref. F17A/0128, and the other approximately 280 metres west of the existing signalised crossroads with Murrough Road to facilitate future access to third party lands in Mooretown. The provision of these additional junctions and their locations are in line with the Oldtown-Mooretown LAP Map. The indicative location of both junctions is illustrated in Figure 19.

Given the nature and capacity of the Western Distributor Link Road in comparison with the projected Mooretown access roads approaching the two additional junction on R125 Rathbeale Road, and its more direct route from/to the southern portion of the Mooretown lands – including the recently constructed school and potential future Local Centre; as part of this assessment, it was assumed that 70% of the overall vehicle trips to/from the Mooretown developments will use the WDLR whilst the remaining 30% will use the other two access junctions. Of the 70% using the WDLR, 15% was assumed to turn left and travel westward along R125 Rathbeale Road, 10% was assumed to cross the R125 Rathbeale Road and use Glen Ellan Road to travel east and 45% was assumed to turn right and travel east along R125 Rathbeale Road. Of the 30% using the two additional junctions, 5% was assumed to travel west and 25% east along R125 Rathbeale Road.

Trip distribution percentage for the signalised crossroads between R125 Rathbeale Road and Murrough Road and the priority T-junction between R125 Rathbeale Road and R108 Naul Road, were generally calculated using the base surveyed flows and associated turning movements. These percentages are shown in Figure 20.

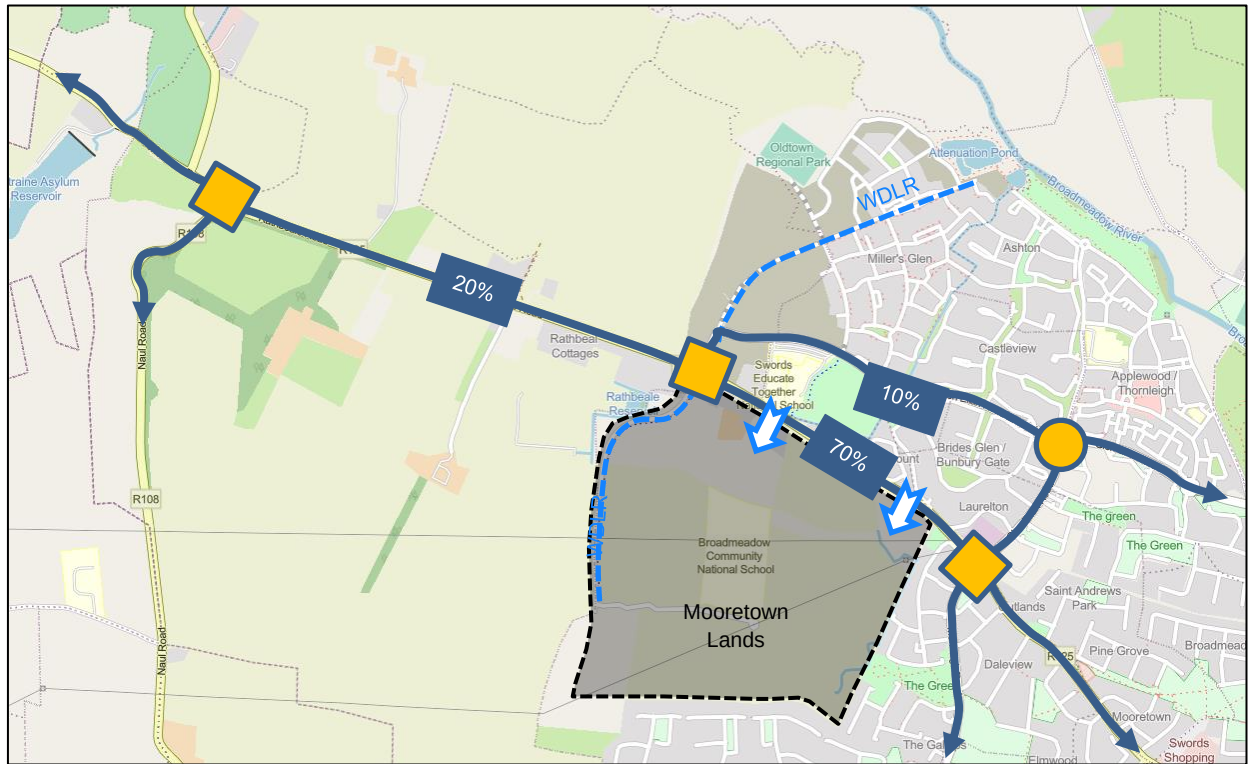


Figure 19 | Mooretown Lands - Trip Distribution.

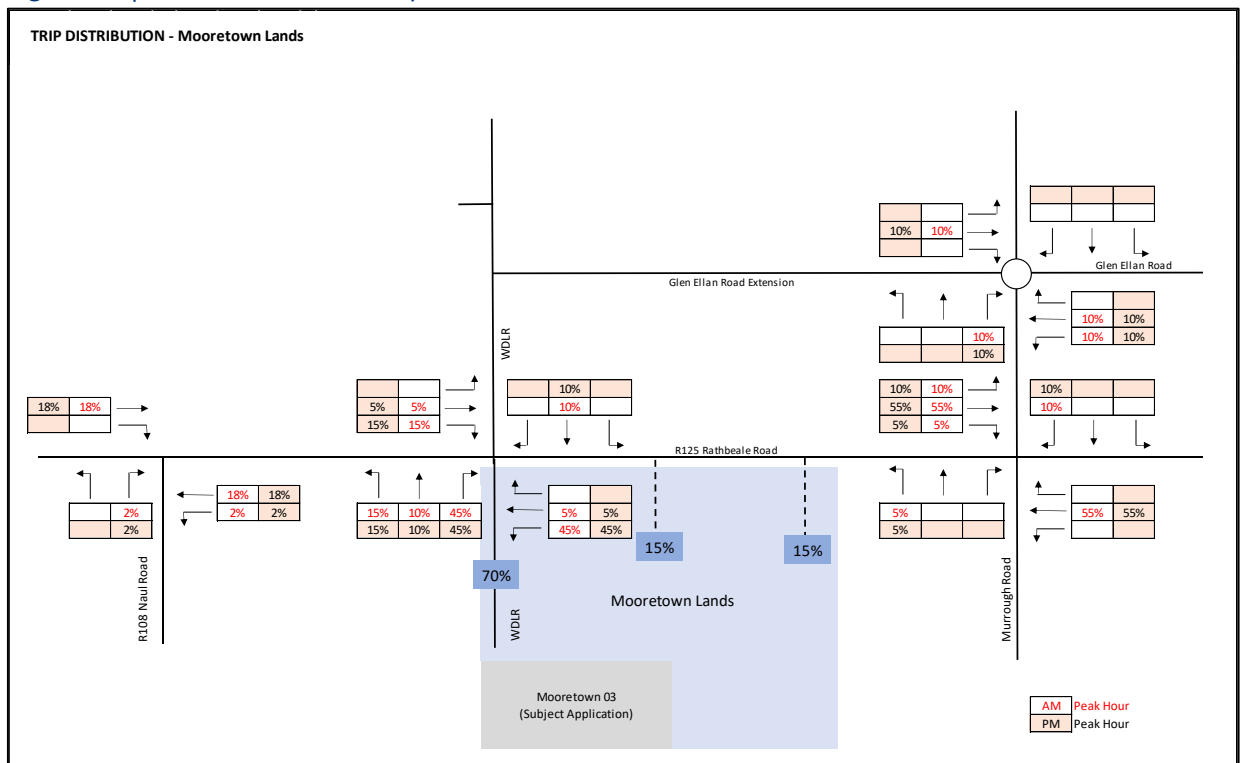


Figure 20 | Mooretown Lands - Trip Distribution on Assessed Junctions.

2027

As previously described, by the Opening Year of 2027, a total of 1,171 residential units (approved and the proposed Mooretown 03) and a 1,624-pupil school site (constructed but not operational) are assumed to be fully constructed, occupied and operational in Mooretown lands.

These developments, as summarised in Table 14, are estimated to generate a total of 1,052 vehicle trips in the AM peak hour (424 inbound and 628 outbound) and a total of 475 vehicle trips in the PM peak hour (299 inbound and 176 outbound).

Based on the trip distribution showed in Figure 20 above, these estimated AM & PM vehicle trips were spatially distributed on the local road network and nearby assessed junctions and are presented in Figure 21.

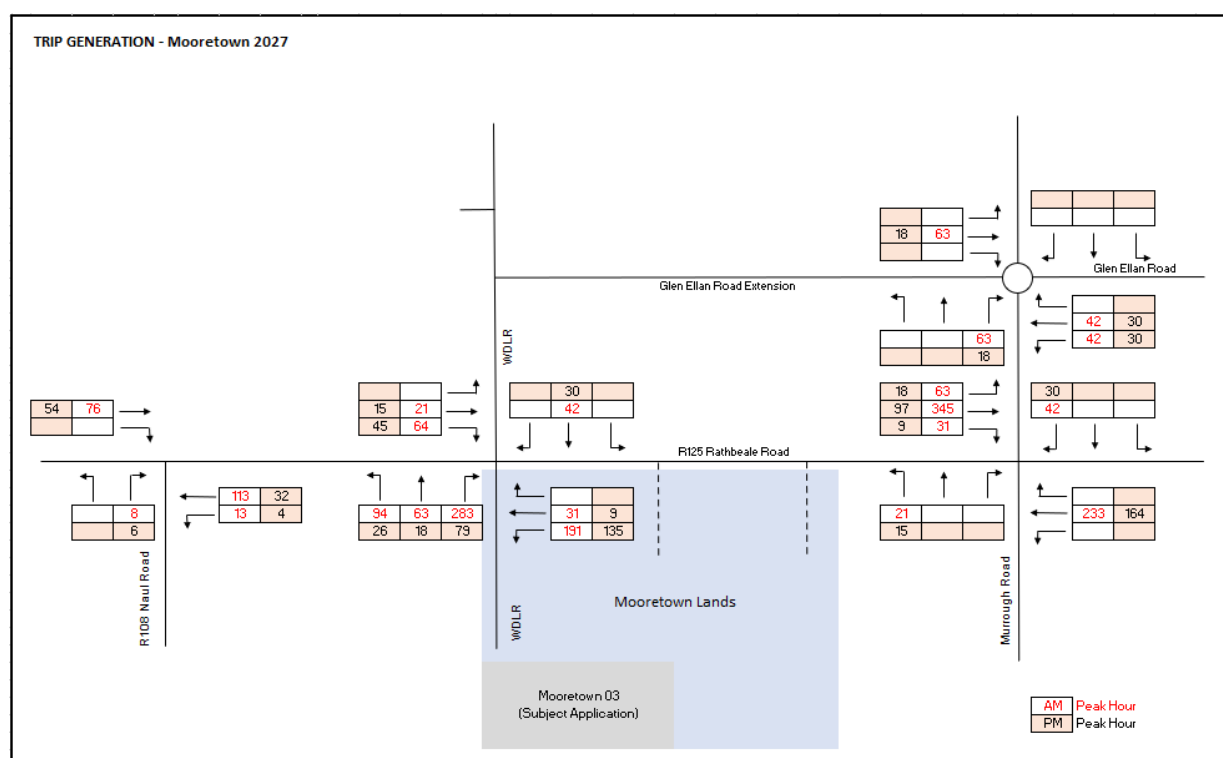


Figure 21 | Mooretown 2027 – Trip Generation on Assessed Junctions.

10.2 Oldtown

Access to the Oldtown lands will be provided via the recently constructed Signalised Crossroads between the R125 Rathbeale Road and the Western Distributor Link Road (WDLR), and via the Existing Four-armed Roundabout between the Glen Ellan Road and the Glen Ellan Road Western Extension.

Given the location of Oldtown lands – at the north-western edge of Swords, its position in relation to major employment and commercial centres, and the access routes to the R132 and the M1 motorway to the east, it was assumed that 80% of all Oldtown trips will make their way to the east along R125 Rathbeale Road and Glen Ellan Road, whilst the remaining 20% will travel westward along R125 Rathbeale Road.

See Figure 23. Of the 80% traveling east, 40% was assumed to leave the Oldtown lands via the Glen Ellan Road and 40% via the R125 Rathbeale Road.

Trip distribution percentage for the Glen Ellan Road roundabout, the signalised crossroads between R125 Rathbeale Road and Murrough Road and the priority T-junction between R125 Rathbeale Road and R108 Naul Road, were generally calculated using the base surveyed flows and associated turning movements. These percentages are shown in Figure 22.

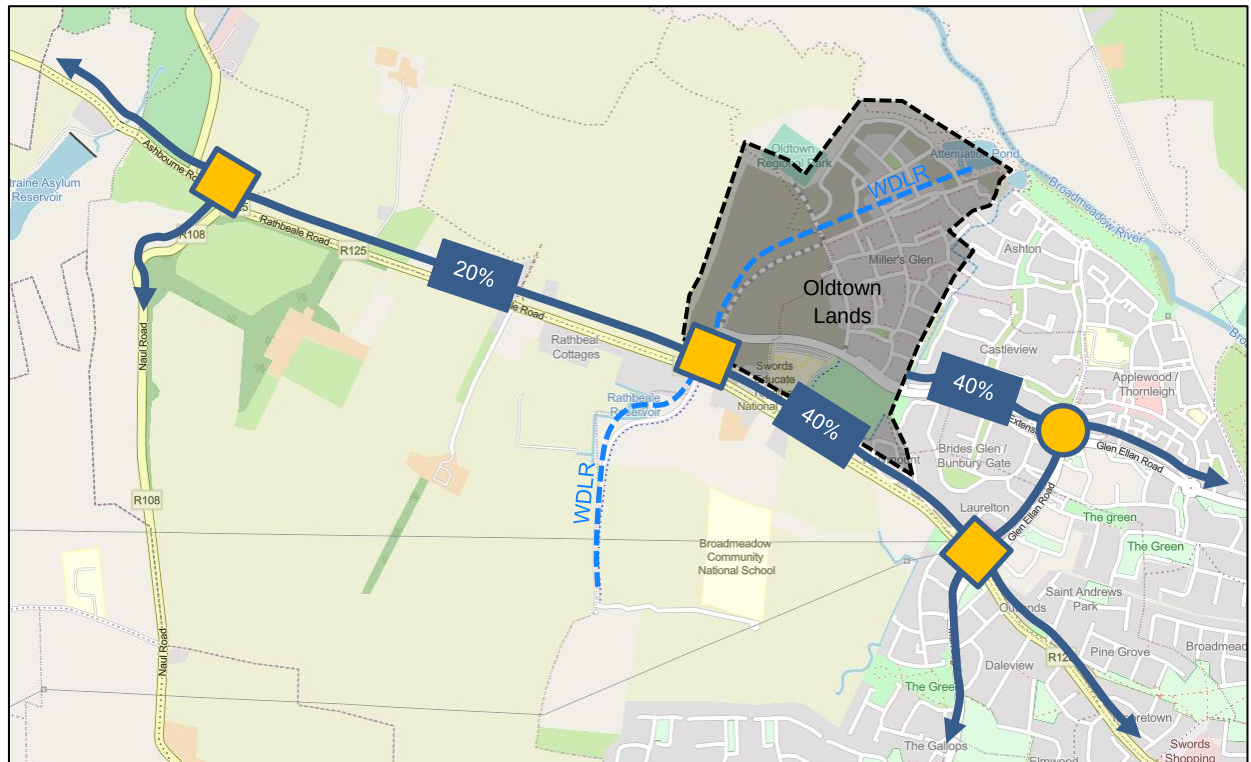


Figure 22 | Oldtown Lands - Trip Distribution.

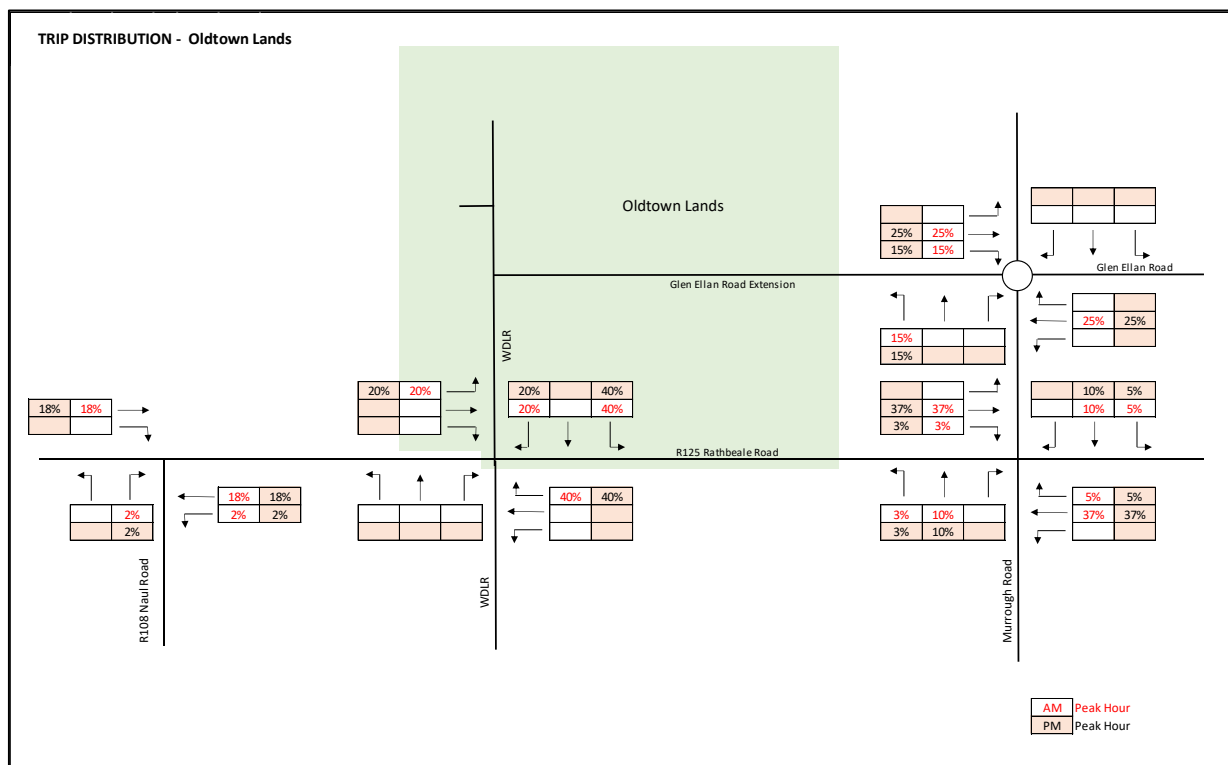


Figure 23 | Oldtown Lands - Trip Distribution on Assessed Junctions.

Forecast Traffic

10.3 2022 – Extrapolated Traffic

For the purpose of establishing the baseline year of 2022 the peak hour flows taken from the traffic surveys presented in Section 8.1 and illustrated in Figure 16 have been factored up to 2022 and the results are presented in Figure 24. As described earlier, historic data from 2005/2006, 2017 and 2019 have been used.

The background traffic growth rates used to factor up the 2005/2006, 2017 and 2019 surveyed traffic movements are in accordance with the 'Table 6.1: Link-Based Growth Rates: Metropolitan Area Annual Growth Rates' within the TII Publications – Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections (May 2019). These are:

- 1.293 (Central Growth) growth factor from 2005/2006 to 2022.
- 1.084 (Central Growth) growth factor from 2017 to 2022.
- 1.049 (Central Growth) growth factor from 2019 to 2022.

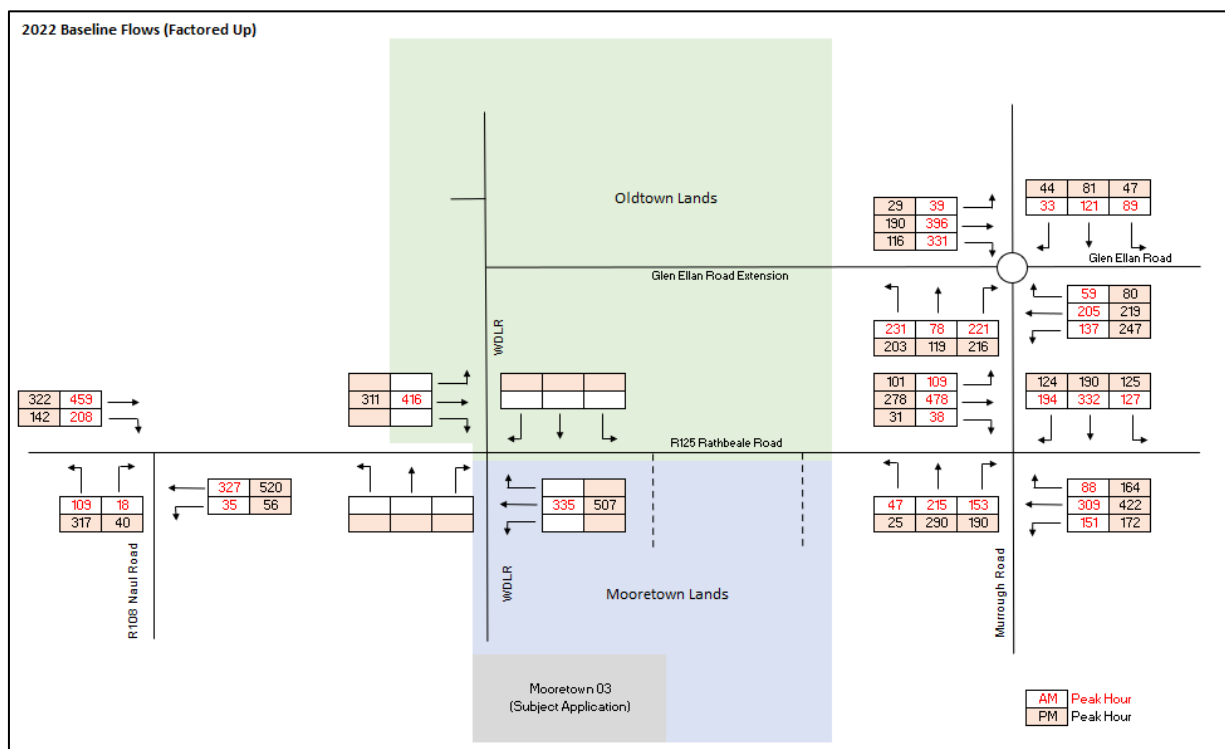


Figure 24 | Existing Traffic 2022 (Factored up).

10.4 Future Traffic Growth Rates

It has been assumed within this Traffic and Transport Assessment that the subject development (Mooretown 03) will be constructed over a period of 6 years. Therefore, the assumed year of opening is 2027.

In line with the 'Traffic and Transport Assessment Guidelines (May 2014)' which this TTA is based on, the surveyed junctions were also assessed for the future design years of 2032 (Opening Year +5 Years) and 2042 (Opening Year +15 Years).

The background traffic growth used to factor up the 2022 baseline flows are also in accordance with the 'Table 6.1: Link-Based Growth Rates: Metropolitan Area Annual Growth Rates' within the TII Publications – Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections (May 2019). These are:

- 1.091 (Low Sensitivity Growth) growth factor from 2022 to 2027.
- 1.131 (Low Sensitivity Growth) growth factor from 2022 to 2032.
- 1.168 (Low Sensitivity Growth) growth factor from 2022 to 2042.

It is recognised that the Oldtown-Mooretown LAP (principally Mooretown) is one of the largest undeveloped areas in the North-West Sector of Swords with high potential of producing a large number of trips specially during the AM and PM peak hours - this level of trips was detailed in the previous sections of this TTA.

As a large number of trips in the local area is expected be generated by these lands and the potential level of trips associated with them is detailed under the Trip Generation section of this report, it was considered reasonable to use Low Sensitivity Growth rates to factor up the future baseline traffic for the future years of 2027, 2032 and 2042.

Figure 25 below illustrates the forecast traffic for the future year of 2042, which includes the baseline flows factored up with the low sensitivity growth rate above, and the trips generated by the Oldtown and Mooretown lands.

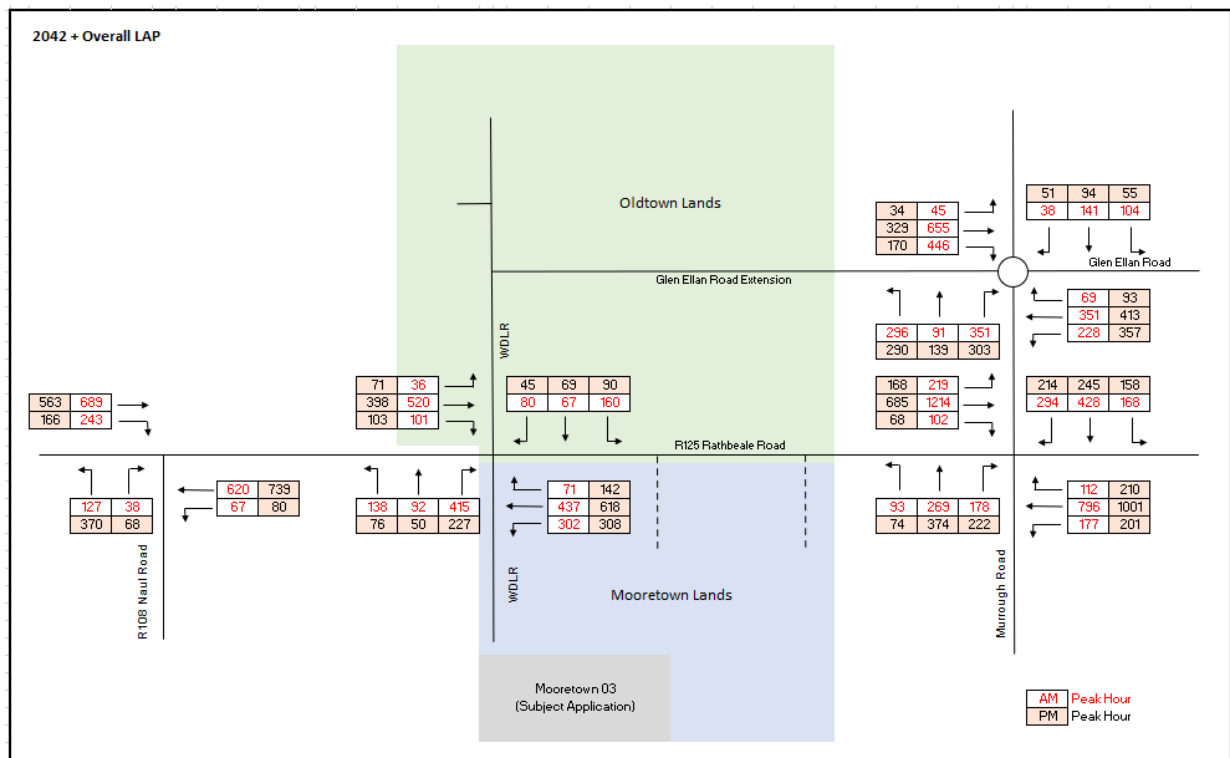


Figure 25 | 2042 Forecast Traffic (+15 Years).

11. Junction Assessment

11.1 Junctions Assessed

The following junctions have been modelled as part of the subject assessment:

- **Junction 1:** R125 Rathbeale Road / R108 Naul Road (Priority T-junction);
- **Junction 2:** R125 Rathbeale Road / Western Distributor Link Road (Signalised Crossroads);
- **Junction 3:** R125 Rathbeale Road / Murrough Road (Signalised Crossroads);
- **Junction 4:** Glen Ellan Road / Glen Ellan Road Extension (Four-armed Roundabout);

11.2 Assessment Scenarios

The performance of the junctions has been analysed for the critical AM Peak Hour and PM Peak Hour (08:00 – 09:00 and 17:00 – 18:00) for the following scenarios:

- **2022 (Base Year):** Surveyed Flows factored up to 2022 Baseline Flows.
- **2027:** 2022 Baseline Flows factored up to 2027.
- **2027 + LAP Developments:** 2027 Baseline Flows + Constructed, Approved and Proposed Developments in Oldtown-Mooretown LAP.
- **2032:** 2022 Baseline Flows factored up.
- **2032 + Overall LAP:** 2032 Baseline Flows + Overall Oldtown-Mooretown LAP.
- **2042:** 2022 Baseline Flows factored up.
- **2042 + Overall LAP:** 2042 Baseline Flows + Overall Oldtown-Mooretown LAP.

11.3 Modelling Background

There are various modelling software packages available to assess every type of junction. Waterman Moylan uses ARCADY, TRANSYT and PICADY to analyse roundabouts, signalised and priority junctions, respectively.

ARCADY is a software for modelling roundabouts. This programme utilises roundabouts geometry and traffic flows input by the user to determine Ratio of Flow to Capacity (RFC) and queue length for each link on the roundabout.

TRANSYT (Traffic Network Study Tool) software is a widely accepted software for modelling signalised controlled junctions. This programme utilises the phases input by the user and optimises their timings over a cycle time. The outputs of a TRANSYT assessment include a Degree of Saturation percentage (DOS%) figure and queue length for each link on the road network.

PICADY is a software for modelling priority-controlled junctions. This programme utilises junction's geometry and traffic flows input by the user to determine Ratio of Flow to Capacity (RFC) and queue length for each link on the junction.

Typically, a junction is said to be working satisfactorily when the DOS% or RFC of each link does not exceed 90%/0.9. Acceptable DOS% or RFC values are considered to be in the range of 80%/0.8 to 100%/1.0 with higher values indicating restrained movements.

11.4 Modelling Results

11.4.1 Junction 1: R125 Rathbeale Road / R108 Naul Road

Junction 1 is an existing three-armed priority-controlled junction located to the northwest of the proposed development site. This junction has been modelled based on its current configuration and the PICADY analysis results are summarised in Table 16 below. The arms of the junction were labelled as follows within the PICADY model:

- Arm A: R125 Rathbeale Road (E);
- Arm B: R108 Naul Road (S);
- Arm C: R125 Rathbeale Road (W).

Stream	AM Peak (08:00 to 09:00)		PM Peak (17:00 to 18:00)	
	Queue (veh.)	RFC	Queue (veh.)	RFC
2022				
Stream B-C	0.2	0.17	1.2	0.54
Stream B-A	0.1	0.06	0.2	0.15
Stream C-AB	2.0	0.55	0.9	0.37
2027				
Stream B-C	0.2	0.18	1.6	0.62
Stream B-A	0.1	0.07	0.2	0.19
Stream C-AB	2.8	0.63	1.2	0.43
2027 + LAP Developments				
Stream B-C	0.3	0.20	1.8	0.65
Stream B-A	0.2	0.13	0.4	0.28
Stream C-AB	5.1	0.74	1.6	0.47
2032				
Stream B-C	0.2	0.19	1.8	0.65
Stream B-A	0.1	0.07	0.3	0.21
Stream C-AB	3.3	0.67	1.4	0.45
2032 + Overall LAP				
Stream B-C	0.3	0.21	2.1	0.69
Stream B-A	0.2	0.15	0.4	0.31
Stream C-AB	8.0	0.82	1.8	0.50
2042				
Stream B-C	0.2	0.20	2.1	0.68
Stream B-A	0.1	0.07	0.3	0.23
Stream C-AB	4.0	0.70	1.5	0.48

2042 + Overall LAP				
Stream B-C	0.3	0.22	2.4	0.71
Stream B-A	0.2	0.15	0.5	0.33
Stream C-AB	7.6	0.81	1.9	0.52

Table 14 | Junction 1 - PICADY Analysis Results.

The analysis results as summarised above indicate that Junction 1 is currently operating within capacity during both peak hours and would continue to do so for the future assessment year of 2042 + Overall LAP with the highest RFC at 0.81 and a corresponding queue of 7.6 vehicles in the AM and with the highest RFC at 0.71 and a corresponding queue of 2.4 vehicles recorded in the PM.

11.4.2 Junction 2: R125 Rathbeale Road / Western Distributor Link Road

Junction 2 is a recently constructed signalised crossroads located to the north of the proposed development site. This junction has been modelled based on its current configuration and the TRANSYT analysis results are summarise in Table 17 below. The arms of the junction were labelled as follows within the TRANSYT model:

- Arm A: R125 Rathbeale Road (E);
- Arm B: WDLR (S);
- Arm C: R125 Rathbeale Road (W);
- Arm D: WDLR (N).

Arm	Mov.	AM Peak (08:00 to 09:00)		PM Peak (17:00 to 18:00)	
		Queue (veh.)	DOS%	Queue (veh.)	DOS%
2027 + LAP Developments					
A	S/L	19.35	77	20.56	74
	R	2.98	62	6.75	83
B	S/L	5.02	41	1.51	26
	R	10.51	74	2.90	46
C	S/L	15.42	66	9.62	44
	R	2.59	56	1.55	26
D	S/L	7.74	71	4.24	50
	R	2.59	28	1.46	19
2032 + Overall LAP					
A	S/L	20.07	78	21.51	76
	R	2.98	62	6.75	83
B	S/L	5.02	41	1.51	26
	R	10.51	74	2.90	46
C	S/L	16.29	69	10.04	45
	R	2.59	56	1.55	26
D	S/L	7.74	71	4.24	50
	R	2.59	28	1.46	19
2042 + Overall LAP					

A	S/L	20.81	80	22.04	76
	R	2.98	62	6.75	83
B	S/L	5.02	41	1.51	26
	R	10.51	74	2.90	46
C	S/L	16.98	71	10.30	46
	R	2.59	56	1.55	26
D	S/L	7.74	71	4.24	50
	R	2.59	28	1.46	19

Table 15 | Junction 2 - TRANSYT Analysis Results.

The analysis results as summarised above indicate that, by 2027 with the new developments in place in Oldtown-Mooretown LAP, Junction 2 would operate within capacity during both peak hours, with the highest DOS at 77% and a corresponding queue of 19.35 vehicles during the AM, and with the highest DOS at 83% and a corresponding queue of 6.75 vehicles during the PM.

For the future assessment year of 2042, with the inclusion of the trips expected to be generated by the overall LAP development, the results indicate that Junction 2 would continue to operate below the 100% threshold during both peak hours, with the highest DOS at 80% and a corresponding queue of 20.81 vehicles during the AM, and the highest DOS at 83% and a corresponding queue of 6.75 vehicles recorded for the PM.

11.4.3 Junction 3: R125 Rathbeale Road / Murrough Road

Junction 3 is an existing signalised crossroads located east of the proposed development site. A right turning lane on the western approach was recently constructed under the FCC Part 8 development works for Rathbeale Road. This junction has been modelled taking this right turning lane into account and the TRANSYT analysis results are summarise in Table 18 below. The arms of the junction were labelled as follows within the TRANSYT model:

- Arm A: Glen Ellan Road (NE);
- Arm B: R125 Rathbeale Road (SE);
- Arm C: Murrough Road (SW);
- Arm D: R125 Rathbeale Road (NE).

Arm	Mov.	AM Peak (08:00 to 09:00)		PM Peak (17:00 to 18:00)	
		Queue (veh.)	DOS%	Queue (veh.)	DOS%
2022					
A	S/L	21.26	96	13.91	91
	R	9.95	92	3.68	36
B	S/L	27.90	102	15.59	94
	R	3.77	73	3.58	48
C	S/L	7.75	55	18.81	100
	R	5.81	73	6.26	60
D	S	15.84	80	10.36	81
	R	1.11	14	1.28	52

	L	2.05	33	1.77	11
2027					
A	S/L	32.99	104	23.84	104
	R	14.27	101	4.08	41
B	S/L	44.54	112	24.84	100
	R	4.50	80	4.01	52
C	S/L	8.66	59	28.53	109
	R	6.71	79	7.00	66
D	S	18.91	87	11.71	84
	R	1.20	15	1.46	57
	L	2.26	36	1.93	12

Table 16 | Junction 3 - TRANSYT Analysis Results.

The analysis results as summarised above indicate that the Junction 3 is currently operating at capacity during the AM peak hour and close to capacity in the PM peak hour. Even without the inclusion of any new development trips, for the 2027 scenario (with the baseline flows factored up), the results indicate that the Junction 3 would operate above capacity during both peak hours.

The Oldtown-Mooretown LAP acknowledges that, at the time of preparing the LAP document in 2010, this junction was already operating at capacity with the critical arm operating at 89% of the available capacity and sets out plan to modify this junction.

It is recognised by the Council that R125 Rathbeale Road is one of the critical routes currently serving the Swords Northwest area, including the Oldtown and Mooretown lands.

It is understanding that the development of Oldtown and Mooretown lands without any intervention to the transportation infrastructure is likely to increase the current pressures on R125 Rathbeale Road and consequently oversaturate its intersections with other important links, which are currently working at or above their capacities. Rathbeale Road / Murrough Road (Junction 3) is definitely one of the most affected junctions.

With the objective to update and refine the development strategy in the overall South Fingal area in terms of transportation, Fingal County Council commissioned SYSTRA to carry out the South Fingal Transport Study. This study, which includes extensive assessment and modelling of the Swords North West area, was published in February 2019 and forms the basis for future transportation development in the medium and long terms. The transportation modelling carried out by SYSTRA included all modes of transport (including active modes) and provided for extensive predictive modelling based on demand forecasting and supply changes in terms of new roads, cycle and public transport infrastructure.

In summary, to provide the necessary priority to attract a sufficient share of trips by bus and active modes, SYSTRA indicated that it is crucial to provide continuous high-quality bus and cycle priority along major roads in the area (including Rathbeale Road which is subject to congestion) and also recommended Rathbeale and Backenstown Roads to be prioritised to support the advancement of the GDA Cycle Network Plan in Swords.

With the recommendations included as part of the SYSTRA assessment of the Swords North West area (presented in Section 12 of the subject TTA), it is estimated that the overall traffic increase and impact will not be of a scale that would indicate a requirement for additional road capacity at Junction 3.

It is noted that Junction 3 has been part upgraded as part of the LIHAF funded works to the Rathbeale Road via the provision of a new right hand turn lane on the western approach to the existing Murrough Road Junction and it is further noted it has been agreed with Linda Lally of FCC Transportation & Planning Department on 4 March 2022, that further wider infrastructure upgrade works, including that of the Murrough Road Junction 3, do not form part of the remit of the applicant.

11.4.4 Junction 4: Glen Ellan Road / Glen Ellan Road Extension

Junction 4 is an existing four-armed priority-controlled roundabout located east of the proposed development site. This roundabout has been modelled with its current configuration and the ARCADY analysis results are summarise in Table 19 below. The arms of the roundabout were labelled as follows within the ARCADY model:

- Arm 1: Glen Ellan Road (E);
- Arm 2: Glen Ellan Road (S);
- Arm 3: Glen Ellan Road (W);
- Arm 4: Northern Arm (N).

The analysis results as summarised in Table 19 below indicate that Junction 4 is currently operating well within capacity during both peak hours and would continue to do so for the future assessment year pf 2042 + Overall LAP with the highest RFC at 0.76 and a corresponding queue of 3.1 vehicles during the AM, and with the highest RFC at 0.55 and a corresponding queue of 1.2 vehicles recorded for the PM.

Arm	AM Peak (08:00 to 09:00)		PM Peak (17:00 to 18:00)	
	Queue (veh.)	RFC	Queue (veh.)	RFC
2022				
Arm 1	0.4	0.30	0.6	0.37
Arm 2	0.5	0.34	0.5	0.35
Arm 3	1.1	0.51	0.3	0.24
Arm 4	0.4	0.27	0.2	0.15
2027				
Arm 1	0.8	0.45	0.7	0.41
Arm 2	0.8	0.44	0.6	0.38
Arm 3	2.8	0.74	0.3	0.26
Arm 4	0.6	0.39	0.2	0.17
2027 + LAP Developments				
Arm 1	0.8	0.45	1.1	0.52
Arm 2	0.8	0.44	0.8	0.45
Arm 3	2.8	0.74	0.5	0.33
Arm 4	0.6	0.39	0.2	0.18
2032				
Arm 1	0.5	0.35	0.7	0.43
Arm 2	0.6	0.38	0.7	0.40
Arm 3	1.4	0.59	0.4	0.27

Arm 4	0.5	0.33	0.2	0.17
2032 + Overall LAP				
Arm 1	0.9	0.47	1.2	0.54
Arm 2	0.9	0.46	0.9	0.47
Arm 3	3.2	0.77	0.5	0.35
Arm 4	0.7	0.41	0.2	0.19
2042				
Arm 1	0.6	0.37	0.8	0.44
Arm 2	0.7	0.40	0.7	0.42
Arm 3	1.6	0.61	0.4	0.28
Arm 4	0.5	0.35	0.2	0.18
2042 + Overall LAP				
Arm 1	0.9	0.48	1.2	0.55
Arm 2	0.7	0.41	0.9	0.49
Arm 3	3.1	0.76	0.6	0.36
Arm 4	0.7	0.41	0.2	0.20

Table 17 | Junction 4 - ARCADY Analysis Results.

12. South Fingal Transport Study (SFTS) – Swords Sub Report

In order to update and refine the development strategy in South Fingal in terms of transportation, in September 2017, Fingal County Council commissioned SYSTRA to carry out the South Fingal Transport Study. This study was published/completed in February 2019 and will form the basis for future transportation development to 2027 in Fingal County Council. As part of this study SYSTRA prepared a regional transportation model of the Swords Area.

This model includes the strategic transportation demand and infrastructure in the Swords North West area and as such provides the strategic traffic and transport assessments for the area in the medium and long terms. The SFTS model therefore forms basis of the local road infrastructure including the Swords Western Distributor Road (SWDR) and its northern and southern extensions.

The regional transportation modelling was carried out by SYSTRA using the NTA Eastern Regional Model (ERM). This is a sophisticated strategic model which includes all modes of transport (including active modes) and provides for extensive predictive modelling based on demand forecasting and supply changes in terms of new roads, cycle and public transport infrastructure.

The model has been calibrated and used for predictive analysis of trip distributions by mode, network analysis to identify journey times, junction and road volumes, public transport line flows, etc. for various scenarios of development and infrastructure provision.

In addition, local area modelling was also carried out by SYSTRA to assess the impact of various scenarios of road infrastructure within the four study areas. Oldtown Mooretown lands fall within the Swords North West area.

Section 4.2 of the *South Fingal Transport Study – Swords Sub Report* sets out details of the Local Area Model (LAM) which was developed based on the Eastern Regional Model (ERM) demand and modal choice.

As set out in Section 4.3 of the same report, various infrastructure scenarios were tested using a combination of the ERM and the LAM. The tested scenarios are presented in Figure 26 below – extracted from *Figure 4.1 Table of Model Scenarios* within the SFTS – Swords Sub Report.

Scenario Name	DoMin 2016	DoMin 2027	GDA Strategy	GDA Strategy + MetroLink	CDP Roads
Growth / Schemes	No Growth (2016)	Recognised Housing	Recognised Housing	Recognised Housing	Recognised Housing
		Metro Intensification	Metro Intensification	Metro Intensification	Metro Intensification
Bus Connect			☒	☒	☒
Metro Link				☒	☒
CDP Roads					☒

Figure 26 | Tested Scenarios – Extracted from Figure 4.1 of SFTS – Swords Sub Report.

A description of the tested scenarios, as detailed in *Swords Sub Report*, are presented below:

“DoMin assumed no changes are made to the transport network; this scenario, therefore, represents what could happen on the transport network due to population and employment growth if no improvements were made to accommodate the increase travel.

GDA Strategy assumes the NTA GDA Strategy is implemented with respect to its flagship bus network improvement programme, but without MetroLink or the GDA Cycle Network Plan in Swords.

CPD Roads includes all potential future road schemes in the main strategic model run, on top of the GDA Strategy Scenario above.”

The road scheme tested includes the Swords Western Distributor Road (SWDR) and its northern and southern extensions as per Figure 29 – extracted from Figure 5.1 within the *SFTS – Swords Sub Report*.

12.1 Swords North West – Trip Generation

It is recognised in the *SFTS – Swords Sub Report* that Swords North West is a key area due to the increased demands being placed on the network in the short term by Oldtown and Mooretown lands. It is also recognised in the study that R125 Rathbeale Road and Glen Ellan Road are two of the critical routes currently serving the area.

Section 4.4.2.1 of the *South Fingal Transport Study – Swords Sub Report* recognises that for the 2027 DoMin (without any network intervention in place), the Swords North West area will face a large increase in the use of car trips, which will result in increased pressures on Glen Ellan Road and R125 Rathbeale Road.

In the GDA Strategy scenario, with an enhanced bus network in place, the results indicate that car trips will reduce considerably whilst public transport will increase. This level of car trips, however, with no further interventions, will remain higher than the current levels.

In summary, the study recognises that, even with an enhanced bus network in place, the extra car trips generated by Oldtown/Mooretown will moderately increase pressures on Glen Ellan Road and R125 Rathbeale Road.

12.2 Swords North West – Trip Destination by Mode

Section 4.4.3.2 of the *South Fingal Transport Study – Swords Sub Report* sets out the general travel patterns of travel by mode from Swords North West within Swords and from the rest of the modelled area.

The general travel patterns estimates that “of trips originating from the North West area of Swords, the largest destination is within the same sector, i.e., the trip starts and ends in Swords North West area”, and “within this sector, it is estimated that around 2,500 walk or cycle and nearly 2,000 are by car”.

It is therefore recognised by SYSTRA that a key intervention on top of the enhanced bus network, that will potentially reduce car trips on the major links (Rathbeale Road and Glen Ellan Road) in Swords North West area, is the provision of high standards cycling infrastructure.

As presented earlier in the subject TTA, a cycle infrastructure on Rathbeale Road are substantially complete along both sides of the carriageway from the new signal-controlled junction with Western Distributor Link Road (Swords Western Distributor Road) to the eastern edge of the LAP lands.

12.3 Swords Western Distributor Road

It is recognised in the *South Fingal Transport Study – Swords Sub Report* that the northern extension of the Swords Western Distributor Road, which forms a spine access route through the Oldtown and Mooretown LAP areas, is a very important link for the area and should be progressed to enable access to the future Estuary MetroLink Park and Ride Station, particularly to serve active travel to the station and to provide additional resilience to the local network in the context of diverting traffic from Main Street.

12.4 Swords North West - SFTS Recommendation

Based on the various modelling scenarios undertaken by SYSTRA, some recommendations for the Swords North West area have been outlined. These are:

“SFTS Recommendation 1: Increasing the number of traffic lanes on Balheary Road is not required in the short term. However, providing bus lanes to enable a high frequency service to run reliably and maintain bus priority through junctions is required to encourage bus use and to limit car use near to present day levels.”

“SFTS Recommendation 2: In addition or complementary to the services outlines in the Bus Connects consultation document, a feeder service should be provided to Oldtown and Mooretown through the developments and onwards to Swords via the Glen Ellan Road.”

“SFTS Recommendation 3: Rathbeale and Brackenstown Roads should be prioritised to support the advancement of the GDA Cycle Network Plan in Swords. As primary cycle routes in Swords, they should be developed to the highest standards in accordance with the National Cycle Manual.”

“SFTS Recommendation 5: It is crucial to provide continuous high quality bus and cycle priority along Ardian Park to Castlevue Ext./Glen Ellan Rd/Balheary Road route, and the sections of the Forest Road and Rathbeale Road that are subject to congestion, in order to provide the necessary priority to attract a sufficient share of trips by bus.”

“SFTS Recommendation 6: The Swords Western Distributor Road will form a crucial link from north west Swords to the future Estuary MetroLink station and Park and Ride. From Oldtown-Mooretown to Estuary the road alignment should consider similar design principles as set out in the LAP/Masterplans. Its southern extension to Brackenstown Road/Ward River Valley should be considered as a pedestrian and cycling only route.”

12.5 South Fingal Transport Study – Summary

In summary, the *South Fingal Transport Study – Swords Sub Report* concludes that:

- (1) There is a significant potential to increase walking and cycling modes of transport within Swords North West area by providing high standards and prioritised cycling infrastructures along Rathbeale Road, Glen Ellan Road, Brackenstown Road and Forest Road.
- (2) It is crucial to provide continuous high-quality bus and cycle priority along key road on the network.
- (3) In addition to BusConnects, a feeder service should be provided to Oldtown and Mooretown through the development and onwards Swords via Glen Ellan Road.

- (4) The Swords Western Distributor Road would provide additional resilience to the local network in the context of diverting traffic from Main Street, and in addition providing direct access to the MetroLink Park and Ride at Estuary station.

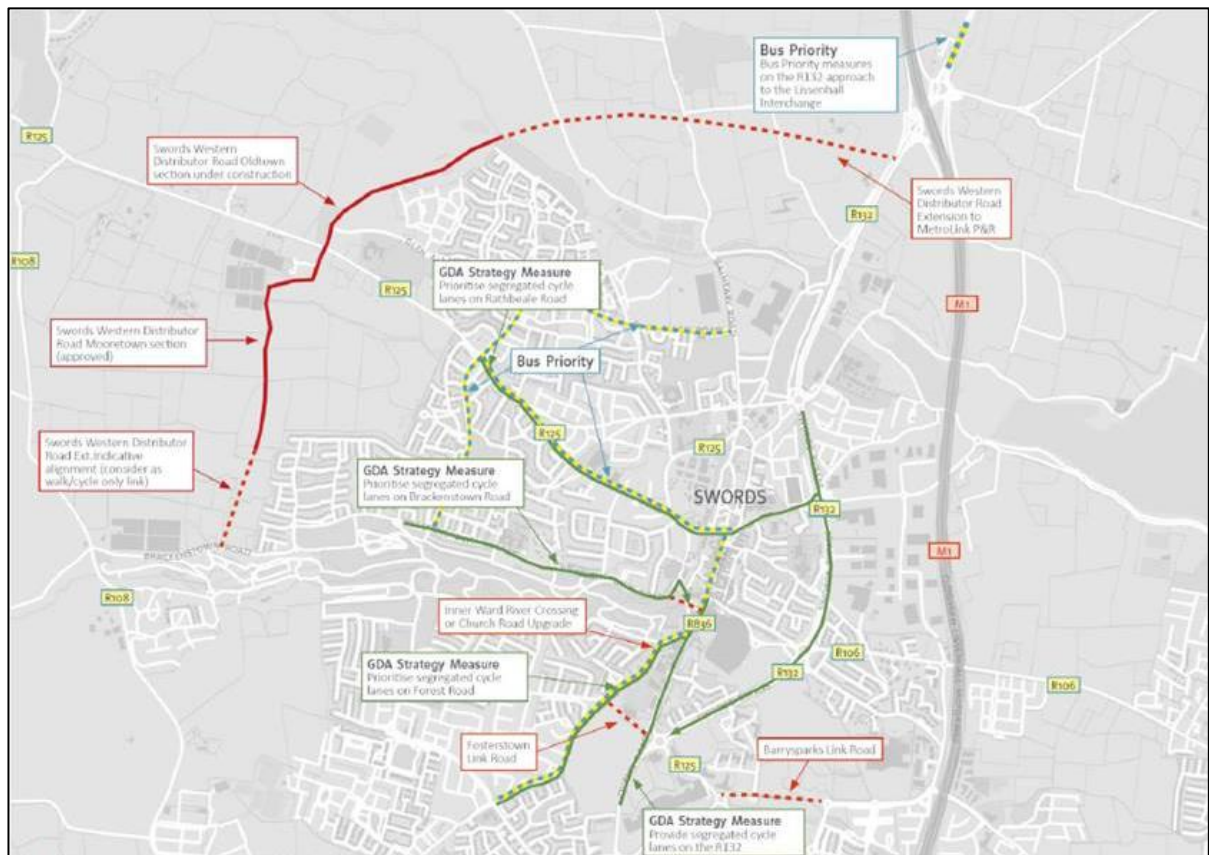


Figure 27 | Swords Recommendation Summary Map – extracted from Figure 5.1 of the SFTS.

13. Public Transport Capacity Assessment

13.1 Background and Methodology

The purpose of this chapter is to demonstrate that the public transport serving the area within which the proposed development is located will remain within capacity once all of the committed and proposed development contribution to the service have been completed.

The methodology used in this chapter is set out below.

- Determination of the resident population based on the size and number of residential units proposed.
- Determination of the modal split for the proposed development
- Calculation of the future passenger demand from the proposed development
- Determination of future passenger demand from committed/future developments
- Determination of bus capacity for the time and direction of peak demand
- Determination of passenger loadings from the bus capacity survey
- Determination of spare bus capacity available, if any, to serve the proposed and contiguous developments.

For the purpose of this report and based on experience from a number of surveys, the peak travel time and direction of travel in the Swords area has been assumed to be southbound towards Dublin City Centre during the AM Peak Hour between 07:00 and 08:00 on the weekday.

13.2 Future Passenger Demand

13.2.1 Future Passenger Demand – Mooretown

The future passenger demand for the total Mooretown development will consist of all approved from Table 6. It is estimated that the number of residents in the subject site be some 3,385 persons as calculated in Table 19.

Site	No. Of Units	1 – Bed (2 – Person)	2 – Bed (3 – person)	3 – Bed (4 – person)	4 – Bed (5 – person)	Total No. of persons
Mooretown 01	284	20 (40 Persons)	47 (141 Persons)	190 (760 Persons)	27 (135 Persons)	1,076 Persons
Mooretown 02	208	8 (16 Persons)	40 (120 Persons)	118 (472 Persons)	72 (360 Persons)	968 Persons

Mooretown 03	650	65 (130 Persons)	250 (750 Persons)	362 (1,448 Persons)	-	2,328 Persons
Total	1,141	73 (186 Persons)	290 (1,011 Persons)	561 (2,680 Persons)	85 (495 Persons)	4,372 persons

Table 18 | Future Passenger Demand - Mooretown

Based on the modal split in Section 8.4 of this TTA, some 27% of the residential population equivalent to 1,180 persons are expected to use public transport for the journey to work or education during the AM Peak between 7 and 10 each weekday.

Of these, 50% or 590 persons are expected to travel during the AM Peak Hour between 7:00 and 8:00. Having regard to the location of the proposed development, 95% are expected to travel south towards the City Centre and 5% to the north.

13.2.2 Future Passenger Demand – Oldtown

The future passenger demand for the total Oldtown development will consist of all approved or constructed but not yet occupied developments from Table 7. It is estimated that the number of residents in the Oldtown development be some 2,051 persons as calculated in Table 20.

Site	No. Of Units	1 – Bed (2 – Person)	2 – Bed (3 – person)	3 – Bed (4 – person)	4 – Bed (5 – person)	Total No. of persons
Oldtown 02A	86	6 (12 Persons)	8 (42 Persons)	61 (244 Persons)	11 (55 Persons)	353 Persons
Oldtown 02B	91	4 (8 Persons)	11 (33 Persons)	65 (260 Persons)	11 (55 Persons)	356 Persons
Oldtown 02C	56	4 (8 Persons)	8 (24 Persons)	44 (176 Persons)	-	208 Persons
Oldtown 05*	377	71 (73 Persons)	140 (420 Persons)	149 (596 Persons)	17 (85 Persons)	1,174 Persons
Total	610	85 (101 persons)	167 (519 persons)	319 (1,276 persons)	39 (195 persons)	2,091 persons

Table 19 | Future Passenger Demand - Oldtown

Based on the modal split in Section 8.4 of this TTA, some 27% of the residential population equivalent to 565 persons are expected to use public transport for the journey to work or education during the AM Peak between 7 and 10 each weekday.

Of these, 50% or 283 persons are expected to travel during the AM Peak Hour between 7:45 and 8:45. Having regard to the location of the proposed development, 95% are expected to travel south towards the City Centre and 5% to the north

13.2.3 Future Passenger Demand – Summary

The overall future passenger demand for the combined Mooretown and Oldtown developments will generate 1,468 persons. Due to the location of the proposed development, 95% of the trips are expected to travel south towards Dublin City and the remaining 5% are expected to travel north. Table 21 below shows the summary results.

Source	AM Peak 7 - 10		AM Peak Hour 7.00 – 8.00	
	Northbound	Southbound	Northbound	Southbound
Oldtown	538	28	269	14
Mooretown	1,121	59	561	30
Total	1,659	87	830	44

Table 20 | Future Passenger Demand - Summary

13.3 Bus Capacity

Services on the primary bus routes serving the Swords area primarily Routes 197, 41B, 41, 41C, 500, 503, 507 and 500X are provided by various double deck and single deck buses within the Dublin Bus Fleet. The average capacity of a double decker based on information from the Dublin Bus website is 91 passengers as calculated in Table 20 below.

For the purpose of this report, the average capacity of a double decker bus operated by Dublin Bus has been taken as 90 passengers including standing. The average capacity of a single decker will be assumed to be half this capacity.

Fleet Code	No in Fleet	Capacity	Total Capacity
AV	76	91	6,916
AX	192	91	17,472
EV	97	94	9,118
VG	50	88	4,400
GT	160	78	12,480
SG	369	95	35,055
Total	938	91	85,441

Table 21 | Dublin Bus Capacity

13.4 Bus Capacity Survey, March 2022

As part of the transport capacity assessment, bus stops near the proposed development were surveyed. The bus capacity surveys were carried out by Waterman Moylan during the AM Peak at three southbound bus stops. Two of the bus capacity surveys were taken on the 1st March 2022 and one bus capacity survey was taken on 25th March 2022. The surveys were taken at the following bus stops:

Bus Stop No. 7145: This bus stop is located south of the proposed development on R125 Rathbeale Road. This bus stop serves the 197 and 41B.

Bus Stop No. 4024: This bus stop is located east of the proposed development on Glen Ellen Road and serves bus routes 41c, 500x, 503, 41x, 43, 507 and 506x.

Bus Stop No. 6310: This bus stop is located east of the proposed development on Glen Ellen Road and serves the bus routes 142, 506x, 41x, 505, 500x, 503, 142, 42D and 507.

The purpose of the surveys at this location was to determine the spare capacity available for persons from the subject development to board at these locations. All three bus stops are near the proposed development and allow access to different locations around Dublin.

13.4.1 Results of the Bus Survey

The results of the bus survey are presented in Table 23. The results recorded a significant spare capacity of 1,357 Passengers between 07:00 to 08:00 compared to the predicted demand of 830 passengers from the combined developments of Oldtown and Mooretown travelling southbound.

Time	No of Buses	Bus Capacity	No of Passengers	Spare Capacity
07:00 - 07:15	3	180	35	145
07:15 - 07:30	12	945	320	626
07:30 - 07:45	9	690	242	448
07:45 - 08:00	5	270	131	139
Total	29	2,085	728	1,357

Table 22 | Results of the Bus Survey

13.5 Summary

Based on the predicted demand and capacity survey, the bus services serving the proposed development have more than adequate spare capacity to the proposed development now and into the future.

14. Car Parking

14.1 Fingal Development Plan 2017 – 2023 Standards

Standards for car parking in new developments are set out in Table 12.8 of the Fingal County Council Development plan 2017-2023 (FCC). The car parking standards relevant to the proposed development are listed in Table 24 below.

Land Use	Standard (norm or max)
House (3+ Bedroom)	2 spaces per unit (norm)
Apartment (1 Bedroom)	1 resident space per unit + 1 visitor space per 5 units (norm)
Apartment (2 Bedroom)	1.5 resident space per unit + 1 visitor space per 5 units (norm)
Apartment (3+ Bedroom)	2 resident spaces per unit + 1 visitor space per 5 units (norm)
Retail	1 per 30 GFA (sqm) (maximum)
Creche	0.5 per Classroom (maximum)
Duplex	No standard

Table 23 | Fingal County Council Development Plan 2017 - 2023 - Car Parking Standards.

14.2 FCC - Car Parking Required

Table 24 below outlines the required parking for the proposed development based on the FCC standards set out in Table 20 above. The proposed development requires a total of 1,235 car parking spaces comprising of 1,128 spaces for residents, 77 for visitor, 27 for the retail units and 3 for the creche.

There are no car parking standards set out for duplex/triplex units. Therefore, for the purpose of calculation, the Apartment standards have been used to calculate duplex parking requirements.

Land Use	Size (Units or Area)	Car Parking Spaces Required		Total
		Residents	Visitors	
3+ Bedroom Houses	265 units	530	-	530
1 Bedroom Apartments	76 units	76	15	91
2 Bedroom Apartments	193 units	290	39	329
3 Bedroom Duplexes/Triplices	116 units	232	23	255
Retail	946 sqm	-	-	27
Creche	6 classrooms	-	-	3
Total	650 units 946 sqm 6 classrooms	1,128	77	1,235

Table 24 | FCC – Required Car Parking Spaces.

Section 12.10 of FCC Development Plan sets out the following with regards to disabled parking bays and parking spaces with charging facilities:

“One space or more per 100 spaces should be reserved for disabled parking bays.”

“One space or more per 100 spaces should be reserved for electric vehicles with charging facilities.”

14.3 Design Standards for New Apartments – December 2020

In December 2020, a revised version of the document “Sustainable Urban Housing: Design Standard for New Apartments” was released. The parking standards set out in this document are considerably lower than those contained in the Fingal Development Plan 2017 – 2023 in respect to apartment developments.

The following extracts from the “Design Standards for New Apartments – March 2020” summarise the guidelines for parking:

“In suburban/urban locations served by public transport or close to town centres or employment areas and particularly for housing schemes with more than 45 dwellings per hectare net (18 per acre), planning authorities must consider a reduced overall car parking standards and apply an appropriate maximum car parking standard.”

As per the above, it is understood that the subject proposed development meets criteria for reasonable grounds to minimise car parking provisions.

14.4 Car Parking Proposed

Table 26 outlines the car parking spaces proposed for the subject scheme.

A total of 610 spaces with an additional 381 visitor spaces are proposed.

It can be noted that the overall car parking proposed for the subject scheme is below the standards set out in the current Fingal Development Plan, which requires a total of 1,235 car parking spaces to be provided.

The proposed development is located in an area served by good public transport which, as planned under BusConnects programme, is projected to be upgraded with more frequent and reliable routes.

Cycle and pedestrian facilities in the locality are new (along R125 Rathbeale Road, Western Distributor Road and Glen Ellan Road) with good connections to bus stops and local amenities. Within the 15-minute cycle band from the site there are several retail, leisure, sports and employment facilities available.

Therefore, based on the above and on the guidelines for parking as set out under the Design Standard for New Apartments – December 2020, the proposed car parking is considered appropriate to serve the subject development as it meets criteria to minimise car parking provisions, such as being served by public transport facilities and being close to a potential town centre and employment areas.

As per Fingal Development Plan, one space per 100 spaces must be provided for disabled parking bays and one space per 100 spaces electric vehicles. As part of the proposed development, there will be 19 disabled parking bays and 72 electric vehicles charging spaces.

Block	Car Parking Spaces Proposed	Visitor Car Parking Proposed	Total	Disabled Spaces	Communal EV Spaces
<i>Block 1</i>	47	6	54	2	4
<i>Block 2</i>	43	24	68	4	8
<i>Block 3</i>	16	9	25	1	4
<i>Block 4</i>	19	47	66	3	8
<i>Block 5</i>	38	4	42	0	2
<i>Block 6</i>	31	32	66	2	6
<i>Block 7</i>	22	72	95	4	10
<i>Block 8</i>	54	11	65	2	4
<i>Block 9</i>	40	0	40	0	0
<i>Block 10</i>	45	16	61	0	4
<i>Block 11</i>	26	27	53	1	4
<i>Block 12</i>	32	22	54	0	2
<i>Block 13</i>	0	27	27	0	2
<i>Block 14</i>	10	26	36	0	2
<i>Block 15</i>	56	10	66	0	2
<i>Block 16</i>	0	16	16	0	2
<i>Block 17</i>	51	18	70	0	4
<i>Block 18</i>	77	2	79	0	4
<i>Sub-Total (Residential / Retail)</i>	607	369	976	19	72
<i>Creche Staff Parking</i>	3	6	9	-	-
<i>Go-Car Spaces</i>	0	6	6	-	-
<i>Total</i>	610	381	991	19	72

Table 25 | Car Parking Proposed.

15. Cycle Parking

15.1 Fingal Development Plan 2017 – 2023 Standards

Standards for cycle parking in new developments are set out in Table 12.9 of the Fingal County Council Development plan 2017-2023 (FCC). The cycle parking standards relevant to the proposed development are listed in Table 26 below.

Land Use	Standard (norm)
Houses	No standard – cycle spaces to be provided within the curtilage
Apartment	1 resident space per unit + 1 visitor space per 5 units (norm)
Retail	1 per 100 GFA (sqm) (norm)
Creche	0.5 per Classroom (norm)
Duplex/Triplex	No standard

Table 26 | Fingal County Council Development Plan 2017 - 2023 - Cycle Parking Standards.

15.2 FCC - Cycle Parking Required

Table 27 below outlines the required cycle parking spaces for the proposed development based on FCC standards set out in Table 26 above. The proposed development requires a total of 474 cycle parking spaces comprising of 385 spaces for residents, 77 spaces for visitors, 9 spaces for the retail units and 3 spaces for the creche.

There are no cycle parking standards set out for duplex/triplex units. Therefore, as did for car parking, for the purpose of calculation, the Apartment standards have been used to calculate duplex cycle parking requirements.

Land Use	Size (Units or Area)	Cycle Parking Spaces Required		Total
		Residents	Visitors	
3+ Bedroom Houses	265 units	-	-	N/A
1 Bedroom Apartments	76 units	76	15	91
2 Bedroom Apartments	193 units	193	39	232
3 Bedroom Duplexes	116 units	116	23	139
Retail	946 sqm	-	-	9
Creche	6 classrooms	-	-	3
Total	650 units 946 sqm 6 classrooms	385	77	474

Table 27 | FCC – Required Cycle Parking Spaces.

15.3 Design Standards for New Apartments – December 2020

The following extracts from the “Design Standards for New Apartments – December 2020” summarise the guidelines for cycle parking:

“A general minimum standard of 1 cycle storage space per bedroom shall be applied. For studio units, at least 1 cycle storage space shall be provided. Visitor cycle parking shall also be provided at a standard of 1 space per 2 residential units. Any deviation from these standards shall be at the discretion of the planning authority and shall be justified with respect to factors such as location, quality of facilities proposed, flexibility for future enhancement/enlargement, etc.”

Based on the above, cycle parking for the proposed apartment/duplex units is set out below.

1 Bedroom Apartments (76 units): 76 cycle parking spaces for residents and 38 cycle parking spaces for visitors.

2 Bedroom Apartments (193 units): 386 cycle parking spaces for residents and 97 cycle parking spaces for visitors.

3 Bedroom Duplexes (116 units): 348 cycle parking spaces for residents and 58 cycle parking spaces for visitors.

A total of 810 cycle parking spaces and 193 visitor cycle parking spaces are required.

15.4 Cycle Parking Proposed

Table 28 outlines the cycle parking spaces proposed to serve the subject scheme.

Block/Location	Bicycle Spaces Provided	Visitor Spaces Provided	Total Per Block/Location
Apartment Block A	84	20	104
Apartment Block B	139	35	174
Apartment Block C, D + Duplex V	42	14	56
Duplex A, B, C, D, E	153	40	193
Duplex F, G, H, I, J	114	32	146
Apartment Block E, Duplex K, L, M	183	40	223
Duplex N, O	36	8	44
Duplex P, Q, R	74	16	90
Duplex S	14	4	18
Duplex T	14	4	18
Duplex U	14	2	16
Apartment Block F	37	4	41
Total Residential Spaces	904	219	1,123

Block C Shop	-	2	2
Block D Café	-	4	4
Creche	6	6	12
Total Bike Spaces	910	231	1,141

Table 28 | Cycle Parking Proposed.

A total of 1,141 cycle parking spaces is proposed, 910 for residents, 231 for visitors, 12 to serve the Creche and 6 to serve the Retail/Café. The cycle parking proposed for the residents is in line with the requirements set out in the Design Standard for New Apartments. Cycle parking for visitors and for the non-residential units comply or exceed the Fingal Development Plan requirements.

16. Road Safety

Traffic collision data has been reviewed for the period 2005-2016 from the Road Safety Authority (RSA) traffic collision database. This review will assist to identify any potential safety concerns in relation to the existing road network. These incidents are categorised into class of severity, which includes minor, serious (S), or fatal (F) collisions. The analysis is shown in Figure 28.

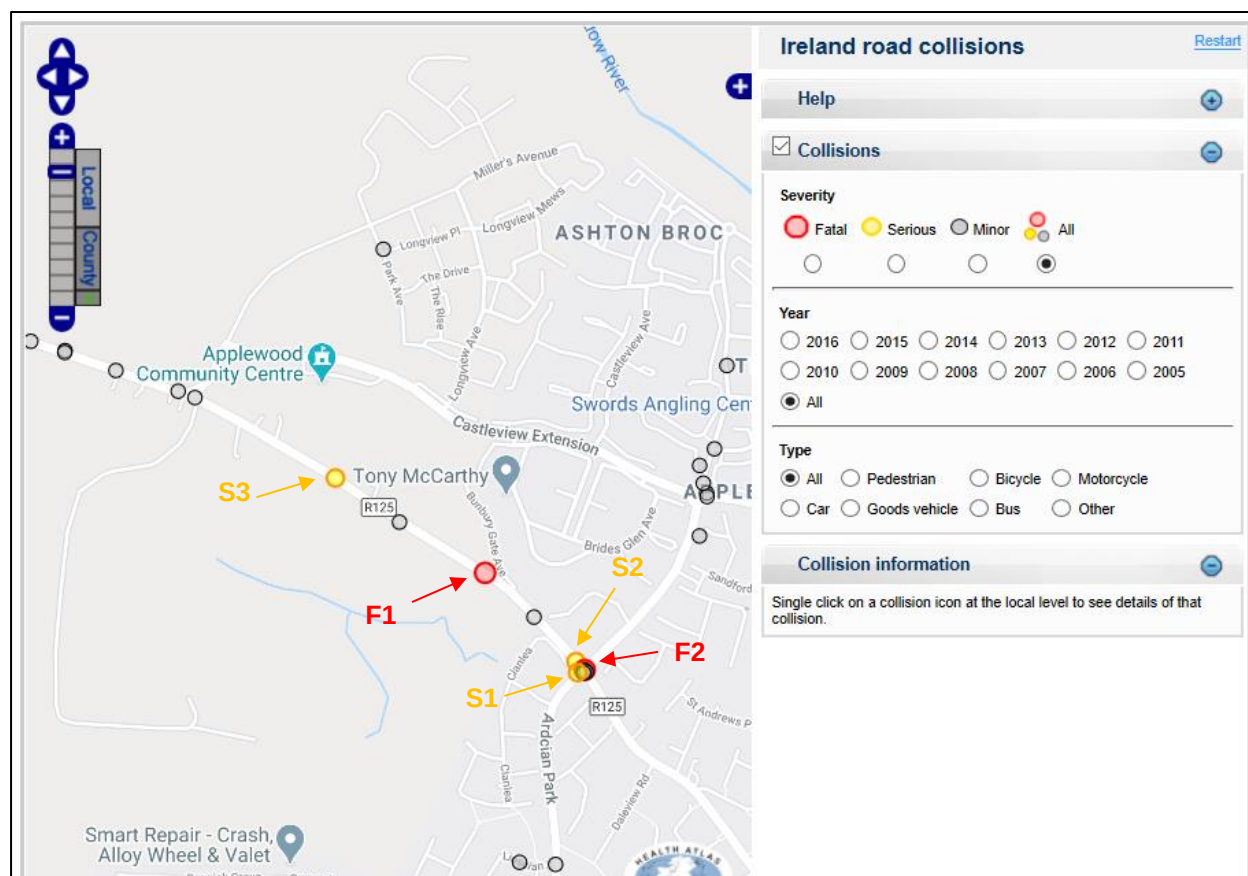


Figure 28 | RSA Traffic Collision Data 2005 – 2016.

The analysis showed that some minor, three serious and two fatal incidents occurred on R125 Rathbeale Road in the vicinity of the proposed development site. A summary of these incidents is presented below.

Reference	Year	Vehicle	Circumstances	Day of Week	Times	Speed Limit
S1	2005	Car	Pedestrian	Friday	07:00-10:00	50kph
S2	2016	Bicycle	Other	Monday	03:00-07:00	50kph
S3	2016	Car	Head-on conflic	Tuesday	07:00-10:00	80kph
F1	2005	Motorcycle	Read end, right turn	Saturday	16:00-19:00	60kph
F2	2013	Goods vehicle	Other	Wednesday	23:00-03:00	60kph

Table 29 | Summary of Local Serious and Fatal Collisions.

17. Conclusion

Waterman Moylan has been appointed by Gannon Properties to prepare this Traffic and Transport Assessment for a Strategic Housing Development proposed on Mooretown lands, Swords, Co. Dublin.

The proposed development is labelled as phase three of the Mooretown development and consists of 650 residential units comprising of 265 Houses, 113 Duplexes/Simplex and 266 Apartments. There will also be a creche with circa 519 sqm of area to attend 102 children and c. 15 staff, and 946 sqm of commercial space.

The main vehicle access route to the site will be through the recently constructed Western Link Distributor Road, which, under planning ref. F20A/0096 is approved to be extended further south (for c. 400m) along the western boundary of the site to comprise two vehicular access points. Six additional vehicular access points to the site are also proposed via the recently constructed Main Street, developed as part of the Mooretown School Campus under Reg. Ref. F14A/0012.

It is estimated that by 2030 the overall LAP lands will be developed and fully operational. By that time, it was estimated that the full LAP will generate a total of 2,161 peak hour vehicle trips during the AM (828 inbound and 1,333 outbound) and a total of 1,773 peak hour vehicle trips in the PM (1,039 inbound and 743 outbound).

The following four junctions were modelled as part of this TTA:

- **Junction 1:** R125 Rathbeale Road / R108 Naul Road (Priority T-junction);
- **Junction 2:** R125 Rathbeale Road / Western Distributor Link Road (Signalised Crossroads);
- **Junction 3:** R125 Rathbeale Road / Murrough Road (Signalised Crossroads);
- **Junction 4:** Glen Ellan Road / Glen Ellan Road Extension (Four-armed Roundabout);

Junction 1 has been modelled based on its current configuration of a priority-controlled T-junction and the results indicate that this junction is currently operating within capacity during both peak hours and would continue to do so for the future assessed year of 2042 with the overall LAP developed, occupied and operational.

Junction 2 has been modelled based on its existing configuration of a signalised crossroads (recently constructed) and the results indicate that this junction would operate below the 100% DOS threshold in the future assessed year of 2042 during both peak hours with the overall LAP developed, occupied and operational.

Junction 3 has been modelled based on its current configuration of a signalised crossroads and the results indicate that this junction is currently operating at capacity and will operate above capacity for the future assessment year of 2025 even without any new development trips included. It is noted that Junction 3 has been part upgraded as part of the LIHAF funded works to the Rathbeale Road via the provision of a new right hand turn lane on the western approach to the existing Murrough Road Junction and it is further noted it has been agreed with Linda Lally of FCC Transportation & Planning Department on 4 March 2022, that further wider infrastructure upgrade works, including that of the Murrough Road Junction 3, do not form part of the remit of the applicant.

Fingal County Council under their Oldtown-Mooretown LAP (2010) recognised Junction 3 as a critical junction which was already operating at capacity and set out new layout for this junction.

It is also recognised by the Council that R125 Rathbeale Road is one of the critical routes currently serving the Swords Northwest, including the Oldtown and Mooretown lands.

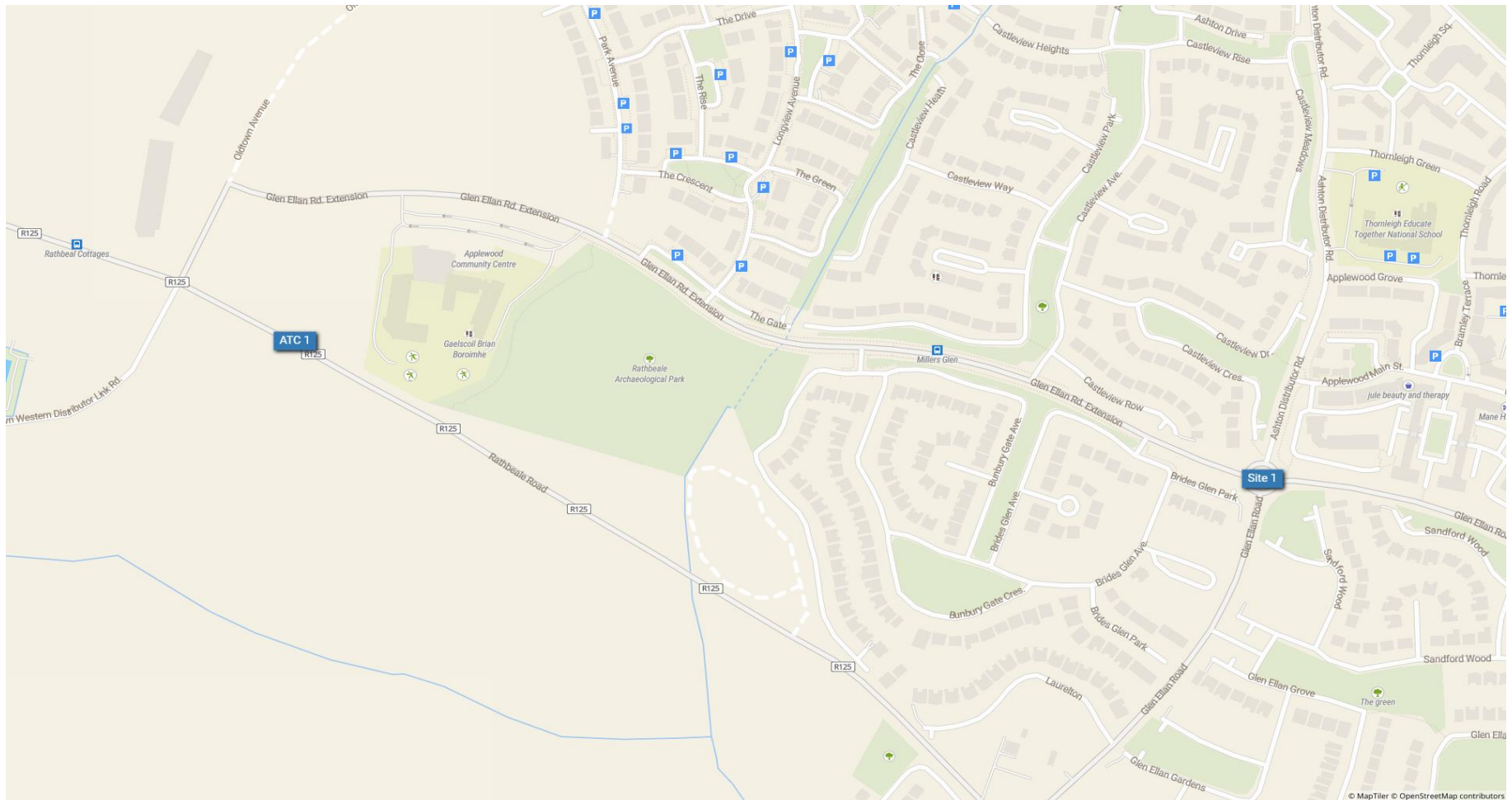
It is understanding that the development of Oldtown and Mooretown lands without any intervention to the transportation infrastructure is likely to increase the current pressures on R125 Rathbeale Road and consequently oversaturate its intersections with other important links, which are currently working at or above their capacities. Rathbeale Road / Murrough Road (Junction 3) is one of the most affected junctions.

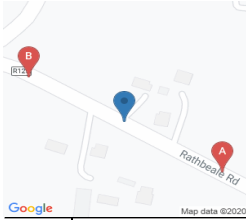
However, as part of their South Fingal Transport Study prepared on behalf of FCC, SYSTRA identified that by providing priority to attract a sufficient share of trips by bus and active modes along R125 Rathbeale Road (and other relevant routes in the area), additional road capacity at Junction 3 would not be required.

Junction 4 has been modelled based on its current configuration of a four-armed roundabout and the results indicate that this junction is currently operating within capacity during both peak hours and would continue to do so for the future assessed year of 2042 with the overall LAP developed, occupied and operational.

APPENDICES

A. Traffic Survey





IDASO

Survey Name: HDR 20-032 Swords (Waterman Moylan)
Site: ATC 1
Location: —
Date: Tue 03-Oct-2017

	A => A						A => B						B => A						B => B									
TIME	CAR	LGV	OGV1	OGV2	SV (BUS)	TOT	PCU	CAR	LGV	OGV1	OGV2	SV (BUS)	TOT	PCU	CAR	LGV	OGV1	OGV2	SV (BUS)	TOT	PCU	CAR	LGV	OGV1	OGV2	SV (BUS)	TOT	PCU
00:00	0	0	0	0	0	0	0	5	0	0	0	0	5	5	5	0	0	0	0	5	5	0	0	0	0	0	0	0
00:15	0	0	0	0	0	0	0	1	0	0	0	0	1	1	4	0	0	0	0	4	4	0	0	0	0	0	0	0
00:30	0	0	0	0	0	0	0	5	0	0	0	0	5	5	1	0	0	0	0	1	1	0	0	0	0	0	0	0
00:45	0	0	0	0	0	0	0	1	0	0	0	0	1	1	2	0	0	0	0	2	2	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	12	0	0	0	0	12	12	12	0	0	0	0	12	12	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	2	0	0	0	0	2	2	1	0	0	0	0	1	1	0	0	0	0	0	0	0
01:15	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0
01:30	0	0	0	0	0	0	0	3	0	0	0	0	3	3	1	0	0	1	0	2	3.3	0	0	0	0	0	0	0
01:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	6	0	0	0	0	6	6	4	0	0	1	0	5	6.3	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	2	0	0	0	0	2	2	1	0	0	0	0	1	1	0	0	0	0	0	0	0
02:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30	0	0	0	0	0	0	0	3	0	0	0	0	3	3	1	0	0	0	0	1	1	0	0	0	0	0	0	0
02:45	0	0	0	0	0	0	0	2	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	7	0	0	0	0	7	7	2	0	0	0	0	2	2	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	2	0	0	0	0	2	2	2	0	0	0	0	2	2	0	0	0	0	0	0	0
03:15	0	0	0	0	0	0	0	4	0	0	0	0	4	4	1	0	0	0	0	1	1	0	0	0	0	0	0	0
03:30	0	0	0	0	0	0	0	5	0	0	2	0	7	9.6	1	1	0	0	0	2	2	0	0	0	0	0	0	0
03:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	3	3.5	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	11	0	0	2	0	13	15.6	6	1	1	0	0	8	8.5	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	1	0	0	0	0	1	1	2	0	0	0	0	2	2	0	0	0	0	0	0	0
04:15	0	0	0	0	0	0	0	2	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30	0	0	0	0	0	0	0	2	0	0	0	0	2	2	3	0	1	0	0	4	4.5	0	0	0	0	0	0	0
04:45	0	0	0	0	0	0	0	1	0	0	0	0	1	1	3	0	0	1	0	4	5.3	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	6	0	0	0	0	6	6	8	0	1	1	0	10	11.8	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	6	0	0	2	0	8	10.6	3	0	0	1	0	4	5.3	0	0	0	0	0	0	0
05:15	0	0	0	0	0	0	0	2	0	0	1	0	3	4.3	6	1	1	0	0	8	8.5	0	0	0	0	0	0	0
05:30	0	0	0	0	0	0	0	6	0	0	0	0	6	6	8	3	1	0	0	12	12.5	0	0	0	0	0	0	0
05:45	0	0	0	0	0	0	0	6	0	0	1	0	7	8.3	10	1	1	1	0	13	14.8	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	20	0	0	4	0	24	29.2	27	5	3	2	0	37	41.1	0	0	0	0	0	0	0
06:00	0	0	0	0	0	0	0	8	0	0	0	0	8	8	10	0	0	0	0	10	10	0	0	0	0	0	0	0
06:15	0	0	0	0	0	0	0	6	0	1	0	0	7	7.5	6	0	2	0	0	8	9	0	0	0	0	0	0	0
06:30	0	0	0	0	0	0	0	13	0	0	0	0	13	13	14	0	0	0	0	14	14	0	0	0	0	0	0	0
06:45	0	0	0	0	0	0	0	24	4	0	0	0	28	28	15	8	3	0	0	26	27.5	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	51	4	1	0	0	56	56.5	45	8	5	0	0	58	60.5	0	0	0	0	0	0	0
07:00	0	0	0	0	0	0	0	26	8	2	2	0	38	41.6	20	12	5	0	0	37	39.5	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	32	14	3	1	0	50	52.8	35	17	0	12	0	64	79.6	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	63	18	0	1	1	83	85.3	61	9	2	0	2	74	77	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	64	14	1	0	1	80	81.5	84	9	3	2	1	99	104.1	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	185	54	6	4	2	251	261.2	200	47	10	14	3	274	300.2	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	45	4	0	1	0	50	51.3	93	6	1	0	1	101	102.5	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	68	6	2	3	0	79	83.9	98	11	1	0	1	111	112.5	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	98	8	3	2	0	111	115.1	64	11	1	0	1	77	78.5	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	64	4	1	0	0	69	69.5	83	9	2	1	0	95	97.3	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	275	22	6	6	0	309	319.8	338	37	5	1	3	384	390.8	0	0	0	0	0	0	0
09:00	0	0	0	0	0	0	0	58	6	1	2	0	67	70.1	77	6	1	1	0	85	86.8	0	0	0	0	0	0	0
09:15	0	0	0	0	0	0	0	42	8	2	0	0	52	53	45	4	3	2	0	54	58.1	0	0	0	0	0	0	0
09:30	0	0	0	0	0	0	0	38	8	1	0	0	47	47.5	43	6	1	0	0	50	50.5	0	0	0	0	0	0	0
09:45	0	0	0	0	0	0	0	23	2	2	0	0	27	28	72	8	3	0	0	83	84.5	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	161	24	6	2	0	193	198.6	237	24	8	3	0	272	279.9	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0	29	12	0	0	0	41	41	44	9	0	1	0	54	55.3	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	39	5	3	0	0	47	48.5	42	9	2	0	0	53	54	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	32	6	1	0	0	39	39.5	24	6	3	0	0	33	34.5	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	50	7	3	1	0	61	63.8	38	4	0	1	0	43	44.3	0	0	0	0	0	0	0
H/TOT	0	0	0	0																								

18:00	0	0	0	0	0	0	0	82	8	0	1	0	91	92.3	56	0	1	0	0	57	57.5	0	0	0	0	0	0	0	0
18:15	0	0	0	0	0	0	0	76	3	3	0	0	82	83.5	44	4	1	0	0	49	49.5	0	0	0	0	0	0	0	0
18:30	0	0	0	0	0	0	0	65	4	1	1	0	71	72.8	58	2	1	0	0	61	61.5	0	0	0	0	0	0	0	0
18:45	0	0	0	0	0	0	0	52	3	3	0	0	58	59.5	44	6	0	0	0	50	50	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	275	18	7	2	0	302	308.1	202	12	3	0	0	217	218.5	0	0	0	0	0	0	0	0
19:00	0	0	0	0	0	0	0	53	2	0	0	0	55	55	36	7	0	0	0	43	43	0	0	0	0	0	0	0	0
19:15	0	0	0	0	0	0	0	44	2	1	0	1	48	49.5	47	7	0	0	0	54	54	0	0	0	0	0	0	0	0
19:30	0	0	0	0	0	0	0	36	1	0	0	0	37	37	32	2	0	0	0	34	34	0	0	0	0	0	0	0	0
19:45	0	0	0	0	0	0	0	47	1	0	0	0	48	48	41	1	1	0	0	43	43.5	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	180	6	1	0	1	188	189.5	156	17	1	0	0	174	174.5	0	0	0	0	0	0	0	0
20:00	0	0	0	0	0	0	0	54	0	0	0	0	54	54	33	1	0	0	0	34	34	0	0	0	0	0	0	0	0
20:15	0	0	0	0	0	0	0	31	0	0	0	0	31	31	31	2	1	0	0	34	34.5	0	0	0	0	0	0	0	0
20:30	0	0	0	0	0	0	0	27	1	0	0	0	28	28	23	3	0	0	0	26	26	0	0	0	0	0	0	0	0
20:45	0	0	0	0	0	0	0	21	1	1	0	0	23	23.5	16	1	0	0	0	17	17	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	133	2	1	0	0	136	136.5	103	7	1	0	0	111	111.5	0	0	0	0	0	0	0	0
21:00	0	0	0	0	0	0	0	29	1	0	1	0	31	32.3	18	1	0	0	0	19	19	0	0	0	0	0	0	0	0
21:15	0	0	0	0	0	0	0	34	0	0	0	0	34	34	20	0	0	0	0	20	20	0	0	0	0	0	0	0	0
21:30	0	0	0	0	0	0	0	23	0	0	0	0	23	23	19	1	0	0	0	20	20	0	0	0	0	0	0	0	0
21:45	0	0	0	0	0	0	0	11	2	0	0	0	13	13	16	1	0	2	0	19	21.6	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	97	3	0	1	0	101	102.3	73	3	0	2	0	78	80.6	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	21	2	0	0	0	23	23	12	0	0	1	0	13	14.3	0	0	0	0	0	0	0	0
22:15	0	0	0	0	0	0	0	11	0	0	1	0	12	13.3	16	0	0	0	0	16	16	0	0	0	0	0	0	0	0
22:30	0	0	0	0	0	0	0	7	0	0	0	0	7	7	13	0	0	0	0	13	13	0	0	0	0	0	0	0	0
22:45	0	0	0	0	0	0	0	16	0	0	0	0	16	16	8	0	0	1	0	9	10.3	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	55	2	0	1	0	58	59.3	49	0	0	2	0	51	53.6	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	12	0	0	0	0	12	12	6	0	1	0	0	7	7.5	0	0	0	0	0	0	0	0
23:15	0	0	0	0	0	0	0	5	0	0	1	0	6	7.3	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0
23:30	0	0	0	0	0	0	0	7	0	0	0	0	7	7	6	1	0	0	0	7	7	0	0	0	0	0	0	0	0
23:45	0	0	0	0	0	0	0	6	0	0	0	1	7	8	7	1	0	0	0	8	8	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	30	0	0	1	1	32	34.3	19	2	1	0	1	23	24.5	0	0	0	0	0	0	0	0
24 TOT	0	0	0	0	0	0	0	3321	398	84	39	11	3853	3956.7	2933	402	97	45	14	3491	3612	0	0	0	0	0	0	0	0

TIME	A => A										A => B										A => C										A => D										B => A									
	CAR	LGW	M/C	OGV1	OGV2	P/C	SV (BUS)	TOT	PCU		CAR	LGW	M/C	OGV1	OGV2	P/C	SV (BUS)	TOT	PCU		CAR	LGW	M/C	OGV1	OGV2	P/C	SV (BUS)	TOT	PCU		CAR	LGW	M/C	OGV1	OGV2	P/C	SV (BUS)	TOT	PCU											
07:00	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	7	7	5	1	0	0	0	0	0	0	6	6	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1				
07:15	0	0	0	0	0	0	0	0	0	0	13	1	0	0	0	1	0	15	14.2	13	0	0	0	0	0	0	13	13	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0				
07:30	0	0	0	0	0	0	0	0	0	0	16	0	0	0	0	0	0	16	16	16	3	0	0	0	0	0	19	19	1	0	0	0	0	0	0	0	1	1	5	0	0	0	0	0	5	5				
07:45	0	0	0	0	0	0	0	0	0	0	14	0	0	0	0	0	0	14	14	8	3	0	0	0	0	0	11	11	3	1	0	0	0	0	1	0	5	4.2	10	0	0	0	0	0	10	10				
H/TOT	0	0	0	0	0	0	0	0	0	0	50	1	0	0	0	1	0	52	51.2	42	7	0	0	0	0	0	0	49	49	5	1	0	0	0	0	1	0	7	6.2	16	0	0	0	0	0	16	16			
08:00	0	0	0	0	0	0	0	0	0	0	23	1	0	0	0	0	0	24	24	25	1	0	0	0	0	0	26	26	7	0	0	0	0	0	0	0	7	7	27	1	0	0	0	0	0	28	28			
08:15	0	0	0	0	0	0	0	0	0	0	22	2	0	0	0	0	1	25	24.2	38	0	0	0	0	0	1	0	39	38.2	12	0	0	0	0	0	0	12	12	12	0	0	0	0	0	12	12				
08:30	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	6	17	12.2	21	0	0	0	0	0	2	0	23	21.4	7	0	0	0	0	0	0	9	11	7.8	9	0	0	0	0	0	9	9			
08:45	0	0	0	0	0	0	0	0	0	0	18	0	0	0	0	0	1	19	18.2	26	1	0	0	0	0	0	0	27	27	1	0	0	0	0	0	0	1	1	6	1	0	0	0	0	7	7				
H/TOT	0	0	0	0	0	0	0	0	0	0	74	3	0	0	0	0	8	85	78.6	110	2	0	0	0	0	3	0	115	112.6	27	0	0	0	0	0	4	0	31	27.8	54	2	0	0	0	0	0	56	56		
09:00	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	1	0	6	5.2	9	0	0	0	0	0	2	0	11	9.4	0	0	0	0	0	0	0	0	0	4	1	0	0	0	0	5	5				
09:15	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	1	12	11.2	10	2	0	0	0	0	0	0	12	12	6	0	0	0	0	0	0	6	6	6	0	0	0	0	0	6	6				
09:30	0	0	0	0	0	0	0	0	0	0	12	1	0	1	0	0	0	14	14.5	12	1	0	0	0	0	0	13	13	0	0	0	0	0	0	0	0	0	0	4	1	0	0	0	0	5	5				
09:45	0	0	0	0	0	0	0	0	0	0	4	2	0	0	0	0	0	6	6	15	3	0	0	0	0	0	0	18	18	1	0	0	0	0	0	0	1	1	2	1	0	0	0	0	3	3				
H/TOT	0	0	0	0	0	0	0	0	0	0	32	3	0	1	0	2	0	38	36.9	46	6	0	0	0	0	2	0	54	52.4	7	0	0	0	0	0	0	0	7	7	16	3	0	0	0	0	19	19			
10:00	0	0	0	0	0	0	0	0	0	0	6	1	0	1	0	0	0	8	8.5	10	2	0	0	0	0	0	12	12	1	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	2	2				
10:15	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	6	6	11	4	0	0	0	0	0	15	15	3	0	0	0	0	0	0	3	3	4	0	0	0	0	0	0	4	4				
10:30	0	0	0	0	0	0	0	0	0	0	6	1	1	0	0	0	0	8	7.4	12	2	0	0	0	0	0	14	14	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	2					
10:45	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	6	6	14	1	0	0	0	0	0	15	15	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	2					
H/TOT	0	0	0	0	0	0	0	0	0	0	24	2	1	1	0	0	0	28	27.9	47	9	0	0	0	0	0	0	56	56	4	0	0	0	0	0	0	4	4	10	0	0	0	0	0	10	10				
11:00	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3	3	7	1	0	0	0	0	0	8	8	5	0	0	0	0	0	0	5	5	4	0	0	0	0	0	4	4					
11:15	0	0	0	0	0	0	0	0	0	0	7	2	0	0	0	0	0	9	9	7	1	0	0	0	0	1	0	9	8.2	2	0	0	0	0	0	0	2	2	7	1	0	0	0	0	8	8				
11:30	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	9	9	8	2	0	0	0	0	0	10	10	5	0	0	0	0	0	0	5	5	4	0	0	0	1	0	5	4.2	5				
11:45	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3	3	13	2	0	0	0	0	0	0	15	15	1	0	0	0	0	0	0	1	1	4	1	0	0	0	0	5	5				
H/TOT	0	0	0	0	0	0	0	0	0	0	22	2	0	0	0	0	0	24	24	35	6	0	0	0	0	1	0	42	41.2	13	0	0	0	0	0	0	13	13	19	2	0	0	0	1	0	22	21.2			
12:00	1	0	0	0	0	0	0	0	1	1	6	1	0	1	0	0	0	8	8.5	8	0	0	1	0	1	0	10	9.7	7	0	0	0	0	0	0	7	7	6	2	0	1	0	0	0	9	9.5				
12:15	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	10	10	15	2	1	0	0	0	0	18	17.4	3	0	0	0	0	0	0	3	3	5	0	0	0	0	0	5	5					
12:30	0	0	0	0	0	0	0	0	0	0	7	2	1	0	0	0	0	10	9.4	11	1	0	0	0	0	0	12	12	9	0	0	0	0	0	0	9	9	5	1	0	0	0	0	6	6					
12:45	0	0	0	0	0	0	0	0	0	0	7	1	0	0	0	0	0	8	8	19	0	0	0	0	0	0	19	19	5	0	0	0	0	0	0	5	5	5	0	0	0	0	0	5	5					
H/TOT	1	0	0	0	0	0	0	0	1	1	30	4	1	1	0	0	0	36	35.9	53	3	1	1	0	1	0	59	58.1	24	0	0	0	0	0	0	24	24	21	3	0	1	0	0	0	25	25.5				
13:00	0	0	0	0	0	0	0	0	0	0	15	1	0	0	0	0	0	16	16	20	2	0	0	0	0	0	22	22	11	0	0	0	0	0	0	11	11	3	0	0	0	0	0	3	3					
13:15	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	1	9	10	14	5	0	0	0	0	0	19	19	7	1	0	0	0	0	0	8	8	7	1	0	0	0	0	8	8					
13:30	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	6	6	25	4	0	0	0	0	0	29	29	6	0	0	0	0	0	0	6	6	4	1	0	0	0	0	5	5					
13:45	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	5	5	8	4	0	0	0	0	0	12	12	4	0	0	0	0	0	0	4	4	14	2	0	0	0	0	16	16					
H/TOT	0	0	0	0	0	0	0	0	0	0	34	1	0	0	0	0	0	36	37	67	15	0	0	0	0	0	82	82	28	1	0	0	0	0	0	29	29	28	4	0	0	0	0	0	32	32				
14:00	0	0	0	0	0	0	0	0	0	0	17	1	0	0	0	0	0	18	18	22	3	0	0	0	0	0	25	25	11	0	0	0	0	0	0	11	11	14	4	0	1	0	0	0	19	19.5				
14:15	0	0	0	0	0	0	0	0	0	0	10	1	0	0	0	0	0	11	11	16	3	0	1	0	0	0	20	20.5	8	2	0	0	0	0	0	10	10	7	0	0	0	0	0	7	7					
14:30	0	0	0	0	0	0	0	0	0	0	10	3	0	0	0	0	0	13	13	18	2	0	0	0	0	0	20	20	3	0	0	0	0	0	0	3	3	6	0	0	1	0	0	6	6					
14:45	0	0	0	0	0	0	0	0	0	0	13	0	0	0	0	0	0	13	13	8	0	0	0	0	0	0	8	8	0	1	0	0	0	0	0	1	1	11	0	0	0	0	0	11	11					
H/TOT	0	0	0	0	0	0	0	0	0	0	50	5	0	0	0	0	0	55	55	64	8	0	1	0	0	0	73	73.5	22	3	0	0	0	0	0	25	25	38	4	0	1	0	0	0	43	43.5				
15:00	0	0	0	0	0	0	0	0	0	0	20	1	0	0	0	3	0	24	21.6	17	0	0	0	0	0	0																								

B => B									B => C									B => D									C => A									C => B									
CAR	LGV	M/C	OGV1	OGV2	P/C	SV (BUS)	TOT	PCU	CAR	LGV	M/C	OGV1	OGV2	P/C	SV (BUS)	TOT	PCU	CAR	LGV	M/C	OGV1	OGV2	P/C	SV (BUS)	TOT	PCU	CAR	LGV	M/C	OGV1	OGV2	P/C	SV (BUS)	TOT	PCU	CAR	LGV	M/C	OGV1	OGV2	P/C	SV (BUS)	TOT	PCU	
0	0	0	0	0	0	0	0	0	22	7	0	0	0	0	2	31	33	6	1	0	0	0	0	0	7	7	5	1	0	0	0	0	0	0	6	6	30	4	0	0	0	1	3	38	40.2
0	0	0	0	0	0	0	0	0	20	7	0	1	0	0	0	28	28.5	7	3	0	0	0	0	0	10	10	0	0	0	0	0	0	0	0	0	0	27	8	0	1	1	0	3	40	44.8
0	0	0	0	0	0	0	0	0	22	6	0	0	2	0	0	30	32.6	12	0	0	0	0	0	0	12	12	5	2	1	0	0	0	0	8	7.4	40	6	2	1	0	1	5	55	58.5	
0	0	0	0	0	0	0	0	0	21	4	0	0	2	0	3	30	35.6	18	1	0	0	0	0	0	19	19	8	0	0	0	0	0	0	8	8	59	5	0	0	0	1	5	70	74.2	
0	0	0	0	0	0	0	0	0	85	24	0	1	4	0	5	119	129.7	43	5	0	0	0	0	0	48	48	18	3	1	0	0	0	0	22	21.4	156	23	2	2	1	3	16	203	217.7	
0	0	0	0	0	0	0	0	0	30	5	0	2	0	0	0	37	38	47	0	0	0	0	0	0	47	47	26	0	0	0	0	0	0	26	26	45	7	0	1	1	0	4	58	63.8	
0	0	0	0	0	0	0	0	0	16	3	0	0	3	0	2	24	29.9	53	3	0	0	1	0	0	57	58.3	18	0	0	0	0	2	0	20	18.4	42	4	0	1	0	2	1	50	49.9	
0	0	0	0	0	0	0	0	0	28	5	0	0	3	0	2	38	43.9	49	0	1	0	0	0	0	50	49.4	9	1	0	0	0	0	0	10	10	38	1	0	1	2	1	4	47	53.3	
0	0	0	0	0	0	0	0	0	29	2	0	0	1	0	0	32	33.3	41	0	0	0	0	0	0	41	41	16	0	0	1	0	1	0	18	17.7	49	4	0	0	0	1	2	56	57.2	
0	0	0	0	0	0	0	0	0	103	15	0	2	7	0	4	131	145.1	190	3	1	0	1	0	0	195	195.7	69	1	0	1	0	3	0	74	72.1	174	16	0	3	3	4	11	211	224.2	
0	0	0	0	0	0	0	0	0	22	5	0	0	1	0	2	30	33.3	20	0	0	0	0	0	0	20	20	30	0	0	0	0	0	0	30	30	61	2	0	0	4	0	3	70	78.2	
0	0	0	0	0	0	0	0	0	35	2	0	1	2	0	1	41	45.1	17	1	0	0	0	0	0	18	18	14	0	0	1	0	0	0	15	15.5	39	2	0	1	2	0	1	45	49.1	
0	0	0	0	0	0	0	0	0	16	3	1	0	2	0	4	26	32	15	3	0	1	0	0	0	19	19.5	12	2	0	1	0	0	0	15	15.5	32	2	0	0	1	0	1	36	38.3	
0	0	0	0	0	0	0	0	0	16	1	1	2	0	0	1	21	22.4	10	1	0	0	0	0	0	11	11	8	1	0	0	0	0	0	9	9	21	2	0	2	1	1	2	29	32.5	
0	0	0	0	0	0	0	0	0	89	11	2	3	5	0	8	118	132.8	62	5	0	1	0	0	0	68	68.5	64	3	0	2	0	0	0	69	70	153	8	0	3	8	1	7	180	198.1	
0	0	0	0	0	0	0	0	0	20	2	0	0	4	0	2	28	35.2	6	4	0	1	0	0	0	11	11.5	12	5	0	1	0	0	0	18	18.5	15	3	0	0	1	0	1	20	22.3	
0	0	0	0	0	0	1	1	2	19	1	0	0	0	0	1	21	22	16	1	0	0	0	0	0	17	17	16	3	0	0	0	0	0	19	19	19	2	0	0	3	0	2	26	31.9	
0	0	0	0	0	0	0	0	0	15	6	0	0	1	0	0	22	23.3	16	0	0	1	0	0	0	17	17.5	4	2	0	0	0	0	0	6	6	11	1	0	0	1	2	1	16	16.7	
0	0	0	0	0	0	0	0	0	12	0	0	1	2	0	1	16	20.1	13	1	0	0	0	0	0	14	14	17	1	0	0	0	0	0	18	18	15	2	0	1	3	0	1	22	27.4	
0	0	0	0	0	0	0	1	1	66	9	0	1	7	0	4	87	100.6	51	6	0	2	0	0	0	59	60	49	11	0	1	0	0	0	61	61.5	60	8	0	1	8	2	5	84	98.3	
0	0	0	0	0	0	0	0	0	14	3	0	0	1	0	2	20	23.3	22	2	0	0	0	0	0	24	24	7	3	0	0	0	0	0	10	10	21	3	0	0	2	0	1	27	30.6	
0	0	0	0	0	0	0	0	0	27	3	1	0	0	0	1	32	32.4	13	2	0	0	0	0	0	15	15	8	3	0	1	0	0	0	12	12.5	23	4	0	0	1	0	2	30	33.3	
0	0	0	0	0	0	0	0	0	22	1	0	0	1	0	0	24	25.3	14	1	0	0	0	0	1	16	15.2	9	0	0	0	0	0	0	9	9	23	0	1	0	0	0	1	25	25.4	
0	0	0	0	0	0	0	0	0	23	4	0	2	1	0	3	33	38.3	14	2	0	1	0	0	0	17	17.5	12	1	0	0	0	1	0	14	13.2	20	2	0	2	1	0	1	26	29.3	
0	0	0	0	0	0	0	0	0	86	11	1	2	3	0	6	109	119.3	63	7	0	1	0	1	0	72	71.7	36	7	0	1	0	1	0	45	44.7	87	9	1	2	4	0	5	108	118.6	
0	0	0	0	0	0	0	0	0	31	1	1	2	1	0	0	36	37.7	12	1	0	1	0	0	0	13	14.5	13	0	0	0	0	0	0	13	13	20	1	0	0	1	1	1	24	25.5	
0	0	0	0	0	0	0	0	0	20	1	0	2	1	0	2	26	30.3	29	0	0	1	0	0	0	30	30.5	15	2	0	0	0	0	0	17	17	28	2	0	3	1	0	2	36	40.8	
0	0	0	0	0	0	0	0	0	35	6	1	1	0	2	1	46	45.3	22	0	0	1	0	0	0	23	23.5	25	1	0	1	0	1	0	28	27.7	19	3	0	1	2	1	0	26	28.3	
0	0	0	0	0	0	0	0	0	28	3	0	3	2	0	2	38	44.1	34	1	1	0	0	0	0	36	35.4	22	0	0	0	0	0	0	23	22.2	17	3	0	1	0	0	2	23	25.5	
0	0	0	0	0	0	0	0	0	114	11	2	8	4	2	5	146	157.4	97	2	1	3	0	0	0	103	103.9	75	3	0	1	0	2	0	81	79.9	84	9	0	5	4	2	5	109	120.1	
0	0	0	0	0	0	0	0	0	20	1	0	2	5	0	0	28	35.5	37	1	0	0	0	0	0	38	38	15	5	0	0	0	1	0	21	20.2	21	3	0	3	1	0	1	29	32.8	
0	0	0	0	0	0	0	0	0	39	3	0	0	2	0	1	45	48.6	37	0	0	1	0	0	0	38	38.5	14	3	0	0	0	1	0	18	17.2	22	1	0	0	3	0	2	28	33.9	
0	0	0	0	0	0	0	0	0	32	8	2	0	0	0	3	45	46.8	28	1	0	1	0	0	0	30	30.5	13	1	0	0	0	0	0	14	14	32	2	1	3	0	0	1	39	40.9	
0	0	0	0	0	0	0	0	0	17	2	0	0	1	0	2	22	25.3	32	2	0	0	0	1	0	35	34.2	27	1	0	0	0	0	0	28	28	27	3	0	0	0	1	2	33	34.2	
0	0	0	0	0	0	0	0	0	108	14	2	2	8	0	6	140	156.2	134	4	0	2	0	1	0	141	141.2	69	10	0	0	0	2	0	81	79.4	102	9	1	6	4	1	6	129	141.8	
0	0	0	0	0	0	0	0	0	24																																				

C => C										C => D										D => A										D => B										D => C									
CAR	LGV	M/C	OGV1	OGV2	P/C	SV	SV (BU)	TOT	PCU	CAR	LGV	M/C	OGV1	OGV2	P/C	SV	SV (BU)	TOT	PCU	CAR	LGV	M/C	OGV1	OGV2	P/C	SV	SV (BU)	TOT	PCU	CAR	LGV	M/C	OGV1	OGV2	P/C	SV	SV (BU)	TOT	PCU	CAR	LGV	M/C	OGV1	OGV2	P/C	SV	SV (BU)	TOT	PCU
0	0	0	0	0	0	0	0	0	0	4	0	0	1	0	0	1	6	7.5	0	0	0	1	0	0	0	0	0	0	1	1.5	41	2	0	0	0	1	0	44	43.2	18	1	0	0	0	0	0	0	19	19
0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	7	7	0	0	0	0	0	0	0	0	0	0	0	0	41	6	1	0	0	0	1	49	49.4	25	3	0	0	0	0	0	28	28	
0	0	0	0	0	0	0	0	0	0	8	2	0	0	0	0	0	10	10	3	0	0	0	0	0	0	0	0	0	3	3	62	6	1	0	0	0	69	68.4	26	7	0	0	0	1	0	34	33.2		
0	0	0	0	0	0	0	0	0	0	16	3	0	0	0	0	0	20	21	1	0	0	0	0	0	0	0	0	1	1	82	4	1	0	0	2	89	86.8	23	2	0	0	0	0	0	25	25			
0	0	0	0	0	0	0	0	0	0	35	5	0	1	0	0	2	43	45.5	4	0	0	1	0	0	0	0	0	0	5	5.5	226	18	3	0	0	3	1	251	247.8	92	13	0	0	0	1	0	106	105.2	
0	0	0	0	0	0	0	0	0	0	30	2	1	1	0	0	0	34	33.9	8	0	0	0	0	0	0	0	0	8	8	94	3	2	0	0	1	1	101	100	39	0	1	1	0	0	0	41	40.9		
0	0	0	0	0	0	0	0	0	0	62	0	0	0	0	4	0	66	62.8	8	0	0	0	0	0	0	0	0	8	8	98	4	2	0	0	0	0	104	102.8	62	2	1	0	0	1	0	66	64.6		
0	0	0	0	0	0	0	1	1	2	68	1	0	0	0	4	2	75	73.8	14	0	0	0	0	0	0	0	0	14	14	74	1	0	0	1	3	79	77.9	96	0	0	0	0	0	0	96	96			
1	0	0	0	0	0	0	0	1	1	42	2	1	0	0	0	0	45	44.4	6	0	0	1	0	0	0	0	0	7	7.5	90	3	0	0	0	0	0	93	93	107	3	0	1	0	0	1	112	113.5		
1	0	0	0	0	0	0	0	1	2	3	202	5	2	1	0	8	2	220	214.9	36	0	0	1	0	0	0	0	0	37	37.5	356	11	4	0	1	4	1	377	373.7	304	5	2	2	0	1	1	315	315	
0	0	0	0	0	0	0	0	0	0	51	0	0	0	0	0	0	51	51	3	0	0	0	0	0	0	0	0	3	3	79	1	0	0	0	1	1	82	82.2	52	1	0	0	0	1	0	54	53.2		
0	0	0	0	0	0	0	0	0	0	24	2	0	0	0	0	0	26	26	9	0	0	0	0	0	0	0	0	9	9	30	2	0	0	0	1	0	33	32.2	15	0	0	1	0	0	0	16	16.5		
0	0	0	0	0	0	0	0	0	0	19	2	0	2	0	0	0	23	24	4	0	0	0	0	0	0	0	0	4	4	32	1	0	0	0	0	0	33	33	18	0	0	0	0	0	0	18	18		
0	0	0	0	1	0	0	0	1	1.5	7	0	0	1	0	0	0	8	8.5	3	0	0	0	0	0	0	0	0	3	3	32	4	0	1	0	0	0	37	37.5	7	0	0	1	0	0	0	8	8.5		
0	0	0	0	1	0	0	0	1	1.5	101	4	0	3	0	0	0	108	109.5	19	0	0	0	0	0	0	0	0	19	19	173	8	0	1	0	2	1	185	184.9	92	1	0	2	0	1	0	96	96.2		
0	0	0	0	0	0	0	0	0	0	14	0	0	0	0	0	0	14	14	3	0	0	0	0	0	0	0	0	3	3	17	0	1	1	0	0	0	19	18.9	14	0	0	1	0	0	0	15	15.5		
0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	8	8	3	0	0	0	0	0	0	0	0	3	3	28	1	0	0	0	0	0	29	29	9	1	0	0	0	0	10	10			
0	0	0	0	0	0	0	0	0	0	9	1	0	0	0	0	0	10	10	5	0	0	0	0	0	0	0	0	5	5	24	3	0	0	0	0	0	27	27	9	2	0	0	0	0	11	11			
0	0	0	0	0	0	0	0	0	0	6	1	0	0	0	0	0	7	7	4	0	0	0	0	0	0	0	0	4	4	18	0	0	0	0	0	0	18	18	2	1	0	0	0	0	3	3			
0	0	0	0	0	0	0	0	0	0	37	2	0	0	0	0	0	39	39	15	0	0	0	0	0	0	0	0	15	15	87	4	1	1	0	0	0	93	92.9	34	4	0	1	0	0	0	39	39.5		
0	0	0	0	0	0	0	0	0	0	7	1	0	1	0	0	0	9	9.5	4	0	0	0	0	0	0	0	0	4	4	16	1	0	1	0	0	0	18	18.5	9	0	0	0	0	0	0	9	9		
1	0	0	0	0	0	0	0	1	1	21	2	0	0	0	0	0	23	23	3	0	0	0	0	0	0	0	0	3	3	20	1	0	0	0	0	0	21	21	10	2	0	1	0	0	0	13	13.5		
0	0	0	0	0	0	0	0	0	0	14	2	0	1	0	0	0	17	17.5	2	0	0	0	0	0	0	0	0	2	2	19	3	0	0	0	0	0	22	22	12	1	0	0	0	0	0	13	13		
0	0	0	0	0	0	0	0	0	0	9	2	0	0	0	0	0	11	11	6	1	0	0	0	0	0	0	0	7	7	26	0	0	0	0	0	0	26	26	23	0	0	0	0	0	0	23	23		
1	0	0	0	0	0	0	0	1	1	51	7	0	2	0	0	0	60	61	15	1	0	0	0	0	0	0	0	16	16	81	5	0	1	0	0	0	87	87.5	54	3	0	1	0	0	0	58	58.5		
0	0	0	0	0	0	0	0	0	0	17	0	0	0	0	1	0	18	17.2	3	0	0	0	0	0	0	0	0	3	3	24	1	0	1	0	0	0	26	26.5	10	2	0	0	0	0	0	12	12		
1	0	0	0	0	0	0	0	1	1	14	2	0	0	0	0	0	16	16	2	0	0	0	0	0	0	0	0	2	2	17	2	0	1	0	0	0	20	20.5	11	0	0	0	0	0	0	11	11		
0	0	0	0	0	0	0	0	0	0	24	1	0	1	0	0	0	26	26.5	1	0	0	0	0	0	0	0	0	1	1	25	2	0	0	0	0	0	27	27	6	0	0	4	0	0	0	10	12		
CAR	LGV	M/C	OGV1	OGV2	P/C	SV	SV (BU)	TOT	PCU	0	0	0	0	0	0	0	22	22	7	3	0	0	0	0	0	0	0	10	10	13	1	1	0	0	0	0	15	14.4	13	1	0	0	0	0	0	14	14		
1	0	0	0	0	0	0	0	1	1	77	3	0	1	0	1	0	82	81.7	13	3	0	0	0	0	0	0	0	16	16	79	6	1	2	0	0	0	88	88.4	40	3	0	4	0	0	0	47	49		
0	0	0	0	0	0	0	0	0	0	30	3	0	0	0	0	0	33	33	3	1	0	0	0	0	0	0	0	4	4	18	1	1	0	0	0	0	20	19.4	13	1	0	1	0	1	0	16	15.7		
0	0	0	0	0	0	0	0	0	0	47	0	0	0	0	0	0	47	47	6	0	0	0	0	0	0	0	0	6	6	36	0	0	0	0	0	1	37	36.2	55	1	0	0	0	0	0	56	56		
0	0	0	0	0	0	0	0	0	0	23	0	0	1	0	0	0	24	24.5	7	0	0	0	0	0	0	0	0	7	7	45	1	0	1	0	0	0	47	47.5	44	0	0	0	0	0	0	44	44		
0	0	0	0	0	0	0	0	0	0	56	2	0	1	0	0	0	59	59.5	8	0	0	0	0	0	0	0	0	8	8	39	2	0	2	0	0	0	43	44	19	2	0	0	0	0	0	21	21		
0	0	0	0	0	0	0	0	0	0	156	5	0	2	0	0	0	163	164	24	1	0	0	0	0	0	0	0	25	25	138	4	1	3	0	1	0	147	147.1	131	4	0	1	0	1	0	137	136.7		
0	0	0	0	1	0	0	0	1	1.5	39	2	0	0	0	0	1	42	41.2	3	1	0	0	0	0	0	0	0	8	8	23	2	0	0	0	0	0	25	25	17	1	1	0	0	0	0	19	18.4		
1	0	0	0	0	0	0	0	1	1	44	2	0	0	0	0	1	47	48	8	1	0	0	0	0	0	0	0	9	9	58	1	0	0	0	0	0	59	59	57	0	0	0	0	0	0	57	57		
1	0	0	0	0	0	0	1	2	3	18	3	0	0	0	0	0	21	21	6	0	0	0	0	0	0	0	0	6	6	59	1	0	0	0	0	0	60	60	67	3	0	0	0	0	2	72	74		
1	0	0	0	0	0	0	0	1	1	62	1	0	1	0	0	0	64	64.5	1	1	0	0	0	0	0	0	0	2	2	24	1	0	0	0	0	0	25	25	27	2	1	0	0	0	0	30	29.4		
3	0	0	0	1	0	0	1	5	6.5																																								

[illegible]

B. TRICS Trip Rates

Calculation Reference: AUDIT-561501-210330-0317

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : K - MIXED PRIV HOUS (FLATS AND HOUSES)
TOTAL VEHICLES

Selected regions and areas:

12	CONNAUGHT	
	CS SLIGO	1 days
13	MUNSTER	
	CR CORK	2 days
15	GREATER DUBLIN	
	DL DUBLIN	3 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: 47 to 322 (units:)
 Range Selected by User: 47 to 538 (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 27/05/19

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:

Monday	1 days
Tuesday	2 days
Wednesday	1 days
Friday	2 days

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

Selected survey types:

Manual count	6 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 undertaken using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	3
Edge of Town	2
Neighbourhood Centre (PPS6 Local Centre)	1

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:

Industrial Zone	1
Residential Zone	4
Village	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

6 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:

1,001 to 5,000	1 days
5,001 to 10,000	1 days
10,001 to 15,000	1 days
25,001 to 50,000	2 days
50,001 to 100,000	1 days

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

Population within 5 miles:

25,001 to 50,000	1 days
100,001 to 125,000	1 days
125,001 to 250,000	1 days
500,001 or More	3 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	5 days
1.1 to 1.5	1 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

6 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

6 days

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

LIST OF SITES relevant to selection parameters

1	CR-03-K-02	SEMI-DET. & FLATS	CORK
	SKEHARD ROAD		
	CORK		
	BALLINURE		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	116	
	Survey date: FRIDAY	20/06/14	Survey Type: MANUAL
2	CR-03-K-03	TERRACED & FLATS	CORK
	SKEHARD ROAD		
	CORK		
	LAHARN		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	47	
	Survey date: FRIDAY	23/03/18	Survey Type: MANUAL
3	CS-03-K-01	FLATS & MIXED HOUSES	SLIGO
	STATION ROAD		
	BALLISODARE		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total No of Dwellings:	322	
	Survey date: MONDAY	27/05/19	Survey Type: MANUAL
4	DL-03-K-02	HOUSES & FLATS	DUBLIN
	MILLTOWN ROAD		
	DUBLIN		
	MILLTOWN		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	68	
	Survey date: TUESDAY	10/09/13	Survey Type: MANUAL
5	DL-03-K-03	HOUSES & FLATS	DUBLIN
	CHARLESTOWN		
	DUBLIN		
	Edge of Town		
	Industrial Zone		
	Total No of Dwellings:	322	
	Survey date: WEDNESDAY	11/09/13	Survey Type: MANUAL
6	DL-03-K-04	FLATS AND DUPLEXES	DUBLIN
	ALL HALLOWS SQUARE		
	DUBLIN		
	DRUMCONDRA		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	76	
	Survey date: TUESDAY	22/11/16	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/K - MIXED PRIV HOUS (FLATS AND HOUSES)

TOTAL VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	6	159	0.046	6	159	0.184	6	159	0.230
08:00 - 09:00	6	159	0.107	6	159	0.284	6	159	0.391
09:00 - 10:00	6	159	0.109	6	159	0.138	6	159	0.247
10:00 - 11:00	6	159	0.077	6	159	0.100	6	159	0.177
11:00 - 12:00	6	159	0.085	6	159	0.102	6	159	0.187
12:00 - 13:00	6	159	0.100	6	159	0.108	6	159	0.208
13:00 - 14:00	6	159	0.212	6	159	0.172	6	159	0.384
14:00 - 15:00	6	159	0.161	6	159	0.147	6	159	0.308
15:00 - 16:00	6	159	0.149	6	159	0.111	6	159	0.260
16:00 - 17:00	6	159	0.174	6	159	0.124	6	159	0.298
17:00 - 18:00	6	159	0.237	6	159	0.136	6	159	0.373
18:00 - 19:00	6	159	0.213	6	159	0.131	6	159	0.344
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.670			1.737			3.407

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.

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Parameter summary

Trip rate parameter range selected: 47 - 322 (units:)
 Survey date range: 01/01/12 - 27/05/19
 Number of weekdays (Monday-Friday): 6
 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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-561501-210331-0304

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 01 - RETAIL
 Category : I - SHOPPING CENTRE - LOCAL SHOPS
TOTAL VEHICLES

Selected regions and areas:

14	LEINSTER	
	WX WEXFORD	1 days
15	GREATER DUBLIN	
	DL DUBLIN	1 days
16	ULSTER (REPUBLIC OF IRELAND)	
	DN DONEGAL	2 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: Gross floor area
 Actual Range: 856 to 3394 (units: sqm)
 Range Selected by User: 504 to 4650 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/13 to 23/03/18

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:

Wednesday	1 days
Friday	1 days
Saturday	1 days
Sunday	1 days

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

Selected survey types:

Manual count	4 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 undertaken using machines.

Selected Locations:

Town Centre	1
Edge of Town Centre	1
Suburban Area (PPS6 Out of 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	1
No Sub Category	3

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:

n/a 4 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

Secondary Filtering selection (Cont.):

Population within 1 mile:

10,001 to 15,000	1 days
15,001 to 20,000	3 days

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

Population within 5 miles:

25,001 to 50,000	3 days
250,001 to 500,000	1 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	3 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.

Petrol filling station:

Included in the survey count	0 days
Excluded from count or no filling station	4 days

This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.

Travel Plan:

No	4 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	4 days

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

LIST OF SITES relevant to selection parameters

1	DL-01-I-07	LOCAL SHOPS	DUBLIN
	DUNDRUM ROAD		
	DUBLIN		
	WINDY ARBOUR		
	Suburban Area (PPS6 Out of Centre)		
	No Sub Category		
	Total Gross floor area:	1034 sqm	
	Survey date: WEDNESDAY	01/10/14	Survey Type: MANUAL
2	DN-01-I-01	LOCAL SHOPS	DONEGAL
	PEARSE ROAD		
	LETTERKENNY		
	Edge of Town Centre		
	No Sub Category		
	Total Gross floor area:	856 sqm	
	Survey date: SATURDAY	27/09/14	Survey Type: MANUAL
3	DN-01-I-02	LOCAL SHOPS	DONEGAL
	PEARSE ROAD		
	LETTERKENNY		
	Town Centre		
	No Sub Category		
	Total Gross floor area:	3394 sqm	
	Survey date: FRIDAY	26/09/14	Survey Type: MANUAL
4	WX-01-I-01	LOCAL SHOPS	WEXFORD
	ST AIDAN'S ROAD		
	WEXFORD		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Gross floor area:	3060 sqm	
	Survey date: SUNDAY	28/09/14	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 01 - RETAIL/I - SHOPPING CENTRE - LOCAL SHOPS

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	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	3	1761	0.227	3	1761	0.246	3	1761	0.473
08:00 - 09:00	4	2086	0.551	4	2086	0.336	4	2086	0.887
09:00 - 10:00	4	2086	2.373	4	2086	1.594	4	2086	3.967
10:00 - 11:00	4	2086	2.565	4	2086	2.121	4	2086	4.686
11:00 - 12:00	4	2086	2.876	4	2086	2.505	4	2086	5.381
12:00 - 13:00	4	2086	2.972	4	2086	3.176	4	2086	6.148
13:00 - 14:00	4	2086	2.912	4	2086	2.948	4	2086	5.860
14:00 - 15:00	4	2086	2.984	4	2086	3.032	4	2086	6.016
15:00 - 16:00	4	2086	2.481	4	2086	2.709	4	2086	5.190
16:00 - 17:00	4	2086	2.888	4	2086	2.792	4	2086	5.680
17:00 - 18:00	4	2086	2.637	4	2086	2.912	4	2086	5.549
18:00 - 19:00	4	2086	1.342	4	2086	1.942	4	2086	3.284
19:00 - 20:00	2	2047	2.174	2	2047	2.467	2	2047	4.641
20:00 - 21:00	2	2047	1.466	2	2047	2.125	2	2047	3.591
21:00 - 22:00	2	2047	0.635	2	2047	0.684	2	2047	1.319
22:00 - 23:00									
23:00 - 24:00									
Total Rates:		31.083			31.589			62.672	

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.

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Parameter summary

Trip rate parameter range selected: 856 - 3394 (units: sqm)
Survey date range: 01/01/13 - 23/03/18
Number of weekdays (Monday-Friday): 2
Number of Saturdays: 1
Number of Sundays: 1
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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-561501-210407-0446

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 07 - LEISURE
 Category : O - LEISURE PARK
TOTAL VEHICLES

Selected regions and areas:

08 NORTH WEST
 LC LANCASHIRE 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: Gross floor area
 Actual Range: 7950 to 7950 (units: sqm)
 Range Selected by User: 4050 to 30000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/13 to 22/06/19

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:

Saturday 1 days

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

Selected survey types:

Manual count 1 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 undertaken using machines.

Selected Locations:

Town Centre 1

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:

Built-Up Zone 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:

n/a 1 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

Secondary Filtering selection (Cont.):

Population within 1 mile:

25,001 to 50,000 1 days

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

Population within 5 miles:

125,001 to 250,000 1 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

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 1 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 1 days

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

LIST OF SITES relevant to selection parameters

1	LC-07-O-04	LEISURE PARK	LANCASHIRE
	MAYSON STREET		
	BLACKBURN		
	Town Centre		
	Built-Up Zone		
	Total Gross floor area:	7950 sqm	
	Survey date: SATURDAY	22/06/19	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 07 - LEISURE/O - LEISURE PARK

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	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									
08:00 - 09:00	1	7950	0.428	1	7950	0.214	1	7950	0.642
09:00 - 10:00	1	7950	0.780	1	7950	0.314	1	7950	1.094
10:00 - 11:00	1	7950	0.906	1	7950	0.541	1	7950	1.447
11:00 - 12:00	1	7950	1.258	1	7950	0.931	1	7950	2.189
12:00 - 13:00	1	7950	1.723	1	7950	1.182	1	7950	2.905
13:00 - 14:00	1	7950	1.648	1	7950	1.321	1	7950	2.969
14:00 - 15:00	1	7950	1.535	1	7950	1.786	1	7950	3.321
15:00 - 16:00	1	7950	1.811	1	7950	1.572	1	7950	3.383
16:00 - 17:00	1	7950	1.736	1	7950	1.472	1	7950	3.208
17:00 - 18:00	1	7950	1.522	1	7950	1.786	1	7950	3.308
18:00 - 19:00	1	7950	2.352	1	7950	1.874	1	7950	4.226
19:00 - 20:00	1	7950	1.522	1	7950	1.597	1	7950	3.119
20:00 - 21:00	1	7950	1.233	1	7950	1.635	1	7950	2.868
21:00 - 22:00	1	7950	0.767	1	7950	1.421	1	7950	2.188
22:00 - 23:00	1	7950	0.805	1	7950	1.447	1	7950	2.252
23:00 - 24:00	1	7950	0.327	1	7950	0.503	1	7950	0.830
Total Rates:			20.353			19.596			39.949

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.

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Parameter summary

Trip rate parameter range selected: 7950 - 7950 (units: sqm)
Survey date range: 01/01/13 - 22/06/19
Number of weekdays (Monday-Friday): 0
Number of Saturdays: 1
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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

C. Junction Modelling Output Reports

Junctions 9	
PICADY 9 - Priority Intersection Module	
Version: 9.5.1.7462 © Copyright TRL Limited, 2019	
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk	
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution	

Filename: Junction 1 - AM-PM.j9

Path: M:\Projects\21\21-011 - Mooretown Phase 3\Design\Traffic\Junction Modelling\August 2021\Junction 1

Report generation date: 12/04/2022 11:05:52

-
- »Junction 1 - Baseline 2022, AM
 - »Junction 1 - Baseline 2022, PM
 - »Junction 1 - Baseline 2027, AM
 - »Junction 1 - Baseline 2027, PM
 - »Junction 1 - 2027 - LAP Developments, AM
 - »Junction 1 - 2027 - LAP Developments, PM
 - »Junction 1 - Baseline 2032, AM
 - »Junction 1 - Baseline 2032, PM
 - »Junction 1 - 2032- Overall LAP, AM
 - »Junction 1 - 2032- Overall LAP, PM
 - »Junction 1 - Baseline 2042, AM
 - »Junction 1 - Baseline 2042, PM
 - »Junction 1 - 2042 - Overall LAP, AM
 - »Junction 1 - 2042 - Overall LAP, PM

Summary of junction performance

	AM		PM	
	Queue (Veh)	RFC	Queue (Veh)	RFC
Junction 1 - Baseline 2022				
Stream B-C	0.2	0.17	1.2	0.54
Stream B-A	0.1	0.06	0.2	0.15
Stream C-AB	2.0	0.55	0.9	0.37
Junction 1 - Baseline 2027				
Stream B-C	0.2	0.18	1.6	0.62
Stream B-A	0.1	0.07	0.2	0.19
Stream C-AB	2.8	0.63	1.2	0.43
Junction 1 - 2027 - LAP Developments				
Stream B-C	0.3	0.20	1.8	0.65
Stream B-A	0.2	0.13	0.4	0.28
Stream C-AB	5.1	0.74	1.6	0.47
Junction 1 - Baseline 2032				
Stream B-C	0.2	0.19	1.8	0.65
Stream B-A	0.1	0.07	0.3	0.21
Stream C-AB	3.3	0.67	1.4	0.45
Junction 1 - 2032- Overall LAP				
Stream B-C	0.3	0.21	2.1	0.69
Stream B-A	0.2	0.15	0.4	0.31
Stream C-AB	8.0	0.82	1.8	0.50
Junction 1 - Baseline 2042				
Stream B-C	0.2	0.20	2.1	0.68
Stream B-A	0.1	0.07	0.3	0.23
Stream C-AB	4.0	0.70	1.5	0.48
Junction 1 - 2042 - Overall LAP				
Stream B-C	0.3	0.22	2.4	0.71
Stream B-A	0.2	0.15	0.5	0.33
Stream C-AB	7.6	0.81	1.9	0.52

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

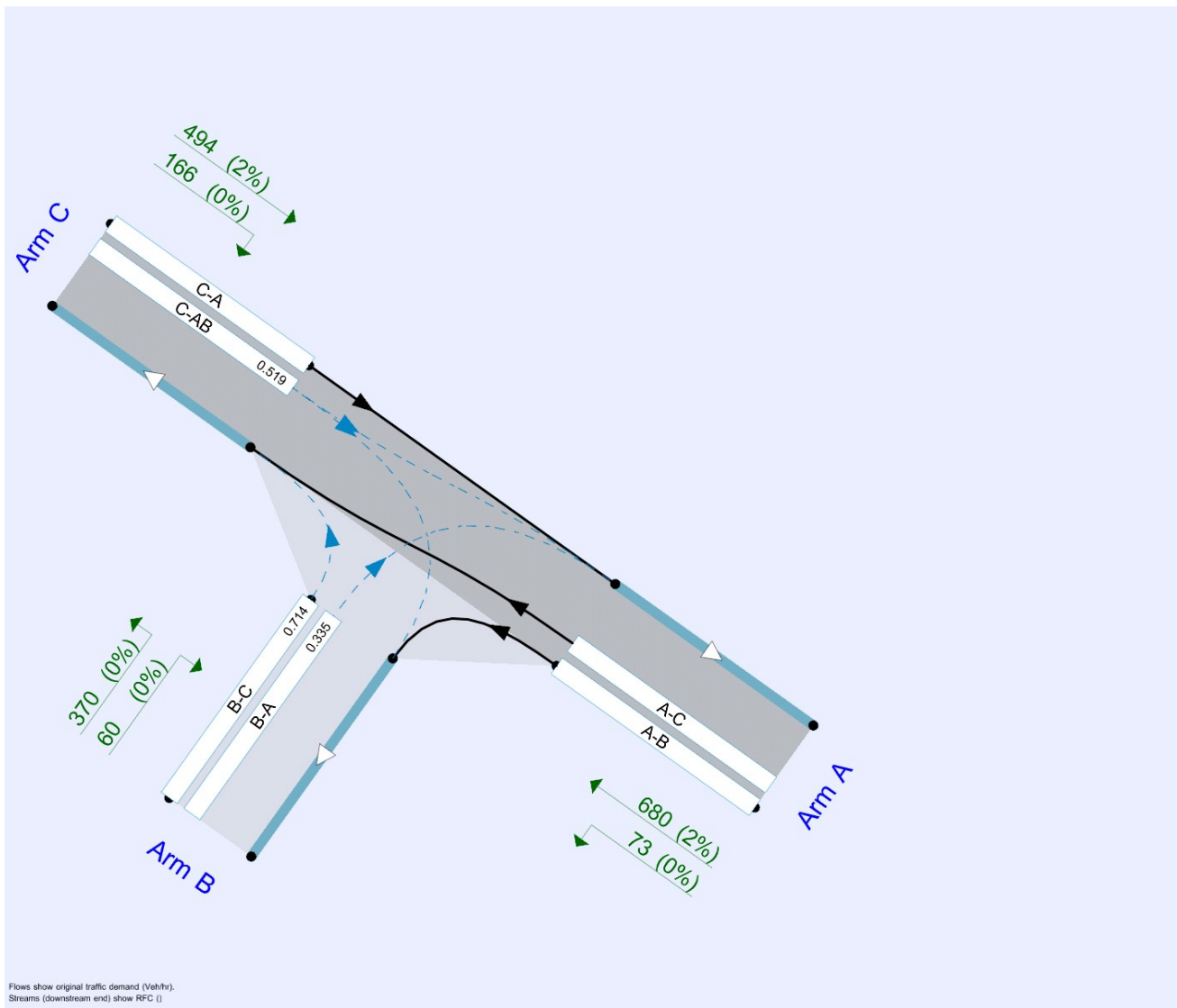
File summary

File Description

Title	
Location	
Site number	
Date	27/03/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DOMAINf.silva
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	Veh	Veh	perHour	s	-Min	perMin



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)	Single time segment only
D1	Baseline 2022	AM	FLAT	08:00	09:00	60	✓
D2	Baseline 2022	PM	FLAT	17:00	18:00	60	✓
D3	Baseline 2027	AM	FLAT	08:00	09:00	60	✓
D4	Baseline 2027	PM	FLAT	17:00	18:00	60	✓
D5	2027 - LAP Developments	AM	FLAT	08:00	09:00	60	✓
D6	2027 - LAP Developments	PM	FLAT	17:00	18:00	60	✓
D7	Baseline 2032	AM	FLAT	08:00	09:00	60	✓
D8	Baseline 2032	PM	FLAT	17:00	18:00	60	✓
D9	2032- Overall LAP	AM	FLAT	08:00	09:00	60	✓
D10	2032- Overall LAP	PM	FLAT	17:00	18:00	60	✓
D11	Baseline 2042	AM	FLAT	08:00	09:00	60	✓
D12	Baseline 2042	PM	FLAT	17:00	18:00	60	✓
D13	2042 - Overall LAP	AM	FLAT	08:00	09:00	60	✓
D14	2042 - Overall LAP	PM	FLAT	17:00	18:00	60	✓

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Junction 1	100.000

Junction 1 - Baseline 2022, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		4.44	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	R125 Rathbeale Road (E)		Major
B	R108 Naul Road (S)		Minor
C	R125 Rathbeale Road (W)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.30			75.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	10.00	6.00	4.10	3.30	3.00	✓	1.00	85	120

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	566	0.097	0.246	0.155	0.351
B-C	775	0.112	0.283	-	-
C-B	617	0.226	0.226	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

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)	Single time segment only
D1	Baseline 2022	AM	FLAT	08:00	09:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
A		✓	362	100.000
B		✓	127	100.000
C		✓	667	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
	A	B	C	
From	A	0	35	327
	B	18	0	109
	C	459	208	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	0	10
	B	0	0	0
	C	10	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-C	0.17	6.53	0.2	A
B-A	0.06	11.85	0.1	B
C-AB	0.55	9.42	2.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 09:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	109	660	0.165	109	0.2	6.534	A
B-A	18	322	0.056	18	0.1	11.854	B
C-AB	459	839	0.547	457	2.0	9.416	A
C-A	208			208			
A-B	35			35			
A-C	327			327			

Junction 1 - Baseline 2022, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		4.79	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Single time segment only
D2	Baseline 2022	PM	FLAT	17:00	18:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
A		✓	576	100.000
B		✓	357	100.000
C		✓	464	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
	A	B	C	
From	A	0	56	520
	B	40	0	317
	C	322	142	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	0	10
	B	0	0	0
	C	10	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-C	0.54	13.42	1.2	B
B-A	0.15	15.53	0.2	C
C-AB	0.37	8.12	0.9	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 18:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	317	583	0.544	316	1.2	13.416	B
B-A	40	271	0.147	40	0.2	15.534	C
C-AB	262	704	0.372	261	0.9	8.116	A
C-A	202			202			
A-B	56			56			
A-C	520			520			

Junction 1 - Baseline 2027, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		5.53	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Single time segment only
D3	Baseline 2027	AM	FLAT	08:00	09:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
A		✓	395	100.000
B		✓	138	100.000
C		✓	728	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
	A	B	C	
From	A	0	38	357
	B	20	0	118
	C	501	227	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	0	10
	B	0	0	0
	C	10	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-C	0.18	6.78	0.2	A
B-A	0.07	12.89	0.1	B
C-AB	0.63	11.14	2.8	B
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 09:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	118	648	0.182	118	0.2	6.784	A
B-A	20	299	0.067	20	0.1	12.894	B
C-AB	542	862	0.629	539	2.8	11.140	B
C-A	186			186			
A-B	38			38			
A-C	357			357			

Junction 1 - Baseline 2027, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		5.76	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Single time segment only
D4	Baseline 2027	PM	FLAT	17:00	18:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
A		✓	628	100.000
B		✓	390	100.000
C		✓	506	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
	A	B	C	
From	A	0	61	567
	B	44	0	346
	C	351	155	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	0	10
	B	0	0	0
	C	10	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-C	0.62	16.40	1.6	C
B-A	0.19	18.85	0.2	C
C-AB	0.43	8.75	1.2	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 18:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	346	562	0.615	344	1.6	16.399	C
B-A	44	235	0.188	44	0.2	18.849	C
C-AB	305	715	0.426	303	1.2	8.750	A
C-A	201			201			
A-B	61			61			
A-C	567			567			

Junction 1 - 2027 - LAP Developments, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		7.18	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Single time segment only
D5	2027 - LAP Developments	AM	FLAT	08:00	09:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
A		✓	601	100.000
B		✓	150	100.000
C		✓	836	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
From		A	B	C
	A	0	59	542
	B	32	0	118
	C	609	227	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
From		A	B	C
	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-C	0.20	7.74	0.3	A
B-A	0.13	17.03	0.2	C
C-AB	0.74	14.79	5.1	B
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 09:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	118	583	0.203	118	0.3	7.741	A
B-A	32	243	0.132	32	0.2	17.030	C
C-AB	678	916	0.740	673	5.1	14.789	B
C-A	158			158			
A-B	59			59			
A-C	542			542			

Junction 1 - 2027 - LAP Developments, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		6.30	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Single time segment only
D6	2027 - LAP Developments	PM	FLAT	17:00	18:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
A		✓	708	100.000
B		✓	403	100.000
C		✓	624	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
From		A	B	C
	A	0	69	639
	B	57	0	346
	C	469	155	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
From		A	B	C
	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-C	0.65	19.00	1.8	C
B-A	0.28	24.27	0.4	C
C-AB	0.47	8.56	1.6	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 18:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	346	532	0.651	344	1.8	19.003	C
B-A	57	205	0.279	57	0.4	24.270	C
C-AB	377	796	0.474	376	1.6	8.556	A
C-A	247			247			
A-B	69			69			
A-C	639			639			

Junction 1 - Baseline 2032, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		6.18	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Single time segment only
D7	Baseline 2032	AM	FLAT	08:00	09:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
A		✓	409	100.000
B		✓	143	100.000
C		✓	754	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
	A	B	C	
From	A	0	39	370
	B	20	0	123
	C	519	235	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	0	10
	B	0	0	0
	C	10	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-C	0.19	6.91	0.2	A
B-A	0.07	13.36	0.1	B
C-AB	0.67	12.20	3.3	B
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 09:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	123	644	0.191	123	0.2	6.908	A
B-A	20	289	0.069	20	0.1	13.356	B
C-AB	581	872	0.666	577	3.3	12.200	B
C-A	173			173			
A-B	39			39			
A-C	370			370			

Junction 1 - Baseline 2032, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		6.29	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Single time segment only
D8	Baseline 2032	PM	FLAT	17:00	18:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
A		✓	651	100.000
B		✓	403	100.000
C		✓	525	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
	A	B	C	
From	A	0	63	588
	B	45	0	358
	C	364	161	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	0	10
	B	0	0	0
	C	10	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-C	0.65	18.09	1.8	C
B-A	0.21	20.78	0.3	C
C-AB	0.45	9.11	1.4	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 18:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	358	553	0.647	356	1.8	18.088	C
B-A	45	218	0.207	45	0.3	20.779	C
C-AB	326	720	0.453	324	1.4	9.107	A
C-A	199			199			
A-B	63			63			
A-C	588			588			

Junction 1 - 2032- Overall LAP, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		10.11	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Single time segment only
D9	2032- Overall LAP	AM	FLAT	08:00	09:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
A		✓	615	100.000
B		✓	156	100.000
C		✓	907	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
		A	B	C
	A	0	60	555
	B	33	0	123
	C	672	235	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-C	0.21	7.93	0.3	A
B-A	0.15	18.62	0.2	C
C-AB	0.82	19.70	8.0	C
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 09:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	123	576	0.213	123	0.3	7.934	A
B-A	33	226	0.146	33	0.2	18.616	C
C-AB	785	959	0.818	777	8.0	19.696	C
C-A	122			122			
A-B	60			60			
A-C	555			555			

Junction 1 - 2032- Overall LAP, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		7.04	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Single time segment only
D10	2032- Overall LAP	PM	FLAT	17:00	18:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
A		✓	731	100.000
B		✓	416	100.000
C		✓	643	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
From		A	B	C
	A	0	71	660
	B	58	0	358
	C	482	161	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
From		A	B	C
	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-C	0.69	21.44	2.1	C
B-A	0.31	27.51	0.4	D
C-AB	0.50	8.99	1.8	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 18:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	358	522	0.686	356	2.1	21.437	C
B-A	58	188	0.309	58	0.4	27.507	D
C-AB	404	802	0.503	402	1.8	8.994	A
C-A	239			239			
A-B	71			71			
A-C	660			660			

Junction 1 - Baseline 2042, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		7.01	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Single time segment only
D11	Baseline 2042	AM	FLAT	08:00	09:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
A		✓	423	100.000
B		✓	148	100.000
C		✓	779	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
		A	B	C
From	A	0	41	382
	B	21	0	127
	C	536	243	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
From	A	0	0	10
	B	0	0	0
	C	10	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-C	0.20	7.03	0.2	A
B-A	0.07	13.88	0.1	B
C-AB	0.70	13.56	4.0	B
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 09:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	127	639	0.199	127	0.2	7.028	A
B-A	21	280	0.075	21	0.1	13.885	B
C-AB	620	881	0.704	616	4.0	13.561	B
C-A	159			159			
A-B	41			41			
A-C	382			382			

Junction 1 - Baseline 2042, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		6.94	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Single time segment only
D12	Baseline 2042	PM	FLAT	17:00	18:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
A		✓	672	100.000
B		✓	417	100.000
C		✓	542	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
	A	B	C	
From	A	0	65	607
	B	47	0	370
	C	376	166	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	0	10
	B	0	0	0
	C	10	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-C	0.68	20.20	2.1	C
B-A	0.23	23.24	0.3	C
C-AB	0.48	9.46	1.5	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 18:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	370	544	0.680	368	2.1	20.202	C
B-A	47	201	0.233	47	0.3	23.236	C
C-AB	345	724	0.477	344	1.5	9.456	A
C-A	197			197			
A-B	65			65			
A-C	607			607			

Junction 1 - 2042 - Overall LAP, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		9.80	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Single time segment only
D13	2042 - Overall LAP	AM	FLAT	08:00	09:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
A		✓	658	100.000
B		✓	160	100.000
C		✓	888	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
	A	B	C	
From	A	0	61	597
	B	33	0	127
	C	645	243	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	0	1
	B	0	0	0
	C	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-C	0.22	8.10	0.3	A
B-A	0.15	18.63	0.2	C
C-AB	0.81	19.64	7.6	C
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 09:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	127	571	0.222	127	0.3	8.101	A
B-A	33	226	0.146	33	0.2	18.626	C
C-AB	768	943	0.815	761	7.6	19.643	C
C-A	120			120			
A-B	61			61			
A-C	597			597			

Junction 1 - 2042 - Overall LAP, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		7.73	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Single time segment only
D14	2042 - Overall LAP	PM	FLAT	17:00	18:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
A		✓	753	100.000
B		✓	430	100.000
C		✓	660	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
From		A	B	C
	A	0	73	680
	B	60	0	370
	C	494	166	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
From		A	B	C
	A	0	0	2
	B	0	0	0
	C	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-C	0.71	23.56	2.4	C
B-A	0.33	29.96	0.5	D
C-AB	0.52	9.14	1.9	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 18:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	370	518	0.714	368	2.4	23.564	C
B-A	60	179	0.335	60	0.5	29.955	D
C-AB	422	814	0.519	420	1.9	9.141	A
C-A	238			238			
A-B	73			73			
A-C	680			680			

TRANSYT 15	
Version: 15.5.2.7994 © Copyright TRL Limited, 2018	
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Filename: Junction 2 - AM.t16

Path: M:\Projects\21\21-011 - Mooretown Phase 3\Design\Traffic\Junction Modelling\August 2021\Junction 2

Report generation date: 12/04/2022 11:09:56

»A1 - Junction 2 - 2027 + LAP Developments : D1 - 2027 + LAP Developments, AM* :

»A2 - Junction 2 - 2032 + Overall LAP : D2 - 2032 + Overall LAP, AM* :

»A3 - Junction 2 - 2042 + Overall LAP : D3 - 2042 + Overall LAP, AM* :

File summary

File description

File title	(untitled)
Location	
Site number	
UTCRegion	
Driving side	Left
Date	06/12/2011
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DOMAINf.silva
Description	

Model and Results

Enable controller offsets	Enable fuel consumption	Enable quick flares	Display journey time results	Display level of service results	Display blocking and starvation results	Display end of red and green queue results	Display excess queue results	Display separate uniform and random results	Display unweighted results	Display TRANSYT 12 style timings	Display effective greens in results	Display Red-With-Amber	Display End-Of-Green Amber
			✓		✓		✓	✓					

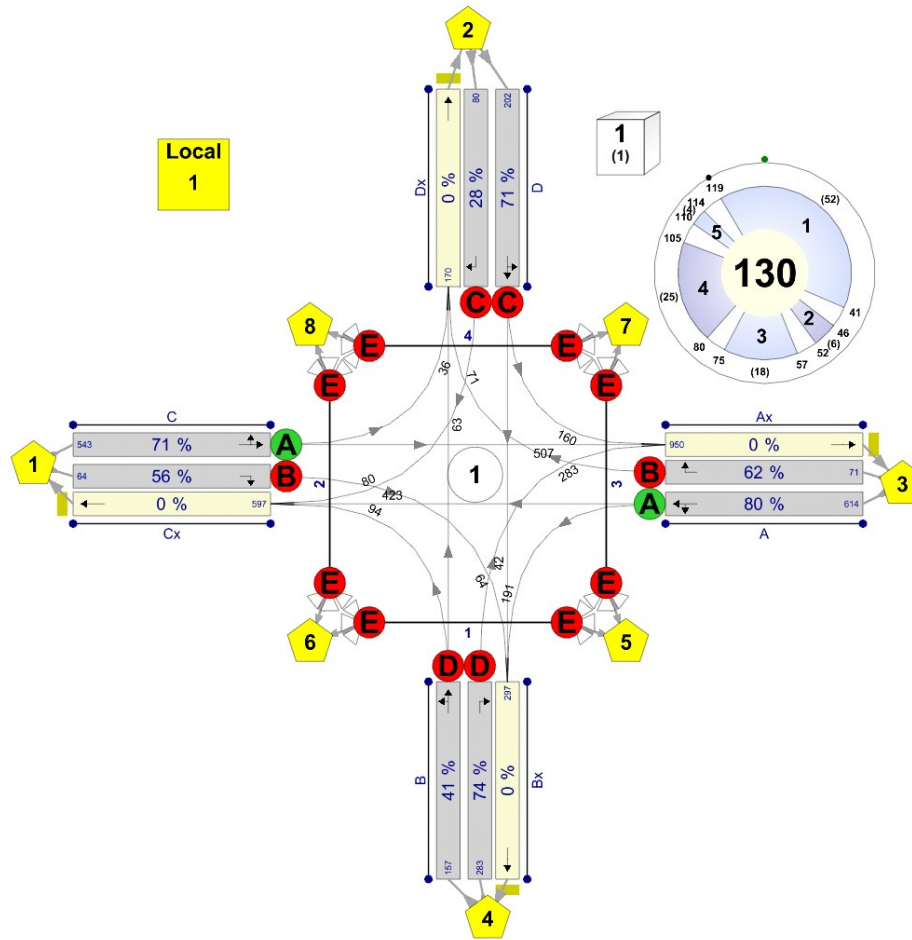
Units

Cost units	Speed units	Distance units	Fuel economy units	Fuel rate units	Mass units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
£	kph	m	mpg	l/h	kg	PCU	PCU	perHour	s	-Hour	perHour

Sorting

Show names instead of IDs	Sorting direction	Sorting type	Ignore prefixes when sorting	Analysis/demand set sorting	Link grouping	Source grouping	Colour Analysis/Demand Sets
	Ascending	Numerical		ID	Normal	Normal	✓

Network Diagrams



(untitled)
Diagram produced using TRANSYT 15.5.2.7994

A1 - Junction 2 - 2027 + LAP Developments

D1 - 2027 + LAP Developments, AM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
1	12/04/2022 11:09:41	12/04/2022 11:09:42	08:00	130	397.39	26.39	76.52	A/1	0	0	A/1	Dx/1	A/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
Junction 2 - 2027 + LAP Developments		D1	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2027 + LAP Developments, AM	(untitled)			08:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)		✓	50.00	✓	Sum of lanes	1850	✓		Normal	
	2			✓	50.00	✓	Sum of lanes	1850	✓		Normal	
Ax	1	(untitled)		✓	135.02						Normal	
B	1	(untitled)		✓	50.00	✓	Sum of lanes	1850	✓		Normal	
	2			✓	50.00	✓	Sum of lanes	1850	✓		Normal	
Bx	1	(untitled)		✓	137.76						Normal	
C	1	(untitled)		✓	50.00	✓	Sum of lanes	1850	✓		Normal	
	2			✓	50.00	✓	Sum of lanes	1850	✓		Normal	
Cx	1	(untitled)		✓	137.55						Normal	
D	1	(untitled)		✓	50.00	✓	Sum of lanes	1850	✓		Normal	
	2			✓	50.00	✓	Sum of lanes	1850	✓		Normal	
Dx	1	(untitled)		✓	134.83						Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1850
	2	1	(untitled)			1850
Ax	1	1	(untitled)			
B	1	1	(untitled)			1850
	2	1	(untitled)			1850
Bx	1	1	(untitled)			
C	1	1	(untitled)			1850
	2	1	(untitled)			1850
Cx	1	1	(untitled)			
D	1	1	(untitled)			1850
	2	1	(untitled)			1850
Dx	1	1	(untitled)			

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	130

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	588	588
	2	71	71
Ax	1	918	918
B	1	157	157
	2	283	283
Bx	1	297	297
C	1	511	511
	2	64	64
Cx	1	571	571
D	1	202	202
	2	80	80
Dx	1	170	170

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	A	
	2	1	B	
B	1	1	D	
	2	1	D	
C	1	1	A	
	2	1	B	
D	1	1	C	
	2	1	C	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
(ALL)	(ALL)	6.00	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
Ax	1	1	C/1	Ax/1	16.20	30.00	✓	Straight	Straight Movement
Bx	1	1	A/1	Bx/1	16.53	30.00	✓	Nearside	40.00
Cx	1	1	A/1	Cx/1	16.51	30.00	✓	Straight	Straight Movement
Dx	1	1	C/1	Dx/1	16.18	30.00	✓	Nearside	40.00
Ax	1	2	D/1	Ax/1	16.20	30.00	✓	Nearside	40.00
Bx	1	2	D/1	Bx/1	16.53	30.00	✓	Straight	Straight Movement
Cx	1	2	B/1	Cx/1	16.51	30.00	✓	Nearside	45.00
Dx	1	2	B/1	Dx/1	16.18	30.00	✓	Straight	Straight Movement
Ax	1	3	B/2	Ax/1	16.20	30.00	✓	Offside	47.00
Bx	1	3	C/2	Bx/1	16.53	30.00	✓	Offside	52.00
Cx	1	3	D/2	Cx/1	16.51	30.00	✓	Offside	52.00
Dx	1	3	A/2	Dx/1	16.18	30.00	✓	Offside	47.00

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)		1		Farside	7.00	4.67	5.40
2	(untitled)		1		Farside	8.00	5.33	5.40
3	(untitled)		1		Farside	8.00	5.33	5.40
4	(untitled)		1		Farside	7.00	4.67	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
(ALL)	1	E	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
(ALL)	(ALL)	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	100	100		0.00		

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25		

Normal Input Flows (PCU/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	36	475	64	0	0	0	0
	2	80	0	160	42	0	0	0	0
	3	397	71	0	191	0	0	0	0
	4	94	63	283	0	0	0	0	0
	5	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows not shown as they are blank.

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C/1, C/2	Cx/1	#0000FF
	2	(untitled)	D/1, D/2	Dx/1	#FF0000
	3	(untitled)	A/1, A/2	Ax/1	#00FF00
	4	(untitled)	B/1, B/2	Bx/1	#FFFF00
	5	(untitled)	3:2E, 1:1E	3:2X, 1:1X	#FF00FF
	6	(untitled)	2:1E, 1:2E	2:1X, 1:2X	#008000
	7	(untitled)	4:2E, 3:1E	4:2X, 3:1X	#FFA500
	8	(untitled)	4:1E, 2:2E	4:1X, 2:2X	#00FFFF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (PCU/hr)
1	1		1	2	C/1, Dx/1	Normal	36
	2		1	3	C/1, Ax/1	Normal	475
	5		2	3	D/1, Ax/1	Normal	160
	6		2	4	D/1, Bx/1	Normal	42
	9		3	4	A/1, Bx/1	Normal	191
	10		3	1	A/1, Cx/1	Normal	397
	11		4	2	B/1, Dx/1	Normal	63
	13		4	1	B/1, Cx/1	Normal	94
	19		3	2	A/2, Dx/1	Normal	71
	20		4	3	B/2, Ax/1	Normal	283
	43		1	4	C/2, Bx/1	Normal	64
	44		2	1	D/2, Cx/1	Normal	80

Pedestrian Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Pedestrian calculated flow (Ped/hr)
1	17		8	7	4:1E, 4:2X	Normal	0
	18		8	6	2:2E, 2:1X	Normal	0
	22		5	7	3:2E, 3:1X	Normal	0
	23		5	6	1:1E, 1:2X	Normal	0
	34		6	8	2:1E, 2:2X	Normal	0
	35		6	5	1:2E, 1:1X	Normal	0
	41		7	8	4:2E, 4:1X	Normal	0
	42		7	5	3:1E, 3:2X	Normal	0

Signal Timings

Network Default: 130s cycle time; 130 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	130

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Relative

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	5	52	2	3	Traffic	
	B	(untitled)	6	6	2	3	Traffic	
	C	(untitled)	5	300	2	3	Traffic	
	D	(untitled)	5	300	2	3	Traffic	
	E	(untitled)	4	4	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A	1
	2	B	1
	3	C	1
	4	D	1
	5	E	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5	41, 52, 75, 105, 114

Intergreen Matrix for Controller Stream 1

	To					
		A	B	C	D	E
From	A		5	5	5	5
	B	5		5	5	5
	C	5	5		5	5
	D	5	5	5		5
	E	5	5	5	5	

Banned Stage transitions for Controller Stream 1

	To					
		1	2	3	4	5
From	1					
	2					
	3					
	4					
	5					

Interstage Matrix for Controller Stream 1

	To					
		1	2	3	4	5
From	1	0	5	5	5	5
	2	5	0	5	5	5
	3	5	5	0	5	5
	4	5	5	5	0	5
	5	5	5	5	5	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A	119	41	52	1	5
	2	✓	2	B	46	52	6	1	6
	3	✓	3	C	57	75	18	1	5
	4	✓	4	D	80	105	25	1	5
	5	✓	5	E	110	114	4	1	4

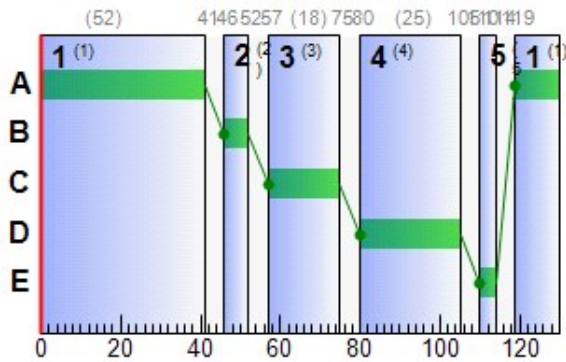
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	119	41	52
	B	1	✓	46	52	6
	C	1	✓	57	75	18
	D	1	✓	80	105	25
	E	1	✓	110	114	4

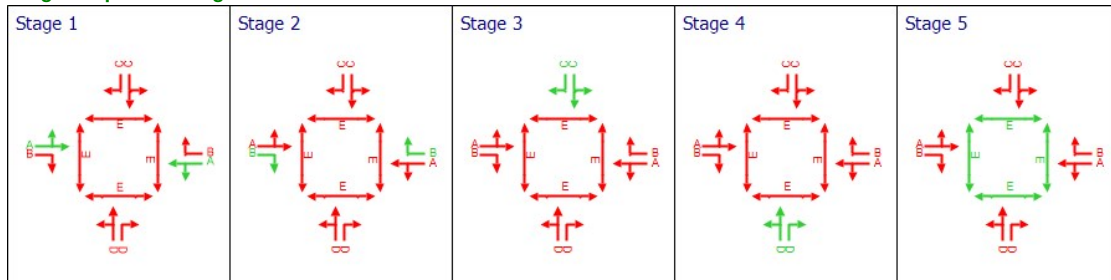
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	A	119	41	52
A	2	1	1	B	46	52	6
B	1	1	1	D	80	105	25
B	2	1	1	D	80	105	25
C	1	1	1	A	119	41	52
C	2	1	1	B	46	52	6
D	1	1	1	C	57	75	18
D	2	1	1	C	57	75	18

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
08:00-09:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	77	31	588	1850	52	40.04	19.35	222.52	92.86	6.60	99.46
		2	62	60	71	1850	6	84.45	2.98	34.23	23.65	1.02	24.67
	Ax	1	0	Unrestricted	918	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	41	145	157	1850	25	47.82	5.02	57.79	29.61	1.73	31.34
		2	74	36	283	1850	25	60.84	10.51	120.84	67.92	3.60	71.52
	Bx	1	0	Unrestricted	297	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	66	50	511	1850	52	35.30	15.42	177.28	71.14	5.28	76.42
		2	56	78	64	1850	6	78.91	2.59	29.76	19.92	0.89	20.81
	Cx	1	0	Unrestricted	571	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	71	41	202	1850	18	67.16	7.74	88.99	53.51	2.65	56.16
		2	28	256	80	1850	18	51.11	2.59	29.76	16.13	0.89	17.02
	Dx	1	0	Unrestricted	170	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s per cycle)
08:00-09:00	A	1	588	588	0		1850	768	77		31	0.00	52
		2	71	71	0		1850	114	62		60	0.00	6
	Ax	1	918	918	0		Unrestricted	Unrestricted	0		Unrestricted	0.55	130
	B	1	157	157	0		1850	384	41		145	0.00	25
		2	283	283	0		1850	384	74		36	0.00	25
	Bx	1	297	297	0		Unrestricted	Unrestricted	0		Unrestricted	0.72	130
	C	1	511	511	0		1850	768	66		50	0.00	52
		2	64	64	0		1850	114	56		78	0.00	6
	Cx	1	571	571	0		Unrestricted	Unrestricted	0		Unrestricted	0.66	130
	D	1	202	202	0		1850	285	71		41	0.00	18
		2	80	80	0		1850	285	28		256	0.00	18
	Dx	1	170	170	0		Unrestricted	Unrestricted	0		Unrestricted	0.90	130

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	A	1	6.00	40.04	5.32	1.22	92.86	89.53	493.17	33.30	6.60
		2	6.00	84.45	1.17	0.49	23.65	114.28	68.17	12.97	1.02
	Ax	1	16.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	6.00	47.82	1.94	0.14	29.61	87.68	133.78	3.87	1.73
		2	6.00	60.84	3.79	1.00	67.92	101.55	260.47	26.91	3.60
	Bx	1	16.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	6.00	35.30	4.36	0.65	71.14	82.38	403.01	17.93	5.28
		2	6.00	78.91	1.05	0.35	19.92	110.53	61.45	9.29	0.89
	Cx	1	16.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	6.00	67.16	2.93	0.84	53.51	104.75	189.09	22.51	2.65
		2	6.00	51.11	1.08	0.05	16.13	88.67	69.43	1.51	0.89
	Dx	1	16.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Wasted time starvation (s per cycle)	Wasted time blocking back (s per cycle)	Wasted time total (s per cycle)	Estimated blocking
08:00-09:00	A	1	0.00	19.35	8.70	222.52	2.71	0.00	0.00	0.00	0.00	0.00	
		2	0.00	2.98	8.70	34.23	0.00	0.00	0.00	0.00	0.00	0.00	
	Ax	1	0.00	0.00	23.48	0.00	0.00	0.00	0.00	5.00	0.00	5.00	
	B	1	0.00	5.02	8.70	57.79	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	10.51	8.70	120.84	0.17	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	23.96	0.00	0.00	0.00	0.00	38.00	0.00	38.00	
	C	1	0.00	15.42	8.70	177.28	1.25	0.00	0.00	0.00	0.00	0.00	
		2	0.00	2.59	8.70	29.76	0.00	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	23.92	0.00	0.00	0.00	0.00	14.00	0.00	14.00	
	D	1	0.00	7.74	8.70	88.99	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	2.59	8.70	29.76	0.00	0.00	0.00	0.00	0.00	0.00	
	Dx	1	0.00	0.00	23.45	0.00	0.00	0.00	0.00	50.00	0.00	50.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	A	1	29.40	7.52	3.91	46.04
		2	3.55	1.78	1.99	90.45
	Ax	1	123.95	4.13	30.00	16.20
	B	1	7.85	2.35	3.34	53.82
		2	14.15	5.25	2.69	66.84
	Bx	1	40.91	1.36	30.00	16.53
	C	1	25.55	5.86	4.36	41.30
		2	3.20	1.51	2.12	84.91
	Cx	1	78.54	2.62	30.00	16.51
	D	1	10.10	4.10	2.46	73.16
		2	4.00	1.27	3.15	57.11
	Dx	1	22.92	0.76	30.00	16.18

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (PCU)	Max End of Green Queue EoTS (PCU)	Max End of Red Queue EoTS (PCU)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	0.00	0.00	✓	19.36	1.23	13.65	1.00	0.00	99.46
		2	0.00	0.00	✓	2.99	0.50	2.91	1.00	0.00	24.67
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	5.03	0.14	4.63	1.00	0.00	31.34
		2	0.00	0.00	✓	10.52	1.01	9.11	1.00	0.00	71.52
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	15.42	0.66	11.44	1.00	0.00	76.42
		2	0.00	0.00	✓	2.59	0.35	2.52	1.00	0.00	20.81
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	1	0.00	0.00	✓	7.75	0.85	7.02	1.00	0.00	56.16
		2	0.00	0.00	✓	2.59	0.05	2.50	1.00	0.00	17.02
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s per cycle)	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	(ALL)	(ALL)	0	0	11000	4	0.00	0.00	0.00	0.00

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity	Mean modulus of error	Actual green (s per cycle)
08:00-09:00	(ALL)	(ALL)	0	0	0		11000	338	0		Unrestricted	0.00	4

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Weighted cost of delay (£ per hr)
08:00-09:00	(ALL)	(ALL)	1.00	0.00	0.00	0.00	0.00

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
08:00-09:00	(ALL)	(ALL)	0.00	10.00	0.00	0.00	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	(ALL)	(ALL)	0.00	0.00	0.00	0.00

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	(ALL)	(ALL)	0.00	0.00	0.00	1.00	0.00	0.00

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
1	12/04/2022 11:09:41	12/04/2022 11:09:42	08:00	130	397.39	26.39	76.52	A/1	0	0	A/1	Dx/1	A/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	77	0	3912	722	24.29	374.74	22.66	397.39

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s per cycle)	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0	0	32	0.00	0.00	0.00

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
08:00-09:00	3912	3912	0		77		31	754

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	11.17	24.29	21.65	4.74	374.74	46.19	1678.57	128.28	22.66

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
08:00-09:00	222.52	0.00	107.00	0.00	107.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
08:00-09:00	364.13	38.53	9.45

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0.00	0.00	✓	1.00	0.00	0.00	397.39

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

	To							
	1	2	3	4	5	6	7	8
From	1	0.0	57.5	57.5	101.4	0.0	0.0	0.0
	2	73.6	0.0	89.4	89.7	0.0	0.0	0.0
	3	62.5	106.6	0.0	62.6	0.0	0.0	0.0
	4	70.3	70.0	83.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	8	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (PCU/hr)	Pedestrian calculated flow (Ped/hr)	Normal journey time (s)	Pedestrian journey time (s)	Calculated Total Flow (PCU/hr)	Avg journey time (s)
1	1	2	36		57.48		36	57.48
2	1	3	475		57.50		475	57.50
5	2	3	160		89.36		160	89.36
6	2	4	42		89.69		42	89.69
9	3	4	191		62.57		191	62.57
10	3	1	397		62.54		397	62.54
11	4	2	63		70.00		63	70.00
13	4	1	94		70.33		94	70.33
17	8	7		0		0.00	0	0.00
18	8	6		0		0.00	0	0.00
19	3	2	71		106.63		71	106.63
20	4	3	283		83.04		283	83.04
22	5	7		0		0.00	0	0.00
23	5	6		0		0.00	0	0.00
34	6	8		0		0.00	0	0.00
35	6	5		0		0.00	0	0.00
41	7	8		0		0.00	0	0.00
42	7	5		0		0.00	0	0.00
43	1	4	64		101.44		64	101.44
44	2	1	80		73.61		80	73.61

Final Prediction Table

Traffic Stream Results

Arm	Traffic Stream	Name	Traffic node	SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
				Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)
A	1	(untitled)	1	1	A	588 <	1850	52	0.00	77	31	46.04	40.04	89.53	19.35 +
	2		1	1	B	71	1850	6	0.00	62	60	90.45	84.45	114.28	2.98
Ax	1	(untitled)				918	Unrestricted	130	5.00	0	Unrestricted	16.20	0.00	0.00	0.00
B	1	(untitled)	1	1	D	157	1850	25	0.00	41	145	53.82	47.82	87.68	5.02
	2		1	1	D	283 <	1850	25	0.00	74	36	66.84	60.84	101.55	10.51 +
Bx	1	(untitled)				297	Unrestricted	130	38.00	0	Unrestricted	16.53	0.00	0.00	0.00
C	1	(untitled)	1	1	A	511 <	1850	52	0.00	66	50	41.30	35.30	82.38	15.42 +
	2		1	1	B	64	1850	6	0.00	56	78	84.91	78.91	110.53	2.59
Cx	1	(untitled)				571	Unrestricted	130	14.00	0	Unrestricted	16.51	0.00	0.00	0.00
D	1	(untitled)	1	1	C	202	1850	18	0.00	71	41	73.16	67.16	104.75	7.74
	2		1	1	C	80	1850	18	0.00	28	256	57.11	51.11	88.67	2.59
Dx	1	(untitled)				170	Unrestricted	130	50.00	0	Unrestricted	16.18	0.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian	Side	Name	Traffic node	SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	P
				Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Degree of saturation (%)	Practical reserve capacity	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	(
(ALL)	(ALL)	(untitled)	1	1	E	0	11000	4	0	Unrestricted	0.00	0.00	0.00	100	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	364.13	38.53	9.45	21.65	4.74	374.74	22.66	0.00	397.39
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	364.13	38.53	9.45	21.65	4.74	374.74	22.66	0.00	397.39

- | < = adjusted flow warning (upstream links/traffic streams are over-saturated)
- | * = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%
- | ^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%
- | + = average link/traffic stream excess queue is greater than 0
- | **P.I. = PERFORMANCE INDEX**

A2 - Junction 2 - 2032 + Overall LAP

D2 - 2032 + Overall LAP, AM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst overall PRC
2	12/04/2022 11:09:42	12/04/2022 11:09:43	08:00	130	406.70	27.01	78.21	A/1	0	0	A/1	Dx/1	A/1

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
Junction 2 - 2032 + Overall LAP		D2	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2032 + Overall LAP, AM				08:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)		✓	50.00	✓	Sum of lanes	1850	✓		Normal	
	2			✓	50.00	✓	Sum of lanes	1850	✓		Normal	
Ax	1	(untitled)		✓	135.02						Normal	
B	1	(untitled)		✓	50.00	✓	Sum of lanes	1850	✓		Normal	
	2			✓	50.00	✓	Sum of lanes	1850	✓		Normal	
Bx	1	(untitled)		✓	137.76						Normal	
C	1	(untitled)		✓	50.00	✓	Sum of lanes	1850	✓		Normal	
	2			✓	50.00	✓	Sum of lanes	1850	✓		Normal	
Cx	1	(untitled)		✓	137.55						Normal	
D	1	(untitled)		✓	50.00	✓	Sum of lanes	1850	✓		Normal	
	2			✓	50.00	✓	Sum of lanes	1850	✓		Normal	
Dx	1	(untitled)		✓	134.83						Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1850
	2	1	(untitled)			1850
Ax	1	1	(untitled)			
B	1	1	(untitled)			1850
	2	1	(untitled)			1850
Bx	1	1	(untitled)			
C	1	1	(untitled)			1850
	2	1	(untitled)			1850
Cx	1	1	(untitled)			
D	1	1	(untitled)			1850
	2	1	(untitled)			1850
Dx	1	1	(untitled)			

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	130

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	601	601
	2	71	71
Ax	1	935	935
B	1	157	157
	2	283	283
Bx	1	297	297
C	1	528	528
	2	64	64
Cx	1	584	584
D	1	202	202
	2	80	80
Dx	1	170	170

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	A	
	2	1	B	
B	1	1	D	
	2	1	D	
C	1	1	A	
	2	1	B	
D	1	1	C	
	2	1	C	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
(ALL)	(ALL)	6.00	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
Ax	1	1	C/1	Ax/1	16.20	30.00	✓	Straight	Straight Movement
Bx	1	1	A/1	Bx/1	16.53	30.00	✓	Nearside	40.00
Cx	1	1	A/1	Cx/1	16.51	30.00	✓	Straight	Straight Movement
Dx	1	1	C/1	Dx/1	16.18	30.00	✓	Nearside	40.00
Ax	1	2	D/1	Ax/1	16.20	30.00	✓	Nearside	40.00
Bx	1	2	D/1	Bx/1	16.53	30.00	✓	Straight	Straight Movement
Cx	1	2	B/1	Cx/1	16.51	30.00	✓	Nearside	45.00
Dx	1	2	B/1	Dx/1	16.18	30.00	✓	Straight	Straight Movement
Ax	1	3	B/2	Ax/1	16.20	30.00	✓	Offside	47.00
Bx	1	3	C/2	Bx/1	16.53	30.00	✓	Offside	52.00
Cx	1	3	D/2	Cx/1	16.51	30.00	✓	Offside	52.00
Dx	1	3	A/2	Dx/1	16.18	30.00	✓	Offside	47.00

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)		1		Farside	7.00	4.67	5.40
2	(untitled)		1		Farside	8.00	5.33	5.40
3	(untitled)		1		Farside	8.00	5.33	5.40
4	(untitled)		1		Farside	7.00	4.67	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
(ALL)	1	E	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
(ALL)	(ALL)	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	100	100		0.00		

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25		

Normal Input Flows (PCU/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	36	492	64	0	0	0	0
	2	80	0	160	42	0	0	0	0
	3	410	71	0	191	0	0	0	0
	4	94	63	283	0	0	0	0	0
	5	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows not shown as they are blank.

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C/1, C/2	Cx/1	#0000FF
	2	(untitled)	D/1, D/2	Dx/1	#FF0000
	3	(untitled)	A/1, A/2	Ax/1	#00FF00
	4	(untitled)	B/1, B/2	Bx/1	#FFFF00
	5	(untitled)	3:2E, 1:1E	3:2X, 1:1X	#FF00FF
	6	(untitled)	2:1E, 1:2E	2:1X, 1:2X	#008000
	7	(untitled)	4:2E, 3:1E	4:2X, 3:1X	#FFA500
	8	(untitled)	4:1E, 2:2E	4:1X, 2:2X	#00FFFF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (PCU/hr)
1	1		1	2	C/1, Dx/1	Normal	36
	2		1	3	C/1, Ax/1	Normal	492
	5		2	3	D/1, Ax/1	Normal	160
	6		2	4	D/1, Bx/1	Normal	42
	9		3	4	A/1, Bx/1	Normal	191
	10		3	1	A/1, Cx/1	Normal	410
	11		4	2	B/1, Dx/1	Normal	63
	13		4	1	B/1, Cx/1	Normal	94
	19		3	2	A/2, Dx/1	Normal	71
	20		4	3	B/2, Ax/1	Normal	283
	43		1	4	C/2, Bx/1	Normal	64
	44		2	1	D/2, Cx/1	Normal	80

Pedestrian Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Pedestrian calculated flow (Ped/hr)
1	17		8	7	4:1E, 4:2X	Normal	0
	18		8	6	2:2E, 2:1X	Normal	0
	22		5	7	3:2E, 3:1X	Normal	0
	23		5	6	1:1E, 1:2X	Normal	0
	34		6	8	2:1E, 2:2X	Normal	0
	35		6	5	1:2E, 1:1X	Normal	0
	41		7	8	4:2E, 4:1X	Normal	0
	42		7	5	3:1E, 3:2X	Normal	0

Signal Timings

Network Default: 130s cycle time; 130 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	130

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Relative

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	5	52	2	3	Traffic	
	B	(untitled)	6	6	2	3	Traffic	
	C	(untitled)	5	300	2	3	Traffic	
	D	(untitled)	5	300	2	3	Traffic	
	E	(untitled)	4	4	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A	1
	2	B	1
	3	C	1
	4	D	1
	5	E	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5	41, 52, 75, 105, 114

Intergreen Matrix for Controller Stream 1

	To					
		A	B	C	D	E
From	A		5	5	5	5
	B	5		5	5	5
	C	5	5		5	5
	D	5	5	5		5
	E	5	5	5	5	

Banned Stage transitions for Controller Stream 1

	To					
		1	2	3	4	5
From	1					
	2					
	3					
	4					
	5					

Interstage Matrix for Controller Stream 1

	To					
		1	2	3	4	5
From	1	0	5	5	5	5
	2	5	0	5	5	5
	3	5	5	0	5	5
	4	5	5	5	0	5
	5	5	5	5	5	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A	119	41	52	1	5
	2	✓	2	B	46	52	6	1	6
	3	✓	3	C	57	75	18	1	5
	4	✓	4	D	80	105	25	1	5
	5	✓	5	E	110	114	4	1	4

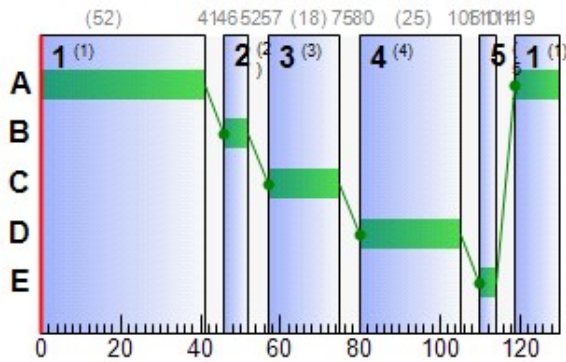
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	119	41	52
	B	1	✓	46	52	6
	C	1	✓	57	75	18
	D	1	✓	80	105	25
	E	1	✓	110	114	4

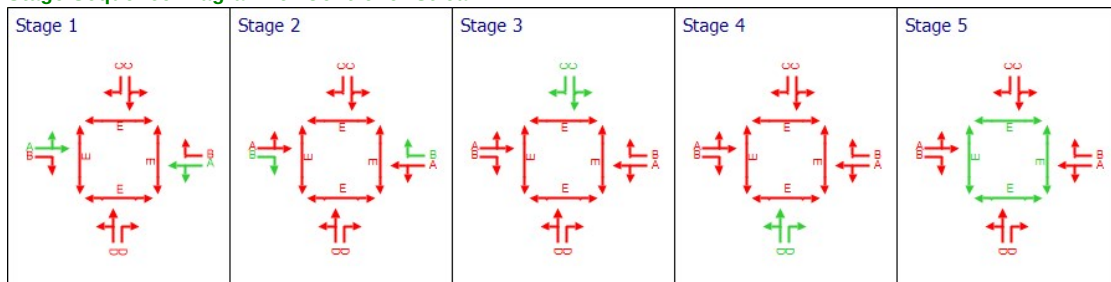
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	A	119	41	52
A	2	1	1	B	46	52	6
B	1	1	1	D	80	105	25
B	2	1	1	D	80	105	25
C	1	1	1	A	119	41	52
C	2	1	1	B	46	52	6
D	1	1	1	C	57	75	18
D	2	1	1	C	57	75	18

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
08:00-09:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	78	28	601	1850	52	41.10	20.07	230.76	97.44	6.85	104.29
		2	62	60	71	1850	6	84.45	2.98	34.23	23.65	1.02	24.67
	Ax	1	0	Unrestricted	935	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	41	145	157	1850	25	47.82	5.02	57.79	29.61	1.73	31.34
		2	74	36	283	1850	25	60.84	10.51	120.84	67.92	3.60	71.52
	Bx	1	0	Unrestricted	297	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	69	46	528	1850	52	36.17	16.29	187.36	75.34	5.56	80.89
		2	56	78	64	1850	6	78.91	2.59	29.76	19.92	0.89	20.81
	Cx	1	0	Unrestricted	584	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	71	41	202	1850	18	67.16	7.74	88.99	53.51	2.65	56.16
		2	28	256	80	1850	18	51.11	2.59	29.76	16.13	0.89	17.02
	Dx	1	0	Unrestricted	170	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s per cycle)
08:00-09:00	A	1	601	601	0		1850	768	78		28	0.00	52
		2	71	71	0		1850	114	62		60	0.00	6
	Ax	1	935	935	0		Unrestricted	Unrestricted	0		Unrestricted	0.55	130
	B	1	157	157	0		1850	384	41		145	0.00	25
		2	283	283	0		1850	384	74		36	0.00	25
	Bx	1	297	297	0		Unrestricted	Unrestricted	0		Unrestricted	0.72	130
	C	1	528	528	0		1850	768	69		46	0.00	52
		2	64	64	0		1850	114	56		78	0.00	6
	Cx	1	584	584	0		Unrestricted	Unrestricted	0		Unrestricted	0.66	130
	D	1	202	202	0		1850	285	71		41	0.00	18
		2	80	80	0		1850	285	28		256	0.00	18
	Dx	1	170	170	0		Unrestricted	Unrestricted	0		Unrestricted	0.90	130

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	A	1	6.00	41.10	5.49	1.37	97.44	90.94	509.24	37.30	6.85
		2	6.00	84.45	1.17	0.49	23.65	114.28	68.17	12.97	1.02
	Ax	1	16.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	6.00	47.82	1.94	0.14	29.61	87.68	133.78	3.87	1.73
		2	6.00	60.84	3.79	1.00	67.92	101.55	260.47	26.91	3.60
	Bx	1	16.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	6.00	36.17	4.56	0.75	75.34	83.95	422.79	20.44	5.56
		2	6.00	78.91	1.05	0.35	19.92	110.53	61.45	9.29	0.89
	Cx	1	16.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	6.00	67.16	2.93	0.84	53.51	104.75	189.09	22.51	2.65
		2	6.00	51.11	1.08	0.05	16.13	88.67	69.43	1.51	0.89
	Dx	1	16.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Wasted time starvation (s per cycle)	Wasted time blocking back (s per cycle)	Wasted time total (s per cycle)	Estimated blocking
08:00-09:00	A	1	0.00	20.07	8.70	230.76	3.02	0.00	0.00	0.00	0.00	0.00	
		2	0.00	2.98	8.70	34.23	0.00	0.00	0.00	0.00	0.00	0.00	
	Ax	1	0.00	0.00	23.48	0.00	0.00	0.00	0.00	5.00	0.00	5.00	
	B	1	0.00	5.02	8.70	57.79	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	10.51	8.70	120.84	0.17	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	23.96	0.00	0.00	0.00	0.00	38.00	0.00	38.00	
	C	1	0.00	16.29	8.70	187.36	1.54	0.00	0.00	0.00	0.00	0.00	
		2	0.00	2.59	8.70	29.76	0.00	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	23.92	0.00	0.00	0.00	0.00	13.00	0.00	13.00	
	D	1	0.00	7.74	8.70	88.99	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	2.59	8.70	29.76	0.00	0.00	0.00	0.00	0.00	0.00	
	Dx	1	0.00	0.00	23.45	0.00	0.00	0.00	0.00	49.00	0.00	49.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	A	1	30.05	7.86	3.82	47.10
		2	3.55	1.78	1.99	90.45
	Ax	1	126.24	4.21	30.00	16.20
	B	1	7.85	2.35	3.34	53.82
		2	14.15	5.25	2.69	66.84
	Bx	1	40.91	1.36	30.00	16.53
	C	1	26.40	6.19	4.27	42.17
		2	3.20	1.51	2.12	84.91
	Cx	1	80.33	2.68	30.00	16.51
	D	1	10.10	4.10	2.46	73.16
		2	4.00	1.27	3.15	57.11
	Dx	1	22.92	0.76	30.00	16.18

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (PCU)	Max End of Green Queue EoTS (PCU)	Max End of Red Queue EoTS (PCU)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	0.00	0.00	✓	20.08	1.39	14.07	1.00	0.00	104.29
		2	0.00	0.00	✓	2.99	0.50	2.91	1.00	0.00	24.67
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	5.03	0.14	4.63	1.00	0.00	31.34
		2	0.00	0.00	✓	10.52	1.01	9.11	1.00	0.00	71.52
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	16.30	0.75	11.90	1.00	0.00	80.89
		2	0.00	0.00	✓	2.59	0.35	2.52	1.00	0.00	20.81
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	1	0.00	0.00	✓	7.75	0.85	7.02	1.00	0.00	56.16
		2	0.00	0.00	✓	2.59	0.05	2.50	1.00	0.00	17.02
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s per cycle)	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	(ALL)	(ALL)	0	0	11000	4	0.00	0.00	0.00	0.00

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity	Mean modulus of error	Actual green (s per cycle)
08:00-09:00	(ALL)	(ALL)	0	0	0		11000	338	0		Unrestricted	0.00	4

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Weighted cost of delay (£ per hr)
08:00-09:00	(ALL)	(ALL)	1.00	0.00	0.00	0.00	0.00

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
08:00-09:00	(ALL)	(ALL)	0.00	10.00	0.00	0.00	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	(ALL)	(ALL)	0.00	0.00	0.00	0.00

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	(ALL)	(ALL)	0.00	0.00	0.00	1.00	0.00	0.00

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
2	12/04/2022 11:09:42	12/04/2022 11:09:43	08:00	130	406.70	27.01	78.21	A/1	0	0	A/1	Dx/1	A/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	78	0	3972	722	24.48	383.51	23.19	406.70

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s per cycle)	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0	0	32	0.00	0.00	0.00

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
08:00-09:00	3972	3972	0		78		28	754

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	11.17	24.48	22.03	4.98	383.51	46.56	1714.42	134.80	23.19

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
08:00-09:00	230.76	0.00	105.00	0.00	105.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
08:00-09:00	369.71	39.33	9.40

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0.00	0.00	✓	1.00	0.00	0.00	406.70

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

	To							
	1	2	3	4	5	6	7	8
From	1	0.0	58.4	58.4	101.4	0.0	0.0	0.0
	2	73.6	0.0	89.4	89.7	0.0	0.0	0.0
	3	63.6	106.6	0.0	63.6	0.0	0.0	0.0
	4	70.3	70.0	83.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	8	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (PCU/hr)	Pedestrian calculated flow (Ped/hr)	Normal journey time (s)	Pedestrian journey time (s)	Calculated Total Flow (PCU/hr)	Avg journey time (s)
1	1	2	36		58.35		36	58.35
2	1	3	492		58.38		492	58.38
5	2	3	160		89.36		160	89.36
6	2	4	42		89.69		42	89.69
9	3	4	191		63.63		191	63.63
10	3	1	410		63.61		410	63.61
11	4	2	63		70.00		63	70.00
13	4	1	94		70.33		94	70.33
17	8	7		0		0.00	0	0.00
18	8	6		0		0.00	0	0.00
19	3	2	71		106.63		71	106.63
20	4	3	283		83.04		283	83.04
22	5	7		0		0.00	0	0.00
23	5	6		0		0.00	0	0.00
34	6	8		0		0.00	0	0.00
35	6	5		0		0.00	0	0.00
41	7	8		0		0.00	0	0.00
42	7	5		0		0.00	0	0.00
43	1	4	64		101.44		64	101.44
44	2	1	80		73.61		80	73.61

Final Prediction Table

Traffic Stream Results

Arm	Traffic Stream	Name	Traffic node	SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
				Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)
A	1	(untitled)	1	1	A	601 <	1850	52	0.00	78	28	47.10	41.10	90.94	20.07 +
	2		1	1	B	71	1850	6	0.00	62	60	90.45	84.45	114.28	2.98
Ax	1	(untitled)				935	Unrestricted	130	5.00	0	Unrestricted	16.20	0.00	0.00	0.00
B	1	(untitled)	1	1	D	157	1850	25	0.00	41	145	53.82	47.82	87.68	5.02
	2		1	1	D	283 <	1850	25	0.00	74	36	66.84	60.84	101.55	10.51 +
Bx	1	(untitled)				297	Unrestricted	130	38.00	0	Unrestricted	16.53	0.00	0.00	0.00
C	1	(untitled)	1	1	A	528 <	1850	52	0.00	69	46	42.17	36.17	83.95	16.29 +
	2		1	1	B	64	1850	6	0.00	56	78	84.91	78.91	110.53	2.59
Cx	1	(untitled)				584	Unrestricted	130	13.00	0	Unrestricted	16.51	0.00	0.00	0.00
D	1	(untitled)	1	1	C	202	1850	18	0.00	71	41	73.16	67.16	104.75	7.74
	2		1	1	C	80	1850	18	0.00	28	256	57.11	51.11	88.67	2.59
Dx	1	(untitled)				170	Unrestricted	130	49.00	0	Unrestricted	16.18	0.00	0.00	0.00

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	P
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Degree of saturation (%)	Practical reserve capacity	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	
(ALL)	(ALL)	(untitled)	1	1	E	0	11000	4	0	Unrestricted	0.00	0.00	0.00	100	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	369.71	39.33	9.40	22.03	4.98	383.51	23.19	0.00	406.70
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	369.71	39.33	9.40	22.03	4.98	383.51	23.19	0.00	406.70

- | < = adjusted flow warning (upstream links/traffic streams are over-saturated)
- | * = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%
- | ^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%
- | + = average link/traffic stream excess queue is greater than 0
- | **P.I. = PERFORMANCE INDEX**

A3 - Junction 2 - 2042 + Overall LAP

D3 - 2042 + Overall LAP, AM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst overall PRC
3	12/04/2022 11:09:43	12/04/2022 11:09:43	08:00	130	513.23	34.47	79.90	A/1	0	0	A/1	Dx/1	A/1

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
Junction 2 - 2042 + Overall LAP		D3	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2042 + Overall LAP, AM				08:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)		✓	50.00	✓	Sum of lanes	1850	✓		Normal	
	2			✓	50.00	✓	Sum of lanes	1850	✓		Normal	
Ax	1	(untitled)		✓	135.02						Normal	
B	1	(untitled)		✓	50.00	✓	Sum of lanes	1850	✓		Normal	
	2			✓	50.00	✓	Sum of lanes	1850	✓		Normal	
Bx	1	(untitled)		✓	137.76						Normal	
C	1	(untitled)		✓	50.00	✓	Sum of lanes	1850	✓		Normal	
	2			✓	50.00	✓	Sum of lanes	1850	✓		Normal	
Cx	1	(untitled)		✓	137.55						Normal	
D	1	(untitled)		✓	50.00	✓	Sum of lanes	1850	✓		Normal	
	2			✓	50.00	✓	Sum of lanes	1850	✓		Normal	
Dx	1	(untitled)		✓	134.83						Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1850
	2	1	(untitled)			1850
Ax	1	1	(untitled)			
B	1	1	(untitled)			1850
	2	1	(untitled)			1850
Bx	1	1	(untitled)			
C	1	1	(untitled)			1850
	2	1	(untitled)			1850
Cx	1	1	(untitled)			
D	1	1	(untitled)			1850
	2	1	(untitled)			1850
Dx	1	1	(untitled)			

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	130

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	614	614
	2	71	71
Ax	1	950	950
B	1	157	157
	2	283	283
Bx	1	297	297
C	1	543	543
	2	64	64
Cx	1	597	597
D	1	202	202
	2	80	80
Dx	1	170	170

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	A	
	2	1	B	
B	1	1	D	
	2	1	D	
C	1	1	A	
	2	1	B	
D	1	1	C	
	2	1	C	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
(ALL)	(ALL)	6.00	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
Ax	1	1	C/1	Ax/1	16.20	30.00	✓	Straight	Straight Movement
Bx	1	1	A/1	Bx/1	16.53	30.00	✓	Nearside	40.00
Cx	1	1	A/1	Cx/1	16.51	30.00	✓	Straight	Straight Movement
Dx	1	1	C/1	Dx/1	16.18	30.00	✓	Nearside	40.00
Ax	1	2	D/1	Ax/1	16.20	30.00	✓	Nearside	40.00
Bx	1	2	D/1	Bx/1	16.53	30.00	✓	Straight	Straight Movement
Cx	1	2	B/1	Cx/1	16.51	30.00	✓	Nearside	45.00
Dx	1	2	B/1	Dx/1	16.18	30.00	✓	Straight	Straight Movement
Ax	1	3	B/2	Ax/1	16.20	30.00	✓	Offside	47.00
Bx	1	3	C/2	Bx/1	16.53	30.00	✓	Offside	52.00
Cx	1	3	D/2	Cx/1	16.51	30.00	✓	Offside	52.00
Dx	1	3	A/2	Dx/1	16.18	30.00	✓	Offside	47.00

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)		1		Farside	7.00	4.67	5.40
2	(untitled)		1		Farside	8.00	5.33	5.40
3	(untitled)		1		Farside	8.00	5.33	5.40
4	(untitled)		1		Farside	7.00	4.67	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
(ALL)	1	E	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
(ALL)	(ALL)	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	100	100		0.00		

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25		

Normal Input Flows (PCU/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	36	507	64	0	0	0	0
	2	80	0	160	42	0	0	0	0
	3	423	71	0	191	0	0	0	0
	4	94	63	283	0	0	0	0	0
	5	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows (PCU/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	50	50	0
	6	0	0	0	0	50	0	0	50
	7	0	0	0	0	50	0	0	50
	8	0	0	0	0	0	50	50	0

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C/1, C/2	Cx/1	#0000FF
	2	(untitled)	D/1, D/2	Dx/1	#FF0000
	3	(untitled)	A/1, A/2	Ax/1	#00FF00
	4	(untitled)	B/1, B/2	Bx/1	#FFFF00
	5	(untitled)	3:2E, 1:1E	3:2X, 1:1X	#FF00FF
	6	(untitled)	2:1E, 1:2E	2:1X, 1:2X	#008000
	7	(untitled)	4:2E, 3:1E	4:2X, 3:1X	#FFA500
	8	(untitled)	4:1E, 2:2E	4:1X, 2:2X	#00FFFF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (PCU/hr)
1	1		1	2	C/1, Dx/1	Normal	36
	2		1	3	C/1, Ax/1	Normal	507
	5		2	3	D/1, Ax/1	Normal	160
	6		2	4	D/1, Bx/1	Normal	42
	9		3	4	A/1, Bx/1	Normal	191
	10		3	1	A/1, Cx/1	Normal	423
	11		4	2	B/1, Dx/1	Normal	63
	13		4	1	B/1, Cx/1	Normal	94
	19		3	2	A/2, Dx/1	Normal	71
	20		4	3	B/2, Ax/1	Normal	283
	43		1	4	C/2, Bx/1	Normal	64
	44		2	1	D/2, Cx/1	Normal	80

Pedestrian Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Pedestrian calculated flow (Ped/hr)
1	17		8	7	4:1E, 4:2X	Normal	50
	18		8	6	2:2E, 2:1X	Normal	50
	22		5	7	3:2E, 3:1X	Normal	50
	23		5	6	1:1E, 1:2X	Normal	50
	34		6	8	2:1E, 2:2X	Normal	50
	35		6	5	1:2E, 1:1X	Normal	50
	41		7	8	4:2E, 4:1X	Normal	50
	42		7	5	3:1E, 3:2X	Normal	50

Signal Timings

Network Default: 130s cycle time; 130 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	130

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Relative

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	5	52	2	3	Traffic	
	B	(untitled)	6	6	2	3	Traffic	
	C	(untitled)	5	300	2	3	Traffic	
	D	(untitled)	5	300	2	3	Traffic	
	E	(untitled)	4	4	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A	1
	2	B	1
	3	C	1
	4	D	1
	5	E	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5	41, 52, 75, 105, 114

Intergreen Matrix for Controller Stream 1

	To					
	A	B	C	D	E	
From	A	5	5	5	5	
	B	5	5	5	5	
	C	5	5	5	5	
	D	5	5	5	5	
	E	5	5	5	5	

Banned Stage transitions for Controller Stream 1

	To					
	1	2	3	4	5	
From	1					
	2					
	3					
	4					
	5					

Interstage Matrix for Controller Stream 1

	To					
	1	2	3	4	5	
From	1	0	5	5	5	5
	2	5	0	5	5	5
	3	5	5	0	5	5
	4	5	5	5	0	5
	5	5	5	5	5	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A	119	41	52	1	5
	2	✓	2	B	46	52	6	1	6
	3	✓	3	C	57	75	18	1	5
	4	✓	4	D	80	105	25	1	5
	5	✓	5	E	110	114	4	1	4

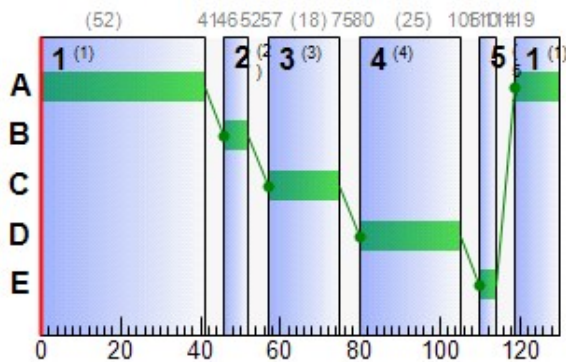
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	119	41	52
	B	1	✓	46	52	6
	C	1	✓	57	75	18
	D	1	✓	80	105	25
	E	1	✓	110	114	4

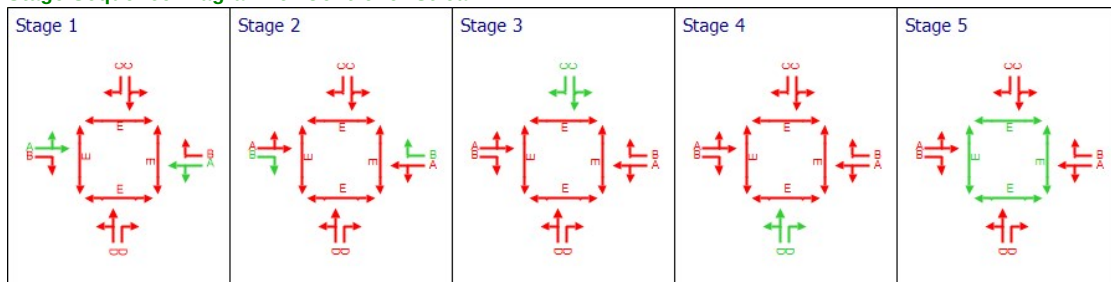
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	A	119	41	52
A	2	1	1	B	46	52	6
B	1	1	1	D	80	105	25
B	2	1	1	D	80	105	25
C	1	1	1	A	119	41	52
C	2	1	1	B	46	52	6
D	1	1	1	C	57	75	18
D	2	1	1	C	57	75	18

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
08:00-09:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	80	25	614	1850	52	42.29	20.81	239.36	102.42	7.11	109.54
		2	62	60	71	1850	6	84.45	2.98	34.23	23.65	1.02	24.67
	Ax	1	0	Unrestricted	950	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	41	145	157	1850	25	47.82	5.02	57.79	29.61	1.73	31.34
		2	74	36	283	1850	25	60.84	10.51	120.84	67.92	3.60	71.52
	Bx	1	0	Unrestricted	297	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	71	42	543	1850	52	37.01	16.98	195.25	79.27	5.80	85.07
		2	56	78	64	1850	6	78.91	2.59	29.76	19.92	0.89	20.81
	Cx	1	0	Unrestricted	597	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	71	41	202	1850	18	67.16	7.74	88.99	53.51	2.65	56.16
		2	28	256	80	1850	18	51.11	2.59	29.76	16.13	0.89	17.02
	Dx	1	0	Unrestricted	170	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s per cycle)
08:00-09:00	A	1	614	614	0		1850	768	80		25	0.00	52
		2	71	71	0		1850	114	62		60	0.00	6
	Ax	1	950	950	0		Unrestricted	Unrestricted	0		Unrestricted	0.54	130
	B	1	157	157	0		1850	384	41		145	0.00	25
		2	283	283	0		1850	384	74		36	0.00	25
	Bx	1	297	297	0		Unrestricted	Unrestricted	0		Unrestricted	0.72	130
	C	1	543	543	0		1850	768	71		42	0.00	52
		2	64	64	0		1850	114	56		78	0.00	6
	Cx	1	597	597	0		Unrestricted	Unrestricted	0		Unrestricted	0.66	130
	D	1	202	202	0		1850	285	71		41	0.00	18
		2	80	80	0		1850	285	28		256	0.00	18
	Dx	1	170	170	0		Unrestricted	Unrestricted	0		Unrestricted	0.90	130

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	A	1	6.00	42.29	5.67	1.54	102.42	92.40	525.36	41.95	7.11
		2	6.00	84.45	1.17	0.49	23.65	114.28	68.17	12.97	1.02
	Ax	1	16.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	6.00	47.82	1.94	0.14	29.61	87.68	133.78	3.87	1.73
		2	6.00	60.84	3.79	1.00	67.92	101.55	260.47	26.91	3.60
	Bx	1	16.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	6.00	37.01	4.74	0.84	79.27	85.20	439.65	23.00	5.80
		2	6.00	78.91	1.05	0.35	19.92	110.53	61.45	9.29	0.89
	Cx	1	16.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	6.00	67.16	2.93	0.84	53.51	104.75	189.09	22.51	2.65
		2	6.00	51.11	1.08	0.05	16.13	88.67	69.43	1.51	0.89
	Dx	1	16.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Wasted time starvation (s per cycle)	Wasted time blocking back (s per cycle)	Wasted time total (s per cycle)	Estimated blocking
08:00-09:00	A	1	0.00	20.81	8.70	239.36	3.36	0.00	0.00	0.00	0.00	0.00	
		2	0.00	2.98	8.70	34.23	0.00	0.00	0.00	0.00	0.00	0.00	
	Ax	1	0.00	0.00	23.48	0.00	0.00	0.00	0.00	5.00	0.00	5.00	
	B	1	0.00	5.02	8.70	57.79	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	10.51	8.70	120.84	0.17	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	23.96	0.00	0.00	0.00	0.00	38.00	0.00	38.00	
	C	1	0.00	16.98	8.70	195.25	1.78	0.00	0.00	0.00	0.00	0.00	
		2	0.00	2.59	8.70	29.76	0.00	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	23.92	0.00	0.00	0.00	0.00	13.00	0.00	13.00	
	D	1	0.00	7.74	8.70	88.99	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	2.59	8.70	29.76	0.00	0.00	0.00	0.00	0.00	0.00	
	Dx	1	0.00	0.00	23.45	0.00	0.00	0.00	0.00	48.00	0.00	48.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	A	1	30.70	8.24	3.73	48.29
		2	3.55	1.78	1.99	90.45
	Ax	1	128.27	4.28	30.00	16.20
	B	1	7.85	2.35	3.34	53.82
		2	14.15	5.25	2.69	66.84
	Bx	1	40.91	1.36	30.00	16.53
	C	1	27.15	6.49	4.18	43.01
		2	3.20	1.51	2.12	84.91
	Cx	1	82.12	2.74	30.00	16.51
	D	1	10.10	4.10	2.46	73.16
		2	4.00	1.27	3.15	57.11
	Dx	1	22.92	0.76	30.00	16.18

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (PCU)	Max End of Green Queue EoTS (PCU)	Max End of Red Queue EoTS (PCU)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	0.00	0.00	✓	20.84	1.56	14.53	1.00	0.00	109.54
		2	0.00	0.00	✓	2.99	0.50	2.91	1.00	0.00	24.67
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	5.03	0.14	4.63	1.00	0.00	31.34
		2	0.00	0.00	✓	10.52	1.01	9.11	1.00	0.00	71.52
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	16.98	0.85	12.31	1.00	0.00	85.07
		2	0.00	0.00	✓	2.59	0.35	2.52	1.00	0.00	20.81
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	1	0.00	0.00	✓	7.75	0.85	7.02	1.00	0.00	56.16
		2	0.00	0.00	✓	2.59	0.05	2.50	1.00	0.00	17.02
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	(ALL)	(ALL)	15	50	11000	4	61.55	1.75	12.14	12.14

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	(ALL)	(ALL)	50	50	0		11000	338	15		577	0.00	4

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Weighted cost of delay (£ per hr)
08:00-09:00	1	1	5.67	61.55	0.85	0.00	12.14
		2	5.67	61.55	0.85	0.00	12.14
	2	1	6.33	61.55	0.85	0.00	12.14
		2	6.33	61.55	0.85	0.00	12.14
	3	1	6.33	61.55	0.85	0.00	12.14
		2	6.33	61.55	0.85	0.00	12.14
	4	1	5.67	61.55	0.85	0.00	12.14
		2	5.67	61.55	0.85	0.00	12.14

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
08:00-09:00	(ALL)	(ALL)	1.75	10.00	17.50	0.00	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	1	1	0.40	0.93	0.43	67.21
		2	0.40	0.93	0.43	67.21
	2	1	0.45	0.94	0.48	67.88
		2	0.45	0.94	0.48	67.88
	3	1	0.45	0.94	0.48	67.88
		2	0.45	0.94	0.48	67.88
	4	1	0.40	0.93	0.43	67.21
		2	0.40	0.93	0.43	67.21

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	(ALL)	(ALL)	0.00	0.00	1.75	1.00	0.00	12.14

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
3	12/04/2022 11:09:43	12/04/2022 11:09:43	08:00	130	513.23	34.47	79.90	A/1	0	0	A/1	Dx/1	A/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	80	0	4028	722	24.70	392.43	23.69	416.12

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	15	400	32	61.55	97.11	97.11

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
08:00-09:00	4428	4428	0		80		25	754

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	10.70	28.03	29.23	5.25	489.54	42.67	1747.41	142.00	23.69

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
08:00-09:00	239.36	0.00	104.00	0.00	104.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
08:00-09:00	378.32	47.64	7.94

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0.00	0.00	✓	1.00	0.00	0.00	513.23

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

	To							
	1	2	3	4	5	6	7	8
From	1	0.0	59.2	59.2	101.4	0.0	0.0	0.0
	2	73.6	0.0	89.4	89.7	0.0	0.0	0.0
	3	64.8	106.6	0.0	64.8	0.0	0.0	0.0
	4	70.3	70.0	83.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	67.2	67.9	0.0
	6	0.0	0.0	0.0	67.2	0.0	0.0	67.9
	7	0.0	0.0	0.0	67.9	0.0	0.0	67.2
	8	0.0	0.0	0.0	0.0	67.9	67.2	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (PCU/hr)	Pedestrian calculated flow (Ped/hr)	Normal journey time (s)	Pedestrian journey time (s)	Calculated Total Flow (PCU/hr)	Avg journey time (s)
1	1	2	36		59.19		36	59.19
2	1	3	507		59.21		507	59.21
5	2	3	160		89.36		160	89.36
6	2	4	42		89.69		42	89.69
9	3	4	191		64.82		191	64.82
10	3	1	423		64.80		423	64.80
11	4	2	63		70.00		63	70.00
13	4	1	94		70.33		94	70.33
17	8	7		50		67.21	50	67.21
18	8	6		50		67.88	50	67.88
19	3	2	71		106.63		71	106.63
20	4	3	283		83.04		283	83.04
22	5	7		50		67.88	50	67.88
23	5	6		50		67.21	50	67.21
34	6	8		50		67.88	50	67.88
35	6	5		50		67.21	50	67.21
41	7	8		50		67.21	50	67.21
42	7	5		50		67.88	50	67.88
43	1	4	64		101.44		64	101.44
44	2	1	80		73.61		80	73.61

Final Prediction Table

Traffic Stream Results

Arm	Traffic Stream	Name	Traffic node	SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
				Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)
A	1	(untitled)	1	1	A	614 <	1850	52	0.00	80	25	48.29	42.29	92.40	20.81 +
	2		1	1	B	71	1850	6	0.00	62	60	90.45	84.45	114.28	2.98
Ax	1	(untitled)				950	Unrestricted	130	5.00	0	Unrestricted	16.20	0.00	0.00	0.00
B	1	(untitled)	1	1	D	157	1850	25	0.00	41	145	53.82	47.82	87.68	5.02
	2		1	1	D	283 <	1850	25	0.00	74	36	66.84	60.84	101.55	10.51 +
Bx	1	(untitled)				297	Unrestricted	130	38.00	0	Unrestricted	16.53	0.00	0.00	0.00
C	1	(untitled)	1	1	A	543 <	1850	52	0.00	71	42	43.01	37.01	85.20	16.98 +
	2		1	1	B	64	1850	6	0.00	56	78	84.91	78.91	110.53	2.59
Cx	1	(untitled)				597	Unrestricted	130	13.00	0	Unrestricted	16.51	0.00	0.00	0.00
D	1	(untitled)	1	1	C	202	1850	18	0.00	71	41	73.16	67.16	104.75	7.74
	2		1	1	C	80	1850	18	0.00	28	256	57.11	51.11	88.67	2.59
Dx	1	(untitled)				170	Unrestricted	130	48.00	0	Unrestricted	16.18	0.00	0.00	0.00

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	PEN
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s per cycle)	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	Co tra pen (£ p
1	1	(untitled)	1	1	E	50	11000	4	15	577	67.21	61.55	1.75	100	0
	2	(untitled)	1	1	E	50	11000	4	15	577	67.21	61.55	1.75	100	0
2	1	(untitled)	1	1	E	50	11000	4	15	577	67.88	61.55	1.75	100	0
	2	(untitled)	1	1	E	50	11000	4	15	577	67.88	61.55	1.75	100	0
3	1	(untitled)	1	1	E	50	11000	4	15	577	67.88	61.55	1.75	100	0
	2	(untitled)	1	1	E	50	11000	4	15	577	67.88	61.55	1.75	100	0
4	1	(untitled)	1	1	E	50	11000	4	15	577	67.21	61.55	1.75	100	0
	2	(untitled)	1	1	E	50	11000	4	15	577	67.21	61.55	1.75	100	0

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	374.92	40.13	9.34	22.39	5.25	392.43	23.69	0.00	416.12
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	3.40	7.51	0.45	6.84	0.00	97.11	0.00	0.00	97.11
TOTAL	378.32	47.64	7.94	29.23	5.25	489.54	23.69	0.00	513.23

- | < = adjusted flow warning (upstream links/traffic streams are over-saturated)
- | * = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%
- | ^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%
- | + = average link/traffic stream excess queue is greater than 0
- | P.I. = PERFORMANCE INDEX



TRANSYT 15	
Version: 15.5.2.7994 © Copyright TRL Limited, 2018	
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Filename: Junction 2 - PM.t16

Path: M:\Projects\21\21-011 - Mooretown Phase 3\Design\Traffic\Junction Modelling\August 2021\Junction 2

Report generation date: 12/04/2022 11:15:10

»A1 - Junction 2 - 2027 + LAP Developments : D1 - 2027 + LAP Developments, PM* :

»A2 - Junction 2 - 2032 + Overall LAP : D2 - 2032 + Overall LAP, PM* :

»A3 - Junction 2 - 2042 + Overall LAP : D3 - 2042 + Overall LAP, PM* :

File summary

File description

File title	(untitled)
Location	
Site number	
UTCRegion	
Driving side	Left
Date	06/12/2011
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DOMAINf.silva
Description	

Model and Results

Enable controller offsets	Enable fuel consumption	Enable quick flares	Display journey time results	Display level of service results	Display blocking and starvation results	Display end of red and green queue results	Display excess queue results	Display separate uniform and random results	Display unweighted results	Display TRANSYT 12 style timings	Display effective greens in results	Display Red-With-Amber	Display End-Of-Green Amber
			✓		✓		✓	✓					

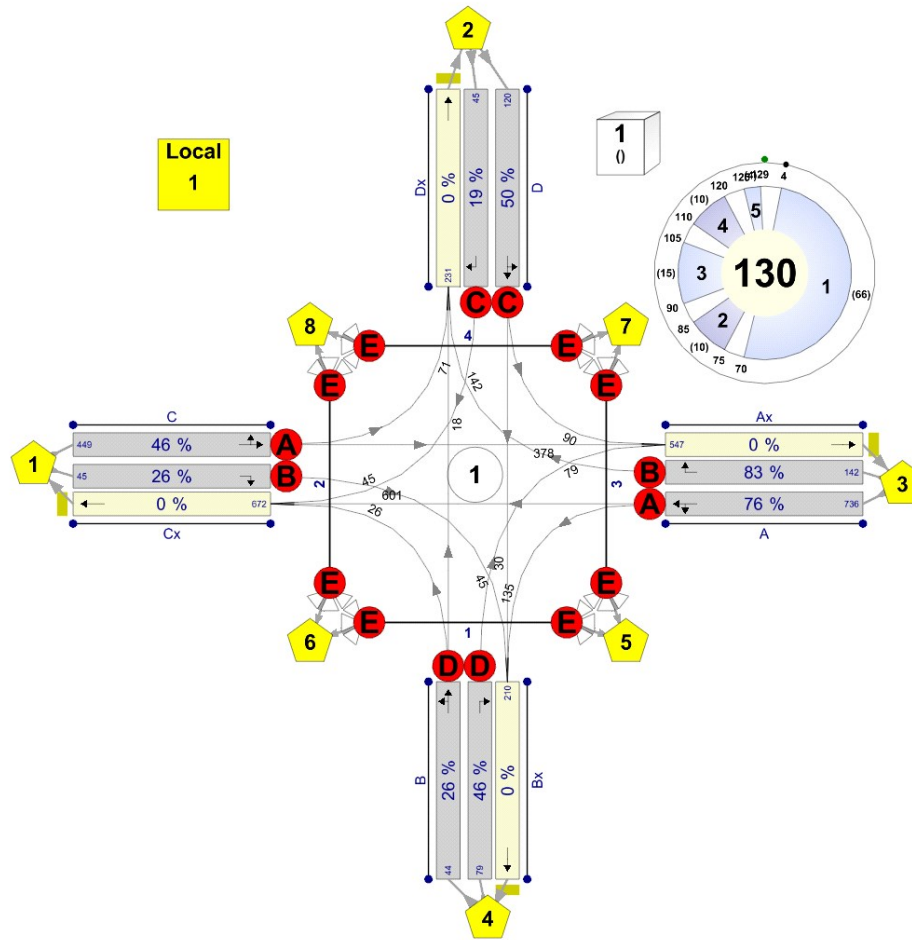
Units

Cost units	Speed units	Distance units	Fuel economy units	Fuel rate units	Mass units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
£	kph	m	mpg	l/h	kg	PCU	PCU	perHour	s	-Hour	perHour

Sorting

Show names instead of IDs	Sorting direction	Sorting type	Ignore prefixes when sorting	Analysis/demand set sorting	Link grouping	Source grouping	Colour Analysis/Demand Sets
	Ascending	Numerical		ID	Normal	Normal	✓

Network Diagrams



(untitled)
Diagram produced using TRANSYT 15.5.2.7994

A1 - Junction 2 - 2027 + LAP Developments

D1 - 2027 + LAP Developments, PM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
1	12/04/2022 11:15:00	12/04/2022 11:15:01	17:00	130	267.80	17.69	83.15	A/2	0	0	A/2	Dx/1	A/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
Junction 2 - 2027 + LAP Developments		D1	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2027 + LAP Developments, PM	(untitled)			17:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)		✓	50.00	✓	Sum of lanes	1800	✓		Normal	
	2			✓	50.00	✓	Sum of lanes	1850	✓		Normal	
Ax	1	(untitled)		✓	135.02						Normal	
B	1	(untitled)		✓	50.00	✓	Sum of lanes	1850	✓		Normal	
	2			✓	50.00	✓	Sum of lanes	1850	✓		Normal	
Bx	1	(untitled)		✓	137.76						Normal	
C	1	(untitled)		✓	50.00	✓	Sum of lanes	1850	✓		Normal	
	2			✓	50.00	✓	Sum of lanes	1850	✓		Normal	
Cx	1	(untitled)		✓	137.55						Normal	
D	1	(untitled)		✓	50.00	✓	Sum of lanes	1850	✓		Normal	
	2			✓	50.00	✓	Sum of lanes	1850	✓		Normal	
Dx	1	(untitled)		✓	134.83						Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1800
	2	1	(untitled)			1850
Ax	1	1	(untitled)			
B	1	1	(untitled)			1850
	2	1	(untitled)			1850
Bx	1	1	(untitled)			
C	1	1	(untitled)			1850
	2	1	(untitled)			1850
Cx	1	1	(untitled)			
D	1	1	(untitled)			1850
	2	1	(untitled)			1850
Dx	1	1	(untitled)			

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	130

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	697	697
	2	142	142
Ax	1	523	523
B	1	44	44
	2	79	79
Bx	1	210	210
C	1	425	425
	2	45	45
Cx	1	633	633
D	1	120	120
	2	45	45
Dx	1	231	231

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	A	
	2	1	B	
B	1	1	D	
	2	1	D	
C	1	1	A	
	2	1	B	
D	1	1	C	
	2	1	C	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
(ALL)	(ALL)	6.00	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
Ax	1	1	C/1	Ax/1	16.20	30.00	✓	Straight	Straight Movement
Bx	1	1	A/1	Bx/1	16.53	30.00	✓	Nearside	40.00
Cx	1	1	A/1	Cx/1	16.51	30.00	✓	Straight	Straight Movement
Dx	1	1	C/1	Dx/1	16.18	30.00	✓	Nearside	40.00
Ax	1	2	D/1	Ax/1	16.20	30.00	✓	Nearside	40.00
Bx	1	2	D/1	Bx/1	16.53	30.00	✓	Straight	Straight Movement
Cx	1	2	B/1	Cx/1	16.51	30.00	✓	Nearside	45.00
Dx	1	2	B/1	Dx/1	16.18	30.00	✓	Straight	Straight Movement
Ax	1	3	B/2	Ax/1	16.20	30.00	✓	Offside	47.00
Bx	1	3	C/2	Bx/1	16.53	30.00	✓	Offside	52.00
Cx	1	3	D/2	Cx/1	16.51	30.00	✓	Offside	52.00
Dx	1	3	A/2	Dx/1	16.18	30.00	✓	Offside	47.00

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)		1		Farside	7.00	4.67	5.40
2	(untitled)		1		Farside	8.00	5.33	5.40
3	(untitled)		1		Farside	8.00	5.33	5.40
4	(untitled)		1		Farside	7.00	4.67	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
(ALL)	1	E	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
(ALL)	(ALL)	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	100	100		0.00		

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25		

Normal Input Flows (PCU/hr)

	To							
	1	2	3	4	5	6	7	8
From	1	0	71	354	45	0	0	0
	2	45	0	90	30	0	0	0
	3	562	142	0	135	0	0	0
	4	26	18	79	0	0	0	0
	5	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows not shown as they are blank.

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C/1, C/2	Cx/1	#0000FF
	2	(untitled)	D/1, D/2	Dx/1	#FF0000
	3	(untitled)	A/1, A/2	Ax/1	#00FF00
	4	(untitled)	B/1, B/2	Bx/1	#FFFF00
	5	(untitled)	3:2E, 1:1E	3:2X, 1:1X	#FF00FF
	6	(untitled)	2:1E, 1:2E	2:1X, 1:2X	#008000
	7	(untitled)	4:2E, 3:1E	4:2X, 3:1X	#FFA500
	8	(untitled)	4:1E, 2:2E	4:1X, 2:2X	#00FFFF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (PCU/hr)
1	1		1	2	C/1, Dx/1	Normal	71
	2		1	3	C/1, Ax/1	Normal	354
	5		2	3	D/1, Ax/1	Normal	90
	6		2	4	D/1, Bx/1	Normal	30
	9		3	4	A/1, Bx/1	Normal	135
	10		3	1	A/1, Cx/1	Normal	562
	11		4	2	B/1, Dx/1	Normal	18
	13		4	1	B/1, Cx/1	Normal	26
	19		3	2	A/2, Dx/1	Normal	142
	20		4	3	B/2, Ax/1	Normal	79
	43		1	4	C/2, Bx/1	Normal	45
	44		2	1	D/2, Cx/1	Normal	45

Pedestrian Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Pedestrian calculated flow (Ped/hr)
1	17		8	7	4:1E, 4:2X	Normal	0
	18		8	6	2:2E, 2:1X	Normal	0
	22		5	7	3:2E, 3:1X	Normal	0
	23		5	6	1:1E, 1:2X	Normal	0
	34		6	8	2:1E, 2:2X	Normal	0
	35		6	5	1:2E, 1:1X	Normal	0
	41		7	8	4:2E, 4:1X	Normal	0
	42		7	5	3:1E, 3:2X	Normal	0

Signal Timings

Network Default: 130s cycle time; 130 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	130

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Relative

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	62	66	2	3	Traffic	
	B	(untitled)	6	10	2	3	Traffic	
	C	(untitled)	5	300	2	3	Traffic	
	D	(untitled)	5	15	2	3	Traffic	
	E	(untitled)	4	4	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A	1
	2	B	1
	3	C	1
	4	D	1
	5	E	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5	70, 85, 105, 120, 129

Intergreen Matrix for Controller Stream 1

	To					
		A	B	C	D	E
From	A		5	5	5	5
	B	5		5	5	5
	C	5	5		5	5
	D	5	5	5		5
	E	5	5	5	5	

Banned Stage transitions for Controller Stream 1

	To					
		1	2	3	4	5
From	1					
	2					
	3					
	4					
	5					

Interstage Matrix for Controller Stream 1

	To					
		1	2	3	4	5
From	1	0	5	5	5	5
	2	5	0	5	5	5
	3	5	5	0	5	5
	4	5	5	5	0	5
	5	5	5	5	5	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A	4	70	66	1	62
	2	✓	2	B	75	85	10	1	6
	3	✓	3	C	90	105	15	1	5
	4	✓	4	D	110	120	10	1	5
	5	✓	5	E	125	129	4	1	4

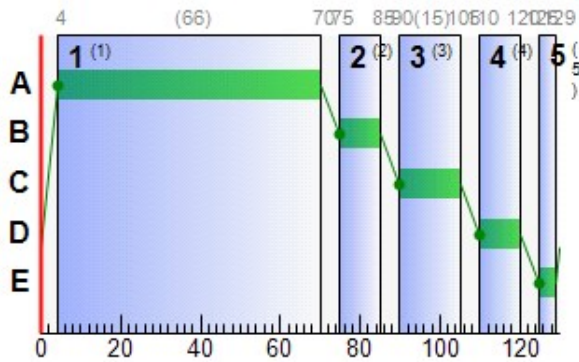
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	4	70	66
	B	1	✓	75	85	10
	C	1	✓	90	105	15
	D	1	✓	110	120	10
	E	1	✓	125	129	4

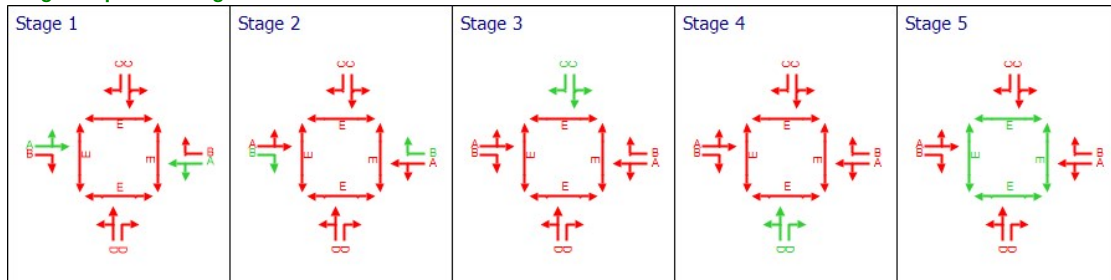
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	A	4	70	66
A	2	1	1	B	75	85	10
B	1	1	1	D	110	120	10
B	2	1	1	D	110	120	10
C	1	1	1	A	4	70	66
C	2	1	1	B	75	85	10
D	1	1	1	C	90	105	15
D	2	1	1	C	90	105	15

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
17:00-18:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:00-18:00	A	1	74	35	697	1800	66	29.50	20.59	236.84	81.10	6.97	88.07
		2	83	20	142	1850	10	102.17	6.75	77.64	57.23	2.28	59.51
	Ax	1	0	Unrestricted	523	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	26	288	44	1850	10	58.52	1.51	17.38	10.16	0.52	10.68
		2	46	116	79	1850	10	64.91	2.90	33.30	20.23	0.99	21.22
	Bx	1	0	Unrestricted	210	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	44	128	425	1850	66	20.65	9.62	110.58	34.62	3.27	37.89
		2	26	279	45	1850	10	58.65	1.55	17.79	10.41	0.53	10.94
	Cx	1	0	Unrestricted	633	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	50	102	120	1850	15	59.76	4.24	48.77	28.29	1.46	29.74
		2	19	438	45	1850	15	52.06	1.46	16.78	9.24	0.50	9.74
	Dx	1	0	Unrestricted	231	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
17:00-18:00	A	1	697	697	0		1800	942	74		35	0.00	66
		2	142	142	0		1850	171	83		20	0.00	10
	Ax	1	523	523	0		Unrestricted	Unrestricted	0		Unrestricted	0.63	130
	B	1	44	44	0		1850	171	26		288	0.00	10
		2	79	79	0		1850	171	46		116	0.00	10
	Bx	1	210	210	0		Unrestricted	Unrestricted	0		Unrestricted	0.60	130
	C	1	425	425	0		1850	968	44		128	0.00	66
		2	45	45	0		1850	171	26		279	0.00	10
	Cx	1	633	633	0		Unrestricted	Unrestricted	0		Unrestricted	0.70	130
	D	1	120	120	0		1850	242	50		102	0.00	15
		2	45	45	0		1850	242	19		438	0.00	15
	Dx	1	231	231	0		Unrestricted	Unrestricted	0		Unrestricted	0.92	130

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
17:00-18:00	A	1	6.00	29.50	4.67	1.04	81.10	79.78	527.59	28.50	6.97
		2	6.00	102.17	2.29	1.74	57.23	128.02	137.43	44.36	2.28
	Ax	1	16.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	6.00	58.52	0.67	0.04	10.16	94.18	40.22	1.22	0.52
		2	6.00	64.91	1.23	0.20	20.23	100.44	74.00	5.34	0.99
	Bx	1	16.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	6.00	20.65	2.27	0.17	34.62	61.42	256.29	4.74	3.27
		2	6.00	58.65	0.69	0.05	10.41	94.26	41.13	1.29	0.53
	Cx	1	16.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	6.00	59.76	1.75	0.24	28.29	96.89	109.68	6.59	1.46
		2	6.00	52.06	0.63	0.02	9.24	88.85	39.40	0.59	0.50
	Dx	1	16.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Wasted time starvation (s per cycle)	Wasted time blocking back (s per cycle)	Wasted time total (s per cycle)	Estimated blocking
17:00-18:00	A	1	0.00	20.59	8.70	236.84	2.86	0.00	0.00	0.00	0.00	0.00	
		2	0.00	6.75	8.70	77.64	0.00	0.00	0.00	0.00	0.00	0.00	
	Ax	1	0.00	0.00	23.48	0.00	0.00	0.00	0.00	13.00	0.00	13.00	
	B	1	0.00	1.51	8.70	17.38	0.00	0.00	0.00	9.00	0.00	9.00	
		2	0.00	2.90	8.70	33.30	0.00	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	23.96	0.00	0.00	0.00	0.00	25.00	0.00	25.00	
	C	1	0.00	9.62	8.70	110.58	0.03	0.00	0.00	0.00	0.00	0.00	
		2	0.00	1.55	8.70	17.79	0.00	0.00	0.00	9.00	0.00	9.00	
	Cx	1	0.00	0.00	23.92	0.00	0.00	0.00	0.00	18.00	0.00	18.00	
	D	1	0.00	4.24	8.70	48.77	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	1.46	8.70	16.78	0.00	0.00	0.00	14.00	0.00	14.00	
	Dx	1	0.00	0.00	23.45	0.00	0.00	0.00	0.00	24.00	0.00	24.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
17:00-18:00	A	1	34.85	6.87	5.07	35.50
		2	7.10	4.27	1.66	108.17
	Ax	1	70.62	2.35	30.00	16.20
	B	1	2.20	0.79	2.79	64.52
		2	3.95	1.56	2.54	70.91
	Bx	1	28.93	0.96	30.00	16.53
	C	1	21.25	3.15	6.75	26.65
		2	2.25	0.81	2.78	64.65
	Cx	1	87.07	2.90	30.00	16.51
	D	1	6.00	2.19	2.74	65.76
		2	2.25	0.73	3.10	58.06
	Dx	1	31.15	1.04	30.00	16.18

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (PCU)	Max End of Green Queue EoTS (PCU)	Max End of Red Queue EoTS (PCU)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
17:00-18:00	A	1	0.00	0.00	✓	20.60	1.05	13.05	1.00	0.00	88.07
		2	0.00	0.00	✓	6.89	1.88	6.53	1.00	0.00	59.51
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	1.51	0.04	1.49	1.00	0.00	10.68
		2	0.00	0.00	✓	2.90	0.20	2.79	1.00	0.00	21.22
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	9.62	0.17	7.49	1.00	0.00	37.89
		2	0.00	0.00	✓	1.55	0.05	1.52	1.00	0.00	10.94
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	1	0.00	0.00	✓	4.24	0.24	4.01	1.00	0.00	29.74
		2	0.00	0.00	✓	1.46	0.02	1.43	1.00	0.00	9.74
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
17:00-18:00	(ALL)	(ALL)	0	0	11000	4	0.00	0.00	0.00	0.00

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity	Mean modulus of error	Actual green (s (per cycle))
17:00-18:00	(ALL)	(ALL)	0	0	0		11000	338	0		Unrestricted	0.00	4

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Weighted cost of delay (£ per hr)
17:00-18:00	(ALL)	(ALL)	1.00	0.00	0.00	0.00	0.00

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
17:00-18:00	(ALL)	(ALL)	0.00	10.00	0.00	0.00	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
17:00-18:00	(ALL)	(ALL)	0.00	0.00	0.00	0.00

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
17:00-18:00	(ALL)	(ALL)	0.00	0.00	0.00	1.00	0.00	0.00

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
1	12/04/2022 11:15:00	12/04/2022 11:15:01	17:00	130	267.80	17.69	83.15	A/2	0	0	A/2	Dx/1	A/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:00-18:00	83	0	3194	722	19.94	251.27	16.53	267.80

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
17:00-18:00	0	0	32	0.00	0.00	0.00

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
17:00-18:00	3194	3194	0		83		20	754

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
17:00-18:00	11.18	19.94	14.19	3.50	251.27	41.28	1225.74	92.63	16.53

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
17:00-18:00	236.84	0.00	112.00	0.00	112.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
17:00-18:00	297.61	27.62	10.78

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
17:00-18:00	0.00	0.00	✓	1.00	0.00	0.00	267.80

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

	To							
	1	2	3	4	5	6	7	8
From	1	0.0	42.8	42.9	81.2	0.0	0.0	0.0
	2	74.6	0.0	82.0	82.3	0.0	0.0	0.0
	3	52.0	124.4	0.0	52.0	0.0	0.0	0.0
	4	81.0	80.7	87.1	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	8	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (PCU/hr)	Pedestrian calculated flow (Ped/hr)	Normal journey time (s)	Pedestrian journey time (s)	Calculated Total Flow (PCU/hr)	Avg journey time (s)
1	1	2	71		42.83		71	42.83
2	1	3	354		42.85		354	42.85
5	2	3	90		81.96		90	81.96
6	2	4	30		82.29		30	82.29
9	3	4	135		52.03		135	52.03
10	3	1	562		52.00		562	52.00
11	4	2	18		80.70		18	80.70
13	4	1	26		81.02		26	81.02
17	8	7		0		0.00	0	0.00
18	8	6		0		0.00	0	0.00
19	3	2	142		124.35		142	124.35
20	4	3	79		87.11		79	87.11
22	5	7		0		0.00	0	0.00
23	5	6		0		0.00	0	0.00
34	6	8		0		0.00	0	0.00
35	6	5		0		0.00	0	0.00
41	7	8		0		0.00	0	0.00
42	7	5		0		0.00	0	0.00
43	1	4	45		81.18		45	81.18
44	2	1	45		74.56		45	74.56

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)
A	1	(untitled)	1	1	A	697 <	1800	66	0.00	74	35	35.50	29.50	79.78	20.59 +
	2		1	1	B	142	1850	10	0.00	83	20	108.17	102.17	128.02	6.75
Ax	1	(untitled)				523	Unrestricted	130	13.00	0	Unrestricted	16.20	0.00	0.00	0.00
B	1	(untitled)	1	1	D	44	1850	10	9.00	26	288	64.52	58.52	94.18	1.51
	2		1	1	D	79	1850	10	0.00	46	116	70.91	64.91	100.44	2.90
Bx	1	(untitled)				210	Unrestricted	130	25.00	0	Unrestricted	16.53	0.00	0.00	0.00
C	1	(untitled)	1	1	A	425 <	1850	66	0.00	44	128	26.65	20.65	61.42	9.62 +
	2		1	1	B	45	1850	10	9.00	26	279	64.65	58.65	94.26	1.55
Cx	1	(untitled)				633	Unrestricted	130	18.00	0	Unrestricted	16.51	0.00	0.00	0.00
D	1	(untitled)	1	1	C	120	1850	15	0.00	50	102	65.76	59.76	96.89	4.24
	2		1	1	C	45	1850	15	14.00	19	438	58.06	52.06	88.85	1.46
Dx	1	(untitled)				231	Unrestricted	130	24.00	0	Unrestricted	16.18	0.00	0.00	0.00

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	P
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Degree of saturation (%)	Practical reserve capacity	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	
(ALL)	(ALL)	(untitled)	1	1	E	0	11000	4	0	Unrestricted	0.00	0.00	0.00	100	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	297.61	27.62	10.78	14.19	3.50	251.27	16.53	0.00	267.80
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	297.61	27.62	10.78	14.19	3.50	251.27	16.53	0.00	267.80

- | < = adjusted flow warning (upstream links/traffic streams are over-saturated)
- | * = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%
- | ^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%
- | + = average link/traffic stream excess queue is greater than 0
- | **P.I. = PERFORMANCE INDEX**

A2 - Junction 2 - 2032 + Overall LAP

D2 - 2032 + Overall LAP, PM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst overall PRC
2	12/04/2022 11:15:01	12/04/2022 11:15:02	17:00	130	275.16	18.18	83.15	A/2	0	0	A/2	Dx/1	A/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
Junction 2 - 2032 + Overall LAP		D2	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2032 + Overall LAP, PM				17:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)		✓	50.00	✓	Sum of lanes	1800	✓		Normal	
	2			✓	50.00	✓	Sum of lanes	1850	✓		Normal	
Ax	1	(untitled)		✓	135.02						Normal	
B	1	(untitled)		✓	50.00	✓	Sum of lanes	1850	✓		Normal	
	2			✓	50.00	✓	Sum of lanes	1850	✓		Normal	
Bx	1	(untitled)		✓	137.76						Normal	
C	1	(untitled)		✓	50.00	✓	Sum of lanes	1850	✓		Normal	
	2			✓	50.00	✓	Sum of lanes	1850	✓		Normal	
Cx	1	(untitled)		✓	137.55						Normal	
D	1	(untitled)		✓	50.00	✓	Sum of lanes	1850	✓		Normal	
	2			✓	50.00	✓	Sum of lanes	1850	✓		Normal	
Dx	1	(untitled)		✓	134.83						Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1800
	2	1	(untitled)			1850
Ax	1	1	(untitled)			
B	1	1	(untitled)			1850
	2	1	(untitled)			1850
Bx	1	1	(untitled)			
C	1	1	(untitled)			1850
	2	1	(untitled)			1850
Cx	1	1	(untitled)			
D	1	1	(untitled)			1850
	2	1	(untitled)			1850
Dx	1	1	(untitled)			

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	130

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	717	717
	2	142	142
Ax	1	536	536
B	1	44	44
	2	79	79
Bx	1	210	210
C	1	438	438
	2	45	45
Cx	1	653	653
D	1	120	120
	2	45	45
Dx	1	231	231

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	A	
	2	1	B	
B	1	1	D	
	2	1	D	
C	1	1	A	
	2	1	B	
D	1	1	C	
	2	1	C	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
(ALL)	(ALL)	6.00	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
Ax	1	1	C/1	Ax/1	16.20	30.00	✓	Straight	Straight Movement
Bx	1	1	A/1	Bx/1	16.53	30.00	✓	Nearside	40.00
Cx	1	1	A/1	Cx/1	16.51	30.00	✓	Straight	Straight Movement
Dx	1	1	C/1	Dx/1	16.18	30.00	✓	Nearside	40.00
Ax	1	2	D/1	Ax/1	16.20	30.00	✓	Nearside	40.00
Bx	1	2	D/1	Bx/1	16.53	30.00	✓	Straight	Straight Movement
Cx	1	2	B/1	Cx/1	16.51	30.00	✓	Nearside	45.00
Dx	1	2	B/1	Dx/1	16.18	30.00	✓	Straight	Straight Movement
Ax	1	3	B/2	Ax/1	16.20	30.00	✓	Offside	47.00
Bx	1	3	C/2	Bx/1	16.53	30.00	✓	Offside	52.00
Cx	1	3	D/2	Cx/1	16.51	30.00	✓	Offside	52.00
Dx	1	3	A/2	Dx/1	16.18	30.00	✓	Offside	47.00

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)		1		Farside	7.00	4.67	5.40
2	(untitled)		1		Farside	8.00	5.33	5.40
3	(untitled)		1		Farside	8.00	5.33	5.40
4	(untitled)		1		Farside	7.00	4.67	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
(ALL)	1	E	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
(ALL)	(ALL)	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	100	100		0.00		

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25		

Normal Input Flows (PCU/hr)

	To							
	1	2	3	4	5	6	7	8
From	1	0	71	367	45	0	0	0
	2	45	0	90	30	0	0	0
	3	582	142	0	135	0	0	0
	4	26	18	79	0	0	0	0
	5	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows not shown as they are blank.

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C/1, C/2	Cx/1	#0000FF
	2	(untitled)	D/1, D/2	Dx/1	#FF0000
	3	(untitled)	A/1, A/2	Ax/1	#00FF00
	4	(untitled)	B/1, B/2	Bx/1	#FFFF00
	5	(untitled)	3:2E, 1:1E	3:2X, 1:1X	#FF00FF
	6	(untitled)	2:1E, 1:2E	2:1X, 1:2X	#008000
	7	(untitled)	4:2E, 3:1E	4:2X, 3:1X	#FFA500
	8	(untitled)	4:1E, 2:2E	4:1X, 2:2X	#00FFFF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (PCU/hr)
1	1		1	2	C/1, Dx/1	Normal	71
	2		1	3	C/1, Ax/1	Normal	367
	5		2	3	D/1, Ax/1	Normal	90
	6		2	4	D/1, Bx/1	Normal	30
	9		3	4	A/1, Bx/1	Normal	135
	10		3	1	A/1, Cx/1	Normal	582
	11		4	2	B/1, Dx/1	Normal	18
	13		4	1	B/1, Cx/1	Normal	26
	19		3	2	A/2, Dx/1	Normal	142
	20		4	3	B/2, Ax/1	Normal	79
	43		1	4	C/2, Bx/1	Normal	45
	44		2	1	D/2, Cx/1	Normal	45

Pedestrian Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Pedestrian calculated flow (Ped/hr)
1	17		8	7	4:1E, 4:2X	Normal	0
	18		8	6	2:2E, 2:1X	Normal	0
	22		5	7	3:2E, 3:1X	Normal	0
	23		5	6	1:1E, 1:2X	Normal	0
	34		6	8	2:1E, 2:2X	Normal	0
	35		6	5	1:2E, 1:1X	Normal	0
	41		7	8	4:2E, 4:1X	Normal	0
	42		7	5	3:1E, 3:2X	Normal	0

Signal Timings

Network Default: 130s cycle time; 130 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	130

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Relative

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	62	66	2	3	Traffic	
	B	(untitled)	6	10	2	3	Traffic	
	C	(untitled)	5	300	2	3	Traffic	
	D	(untitled)	5	15	2	3	Traffic	
	E	(untitled)	4	4	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A	1
	2	B	1
	3	C	1
	4	D	1
	5	E	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5	70, 85, 105, 120, 129

Intergreen Matrix for Controller Stream 1

	To					
		A	B	C	D	E
From	A		5	5	5	5
	B	5		5	5	5
	C	5	5		5	5
	D	5	5	5		5
	E	5	5	5	5	

Banned Stage transitions for Controller Stream 1

	To					
		1	2	3	4	5
From	1					
	2					
	3					
	4					
	5					

Interstage Matrix for Controller Stream 1

	To					
		1	2	3	4	5
From	1	0	5	5	5	5
	2	5	0	5	5	5
	3	5	5	0	5	5
	4	5	5	5	0	5
	5	5	5	5	5	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A	4	70	66	1	62
	2	✓	2	B	75	85	10	1	6
	3	✓	3	C	90	105	15	1	5
	4	✓	4	D	110	120	10	1	5
	5	✓	5	E	125	129	4	1	4

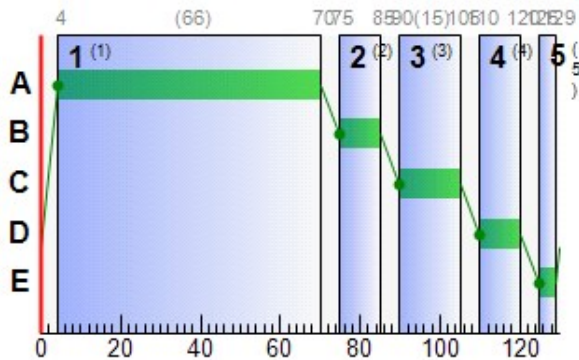
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	4	70	66
	B	1	✓	75	85	10
	C	1	✓	90	105	15
	D	1	✓	110	120	10
	E	1	✓	125	129	4

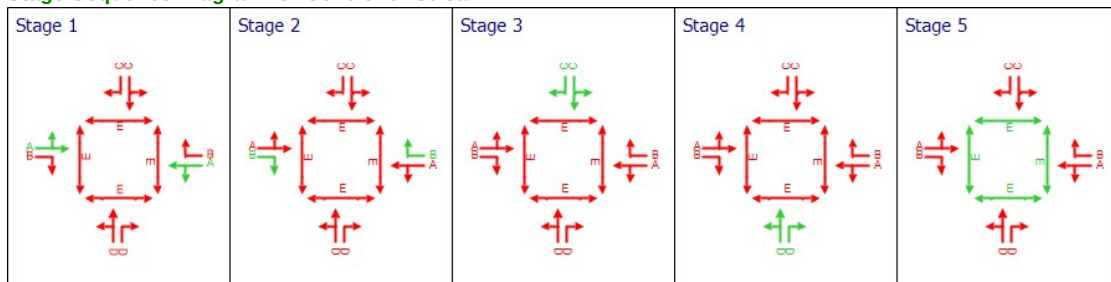
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	A	4	70	66
A	2	1	1	B	75	85	10
B	1	1	1	D	110	120	10
B	2	1	1	D	110	120	10
C	1	1	1	A	4	70	66
C	2	1	1	B	75	85	10
D	1	1	1	C	90	105	15
D	2	1	1	C	90	105	15

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
17:00-18:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:00-18:00	A	1	76	31	717	1800	66	30.57	21.51	247.37	86.47	7.34	93.80
		2	83	20	142	1850	10	102.17	6.75	77.64	57.23	2.28	59.51
	Ax	1	0	Unrestricted	536	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	26	288	44	1850	10	58.52	1.51	17.38	10.16	0.52	10.68
		2	46	116	79	1850	10	64.91	2.90	33.30	20.23	0.99	21.22
	Bx	1	0	Unrestricted	210	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	45	121	438	1850	66	20.91	10.04	115.48	36.12	3.41	39.53
		2	26	279	45	1850	10	58.65	1.55	17.79	10.41	0.53	10.94
	Cx	1	0	Unrestricted	653	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	50	102	120	1850	15	59.76	4.24	48.77	28.29	1.46	29.74
		2	19	438	45	1850	15	52.06	1.46	16.78	9.24	0.50	9.74
	Dx	1	0	Unrestricted	231	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
17:00-18:00	A	1	717	717	0		1800	942	76		31	0.00	66
		2	142	142	0		1850	171	83		20	0.00	10
	Ax	1	536	536	0		Unrestricted	Unrestricted	0		Unrestricted	0.62	130
	B	1	44	44	0		1850	171	26		288	0.00	10
		2	79	79	0		1850	171	46		116	0.00	10
	Bx	1	210	210	0		Unrestricted	Unrestricted	0		Unrestricted	0.59	130
	C	1	438	438	0		1850	968	45		121	0.00	66
		2	45	45	0		1850	171	26		279	0.00	10
	Cx	1	653	653	0		Unrestricted	Unrestricted	0		Unrestricted	0.71	130
	D	1	120	120	0		1850	242	50		102	0.00	15
		2	45	45	0		1850	242	19		438	0.00	15
	Dx	1	231	231	0		Unrestricted	Unrestricted	0		Unrestricted	0.92	130

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
17:00-18:00	A	1	6.00	30.57	4.89	1.20	86.47	81.62	552.53	32.71	7.34
		2	6.00	102.17	2.29	1.74	57.23	128.02	137.43	44.36	2.28
	Ax	1	16.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	6.00	58.52	0.67	0.04	10.16	94.18	40.22	1.22	0.52
		2	6.00	64.91	1.23	0.20	20.23	100.44	74.00	5.34	0.99
	Bx	1	16.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	6.00	20.91	2.36	0.19	36.12	62.02	266.47	5.15	3.41
		2	6.00	58.65	0.69	0.05	10.41	94.26	41.13	1.29	0.53
	Cx	1	16.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	6.00	59.76	1.75	0.24	28.29	96.89	109.68	6.59	1.46
		2	6.00	52.06	0.63	0.02	9.24	88.85	39.40	0.59	0.50
	Dx	1	16.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Wasted time starvation (s per cycle)	Wasted time blocking back (s per cycle)	Wasted time total (s per cycle)	Estimated blocking
17:00-18:00	A	1	0.00	21.51	8.70	247.37	3.22	0.00	0.00	0.00	0.00	0.00	
		2	0.00	6.75	8.70	77.64	0.00	0.00	0.00	0.00	0.00	0.00	
	Ax	1	0.00	0.00	23.48	0.00	0.00	0.00	0.00	12.00	0.00	12.00	
	B	1	0.00	1.51	8.70	17.38	0.00	0.00	0.00	9.00	0.00	9.00	
		2	0.00	2.90	8.70	33.30	0.00	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	23.96	0.00	0.00	0.00	0.00	25.00	0.00	25.00	
	C	1	0.00	10.04	8.70	115.48	0.06	0.00	0.00	0.00	0.00	0.00	
		2	0.00	1.55	8.70	17.79	0.00	0.00	0.00	9.00	0.00	9.00	
	Cx	1	0.00	0.00	23.92	0.00	0.00	0.00	0.00	18.00	0.00	18.00	
	D	1	0.00	4.24	8.70	48.77	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	1.46	8.70	16.78	0.00	0.00	0.00	14.00	0.00	14.00	
	Dx	1	0.00	0.00	23.45	0.00	0.00	0.00	0.00	25.00	0.00	25.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
17:00-18:00	A	1	35.85	7.28	4.92	36.57
		2	7.10	4.27	1.66	108.17
	Ax	1	72.37	2.41	30.00	16.20
	B	1	2.20	0.79	2.79	64.52
		2	3.95	1.56	2.54	70.91
	Bx	1	28.93	0.96	30.00	16.53
	C	1	21.90	3.27	6.69	26.91
		2	2.25	0.81	2.78	64.65
	Cx	1	89.82	2.99	30.00	16.51
	D	1	6.00	2.19	2.74	65.76
		2	2.25	0.73	3.10	58.06
	Dx	1	31.15	1.04	30.00	16.18

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (PCU)	Max End of Green Queue EoTS (PCU)	Max End of Red Queue EoTS (PCU)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
17:00-18:00	A	1	0.00	0.00	✓	21.52	1.21	13.55	1.00	0.00	93.80
		2	0.00	0.00	✓	6.89	1.88	6.53	1.00	0.00	59.51
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	1.51	0.04	1.49	1.00	0.00	10.68
		2	0.00	0.00	✓	2.90	0.20	2.79	1.00	0.00	21.22
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	10.04	0.19	7.73	1.00	0.00	39.53
		2	0.00	0.00	✓	1.55	0.05	1.52	1.00	0.00	10.94
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	1	0.00	0.00	✓	4.24	0.24	4.01	1.00	0.00	29.74
		2	0.00	0.00	✓	1.46	0.02	1.43	1.00	0.00	9.74
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
17:00-18:00	(ALL)	(ALL)	0	0	11000	4	0.00	0.00	0.00	0.00

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity	Mean modulus of error	Actual green (s (per cycle))
17:00-18:00	(ALL)	(ALL)	0	0	0		11000	338	0		Unrestricted	0.00	4

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Weighted cost of delay (£ per hr)
17:00-18:00	(ALL)	(ALL)	1.00	0.00	0.00	0.00	0.00

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
17:00-18:00	(ALL)	(ALL)	0.00	10.00	0.00	0.00	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
17:00-18:00	(ALL)	(ALL)	0.00	0.00	0.00	0.00

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
17:00-18:00	(ALL)	(ALL)	0.00	0.00	0.00	1.00	0.00	0.00

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
2	12/04/2022 11:15:01	12/04/2022 11:15:02	17:00	130	275.16	18.18	83.15	A/2	0	0	A/2	Dx/1	A/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:00-18:00	83	0	3260	722	20.07	258.13	17.03	275.16

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
17:00-18:00	0	0	32	0.00	0.00	0.00

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
17:00-18:00	3260	3260	0		83		20	754

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
17:00-18:00	11.18	20.07	14.50	3.67	258.13	41.66	1260.86	97.26	17.03

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
17:00-18:00	247.37	0.00	112.00	0.00	112.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
17:00-18:00	303.77	28.30	10.73

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
17:00-18:00	0.00	0.00	✓	1.00	0.00	0.00	275.16

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

	To							
	1	2	3	4	5	6	7	8
From	1	0.0	43.1	43.1	81.2	0.0	0.0	0.0
	2	74.6	0.0	82.0	82.3	0.0	0.0	0.0
	3	53.1	124.4	0.0	53.1	0.0	0.0	0.0
	4	81.0	80.7	87.1	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	8	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (PCU/hr)	Pedestrian calculated flow (Ped/hr)	Normal journey time (s)	Pedestrian journey time (s)	Calculated Total Flow (PCU/hr)	Avg journey time (s)
1	1	2	71		43.09		71	43.09
2	1	3	367		43.11		367	43.11
5	2	3	90		81.96		90	81.96
6	2	4	30		82.29		30	82.29
9	3	4	135		53.10		135	53.10
10	3	1	582		53.08		582	53.08
11	4	2	18		80.70		18	80.70
13	4	1	26		81.02		26	81.02
17	8	7		0		0.00	0	0.00
18	8	6		0		0.00	0	0.00
19	3	2	142		124.35		142	124.35
20	4	3	79		87.11		79	87.11
22	5	7		0		0.00	0	0.00
23	5	6		0		0.00	0	0.00
34	6	8		0		0.00	0	0.00
35	6	5		0		0.00	0	0.00
41	7	8		0		0.00	0	0.00
42	7	5		0		0.00	0	0.00
43	1	4	45		81.18		45	81.18
44	2	1	45		74.56		45	74.56

Final Prediction Table

Traffic Stream Results

Arm	Traffic Stream	Name	Traffic node	SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
				Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)
A	1	(untitled)	1	1	A	717 <	1800	66	0.00	76	31	36.57	30.57	81.62	21.51 +
	2		1	1	B	142	1850	10	0.00	83	20	108.17	102.17	128.02	6.75
Ax	1	(untitled)				536	Unrestricted	130	12.00	0	Unrestricted	16.20	0.00	0.00	0.00
B	1	(untitled)	1	1	D	44	1850	10	9.00	26	288	64.52	58.52	94.18	1.51
	2		1	1	D	79	1850	10	0.00	46	116	70.91	64.91	100.44	2.90
Bx	1	(untitled)				210	Unrestricted	130	25.00	0	Unrestricted	16.53	0.00	0.00	0.00
C	1	(untitled)	1	1	A	438 <	1850	66	0.00	45	121	26.91	20.91	62.02	10.04 +
	2		1	1	B	45	1850	10	9.00	26	279	64.65	58.65	94.26	1.55
Cx	1	(untitled)				653	Unrestricted	130	18.00	0	Unrestricted	16.51	0.00	0.00	0.00
D	1	(untitled)	1	1	C	120	1850	15	0.00	50	102	65.76	59.76	96.89	4.24
	2		1	1	C	45	1850	15	14.00	19	438	58.06	52.06	88.85	1.46
Dx	1	(untitled)				231	Unrestricted	130	25.00	0	Unrestricted	16.18	0.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian	Side	Name	Traffic node	SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	P
				Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Degree of saturation (%)	Practical reserve capacity	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	
(ALL)	(ALL)	(untitled)	1	1	E	0	11000	4	0	Unrestricted	0.00	0.00	0.00	100	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	303.77	28.30	10.73	14.50	3.67	258.13	17.03	0.00	275.16
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	303.77	28.30	10.73	14.50	3.67	258.13	17.03	0.00	275.16

- | < = adjusted flow warning (upstream links/traffic streams are over-saturated)
- | * = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%
- | ^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%
- | + = average link/traffic stream excess queue is greater than 0
- | **P.I. = PERFORMANCE INDEX**

A3 - Junction 2 - 2042 + Overall LAP

D3 - 2042 + Overall LAP, PM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst overall PRC
3	12/04/2022 11:15:02	12/04/2022 11:15:03	17:00	130	375.54	25.23	83.15	A/2	0	0	A/2	Dx/1	A/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
Junction 2 - 2042 + Overall LAP		D3	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2042 + Overall LAP, PM				17:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)		✓	50.00	✓	Sum of lanes	1850	✓		Normal	
	2			✓	50.00	✓	Sum of lanes	1850	✓		Normal	
Ax	1	(untitled)		✓	135.02						Normal	
B	1	(untitled)		✓	50.00	✓	Sum of lanes	1850	✓		Normal	
	2			✓	50.00	✓	Sum of lanes	1850	✓		Normal	
Bx	1	(untitled)		✓	137.76						Normal	
C	1	(untitled)		✓	50.00	✓	Sum of lanes	1850	✓		Normal	
	2			✓	50.00	✓	Sum of lanes	1850	✓		Normal	
Cx	1	(untitled)		✓	137.55						Normal	
D	1	(untitled)		✓	50.00	✓	Sum of lanes	1850	✓		Normal	
	2			✓	50.00	✓	Sum of lanes	1850	✓		Normal	
Dx	1	(untitled)		✓	134.83						Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1850
	2	1	(untitled)			1850
Ax	1	1	(untitled)			
B	1	1	(untitled)			1850
	2	1	(untitled)			1850
Bx	1	1	(untitled)			
C	1	1	(untitled)			1850
	2	1	(untitled)			1850
Cx	1	1	(untitled)			
D	1	1	(untitled)			1850
	2	1	(untitled)			1850
Dx	1	1	(untitled)			

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	130

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	736	736
	2	142	142
Ax	1	547	547
B	1	44	44
	2	79	79
Bx	1	210	210
C	1	449	449
	2	45	45
Cx	1	672	672
D	1	120	120
	2	45	45
Dx	1	231	231

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	A	
	2	1	B	
B	1	1	D	
	2	1	D	
C	1	1	A	
	2	1	B	
D	1	1	C	
	2	1	C	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
(ALL)	(ALL)	6.00	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
Ax	1	1	C/1	Ax/1	16.20	30.00	✓	Straight	Straight Movement
Bx	1	1	A/1	Bx/1	16.53	30.00	✓	Nearside	40.00
Cx	1	1	A/1	Cx/1	16.51	30.00	✓	Straight	Straight Movement
Dx	1	1	C/1	Dx/1	16.18	30.00	✓	Nearside	40.00
Ax	1	2	D/1	Ax/1	16.20	30.00	✓	Nearside	40.00
Bx	1	2	D/1	Bx/1	16.53	30.00	✓	Straight	Straight Movement
Cx	1	2	B/1	Cx/1	16.51	30.00	✓	Nearside	45.00
Dx	1	2	B/1	Dx/1	16.18	30.00	✓	Straight	Straight Movement
Ax	1	3	B/2	Ax/1	16.20	30.00	✓	Offside	47.00
Bx	1	3	C/2	Bx/1	16.53	30.00	✓	Offside	52.00
Cx	1	3	D/2	Cx/1	16.51	30.00	✓	Offside	52.00
Dx	1	3	A/2	Dx/1	16.18	30.00	✓	Offside	47.00

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)		1		Farside	7.00	4.67	5.40
2	(untitled)		1		Farside	8.00	5.33	5.40
3	(untitled)		1		Farside	8.00	5.33	5.40
4	(untitled)		1		Farside	7.00	4.67	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
(ALL)	1	E	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
(ALL)	(ALL)	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	100	100		0.00		

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25		

Normal Input Flows (PCU/hr)

	To							
	1	2	3	4	5	6	7	8
From	1	0	71	378	45	0	0	0
	2	45	0	90	30	0	0	0
	3	601	142	0	135	0	0	0
	4	26	18	79	0	0	0	0
	5	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows (PCU/hr)

	To							
	1	2	3	4	5	6	7	8
From	1	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0
	5	0	0	0	0	50	50	0
	6	0	0	0	0	50	0	50
	7	0	0	0	0	50	0	50
	8	0	0	0	0	50	50	0

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C/1, C/2	Cx/1	#0000FF
	2	(untitled)	D/1, D/2	Dx/1	#FF0000
	3	(untitled)	A/1, A/2	Ax/1	#00FF00
	4	(untitled)	B/1, B/2	Bx/1	#FFFF00
	5	(untitled)	3:2E, 1:1E	3:2X, 1:1X	#FF00FF
	6	(untitled)	2:1E, 1:2E	2:1X, 1:2X	#008000
	7	(untitled)	4:2E, 3:1E	4:2X, 3:1X	#FFA500
	8	(untitled)	4:1E, 2:2E	4:1X, 2:2X	#00FFFF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (PCU/hr)
1	1		1	2	C/1, Dx/1	Normal	71
	2		1	3	C/1, Ax/1	Normal	378
	5		2	3	D/1, Ax/1	Normal	90
	6		2	4	D/1, Bx/1	Normal	30
	9		3	4	A/1, Bx/1	Normal	135
	10		3	1	A/1, Cx/1	Normal	601
	11		4	2	B/1, Dx/1	Normal	18
	13		4	1	B/1, Cx/1	Normal	26
	19		3	2	A/2, Dx/1	Normal	142
	20		4	3	B/2, Ax/1	Normal	79
	43		1	4	C/2, Bx/1	Normal	45
	44		2	1	D/2, Cx/1	Normal	45

Pedestrian Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Pedestrian calculated flow (Ped/hr)
1	17		8	7	4:1E, 4:2X	Normal	50
	18		8	6	2:2E, 2:1X	Normal	50
	22		5	7	3:2E, 3:1X	Normal	50
	23		5	6	1:1E, 1:2X	Normal	50
	34		6	8	2:1E, 2:2X	Normal	50
	35		6	5	1:2E, 1:1X	Normal	50
	41		7	8	4:2E, 4:1X	Normal	50
	42		7	5	3:1E, 3:2X	Normal	50

Signal Timings

Network Default: 130s cycle time; 130 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	130

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Relative

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	62	66	2	3	Traffic	
	B	(untitled)	6	10	2	3	Traffic	
	C	(untitled)	5	300	2	3	Traffic	
	D	(untitled)	5	15	2	3	Traffic	
	E	(untitled)	4	4	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A	1
	2	B	1
	3	C	1
	4	D	1
	5	E	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5	70, 85, 105, 120, 129

Intergreen Matrix for Controller Stream 1

	To					
		A	B	C	D	E
From	A		5	5	5	5
	B	5		5	5	5
	C	5	5		5	5
	D	5	5	5		5
	E	5	5	5	5	

Banned Stage transitions for Controller Stream 1

	To					
		1	2	3	4	5
From	1					
	2					
	3					
	4					
	5					

Interstage Matrix for Controller Stream 1

	To					
		1	2	3	4	5
From	1	0	5	5	5	5
	2	5	0	5	5	5
	3	5	5	0	5	5
	4	5	5	5	0	5
	5	5	5	5	5	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A	4	70	66	1	62
	2	✓	2	B	75	85	10	1	6
	3	✓	3	C	90	105	15	1	5
	4	✓	4	D	110	120	10	1	5
	5	✓	5	E	125	129	4	1	4

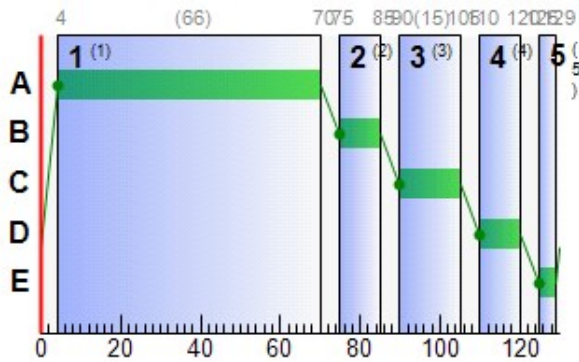
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	4	70	66
	B	1	✓	75	85	10
	C	1	✓	90	105	15
	D	1	✓	110	120	10
	E	1	✓	125	129	4

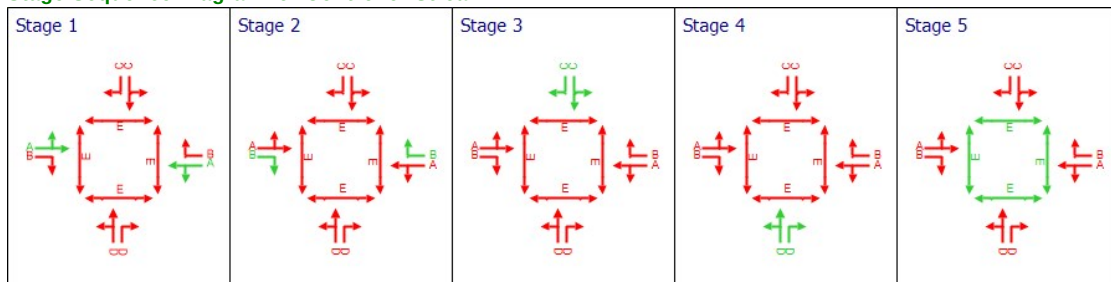
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	A	4	70	66
A	2	1	1	B	75	85	10
B	1	1	1	D	110	120	10
B	2	1	1	D	110	120	10
C	1	1	1	A	4	70	66
C	2	1	1	B	75	85	10
D	1	1	1	C	90	105	15
D	2	1	1	C	90	105	15

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
17:00-18:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:00-18:00	A	1	76	31	736	1850	66	30.36	22.04	253.48	88.15	7.51	95.66
		2	83	20	142	1850	10	102.17	6.75	77.64	57.23	2.28	59.51
	Ax	1	0	Unrestricted	547	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	26	288	44	1850	10	58.52	1.51	17.38	10.16	0.52	10.68
		2	46	116	79	1850	10	64.91	2.90	33.30	20.23	0.99	21.22
	Bx	1	0	Unrestricted	210	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	46	116	449	1850	66	21.13	10.30	118.48	37.42	3.51	40.94
		2	26	279	45	1850	10	58.65	1.55	17.79	10.41	0.53	10.94
	Cx	1	0	Unrestricted	672	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	50	102	120	1850	15	59.76	4.24	48.77	28.29	1.46	29.74
		2	19	438	45	1850	15	52.06	1.46	16.78	9.24	0.50	9.74
	Dx	1	0	Unrestricted	231	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
17:00-18:00	A	1	736	736	0		1850	968	76		31	0.00	66
		2	142	142	0		1850	171	83		20	0.00	10
	Ax	1	547	547	0		Unrestricted	Unrestricted	0		Unrestricted	0.62	130
	B	1	44	44	0		1850	171	26		288	0.00	10
		2	79	79	0		1850	171	46		116	0.00	10
	Bx	1	210	210	0		Unrestricted	Unrestricted	0		Unrestricted	0.59	130
	C	1	449	449	0		1850	968	46		116	0.00	66
		2	45	45	0		1850	171	26		279	0.00	10
	Cx	1	672	672	0		Unrestricted	Unrestricted	0		Unrestricted	0.71	130
	D	1	120	120	0		1850	242	50		102	0.00	15
		2	45	45	0		1850	242	19		438	0.00	15
	Dx	1	231	231	0		Unrestricted	Unrestricted	0		Unrestricted	0.91	130

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
17:00-18:00	A	1	6.00	30.36	5.02	1.19	88.15	81.42	566.73	32.54	7.51
		2	6.00	102.17	2.29	1.74	57.23	128.02	137.43	44.36	2.28
	Ax	1	16.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	6.00	58.52	0.67	0.04	10.16	94.18	40.22	1.22	0.52
		2	6.00	64.91	1.23	0.20	20.23	100.44	74.00	5.34	0.99
	Bx	1	16.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	6.00	21.13	2.44	0.20	37.42	62.43	274.77	5.53	3.51
		2	6.00	58.65	0.69	0.05	10.41	94.26	41.13	1.29	0.53
	Cx	1	16.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	6.00	59.76	1.75	0.24	28.29	96.89	109.68	6.59	1.46
		2	6.00	52.06	0.63	0.02	9.24	88.85	39.40	0.59	0.50
	Dx	1	16.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Wasted time starvation (s per cycle)	Wasted time blocking back (s per cycle)	Wasted time total (s per cycle)	Estimated blocking
17:00-18:00	A	1	0.00	22.04	8.70	253.48	3.40	0.00	0.00	0.00	0.00	0.00	
		2	0.00	6.75	8.70	77.64	0.00	0.00	0.00	0.00	0.00	0.00	
	Ax	1	0.00	0.00	23.48	0.00	0.00	0.00	0.00	12.00	0.00	12.00	
	B	1	0.00	1.51	8.70	17.38	0.00	0.00	0.00	9.00	0.00	9.00	
		2	0.00	2.90	8.70	33.30	0.00	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	23.96	0.00	0.00	0.00	0.00	25.00	0.00	25.00	
	C	1	0.00	10.30	8.70	118.48	0.09	0.00	0.00	0.00	0.00	0.00	
		2	0.00	1.55	8.70	17.79	0.00	0.00	0.00	9.00	0.00	9.00	
	Cx	1	0.00	0.00	23.92	0.00	0.00	0.00	0.00	18.00	0.00	18.00	
	D	1	0.00	4.24	8.70	48.77	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	1.46	8.70	16.78	0.00	0.00	0.00	14.00	0.00	14.00	
	Dx	1	0.00	0.00	23.45	0.00	0.00	0.00	0.00	25.00	0.00	25.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
17:00-18:00	A	1	36.80	7.43	4.95	36.36
		2	7.10	4.27	1.66	108.17
	Ax	1	73.86	2.46	30.00	16.20
	B	1	2.20	0.79	2.79	64.52
		2	3.95	1.56	2.54	70.91
	Bx	1	28.93	0.96	30.00	16.53
	C	1	22.45	3.38	6.63	27.13
		2	2.25	0.81	2.78	64.65
	Cx	1	92.43	3.08	30.00	16.51
	D	1	6.00	2.19	2.74	65.76
		2	2.25	0.73	3.10	58.06
	Dx	1	31.15	1.04	30.00	16.18

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (PCU)	Max End of Green Queue EoTS (PCU)	Max End of Red Queue EoTS (PCU)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
17:00-18:00	A	1	0.00	0.00	✓	22.05	1.20	13.87	1.00	0.00	95.66
		2	0.00	0.00	✓	6.89	1.88	6.53	1.00	0.00	59.51
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	1.51	0.04	1.49	1.00	0.00	10.68
		2	0.00	0.00	✓	2.90	0.20	2.79	1.00	0.00	21.22
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	10.30	0.20	7.93	1.00	0.00	40.94
		2	0.00	0.00	✓	1.55	0.05	1.52	1.00	0.00	10.94
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	1	0.00	0.00	✓	4.24	0.24	4.01	1.00	0.00	29.74
		2	0.00	0.00	✓	1.46	0.02	1.43	1.00	0.00	9.74
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
17:00-18:00	(ALL)	(ALL)	15	50	11000	4	61.55	1.75	12.14	12.14

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
17:00-18:00	(ALL)	(ALL)	50	50	0		11000	338	15		577	0.00	4

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Weighted cost of delay (£ per hr)
17:00-18:00	1	1	5.67	61.55	0.85	0.00	12.14
		2	5.67	61.55	0.85	0.00	12.14
	2	1	6.33	61.55	0.85	0.00	12.14
		2	6.33	61.55	0.85	0.00	12.14
	3	1	6.33	61.55	0.85	0.00	12.14
		2	6.33	61.55	0.85	0.00	12.14
	4	1	5.67	61.55	0.85	0.00	12.14
		2	5.67	61.55	0.85	0.00	12.14

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
17:00-18:00	(ALL)	(ALL)	1.75	10.00	17.50	0.00	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
17:00-18:00	1	1	0.40	0.93	0.43	67.21
		2	0.40	0.93	0.43	67.21
	2	1	0.45	0.94	0.48	67.88
		2	0.45	0.94	0.48	67.88
	3	1	0.45	0.94	0.48	67.88
		2	0.45	0.94	0.48	67.88
	4	1	0.40	0.93	0.43	67.21
		2	0.40	0.93	0.43	67.21

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
17:00-18:00	(ALL)	(ALL)	0.00	0.00	1.75	1.00	0.00	12.14

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
3	12/04/2022 11:15:02	12/04/2022 11:15:03	17:00	130	375.54	25.23	83.15	A/2	0	0	A/2	Dx/1	A/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:00-18:00	83	0	3320	722	19.94	261.12	17.31	278.43

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
17:00-18:00	15	400	32	61.55	97.11	97.11

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
17:00-18:00	3720	3720	0		83		20	754

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
17:00-18:00	10.62	24.41	21.55	3.68	358.22	37.12	1283.36	97.46	17.31

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
17:00-18:00	253.48	0.00	112.00	0.00	112.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
17:00-18:00	312.77	36.21	8.64

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
17:00-18:00	0.00	0.00	✓	1.00	0.00	0.00	375.54

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

	To							
	1	2	3	4	5	6	7	8
From	1	0.0	43.3	43.3	81.2	0.0	0.0	0.0
	2	74.6	0.0	82.0	82.3	0.0	0.0	0.0
	3	52.9	124.4	0.0	52.9	0.0	0.0	0.0
	4	81.0	80.7	87.1	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	67.2	67.9	0.0
	6	0.0	0.0	0.0	0.0	67.2	0.0	67.9
	7	0.0	0.0	0.0	0.0	67.9	0.0	67.2
	8	0.0	0.0	0.0	0.0	67.9	67.2	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (PCU/hr)	Pedestrian calculated flow (Ped/hr)	Normal journey time (s)	Pedestrian journey time (s)	Calculated Total Flow (PCU/hr)	Avg journey time (s)
1	1	2	71		43.31		71	43.31
2	1	3	378		43.33		378	43.33
5	2	3	90		81.96		90	81.96
6	2	4	30		82.29		30	82.29
9	3	4	135		52.90		135	52.90
10	3	1	601		52.87		601	52.87
11	4	2	18		80.70		18	80.70
13	4	1	26		81.02		26	81.02
17	8	7		50		67.21	50	67.21
18	8	6		50		67.88	50	67.88
19	3	2	142		124.35		142	124.35
20	4	3	79		87.11		79	87.11
22	5	7		50		67.88	50	67.88
23	5	6		50		67.21	50	67.21
34	6	8		50		67.88	50	67.88
35	6	5		50		67.21	50	67.21
41	7	8		50		67.21	50	67.21
42	7	5		50		67.88	50	67.88
43	1	4	45		81.18		45	81.18
44	2	1	45		74.56		45	74.56

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s per cycle)	Wasted time total (s per cycle)	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)
A	1	(untitled)	1	1	A	736 <	1850	66	0.00	76	31	36.36	30.36	81.42	22.04 +
	2		1	1	B	142	1850	10	0.00	83	20	108.17	102.17	128.02	6.75
Ax	1	(untitled)				547	Unrestricted	130	12.00	0	Unrestricted	16.20	0.00	0.00	0.00
B	1	(untitled)	1	1	D	44	1850	10	9.00	26	288	64.52	58.52	94.18	1.51
	2		1	1	D	79	1850	10	0.00	46	116	70.91	64.91	100.44	2.90
Bx	1	(untitled)				210	Unrestricted	130	25.00	0	Unrestricted	16.53	0.00	0.00	0.00
C	1	(untitled)	1	1	A	449 <	1850	66	0.00	46	116	27.13	21.13	62.43	10.30 +
	2		1	1	B	45	1850	10	9.00	26	279	64.65	58.65	94.26	1.55
Cx	1	(untitled)				672	Unrestricted	130	18.00	0	Unrestricted	16.51	0.00	0.00	0.00
D	1	(untitled)	1	1	C	120	1850	15	0.00	50	102	65.76	59.76	96.89	4.24
	2		1	1	C	45	1850	15	14.00	19	438	58.06	52.06	88.85	1.46
Dx	1	(untitled)				231	Unrestricted	130	25.00	0	Unrestricted	16.18	0.00	0.00	0.00

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	PEN
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s per cycle)	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	Co tra pen (£ p
1	1	(untitled)	1	1	E	50	11000	4	15	577	67.21	61.55	1.75	100	0
	2	(untitled)	1	1	E	50	11000	4	15	577	67.21	61.55	1.75	100	0
2	1	(untitled)	1	1	E	50	11000	4	15	577	67.88	61.55	1.75	100	0
	2	(untitled)	1	1	E	50	11000	4	15	577	67.88	61.55	1.75	100	0
3	1	(untitled)	1	1	E	50	11000	4	15	577	67.88	61.55	1.75	100	0
	2	(untitled)	1	1	E	50	11000	4	15	577	67.88	61.55	1.75	100	0
4	1	(untitled)	1	1	E	50	11000	4	15	577	67.21	61.55	1.75	100	0
	2	(untitled)	1	1	E	50	11000	4	15	577	67.21	61.55	1.75	100	0

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	309.37	28.70	10.78	14.71	3.68	261.12	17.31	0.00	278.43
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	3.40	7.51	0.45	6.84	0.00	97.11	0.00	0.00	97.11
TOTAL	312.77	36.21	8.64	21.55	3.68	358.22	17.31	0.00	375.54

- | < = adjusted flow warning (upstream links/traffic streams are over-saturated)
- | * = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%
- | ^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%
- | + = average link/traffic stream excess queue is greater than 0
- | P.I. = PERFORMANCE INDEX



TRANSYT 15	
Version: 15.5.2.7994 © Copyright TRL Limited, 2018	
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Filename: Junction 3 - AM.t16

Path: M:\Projects\21\21-011 - Mooretown Phase 3\Design\Traffic\Junction Modelling\August 2021\Junction 3

Report generation date: 04/04/2022 14:10:19

»A1 - 2022 : D1 - 2022, AM* :

»A2 - 2027 : D2 - 2027, AM* :

File summary

File description

File title	21-011
Location	
Site number	
UTCRegion	
Driving side	Left
Date	06/12/2011
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	17-144
Enumerator	DOMAINf.silva
Description	

Model and Results

Enable controller offsets	Enable fuel consumption	Enable quick flares	Display journey time results	Display level of service results	Display blocking and starvation results	Display end of red and green queue results	Display excess queue results	Display separate uniform and random results	Display unweighted results	Display TRANSYT 12 style timings	Display effective greens in results	Display Red-With-Amber	Display End-Of-Green Amber
			✓		✓		✓	✓					

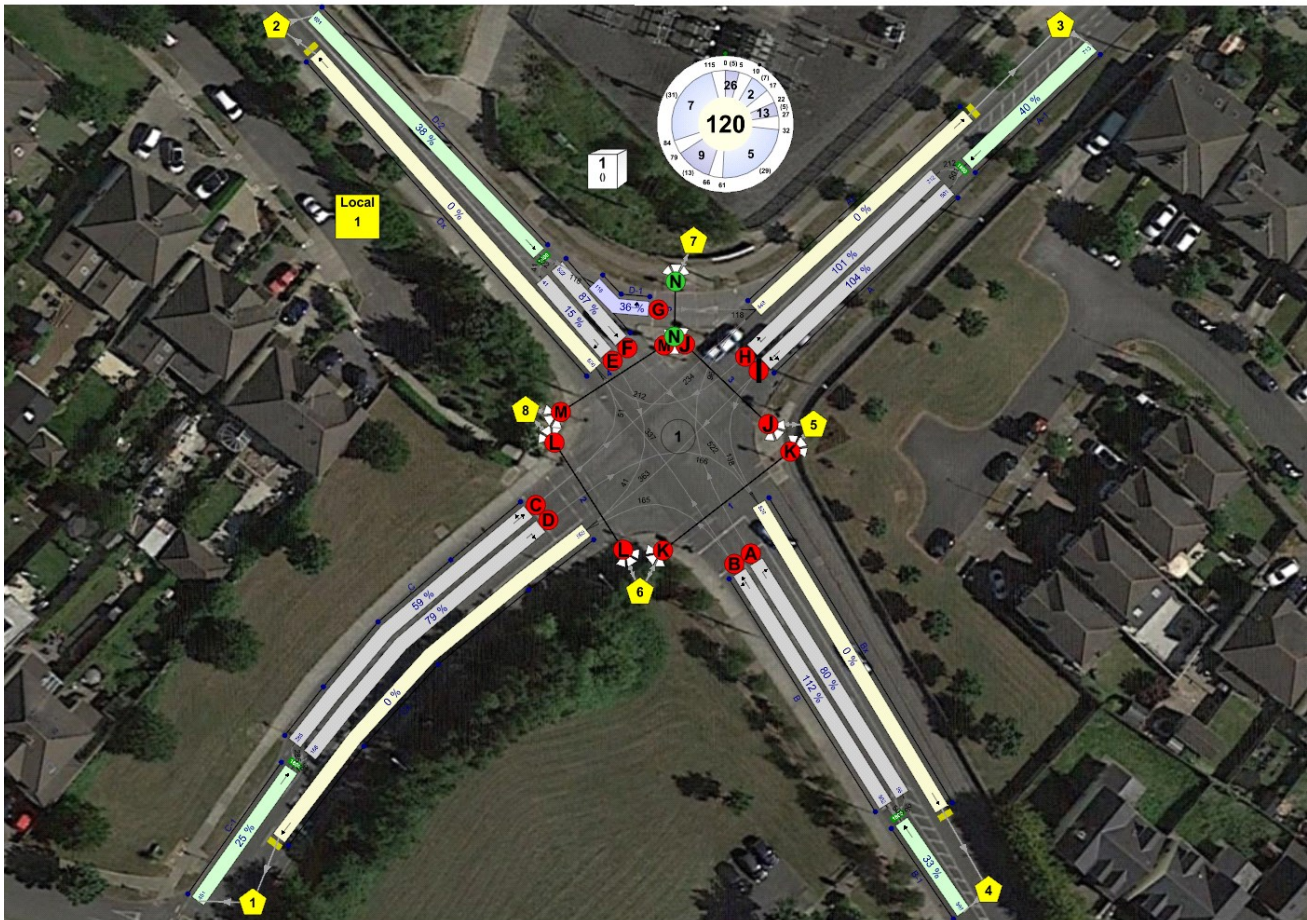
Units

Cost units	Speed units	Distance units	Fuel economy units	Fuel rate units	Mass units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
£	kph	m	mpg	l/h	kg	Veh	Veh	perHour	s	-Hour	perHour

Sorting

Show names instead of IDs	Sorting direction	Sorting type	Ignore prefixes when sorting	Analysis/demand set sorting	Link grouping	Source grouping	Colour Analysis/Demand Sets
	Ascending	Numerical		ID	Normal	Normal	✓

Network Diagrams



21-011
Diagram produced using TRANSYT 15.5.2.7994

A1 - 2022

D1 - 2022, AM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
1	04/04/2022 14:09:58	04/04/2022 14:10:00	08:00	120	861.35	58.21	102.22	B/1	1	4	B/1	A-1/1	B/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2022		D1	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2022, AM	(untitled)			08:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		
A-1			1
B-1			1
C-1			1
D-1	(untitled)		1
D-2			1

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)		✓	116.35	✓	Sum of lanes	1800	✓		Normal	
	2			✓	117.56	✓	Sum of lanes	1800	✓		Normal	
Ax	1	(untitled)		✓	212.41						Normal	
B	1	(untitled)		✓	121.63	✓	Sum of lanes	1800	✓		Normal	
	2			✓	123.97	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)		✓	231.25						Normal	
C	1	(untitled)		✓	146.36	✓	Sum of lanes	1800	✓		Normal	
	2			✓	143.01	✓	Sum of lanes	1800	✓		Normal	
Cx	1	(untitled)		✓	265.80						Normal	
D	2	(untitled)			500.00	✓	Sum of lanes	1800	✓		Normal	
	3			✓	51.47	✓	Sum of lanes	1800	✓		Normal	
Dx	1	(untitled)		✓	256.55						Normal	
A-1	1			✓	70.18	✓	Sum of lanes	1800			Normal	
B-1	1			✓	44.79	✓	Sum of lanes	1800			Normal	
C-1	1			✓	66.04	✓	Sum of lanes	1800			Normal	
D-1	1	(untitled)		✓	51.99	✓	Sum of lanes	1800	✓	✓	Normal	
D-2	1			✓	133.95	✓	Sum of lanes	1800			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1800
	2	1	(untitled)			1800
Ax	1	1	(untitled)			
B	1	1	(untitled)			1800
	2	1	(untitled)			1800
Bx	1	1	(untitled)			
C	1	1	(untitled)			1800
	2	1	(untitled)			1800
Cx	1	1	(untitled)			
D	2	1	(untitled)			1800
	3	1	(untitled)			1800
Dx	1	1	(untitled)			
A-1	1	1	(untitled)			1800
B-1	1	1	(untitled)			1800
C-1	1	1	(untitled)			1800
D-1	1	1	(untitled)			1800
D-2	1	1	(untitled)			1800

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (Veh/hr)	Normal Flow (Veh/hr)
A	1	459	459
	2	194	194
Ax	1	412	412
B	1	460	460
	2	88	88
Bx	1	758	758
C	1	262	262
	2	153	153
Cx	1	521	521
D	2	478	478
	3	38	38
Dx	1	550	550
A-1	1	653	653
B-1	1	548	548
C-1	1	415	415
D-1	1	109	109
D-2	1	625	625

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	I	
	2	1	H	
B	1	1	B	
	2	1	A	
C	1	1	C	
	2	1	D	
D	2	1	F	
	3	1	E	
D-1	1	1	G	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A-1	1	8.42	30.00
B-1	1	5.37	30.00
C-1	1	7.92	30.00
D-2	1	16.07	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
A	1	1	A-1/1	A/1	13.96	30.00	✓	Straight	Straight Movement
	2	1	A-1/1	A/2	14.11	30.00	✓	Straight	Straight Movement
Ax	1	1	C/1	Ax/1	25.49	30.00	✓	Straight	Straight Movement
B	1	1	B-1/1	B/1	14.60	30.00	✓	Straight	Straight Movement
	2	1	B-1/1	B/2	14.88	30.00	✓	Straight	Straight Movement
Bx	1	1	A/1	Bx/1	27.75	30.00	✓	Nearside	42.61
C	1	1	C-1/1	C/1	17.56	30.00	✓	Straight	Straight Movement
	2	1	C-1/1	C/2	17.16	30.00	✓	Straight	Straight Movement
Cx	1	1	A/1	Cx/1	31.90	30.00	✓	Straight	Straight Movement
D	2	1	D-2/1	D/2	60.00	30.00	✓	Straight	Straight Movement
	3	1	D-2/1	D/3	6.18	30.00	✓	Straight	Straight Movement
Dx	1	1	C/1	Dx/1	30.79	30.00	✓	Nearside	25.27
D-1	1	1	D-2/1	D-1/1	6.24	30.00	✓	Straight	Straight Movement
Ax	1	2	D-1/1	Ax/1	25.49	30.00	✓	Nearside	43.60
Bx	1	2	C/2	Bx/1	27.75	30.00	✓	Offside	38.45
Cx	1	2	B/1	Cx/1	31.90	30.00	✓	Nearside	39.22
Dx	1	2	B/1	Dx/1	30.79	30.00	✓	Straight	Straight Movement
Ax	1	3	B/2	Ax/1	25.49	30.00	✓	Offside	70.68
Bx	1	3	D/2	Bx/1	27.75	30.00	✓	Straight	Straight Movement
Cx	1	3	D/3	Cx/1	31.90	30.00	✓	Offside	49.21
Dx	1	3	A/2	Dx/1	30.79	30.00	✓	Offside	37.07

Give Way Data

Arm	Traffic Stream	Opposed traffic	Use Step-wise Opposed Turn Model	Visibility restricted
D-1	1	AllTraffic		

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)		1		Farside	18.00	12.00	5.40
2	(untitled)		1		Farside	16.00	10.67	5.40
3	(untitled)		1		Farside	16.00	10.67	5.40
4	(untitled)		1		Farside	15.00	10.00	5.40
5	(untitled)				Farside	6.00	4.00	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
1	1	K	
2	1	L	
3	1	J	
4	1	M	
5	1	N	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
(ALL)	(ALL)	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	100	100		0.00		

Pedestrian Crossing Connectors

Pedestrian Crossing Connectors

Pedestrian crossing connector	Pedestrian crossing1	Pedestrian crossing2	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	5:1	3:1	3.00	2.00	5.40
2	5:1	4:2	3.00	2.00	5.40

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25		

Normal Input Flows (Veh/hr)

	To							
	1	2	3	4	5	6	7	8
From	1	0	47	215	153	0	0	0
	2	38	0	109	478	0	0	0
	3	332	194	0	127	0	0	0
	4	151	309	88	0	0	0	0
	5	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows (Veh/hr)

	To							
	1	2	3	4	5	6	7	8
From	1	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0
	5	0	0	0	0	50	50	0
	6	0	0	0	0	50	0	50
	7	0	0	0	0	50	0	50
	8	0	0	0	0	50	50	0

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C-1/1	Cx/1	#0000FF
	2	(untitled)	D-2/1	Dx/1	#FF0000
	3	(untitled)	A-1/1	Ax/1	#00FF00
	4	(untitled)	B-1/1	Bx/1	#FFFF00
	5	(untitled)	3:2E, 1:1E	3:2X, 1:1X	#FF00FF
	6	(untitled)	2:1E, 1:2E	2:1X, 1:2X	#008000
	7	(untitled)	5:2E	5:2X	#FFA500
	8	(untitled)	4:1E, 2:2E	4:1X, 2:2X	#00FFFF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (Veh/hr)
1	16		2	4	D-2/1, D/2, Bx/1	Normal	478
	17		2	3	D-2/1, D-1/1, Ax/1	Normal	109
	19		4	2	B-1/1, B/1, Dx/1	Normal	309
	20		3	1	A-1/1, A/1, Cx/1	Normal	332
	39		2	1	D-2/1, D/3, Cx/1	Normal	38
	40		1	4	C-1/1, C/2, Bx/1	Normal	153
	41		1	2	C-1/1, C/1, Dx/1	Normal	47
	42		1	3	C-1/1, C/1, Ax/1	Normal	215
	43		4	3	B-1/1, B/2, Ax/1	Normal	88
	44		4	1	B-1/1, B/1, Cx/1	Normal	151
	45		3	2	A-1/1, A/2, Dx/1	Normal	194
	46		3	4	A-1/1, A/1, Bx/1	Normal	127

Pedestrian Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Pedestrian calculated flow (Ped/hr)
1	14		7	5	5:2E, 5:1X, 3:1E, 3:2X	Normal	50
	15		7	8	5:2E, 5:1X, 4:2E, 4:1X	Normal	50
	18		8	6	2:2E, 2:1X	Normal	50
	23		5	6	1:1E, 1:2X	Normal	50
	34		6	8	2:1E, 2:2X	Normal	50
	35		6	5	1:2E, 1:1X	Normal	50
	36		8	7	4:1E, 4:2X, 5:1E, 5:2X	Normal	50
	37		5	7	3:2E, 3:1X, 5:1E, 5:2X	Normal	50

Signal Timings

Network Default: 120s cycle time; 120 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	120

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Relative

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	5	10	0	0	Unknown	
	B	(untitled)	5	30	0	0	Unknown	
	C	(untitled)	5	300	0	0	Unknown	
	D	(untitled)	5	300	0	0	Unknown	
	E	(untitled)	5	300	0	0	Unknown	
	F	(untitled)	5	300	0	0	Unknown	
	G	(untitled)	5	300	0	0	Unknown	
	H	(untitled)	5	300	0	0	Unknown	
	I	(untitled)	5	300	0	0	Unknown	
	J	(untitled)	5	300	0	0	Pedestrian	0
	K	(untitled)	5	300	0	0	Pedestrian	0
	L	(untitled)	5	300	0	0	Pedestrian	0
	M	(untitled)	5	300	0	0	Pedestrian	0
	N	(untitled)	5	300	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A, B, N	1
	2	A, E, N	1
	3	A, L, M, N	1
	4	B, F, G, J	1
	5	B, F, J, N	1
	6	C, D, N	1
	7	C, I, N	1
	8	C, K, N	1
	9	D, G, H	1
	10	D, G, J, M	1
	11	D, H, N	1
	12	D, J, M, N	1
	13	E, F, G, J	1
	14	E, F, J, N	1
	15	E, G, J, K	1
	16	E, J, K, N	1
	17	F, G, J, L	1
	18	F, J, L, N	1
	19	G, H, I	1
	20	G, H, K, L	1
	21	G, I, M	1
	22	G, J, K, L, M	1
	23	H, I, N	1
	24	H, K, L, N	1
	25	I, M, N	1
	26	J, K, L, M, N	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	2, 13, 5, 9, 7, 26	17, 27, 61, 79, 115, 5

Intergreen Matrix for Controller Stream 1

		To													
		A	B	C	D	E	F	G	H	I	J	K	L	M	N
From	A			5	5		5	5	5	5	0	5			
	B			5	5	5			5	5		5	5	0	
	C	5	5			5	5	5	5		0		5	5	
	D	5	5			5	5			5		0	5		
	E		5	5	5				5	5			0	5	
	F	5		5	5				5	5		0		5	
	G	5		5											5
	H	5	5	5		5	5				5			5	
	I	5	5		5	5	5				5	5	0		
	J	5		5					5	5					
	K	5	5		5		5			5					
	L		5	5	5	5				5					
	M		5	5		5	5		5						
	N							3							

Banned Stage transitions for Controller Stream 1

		To																									
From		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
	1																										
	2																										
	3																										
	4																										
	5																										
	6																										
	7																										
	8																										
	9																										
	10																										
	11																										
	12																										
	13																										
	14																										
	15																										
	16																										
	17																										
	18																										
	19																										
	20																										
	21																										
	22																										
	23																										
	24																										
	25																										
26																											

Interstage Matrix for Controller Stream 1

		To																									
From		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
	1	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	2	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	3	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	4	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	5	5	5	5	5	3	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	6	5	5	5	5	5	0	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	7	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	8	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	9	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	10	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	11	5	5	5	5	5	5	5	5	3	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	12	5	5	5	5	5	5	5	5	5	3	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	13	5	5	5	5	5	5	5	5	5	5	5	5	0	5	0	5	0	5	5	5	5	5	5	5	5	5
	14	5	5	5	5	5	5	5	5	5	5	5	5	3	0	3	0	3	0	3	0	5	5	5	5	5	5
	15	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5
	16	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	0	5	5	5	5	5	5	5	5	5	5
	17	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5
	18	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	0	5	5	5	5	5	5	5	5
	19	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5
	20	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5
	21	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5
	22	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5
	23	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	5	5	5	0	5	5	5
	24	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	5	5	5	0	5	5
	25	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	5	5	5	0	5
26	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	5	5	5	0	

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	2	A,E,N	10	17	7	1	5
	2	✓	13	E,F,G,J	22	27	5	1	5
	3	✓	5	B,F,J,N	32	61	29	1	5
	4	✓	9	D,G,H	66	79	13	1	5
	5	✓	7	C,I,N	84	115	31	1	5
	6	✓	26	J,K,L,M,N	0	5	5	1	5

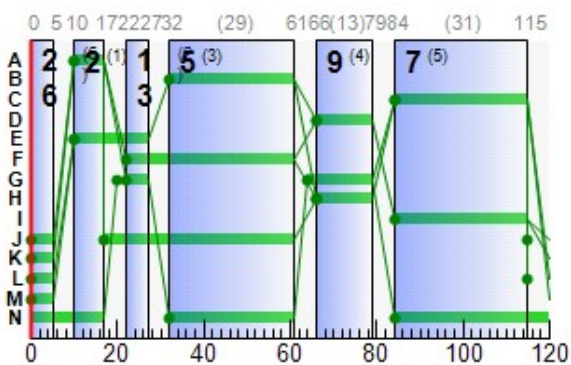
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	10	17	7
	B	1	✓	32	61	29
	C	1	✓	84	115	31
	D	1	✓	66	79	13
	E	1	✓	10	27	17
	F	1	✓	22	61	39
	G	1	✓	22	27	5
		2	✓	64	79	15
	H	1	✓	66	79	13
	I	1	✓	84	115	31
	J	1	✓	17	61	44
		2	✓	0	5	5
	K	1	✓	0	5	5
	L	1	✓	0	5	5
	M	1	✓	0	5	5
		2	✓	32	61	29
	N	1	✓	84	115	31
		2	✓	0	5	5

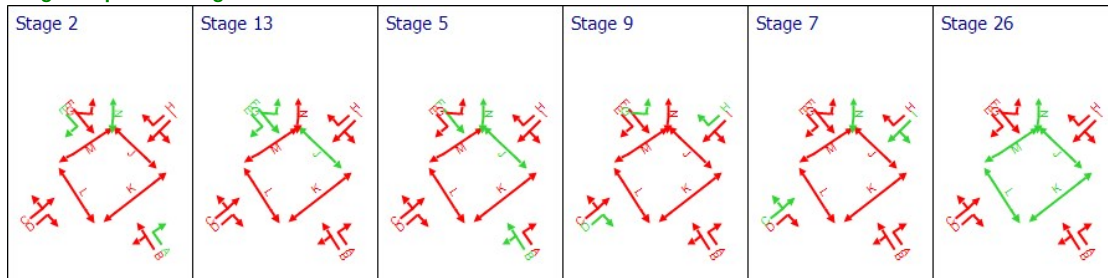
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
A	1	1	1	I	84	115	31			
A	2	1	1	H	66	79	13			
B	1	1	1	B	32	61	29			
B	2	1	1	A	10	17	7			
C	1	1	1	C	84	115	31			
C	2	1	1	D	66	79	13			
D	2	1	1	F	22	61	39			
D	3	1	1	E	10	27	17			
D-1	1	1	1	G	22	27	5	64	79	15

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
08:00-09:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (Veh)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	96	5	459	1800	31	92.05	21.26	105.07	166.66	7.67	174.33
		2	92	8	194	1800	13	119.03	9.95	48.64	91.08	3.55	94.63
	Ax	1	0	Unrestricted	412	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	102	-2	460	1800	29	145.99	27.90	131.91	264.89	9.61	274.50
		2	73	36	88	1800	7	92.38	3.77	17.51	32.07	1.38	33.45
	Bx	1	0	Unrestricted	758	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
		2	55	83	262	1800	31	42.23	7.75	30.44	43.65	2.88	46.53
	C	1	73	37	153	1800	13	72.92	5.81	23.37	44.01	2.15	46.16
		2	73	37	153	1800	13	72.92	5.81	23.37	44.01	2.15	46.16
	Cx	1	0	Unrestricted	518	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
		2	80	26	478	1800	39	47.64	15.84	18.22	89.82	5.87	95.69
	D	1	14	611	38	1800	17	45.41	1.11	12.39	6.81	0.41	7.22
		2	14	611	38	1800	17	45.41	1.11	12.39	6.81	0.41	7.22
	Dx	1	0	Unrestricted	543	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
		2	0	Unrestricted	543	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	A-1	1	36	176	653	1800	120	0.57	0.10	0.85	1.47	0.00	1.47
	B-1	1	30	228	548	1800	120	0.44	0.07	0.85	0.95	0.00	0.95
	C-1	1	23	334	415	1800	120	0.30	0.03	0.30	0.49	0.00	0.49
	D-1	1	33	203	109	1800	20	25.49	2.05	22.67	10.96	1.21	12.17
	D-2	1	35	188	625	1800	120	0.53	0.09	0.40	1.31	0.00	1.31

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Calculated sat flow (Veh/hr)	Calculated capacity (Veh/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	A	1	459	459	0		1800	480	96		5	0.00	31
		2	194	194	0		1800	210	92		8	0.00	13
	Ax	1	412	412	0		Unrestricted	Unrestricted	0		Unrestricted	0.71	120
	B	1	460	450	0		1800	450	102	✓	-2	0.00	29
		2	88	88	0		1800	120	73		36	0.00	7
	Bx	1	758	758	0		Unrestricted	Unrestricted	0		Unrestricted	0.59	120
		2	262	262	0		1800	480	55		83	0.00	31
	C	1	153	153	0		1800	210	73		37	0.00	13
		2	153	153	0		1800	210	73		37	0.00	13
	Cx	1	518	518	3	✓	Unrestricted	Unrestricted	0		Unrestricted	0.54	120
		2	478	478	0		1800	600	80		26	0.00	39
	D	1	38	38	0		1800	270	14		611	0.00	17
		2	38	38	0		1800	270	14		611	0.00	17
	Dx	1	543	543	7	✓	Unrestricted	Unrestricted	0		Unrestricted	0.79	120
		2	543	543	7	✓	Unrestricted	Unrestricted	0		Unrestricted	0.79	120
	A-1	1	653	653	0		1800	1800	36		176	0.00	120
	B-1	1	548	548	0		1800	1800	30		228	0.00	120
	C-1	1	415	415	0		1800	1800	23		334	0.00	120
	D-1	1	109	109	0		1800	330	33		203	0.00	20
	D-2	1	625	625	0		1800	1800	35		188	0.00	120

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	A	1	13.96	92.05	5.52	6.21	166.66	133.26	442.96	168.72	7.67
		2	14.11	119.03	2.83	3.59	91.08	145.76	188.81	93.96	3.55
	Ax	1	25.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	14.60	145.99	5.63	13.03	264.89	170.24	447.65	318.45	9.61
		2	14.88	92.38	1.34	0.91	32.07	125.38	84.93	25.41	1.38
	Bx	1	27.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	17.56	42.23	2.75	0.33	43.65	87.67	220.02	9.67	2.88
		2	17.16	72.92	2.17	0.92	44.01	112.18	145.12	26.51	2.15
	Cx	1	31.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	2	60.00	47.64	4.82	1.50	89.82	97.99	424.30	44.07	5.87
		3	6.18	45.41	0.47	0.01	6.81	86.59	32.56	0.34	0.41
	Dx	1	30.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A-1	1	8.42	0.57	0.00	0.10	1.47	0.00	0.00	0.00	0.00
	B-1	1	5.37	0.44	0.00	0.07	0.95	0.00	0.00	0.00	0.00
	C-1	1	7.92	0.30	0.00	0.03	0.49	0.00	0.00	0.00	0.00
	D-1	1	6.24	25.49	0.69	0.08	10.96	88.22	91.34	4.82	1.21
	D-2	1	16.07	0.53	0.00	0.09	1.31	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (Veh)	Mean max queue (Veh)	Max queue storage (Veh)	Utilised storage (%)	Average storage excess queue (Veh)	Average limit excess queue (Veh)	Excess queue penalty (£ per hr)	Wasted time starvation (s per cycle)	Wasted time blocking back (s per cycle)	Wasted time total (s per cycle)	Estimated blocking
08:00-09:00	A	1	0.00	21.26	20.23	105.07	0.04	0.00	0.00	0.00	0.00	0.00	
		2	0.00	9.95	20.45	48.64	0.00	0.00	0.00	0.00	0.00	0.00	
	Ax	1	0.00	0.00	36.94	0.00	0.00	0.00	0.00	19.00	0.00	19.00	
	B	1	0.00	27.90	21.15	131.91	1.55	0.00	0.00	0.00	0.00	0.00	
		2	0.00	3.77	21.56	17.51	0.00	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	40.22	0.00	0.00	0.00	0.00	10.00	0.00	10.00	
	C	1	0.00	7.75	25.45	30.44	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	5.81	24.87	23.37	0.00	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	46.23	0.00	0.00	0.00	0.00	1.00	0.00	1.00	
	D	2	0.00	15.84	86.96	18.22	0.00	0.00	0.00	0.00	0.00	0.00	
		3	0.00	1.11	8.95	12.39	0.00	0.00	0.00	15.00	0.00	15.00	
	Dx	1	0.00	0.00	44.62	0.00	0.00	0.00	0.00	31.00	0.00	31.00	
	A-1	1	0.00	0.10	12.20	0.85	0.00	0.00	0.00	0.00	9.00	9.00	
	B-1	1	0.00	0.07	7.79	0.85	0.00	0.00	0.00	0.00	55.00	55.00	
	C-1	1	0.00	0.03	11.48	0.30	0.00	0.00	0.00	0.00	0.00	0.00	
	D-1	1	0.00	2.05	9.04	22.67	0.00	0.00	0.00	0.00	0.00	0.00	
	D-2	1	0.00	0.09	23.30	0.40	0.00	0.00	0.00	0.00	0.00	0.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	A	1	53.40	13.52	3.95	106.01
		2	22.81	7.17	3.18	133.14
	Ax	1	87.51	2.92	30.00	25.49
	B	1	55.95	20.52	2.73	160.59
		2	10.91	2.62	4.16	107.26
	Bx	1	175.29	5.84	30.00	27.75
	C	1	38.35	4.35	8.81	59.80
		2	21.88	3.83	5.72	90.08
	Cx	1	137.61	4.59	30.00	31.90
	D	2	239.00	14.29	16.72	107.64
		3	1.96	0.54	3.59	51.58
	Dx	1	139.38	4.65	30.00	30.79
	A-1	1	45.83	1.63	28.10	8.99
	B-1	1	24.54	0.88	27.74	5.81
	C-1	1	27.41	0.95	28.91	8.22
	D-1	1	5.67	0.96	5.90	31.73
	D-2	1	83.72	2.88	29.04	16.61

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (Veh)	Max End of Green Queue EoTS (Veh)	Max End of Red Queue EoTS (Veh)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	0.00	0.00	✓	22.51	7.46	18.68	1.00	0.00	174.33
		2	0.00	0.00	✓	10.60	4.24	9.95	1.00	0.00	94.63
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	35.36	20.48	31.73	1.00	0.00	274.50
		2	0.00	0.00	✓	3.82	0.96	3.70	1.00	0.00	33.45
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	7.75	0.33	6.73	1.00	0.00	46.53
		2	0.00	0.00	✓	5.84	0.95	5.45	1.00	0.00	46.16
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	2	0.00	0.00	✓	15.87	1.53	12.15	1.00	0.00	95.69
		3	0.00	0.00	✓	1.11	0.01	1.09	1.00	0.00	7.22
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	A-1	1	0.00	0.00	✓	0.10			1.00	0.00	1.47
	B-1	1	0.00	0.00	✓	0.07			1.00	0.00	0.95
	C-1	1	0.00	0.00	✓	0.03			1.00	0.00	0.49
	D-1	1	0.00	0.00	✓	2.05	0.08	1.96	1.00	0.00	12.17
	D-2	1	0.00	0.00	✓	0.09			1.00	0.00	1.31

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	1	1	11	50	11000	5	55.58	1.60	10.96	10.96
		2	11	50	11000	5	55.58	1.60	10.96	10.96
	2	1	11	50	11000	5	55.58	1.60	10.96	10.96
		2	11	50	11000	5	55.58	1.60	10.96	10.96
	3	1	1	50	11000	49	13.10	0.82	2.58	2.58
		2	1	50	11000	49	15.40	0.82	3.04	3.04
	4	1	11	50	11000	5	55.58	1.60	10.96	10.96
		2	11	50	11000	5	52.28	1.60	10.31	10.31
	5	1	1	100	11000	82	1.10	0.21	0.43	0.43
		2	1	100	11000	82	3.30	0.64	1.30	1.30

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	1	1	50	50	0		11000	458	11		817	0.00	5
		2	50	50	0		11000	458	11		817	0.00	5
	2	1	50	50	0		11000	458	11		817	0.00	5
		2	50	50	0		11000	458	11		817	0.00	5
	3	1	50	50	0		11000	4492	1		8883	0.63	49
		2	50	50	0		11000	4492	1		8883	0.00	49
	4	1	50	50	0		11000	458	11		817	0.00	5
		2	50	50	0		11000	458	11		817	0.63	5
	5	1	100	100	0		11000	7517	1		7417	1.53	82
		2	100	100	0		11000	7517	1		7417	0.00	82

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Weighted cost of delay (£ per hr)
08:00-09:00	1	1	13.00	55.58	0.77	0.00	10.96
		2	13.00	55.58	0.77	0.00	10.96
	2	1	11.67	55.58	0.77	0.00	10.96
		2	11.67	55.58	0.77	0.00	10.96
	3	1	12.67	13.10	0.18	0.00	2.58
		2	11.67	15.40	0.21	0.00	3.04
	4	1	11.00	55.58	0.77	0.00	10.96
		2	12.00	52.28	0.73	0.00	10.31
	5	1	6.00	1.10	0.03	0.00	0.43
		2	5.00	3.30	0.09	0.00	1.30

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
08:00-09:00	1	1	1.60	10.00	15.97	0.00	0.00	0.00
		2	1.60	10.00	15.97	0.00	0.00	0.00
	2	1	1.60	10.00	15.97	0.00	0.00	0.00
		2	1.60	10.00	15.97	0.00	0.00	0.00
	3	1	0.82	10.00	8.19	0.00	0.00	0.00
		2	0.82	10.00	8.19	0.00	0.00	0.00
	4	1	1.60	10.00	15.97	0.00	0.00	0.00
		2	1.60	10.00	15.97	0.00	0.00	0.00
	5	1	0.21	10.00	2.08	0.00	0.00	0.00
		2	0.64	10.00	6.39	0.00	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	1	1	0.95	0.95	1.00	68.58
		2	0.95	0.95	1.00	68.58
	2	1	0.85	0.93	0.91	67.25
		2	0.85	0.93	0.91	67.25
	3	1	0.95	0.36	2.65	25.77
		2	0.85	0.38	2.26	27.07
	4	1	0.80	0.92	0.87	66.58
		2	0.90	0.89	1.01	64.28
	5	1	0.90	0.20	4.57	7.10
		2	0.70	0.23	3.04	8.30

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	1	1	0.00	0.00	1.60	1.00	0.00	10.96
		2	0.00	0.00	1.60	1.00	0.00	10.96
	2	1	0.00	0.00	1.60	1.00	0.00	10.96
		2	0.00	0.00	1.60	1.00	0.00	10.96
	3	1	0.00	0.00	0.82	1.00	0.00	2.58
		2	0.00	0.00	0.82	1.00	0.00	3.04
	4	1	0.00	0.00	1.60	1.00	0.00	10.96
		2	0.00	0.00	1.60	1.00	0.00	10.31
	5	1	0.00	0.00	0.21	1.00	0.00	0.43
		2	0.00	0.00	0.64	1.00	0.00	1.30

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
1	04/04/2022 14:09:58	04/04/2022 14:10:00	08:00	120	861.35	58.21	102.22	B/1	1	4	B/1	A-1/1	B/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	102	-2	6713	1160	28.48	754.15	34.73	788.88

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	11	600	292	30.62	72.48	72.48

Network Results: Flows and signals

Time Segment	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
08:00-09:00	7313	7303	10	✓	102	✓	-2	1452

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	20.03	28.66	31.33	26.89	826.63	38.11	2077.70	691.95	34.73

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
08:00-09:00	131.91	0.00	76.00	64.00	140.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
08:00-09:00	1179.90	98.90	11.93

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0.00	0.00	✓	1.00	0.00	0.00	861.35

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

	To							
	1	2	3	4	5	6	7	8
From	1	0.0	98.8	93.5	126.1	0.0	0.0	0.0
	2	100.1	0.0	73.8	152.0	0.0	0.0	0.0
	3	146.9	172.9	0.0	142.8	0.0	0.0	0.0
	4	198.3	197.2	138.6	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	68.6	34.2	0.0
	6	0.0	0.0	0.0	0.0	68.6	0.0	67.3
	7	0.0	0.0	0.0	0.0	34.1	0.0	72.6
	8	0.0	0.0	0.0	0.0	67.3	73.7	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (Veh/hr)	Pedestrian calculated flow (Ped/hr)	Normal journey time (s)	Pedestrian journey time (s)	Calculated Total Flow (Veh/hr)	Avg journey time (s)
14	7	5		50		34.07	50	34.07
15	7	8		50		72.58	50	72.58
16	2	4	478		151.99		478	151.99
17	2	3	109		73.83		109	73.83
18	8	6		50		67.25	50	67.25
19	4	2	309		197.18		309	197.18
20	3	1	332		146.90		332	146.90
23	5	6		50		68.58	50	68.58
34	6	8		50		67.25	50	67.25
35	6	5		50		68.58	50	68.58
36	8	7		50		73.68	50	73.68
37	5	7		50		34.16	50	34.16
39	2	1	38		100.08		38	100.08
40	1	4	153		126.06		153	126.06
41	1	2	47		98.81		47	98.81
42	1	3	215		93.51		215	93.51
43	4	3	88		138.56		88	138.56
44	4	1	151		198.29		151	198.29
45	3	2	194		172.91		194	172.91
46	3	4	127		142.75		127	142.75

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (Veh)
A	1	(untitled)	1	1	I	459 <	1800	31	0.00	96	5	106.01	92.05	133.26	21.26 +
	2		1	1	H	194	1800	13	0.00	92	8	133.14	119.03	145.76	9.95
Ax	1	(untitled)				412	Unrestricted	120	19.00	0	Unrestricted	25.49	0.00	0.00	0.00
B	1	(untitled)	1	1	B	460 <	1800	29	0.00	102	-2	160.59	145.99	170.24	27.90 +
	2		1	1	A	88	1800	7	0.00	73	36	107.26	92.38	125.38	3.77
Bx	1	(untitled)				758	Unrestricted	120	10.00	0	Unrestricted	27.75	0.00	0.00	0.00
C	1	(untitled)	1	1	C	262	1800	31	0.00	55	83	59.80	42.23	87.67	7.75
	2		1	1	D	153	1800	13	0.00	73	37	90.08	72.92	112.18	5.81
Cx	1	(untitled)				518	Unrestricted	120	1.00	0	Unrestricted	31.90	0.00	0.00	0.00
D	2	(untitled)	1	1	F	478	1800	39	0.00	80	26	107.64	47.64	97.99	15.84
	3		1	1	E	38	1800	17	15.00	14	611	51.58	45.41	86.59	1.11
Dx	1	(untitled)				543	Unrestricted	120	31.00	0	Unrestricted	30.79	0.00	0.00	0.00
A-1	1		1			653	1800	120	9.00	36	176	8.99	0.57	0.00	0.10
B-1	1		1			548	1800	120	55.00	30	228	5.81	0.44	0.00	0.07
C-1	1		1			415	1800	120	0.00	23	334	8.22	0.30	0.00	0.03
D-1	1	(untitled)	1	1	G	109	1800	20	0.00	33	203	31.73	25.49	88.22	2.05
D-2	1		1			625	1800	120	0.00	35	188	16.61	0.53	0.00	0.09

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	PEN
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s per cycle)	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	Co tra pen (£ p
1	1	(untitled)	1	1	K	50	11000	5	11	817	68.58	55.58	1.60	100	0
	2	(untitled)	1	1	K	50	11000	5	11	817	68.58	55.58	1.60	100	0
2	1	(untitled)	1	1	L	50	11000	5	11	817	67.25	55.58	1.60	100	0
	2	(untitled)	1	1	L	50	11000	5	11	817	67.25	55.58	1.60	100	0
3	1	(untitled)	1	1	J	50	11000	49	1	8883	25.77	13.10	0.82	100	0
	2	(untitled)	1	1	J	50	11000	49	1	8883	27.07	15.40	0.82	100	0
4	1	(untitled)	1	1	M	50	11000	5	11	817	66.58	55.58	1.60	100	0
	2	(untitled)	1	1	M	50	11000	5	11	817	64.28	52.28	1.60	100	0
5	1	(untitled)		1	N	100	11000	82	1	7417	7.10	1.10	0.21	100	0
	2	(untitled)		1	N	100	11000	82	1	7417	8.30	3.30	0.64	100	0

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	1171.20	92.15	12.71	26.22	26.89	754.15	34.73	0.00	788.88
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	8.70	6.75	1.29	5.10	0.00	72.48	0.00	0.00	72.48
TOTAL	1179.90	98.90	11.93	31.33	26.89	826.63	34.73	0.00	861.35

- 1 < = adjusted flow warning (upstream links/traffic streams are over-saturated)
- 1 * = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%
- 1 ^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%
- 1 + = average link/traffic stream excess queue is greater than 0
- 1 P.I. = PERFORMANCE INDEX

A2 - 2027

D2 - 2027, AM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
2	04/04/2022 14:10:00	04/04/2022 14:10:02	08:00	120	1375.42	93.70	111.56	B/1	3	11	B/1	A-1/1	B/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2027		D2	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2027, AM	(untitled)			08:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		
A-1			1
B-1			1
C-1			1
D-1	(untitled)		1
D-2			1

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)		✓	116.35	✓	Sum of lanes	1800	✓		Normal	
	2			✓	117.56	✓	Sum of lanes	1800	✓		Normal	
Ax	1	(untitled)		✓	212.41						Normal	
B	1	(untitled)		✓	121.63	✓	Sum of lanes	1800	✓		Normal	
	2			✓	123.97	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)		✓	231.25						Normal	
C	1	(untitled)		✓	146.36	✓	Sum of lanes	1800	✓		Normal	
	2			✓	143.01	✓	Sum of lanes	1800	✓		Normal	
Cx	1	(untitled)		✓	265.80						Normal	
D	2	(untitled)			500.00	✓	Sum of lanes	1800	✓		Normal	
	3			✓	51.47	✓	Sum of lanes	1800	✓		Normal	
Dx	1	(untitled)		✓	256.55						Normal	
A-1	1			✓	70.18	✓	Sum of lanes	1800			Normal	
B-1	1			✓	44.79	✓	Sum of lanes	1800			Normal	
C-1	1			✓	66.04	✓	Sum of lanes	1800			Normal	
D-1	1	(untitled)		✓	51.99	✓	Sum of lanes	1800	✓	✓	Normal	
D-2	1			✓	133.95	✓	Sum of lanes	1800			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1800
	2	1	(untitled)			1800
Ax	1	1	(untitled)			
B	1	1	(untitled)			1800
	2	1	(untitled)			1800
Bx	1	1	(untitled)			
C	1	1	(untitled)			1800
	2	1	(untitled)			1800
Cx	1	1	(untitled)			
D	2	1	(untitled)			1800
	3	1	(untitled)			1800
Dx	1	1	(untitled)			
A-1	1	1	(untitled)			1800
B-1	1	1	(untitled)			1800
C-1	1	1	(untitled)			1800
D-1	1	1	(untitled)			1800
D-2	1	1	(untitled)			1800

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (Veh/hr)	Normal Flow (Veh/hr)
A	1	501	501
	2	212	212
Ax	1	448	448
B	1	502	502
	2	96	96
Bx	1	826	826
C	1	285	285
	2	166	166
Cx	1	569	569
D	2	522	522
	3	41	41
Dx	1	600	600
A-1	1	713	713
B-1	1	598	598
C-1	1	451	451
D-1	1	118	118
D-2	1	681	681

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	I	
	2	1	H	
B	1	1	B	
	2	1	A	
C	1	1	C	
	2	1	D	
D	2	1	F	
	3	1	E	
D-1	1	1	G	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A-1	1	8.42	30.00
B-1	1	5.37	30.00
C-1	1	7.92	30.00
D-2	1	16.07	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
A	1	1	A-1/1	A/1	13.96	30.00	✓	Straight	Straight Movement
	2	1	A-1/1	A/2	14.11	30.00	✓	Straight	Straight Movement
Ax	1	1	C/1	Ax/1	25.49	30.00	✓	Straight	Straight Movement
B	1	1	B-1/1	B/1	14.60	30.00	✓	Straight	Straight Movement
	2	1	B-1/1	B/2	14.88	30.00	✓	Straight	Straight Movement
Bx	1	1	A/1	Bx/1	27.75	30.00	✓	Nearside	42.61
C	1	1	C-1/1	C/1	17.56	30.00	✓	Straight	Straight Movement
	2	1	C-1/1	C/2	17.16	30.00	✓	Straight	Straight Movement
Cx	1	1	A/1	Cx/1	31.90	30.00	✓	Straight	Straight Movement
D	2	1	D-2/1	D/2	60.00	30.00	✓	Straight	Straight Movement
	3	1	D-2/1	D/3	6.18	30.00	✓	Straight	Straight Movement
Dx	1	1	C/1	Dx/1	30.79	30.00	✓	Nearside	25.27
D-1	1	1	D-2/1	D-1/1	6.24	30.00	✓	Straight	Straight Movement
Ax	1	2	D-1/1	Ax/1	25.49	30.00	✓	Nearside	43.60
Bx	1	2	C/2	Bx/1	27.75	30.00	✓	Offside	38.45
Cx	1	2	B/1	Cx/1	31.90	30.00	✓	Nearside	39.22
Dx	1	2	B/1	Dx/1	30.79	30.00	✓	Straight	Straight Movement
Ax	1	3	B/2	Ax/1	25.49	30.00	✓	Offside	70.68
Bx	1	3	D/2	Bx/1	27.75	30.00	✓	Straight	Straight Movement
Cx	1	3	D/3	Cx/1	31.90	30.00	✓	Offside	49.21
Dx	1	3	A/2	Dx/1	30.79	30.00	✓	Offside	37.07

Give Way Data

Arm	Traffic Stream	Opposed traffic	Use Step-wise Opposed Turn Model	Visibility restricted
D-1	1	AllTraffic		

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)		1		Farside	18.00	12.00	5.40
2	(untitled)		1		Farside	16.00	10.67	5.40
3	(untitled)		1		Farside	16.00	10.67	5.40
4	(untitled)		1		Farside	15.00	10.00	5.40
5	(untitled)				Farside	6.00	4.00	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
1	1	K	
2	1	L	
3	1	J	
4	1	M	
5	1	N	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
(ALL)	(ALL)	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	100	100		0.00		

Pedestrian Crossing Connectors

Pedestrian Crossing Connectors

Pedestrian crossing connector	Pedestrian crossing1	Pedestrian crossing2	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	5:1	3:1	3.00	2.00	5.40
2	5:1	4:2	3.00	2.00	5.40

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25		

Normal Input Flows (Veh/hr)

	To							
	1	2	3	4	5	6	7	8
From	1	0	51	234	166	0	0	0
	2	41	0	118	522	0	0	0
	3	363	212	0	138	0	0	0
	4	165	337	96	0	0	0	0
	5	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows (Veh/hr)

	To							
	1	2	3	4	5	6	7	8
From	1	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0
	5	0	0	0	0	50	50	0
	6	0	0	0	0	50	0	50
	7	0	0	0	0	50	0	50
	8	0	0	0	0	50	50	0

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C-1/1	Cx/1	#0000FF
	2	(untitled)	D-2/1	Dx/1	#FF0000
	3	(untitled)	A-1/1	Ax/1	#00FF00
	4	(untitled)	B-1/1	Bx/1	#FFFF00
	5	(untitled)	3:2E, 1:1E	3:2X, 1:1X	#FF00FF
	6	(untitled)	2:1E, 1:2E	2:1X, 1:2X	#008000
	7	(untitled)	5:2E	5:2X	#FFA500
	8	(untitled)	4:1E, 2:2E	4:1X, 2:2X	#00FFFF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (Veh/hr)
1	16		2	4	D-2/1, D/2, Bx/1	Normal	522
	17		2	3	D-2/1, D-1/1, Ax/1	Normal	118
	19		4	2	B-1/1, B/1, Dx/1	Normal	337
	20		3	1	A-1/1, A/1, Cx/1	Normal	363
	39		2	1	D-2/1, D/3, Cx/1	Normal	41
	40		1	4	C-1/1, C/2, Bx/1	Normal	166
	41		1	2	C-1/1, C/1, Dx/1	Normal	51
	42		1	3	C-1/1, C/1, Ax/1	Normal	234
	43		4	3	B-1/1, B/2, Ax/1	Normal	96
	44		4	1	B-1/1, B/1, Cx/1	Normal	165
	45		3	2	A-1/1, A/2, Dx/1	Normal	212
	46		3	4	A-1/1, A/1, Bx/1	Normal	138

Pedestrian Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Pedestrian calculated flow (Ped/hr)
1	14		7	5	5:2E, 5:1X, 3:1E, 3:2X	Normal	50
	15		7	8	5:2E, 5:1X, 4:2E, 4:1X	Normal	50
	18		8	6	2:2E, 2:1X	Normal	50
	23		5	6	1:1E, 1:2X	Normal	50
	34		6	8	2:1E, 2:2X	Normal	50
	35		6	5	1:2E, 1:1X	Normal	50
	36		8	7	4:1E, 4:2X, 5:1E, 5:2X	Normal	50
	37		5	7	3:2E, 3:1X, 5:1E, 5:2X	Normal	50

Signal Timings

Network Default: 120s cycle time; 120 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	120

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Relative

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	5	10	0	0	Unknown	
	B	(untitled)	5	30	0	0	Unknown	
	C	(untitled)	5	300	0	0	Unknown	
	D	(untitled)	5	300	0	0	Unknown	
	E	(untitled)	5	300	0	0	Unknown	
	F	(untitled)	5	300	0	0	Unknown	
	G	(untitled)	5	300	0	0	Unknown	
	H	(untitled)	5	300	0	0	Unknown	
	I	(untitled)	5	300	0	0	Unknown	
	J	(untitled)	5	300	0	0	Pedestrian	0
	K	(untitled)	5	300	0	0	Pedestrian	0
	L	(untitled)	5	300	0	0	Pedestrian	0
	M	(untitled)	5	300	0	0	Pedestrian	0
	N	(untitled)	5	300	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A, B, N	1
	2	A, E, N	1
	3	A, L, M, N	1
	4	B, F, G, J	1
	5	B, F, J, N	1
	6	C, D, N	1
	7	C, I, N	1
	8	C, K, N	1
	9	D, G, H	1
	10	D, G, J, M	1
	11	D, H, N	1
	12	D, J, M, N	1
	13	E, F, G, J	1
	14	E, F, J, N	1
	15	E, G, J, K	1
	16	E, J, K, N	1
	17	F, G, J, L	1
	18	F, J, L, N	1
	19	G, H, I	1
	20	G, H, K, L	1
	21	G, I, M	1
	22	G, J, K, L, M	1
	23	H, I, N	1
	24	H, K, L, N	1
	25	I, M, N	1
	26	J, K, L, M, N	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	2, 13, 5, 9, 7, 26	17, 27, 61, 79, 115, 5

Intergreen Matrix for Controller Stream 1

		To													
		A	B	C	D	E	F	G	H	I	J	K	L	M	N
From	A			5	5		5	5	5	5	0	5			
	B			5	5	5			5	5		5	5	0	
	C	5	5			5	5	5	5		0		5	5	
	D	5	5			5	5			5		0	5		
	E		5	5	5				5	5			0	5	
	F	5		5	5				5	5		0		5	
	G	5		5											5
	H	5	5	5		5	5				5			5	
	I	5	5		5	5	5				5	5	0		
	J	5		5					5	5					
	K	5	5		5		5			5					
	L		5	5	5	5				5					
	M		5	5		5	5		5						
	N							3							

Banned Stage transitions for Controller Stream 1

		To																									
From		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
	1																										
	2																										
	3																										
	4																										
	5																										
	6																										
	7																										
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	22																										
	23																										
	24																										
	25																										
26																											

Interstage Matrix for Controller Stream 1

		To																									
From		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
	1	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	2	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	3	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	4	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	5	5	5	5	5	3	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	6	5	5	5	5	5	0	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	7	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	8	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	9	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	10	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	11	5	5	5	5	5	5	5	5	3	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	12	5	5	5	5	5	5	5	5	5	3	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	13	5	5	5	5	5	5	5	5	5	5	5	5	0	5	0	5	0	5	5	5	5	5	5	5	5	5
	14	5	5	5	5	5	5	5	5	5	5	5	5	3	0	3	0	3	0	5	5	5	5	5	5	5	5
	15	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5
	16	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	0	5	5	5	5	5	5	5	5	5	5
	17	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5
	18	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	0	5	5	5	5	5	5	5	5
	19	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5
	20	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5
	21	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5
	22	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5
	23	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	5	5	5	0	5	5	5
	24	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	5	5	5	0	5	5
	25	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	5	5	5	0	5
	26	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	5	5	5	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	2	A,E,N	10	17	7	1	5
	2	✓	13	E,F,G,J	22	27	5	1	5
	3	✓	5	B,F,J,N	32	61	29	1	5
	4	✓	9	D,G,H	66	79	13	1	5
	5	✓	7	C,I,N	84	115	31	1	5
	6	✓	26	J,K,L,M,N	0	5	5	1	5

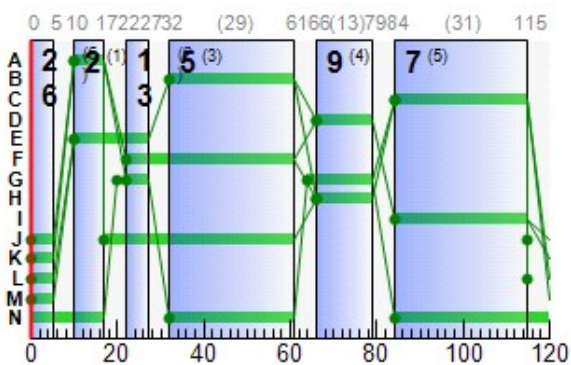
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	10	17	7
	B	1	✓	32	61	29
	C	1	✓	84	115	31
	D	1	✓	66	79	13
	E	1	✓	10	27	17
	F	1	✓	22	61	39
	G	1	✓	22	27	5
		2	✓	64	79	15
	H	1	✓	66	79	13
	I	1	✓	84	115	31
	J	1	✓	17	61	44
		2	✓	0	5	5
	K	1	✓	0	5	5
	L	1	✓	0	5	5
	M	1	✓	0	5	5
		2	✓	32	61	29
	N	1	✓	84	115	31
		2	✓	0	5	5

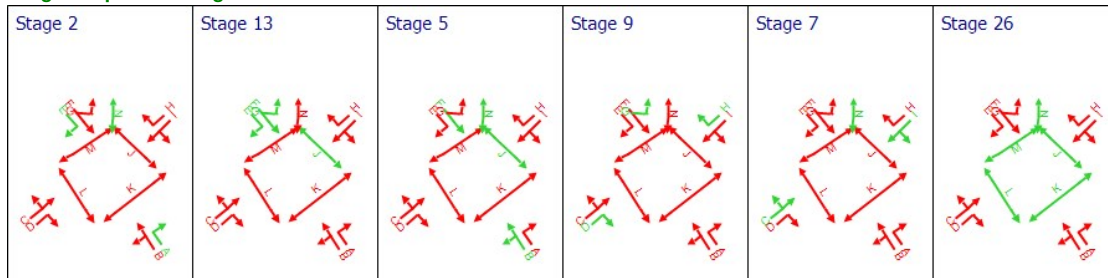
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
A	1	1	1	I	84	115	31			
A	2	1	1	H	66	79	13			
B	1	1	1	B	32	61	29			
B	2	1	1	A	10	17	7			
C	1	1	1	C	84	115	31			
C	2	1	1	D	66	79	13			
D	2	1	1	F	22	61	39			
D	3	1	1	E	10	27	17			
D-1	1	1	1	G	22	27	5	64	79	15

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
08:00-09:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (Veh)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	104	-4	501	1800	31	165.21	32.99	163.05	326.49	11.05	337.54
		2	101	-1	212	1800	13	176.93	14.27	69.79	147.95	4.76	152.71
	Ax	1	0	Unrestricted	448	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	112	-10	502	1800	29	253.11	44.54	210.58	501.18	13.04	514.22
		2	80	25	96	1800	7	106.12	4.50	20.89	40.19	1.63	41.82
	Bx	1	0	Unrestricted	820	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	59	68	285	1800	31	43.77	8.66	34.03	49.20	3.22	52.42
		2	79	27	166	1800	13	81.05	6.71	26.97	53.07	2.47	55.54
	Cx	1	0	Unrestricted	537	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	2	87	15	522	1800	39	55.97	18.91	21.75	115.24	6.98	122.23
		3	15	559	41	1800	17	45.59	1.20	13.38	7.37	0.45	7.82
	Dx	1	0	Unrestricted	563	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	A-1	1	40	152	713	1800	120	0.66	0.13	1.06	1.84	0.00	1.84
	B-1	1	33	201	598	1800	120	0.50	0.08	1.06	1.17	0.00	1.17
	C-1	1	25	299	451	1800	120	0.33	0.04	0.36	0.59	0.00	0.59
	D-1	1	36	180	118	1800	20	25.97	2.26	25.02	12.09	1.33	13.41
	D-2	1	38	164	681	1800	120	0.61	0.12	0.49	1.63	0.00	1.63

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Calculated sat flow (Veh/hr)	Calculated capacity (Veh/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	A	1	501	480	0		1800	480	104	✓	-4	0.00	31
		2	212	210	0		1800	210	101	✓	-1	0.00	13
	Ax	1	448	448	0		Unrestricted	Unrestricted	0		Unrestricted	0.70	120
	B	1	502	450	0		1800	450	112	✓	-10	0.00	29
		2	96	96	0		1800	120	80		25	0.00	7
	Bx	1	820	820	6	✓	Unrestricted	Unrestricted	0		Unrestricted	0.58	120
	C	1	285	285	0		1800	480	59		68	0.00	31
		2	166	166	0		1800	210	79		27	0.00	13
	Cx	1	537	537	32	✓	Unrestricted	Unrestricted	0		Unrestricted	0.53	120
	D	2	522	522	0		1800	600	87		15	0.00	39
		3	41	41	0		1800	270	15		559	0.00	17
	Dx	1	563	563	37	✓	Unrestricted	Unrestricted	0		Unrestricted	0.78	120
	A-1	1	713	713	0		1800	1800	40		152	0.00	120
	B-1	1	598	598	0		1800	1800	33		201	0.00	120
	C-1	1	451	451	0		1800	1800	25		299	0.00	120
	D-1	1	118	118	0		1800	330	36		180	0.00	20
	D-2	1	681	681	0		1800	1800	38		164	0.00	120

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	A	1	13.96	165.21	5.87	17.13	326.49	183.62	479.40	401.95	11.05
		2	14.11	176.93	3.09	7.33	147.95	180.74	208.01	171.53	4.76
	Ax	1	25.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	14.60	253.11	5.63	29.67	501.18	231.17	450.00	590.27	13.04
		2	14.88	106.12	1.47	1.36	40.19	135.52	93.41	36.69	1.63
	Bx	1	27.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	17.56	43.77	3.04	0.43	49.20	89.99	243.72	12.74	3.22
		2	17.16	81.05	2.38	1.36	53.07	118.78	158.82	38.36	2.47
	Cx	1	31.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	2	60.00	55.97	5.45	2.67	115.24	106.71	479.94	77.08	6.98
		3	6.18	45.59	0.51	0.01	7.37	86.67	35.13	0.41	0.45
	Dx	1	30.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A-1	1	8.42	0.66	0.00	0.13	1.84	0.00	0.00	0.00	0.00
	B-1	1	5.37	0.50	0.00	0.08	1.17	0.00	0.00	0.00	0.00
	C-1	1	7.92	0.33	0.00	0.04	0.59	0.00	0.00	0.00	0.00
	D-1	1	6.24	25.97	0.75	0.10	12.09	89.60	99.86	5.87	1.33
	D-2	1	16.07	0.61	0.00	0.12	1.63	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (Veh)	Mean max queue (Veh)	Max queue storage (Veh)	Utilised storage (%)	Average storage excess queue (Veh)	Average limit excess queue (Veh)	Excess queue penalty (£ per hr)	Wasted time starvation (s per cycle)	Wasted time blocking back (s per cycle)	Wasted time total (s per cycle)	Estimated blocking
08:00-09:00	A	1	0.00	32.99	20.23	163.05	5.14	0.00	0.00	0.00	0.00	0.00	
		2	0.00	14.27	20.45	69.79	0.00	0.00	0.00	0.00	0.00	0.00	
	Ax	1	0.00	0.00	36.94	0.00	0.00	0.00	0.00	16.00	0.00	16.00	
	B	1	0.00	44.54	21.15	210.58	15.95	0.00	0.00	0.00	0.00	0.00	
		2	0.00	4.50	21.56	20.89	0.00	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	40.22	0.00	0.00	0.00	0.00	9.00	0.00	9.00	
	C	1	0.00	8.66	25.45	34.03	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	6.71	24.87	26.97	0.00	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	46.23	0.00	0.00	0.00	0.00	1.00	0.00	1.00	
	D	2	0.00	18.91	86.96	21.75	0.00	0.00	0.00	0.00	0.00	0.00	
		3	0.00	1.20	8.95	13.38	0.00	0.00	0.00	15.00	0.00	15.00	
	Dx	1	0.00	0.00	44.62	0.00	0.00	0.00	0.00	30.00	0.00	30.00	
	A-1	1	0.00	0.13	12.20	1.06	0.00	0.00	0.00	0.00	96.00	96.00	
	B-1	1	0.00	0.08	7.79	1.06	0.00	0.00	0.00	0.00	120.00	120.00	
	C-1	1	0.00	0.04	11.48	0.36	0.00	0.00	0.00	0.00	0.00	0.00	
	D-1	1	0.00	2.26	9.04	25.02	0.00	0.00	0.00	0.00	0.00	0.00	
	D-2	1	0.00	0.12	23.30	0.49	0.00	0.00	0.00	0.00	0.00	0.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	A	1	58.29	24.94	2.34	179.17
		2	24.92	11.25	2.22	191.04
	Ax	1	95.16	3.17	30.00	25.49
	B	1	61.06	37.33	1.64	267.70
		2	11.90	3.23	3.69	121.00
	Bx	1	189.67	6.32	30.00	27.75
	C	1	41.71	4.86	8.59	61.33
		2	23.74	4.53	5.24	98.21
	Cx	1	142.65	4.76	30.00	31.90
	D	2	261.00	16.82	15.52	115.97
		3	2.11	0.59	3.58	51.77
	Dx	1	144.46	4.82	30.00	30.79
	A-1	1	50.04	1.80	27.83	9.08
	B-1	1	26.78	0.98	27.46	5.87
	C-1	1	29.78	1.03	28.79	8.26
	D-1	1	6.13	1.06	5.81	32.21
	D-2	1	91.22	3.16	28.91	16.68

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (Veh)	Max End of Green Queue EoTS (Veh)	Max End of Red Queue EoTS (Veh)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	0.00	0.00	✓	44.87	29.00	40.74	1.00	0.00	337.54
		2	0.00	0.00	✓	17.81	10.87	17.05	1.00	0.00	152.71
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	70.83	55.95	67.20	1.00	0.00	514.22
		2	0.00	0.00	✓	4.61	1.46	4.45	1.00	0.00	41.82
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	8.66	0.43	7.40	1.00	0.00	52.42
		2	0.00	0.00	✓	6.77	1.42	6.31	1.00	0.00	55.54
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	2	0.00	0.00	✓	19.02	2.78	14.38	1.00	0.00	122.23
		3	0.00	0.00	✓	1.20	0.01	1.18	1.00	0.00	7.82
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	A-1	1	0.00	0.00	✓	0.13			1.00	0.00	1.84
	B-1	1	0.00	0.00	✓	0.08			1.00	0.00	1.17
	C-1	1	0.00	0.00	✓	0.04			1.00	0.00	0.59
	D-1	1	0.00	0.00	✓	2.26	0.10	2.13	1.00	0.00	13.41
	D-2	1	0.00	0.00	✓	0.12			1.00	0.00	1.63

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	1	1	11	50	11000	5	55.58	1.60	10.96	10.96
		2	11	50	11000	5	55.58	1.60	10.96	10.96
	2	1	11	50	11000	5	55.58	1.60	10.96	10.96
		2	11	50	11000	5	55.58	1.60	10.96	10.96
	3	1	1	50	11000	49	13.10	0.82	2.58	2.58
		2	1	50	11000	49	15.40	0.82	3.04	3.04
	4	1	11	50	11000	5	55.58	1.60	10.96	10.96
		2	11	50	11000	5	52.28	1.60	10.31	10.31
	5	1	1	100	11000	82	1.10	0.21	0.43	0.43
		2	1	100	11000	82	3.30	0.64	1.30	1.30

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	1	1	50	50	0		11000	458	11		817	0.00	5
		2	50	50	0		11000	458	11		817	0.00	5
	2	1	50	50	0		11000	458	11		817	0.00	5
		2	50	50	0		11000	458	11		817	0.00	5
	3	1	50	50	0		11000	4492	1		8883	0.63	49
		2	50	50	0		11000	4492	1		8883	0.00	49
	4	1	50	50	0		11000	458	11		817	0.00	5
		2	50	50	0		11000	458	11		817	0.63	5
	5	1	100	100	0		11000	7517	1		7417	1.53	82
		2	100	100	0		11000	7517	1		7417	0.00	82

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Weighted cost of delay (£ per hr)
08:00-09:00	1	1	13.00	55.58	0.77	0.00	10.96
		2	13.00	55.58	0.77	0.00	10.96
	2	1	11.67	55.58	0.77	0.00	10.96
		2	11.67	55.58	0.77	0.00	10.96
	3	1	12.67	13.10	0.18	0.00	2.58
		2	11.67	15.40	0.21	0.00	3.04
	4	1	11.00	55.58	0.77	0.00	10.96
		2	12.00	52.28	0.73	0.00	10.31
	5	1	6.00	1.10	0.03	0.00	0.43
		2	5.00	3.30	0.09	0.00	1.30

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
08:00-09:00	1	1	1.60	10.00	15.97	0.00	0.00	0.00
		2	1.60	10.00	15.97	0.00	0.00	0.00
	2	1	1.60	10.00	15.97	0.00	0.00	0.00
		2	1.60	10.00	15.97	0.00	0.00	0.00
	3	1	0.82	10.00	8.19	0.00	0.00	0.00
		2	0.82	10.00	8.19	0.00	0.00	0.00
	4	1	1.60	10.00	15.97	0.00	0.00	0.00
		2	1.60	10.00	15.97	0.00	0.00	0.00
	5	1	0.21	10.00	2.08	0.00	0.00	0.00
		2	0.64	10.00	6.39	0.00	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	1	1	0.95	0.95	1.00	68.58
		2	0.95	0.95	1.00	68.58
	2	1	0.85	0.93	0.91	67.25
		2	0.85	0.93	0.91	67.25
	3	1	0.95	0.36	2.65	25.77
		2	0.85	0.38	2.26	27.07
	4	1	0.80	0.92	0.87	66.58
		2	0.90	0.89	1.01	64.28
	5	1	0.90	0.20	4.57	7.10
		2	0.70	0.23	3.04	8.30

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	1	1	0.00	0.00	1.60	1.00	0.00	10.96
		2	0.00	0.00	1.60	1.00	0.00	10.96
	2	1	0.00	0.00	1.60	1.00	0.00	10.96
		2	0.00	0.00	1.60	1.00	0.00	10.96
	3	1	0.00	0.00	0.82	1.00	0.00	2.58
		2	0.00	0.00	0.82	1.00	0.00	3.04
	4	1	0.00	0.00	1.60	1.00	0.00	10.96
		2	0.00	0.00	1.60	1.00	0.00	10.31
	5	1	0.00	0.00	0.21	1.00	0.00	0.43
		2	0.00	0.00	0.64	1.00	0.00	1.30

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
2	04/04/2022 14:10:00	04/04/2022 14:10:02	08:00	120	1375.42	93.70	111.56	B/1	3	11	B/1	A-1/1	B/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	112	-10	7254	1160	43.97	1258.02	44.93	1302.95

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	11	600	292	30.62	72.48	72.48

Network Results: Flows and signals

Time Segment	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
08:00-09:00	7854	7779	75	✓	112	✓	-10	1452

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	20.02	42.95	33.28	60.42	1330.49	47.69	2248.29	1334.90	44.93

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
08:00-09:00	210.58	0.00	71.00	216.00	287.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
08:00-09:00	1269.34	137.37	9.24

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0.00	0.00	✓	1.00	0.00	0.00	1375.42

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

	To							
	1	2	3	4	5	6	7	8
From	1	0.0	100.4	95.1	134.2	0.0	0.0	0.0
	2	100.3	0.0	74.4	160.4	0.0	0.0	0.0
	3	220.1	230.9	0.0	216.0	0.0	0.0	0.0
	4	305.5	304.4	152.4	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	68.6	34.2	0.0
	6	0.0	0.0	0.0	0.0	68.6	0.0	67.3
	7	0.0	0.0	0.0	0.0	34.1	0.0	72.6
	8	0.0	0.0	0.0	0.0	67.3	73.7	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (Veh/hr)	Pedestrian calculated flow (Ped/hr)	Normal journey time (s)	Pedestrian journey time (s)	Calculated Total Flow (Veh/hr)	Avg journey time (s)
14	7	5		50		34.07	50	34.07
15	7	8		50		72.58	50	72.58
16	2	4	522		160.40		522	160.40
17	2	3	118		74.38		118	74.38
18	8	6		50		67.25	50	67.25
19	4	2	337		304.36		337	304.36
20	3	1	363		220.15		363	220.15
23	5	6		50		68.58	50	68.58
34	6	8		50		67.25	50	67.25
35	6	5		50		68.58	50	68.58
36	8	7		50		73.68	50	73.68
37	5	7		50		34.16	50	34.16
39	2	1	41		100.35		41	100.35
40	1	4	166		134.22		166	134.22
41	1	2	51		100.37		51	100.37
42	1	3	234		95.08		234	95.08
43	4	3	96		152.36		96	152.36
44	4	1	165		305.47		165	305.47
45	3	2	212		230.90		212	230.90
46	3	4	138		216.00		138	216.00

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (Veh)
A	1	(untitled)	1	1	I	501 <	1800	31	0.00	104	-4	179.17	165.21	183.62	32.99 +
	2		1	1	H	212	1800	13	0.00	101	-1	191.04	176.93	180.74	14.27
Ax	1	(untitled)				448	Unrestricted	120	16.00	0	Unrestricted	25.49	0.00	0.00	0.00
B	1	(untitled)	1	1	B	502 <	1800	29	0.00	112	-10	267.70	253.11	231.17	44.54 +
	2		1	1	A	96	1800	7	0.00	80	25	121.00	106.12	135.52	4.50
Bx	1	(untitled)				820	Unrestricted	120	9.00	0	Unrestricted	27.75	0.00	0.00	0.00
C	1	(untitled)	1	1	C	285	1800	31	0.00	59	68	61.33	43.77	89.99	8.66
	2		1	1	D	166	1800	13	0.00	79	27	98.21	81.05	118.78	6.71
Cx	1	(untitled)				537	Unrestricted	120	1.00	0	Unrestricted	31.90	0.00	0.00	0.00
D	2	(untitled)	1	1	F	522	1800	39	0.00	87	15	115.97	55.97	106.71	18.91
	3		1	1	E	41	1800	17	15.00	15	559	51.77	45.59	86.67	1.20
Dx	1	(untitled)				563	Unrestricted	120	30.00	0	Unrestricted	30.79	0.00	0.00	0.00
A-1	1		1			713	1800	120	96.00	40	152	9.08	0.66	0.00	0.13
B-1	1		1			598	1800	120	120.00	33	201	5.87	0.50	0.00	0.08
C-1	1		1			451	1800	120	0.00	25	299	8.26	0.33	0.00	0.04
D-1	1	(untitled)	1	1	G	118	1800	20	0.00	36	180	32.21	25.97	89.60	2.26
D-2	1		1			681	1800	120	0.00	38	164	16.68	0.61	0.00	0.12

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	PEN
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s per cycle)	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	Co tra pen (£ p
1	1	(untitled)	1	1	K	50	11000	5	11	817	68.58	55.58	1.60	100	0
	2	(untitled)	1	1	K	50	11000	5	11	817	68.58	55.58	1.60	100	0
2	1	(untitled)	1	1	L	50	11000	5	11	817	67.25	55.58	1.60	100	0
	2	(untitled)	1	1	L	50	11000	5	11	817	67.25	55.58	1.60	100	0
3	1	(untitled)	1	1	J	50	11000	49	1	8883	25.77	13.10	0.82	100	0
	2	(untitled)	1	1	J	50	11000	49	1	8883	27.07	15.40	0.82	100	0
4	1	(untitled)	1	1	M	50	11000	5	11	817	66.58	55.58	1.60	100	0
	2	(untitled)	1	1	M	50	11000	5	11	817	64.28	52.28	1.60	100	0
5	1	(untitled)		1	N	100	11000	82	1	7417	7.10	1.10	0.21	100	0
	2	(untitled)		1	N	100	11000	82	1	7417	8.30	3.30	0.64	100	0

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	1260.64	130.61	9.65	28.17	60.42	1258.02	44.93	0.00	1302.95
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	8.70	6.75	1.29	5.10	0.00	72.48	0.00	0.00	72.48
TOTAL	1269.34	137.37	9.24	33.28	60.42	1330.49	44.93	0.00	1375.42

- 1 < = adjusted flow warning (upstream links/traffic streams are over-saturated)
- 1 * = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%
- 1 ^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%
- 1 + = average link/traffic stream excess queue is greater than 0
- 1 P.I. = PERFORMANCE INDEX

TRANSYT 15	
Version: 15.5.2.7994 © Copyright TRL Limited, 2018	
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Filename: Junction 3 - PM.t16

Path: M:\Projects\21\21-011 - Mooretown Phase 3\Design\Traffic\Junction Modelling\August 2021\Junction 3

Report generation date: 04/04/2022 15:06:45

»A1 - 2022 : D1 - 2022, PM* :

»A2 - 2027 : D2 - 2027, PM* :

File summary

File description

File title	21-011
Location	
Site number	
UTCRegion	
Driving side	Left
Date	06/12/2011
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	17-144
Enumerator	DOMAINf.silva
Description	

Model and Results

Enable controller offsets	Enable fuel consumption	Enable quick flares	Display journey time results	Display level of service results	Display blocking and starvation results	Display end of red and green queue results	Display excess queue results	Display separate uniform and random results	Display unweighted results	Display TRANSYT 12 style timings	Display effective greens in results	Display Red-With-Amber	Display End-Of-Green Amber
			✓		✓		✓	✓					

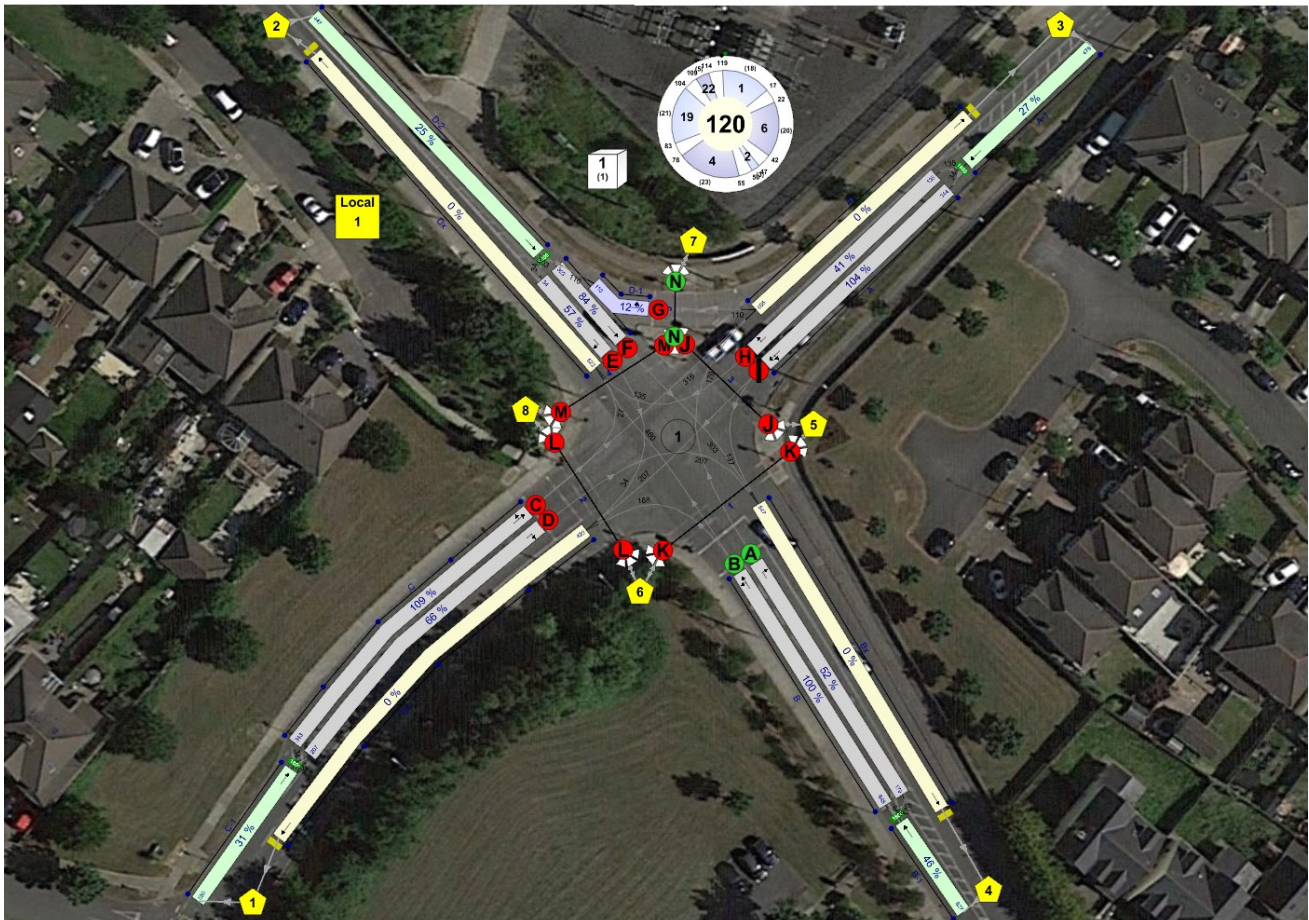
Units

Cost units	Speed units	Distance units	Fuel economy units	Fuel rate units	Mass units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
£	kph	m	mpg	l/h	kg	Veh	Veh	perHour	s	-Hour	perHour

Sorting

Show names instead of IDs	Sorting direction	Sorting type	Ignore prefixes when sorting	Analysis/demand set sorting	Link grouping	Source grouping	Colour Analysis/Demand Sets
	Ascending	Numerical		ID	Normal	Normal	✓

Network Diagrams



21-011
Diagram produced using TRANSYT 15.5.2.7994

A1 - 2022

D1 - 2022, PM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
1	04/04/2022 15:06:28	04/04/2022 15:06:29	17:00	120	723.66	48.77	100.00	C/1	1	4	C/1	B-1/1	C/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2022		D1	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2022, PM	(untitled)			17:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		
A-1			1
B-1			1
C-1			1
D-1	(untitled)		1
D-2			1

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)		✓	116.35	✓	Sum of lanes	1800	✓		Normal	
	2			✓	117.56	✓	Sum of lanes	1800	✓		Normal	
Ax	1	(untitled)		✓	212.41						Normal	
B	1	(untitled)		✓	121.63	✓	Sum of lanes	1800	✓		Normal	
	2			✓	123.97	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)		✓	231.25						Normal	
C	1	(untitled)		✓	146.36	✓	Sum of lanes	1800	✓		Normal	
	2			✓	143.01	✓	Sum of lanes	1800	✓		Normal	
Cx	1	(untitled)		✓	265.80						Normal	
D	2	(untitled)			500.00	✓	Sum of lanes	1800	✓		Normal	
	3			✓	51.47	✓	Sum of lanes	1800	✓		Normal	
Dx	1	(untitled)		✓	256.55						Normal	
A-1	1			✓	70.18	✓	Sum of lanes	1800			Normal	
B-1	1			✓	44.79	✓	Sum of lanes	1800			Normal	
C-1	1			✓	66.04	✓	Sum of lanes	1800			Normal	
D-1	1	(untitled)		✓	51.99	✓	Sum of lanes	1800	✓	✓	Normal	
D-2	1			✓	133.95	✓	Sum of lanes	1800			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1800
	2	1	(untitled)			1800
Ax	1	1	(untitled)			
B	1	1	(untitled)			1800
	2	1	(untitled)			1800
Bx	1	1	(untitled)			
C	1	1	(untitled)			1800
	2	1	(untitled)			1800
Cx	1	1	(untitled)			
D	2	1	(untitled)			1800
	3	1	(untitled)			1800
Dx	1	1	(untitled)			
A-1	1	1	(untitled)			1800
B-1	1	1	(untitled)			1800
C-1	1	1	(untitled)			1800
D-1	1	1	(untitled)			1800
D-2	1	1	(untitled)			1800

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (Veh/hr)	Normal Flow (Veh/hr)
A	1	315	315
	2	124	124
Ax	1	555	555
B	1	594	594
	2	164	164
Bx	1	593	593
C	1	315	315
	2	190	190
Cx	1	393	393
D	2	278	278
	3	31	31
Dx	1	571	571
A-1	1	439	439
B-1	1	758	758
C-1	1	505	505
D-1	1	101	101
D-2	1	410	410

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	I	
	2	1	H	
B	1	1	B	
	2	1	A	
C	1	1	C	
	2	1	D	
D	2	1	F	
	3	1	E	
D-1	1	1	G	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A-1	1	8.42	30.00
B-1	1	5.37	30.00
C-1	1	7.92	30.00
D-2	1	16.07	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
A	1	1	A-1/1	A/1	13.96	30.00	✓	Straight	Straight Movement
	2	1	A-1/1	A/2	14.11	30.00	✓	Straight	Straight Movement
Ax	1	1	C/1	Ax/1	25.49	30.00	✓	Straight	Straight Movement
B	1	1	B-1/1	B/1	14.60	30.00	✓	Straight	Straight Movement
	2	1	B-1/1	B/2	14.88	30.00	✓	Straight	Straight Movement
Bx	1	1	A/1	Bx/1	27.75	30.00	✓	Nearside	42.61
C	1	1	C-1/1	C/1	17.56	30.00	✓	Straight	Straight Movement
	2	1	C-1/1	C/2	17.16	30.00	✓	Straight	Straight Movement
Cx	1	1	A/1	Cx/1	31.90	30.00	✓	Straight	Straight Movement
D	2	1	D-2/1	D/2	60.00	30.00	✓	Straight	Straight Movement
	3	1	D-2/1	D/3	6.18	30.00	✓	Straight	Straight Movement
Dx	1	1	C/1	Dx/1	30.79	30.00	✓	Nearside	25.27
D-1	1	1	D-2/1	D-1/1	6.24	30.00	✓	Straight	Straight Movement
Ax	1	2	D-1/1	Ax/1	25.49	30.00	✓	Nearside	43.60
Bx	1	2	C/2	Bx/1	27.75	30.00	✓	Offside	38.45
Cx	1	2	B/1	Cx/1	31.90	30.00	✓	Nearside	39.22
Dx	1	2	B/1	Dx/1	30.79	30.00	✓	Straight	Straight Movement
Ax	1	3	B/2	Ax/1	25.49	30.00	✓	Offside	70.68
Bx	1	3	D/2	Bx/1	27.75	30.00	✓	Straight	Straight Movement
Cx	1	3	D/3	Cx/1	31.90	30.00	✓	Offside	49.21
Dx	1	3	A/2	Dx/1	30.79	30.00	✓	Offside	37.07

Give Way Data

Arm	Traffic Stream	Opposed traffic	Use Step-wise Opposed Turn Model	Visibility restricted
D-1	1	AllTraffic		

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)		1		Farside	18.00	12.00	5.40
2	(untitled)		1		Farside	16.00	10.67	5.40
3	(untitled)		1		Farside	16.00	10.67	5.40
4	(untitled)		1		Farside	15.00	10.00	5.40
5	(untitled)				Farside	6.00	4.00	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
1	1	K	
2	1	L	
3	1	J	
4	1	M	
5	1	N	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
(ALL)	(ALL)	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	100	100		0.00		

Pedestrian Crossing Connectors

Pedestrian Crossing Connectors

Pedestrian crossing connector	Pedestrian crossing1	Pedestrian crossing2	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	5:1	3:1	3.00	2.00	5.40
2	5:1	4:2	3.00	2.00	5.40

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25		

Normal Input Flows (Veh/hr)

	To							
	1	2	3	4	5	6	7	8
From	1	0	25	290	190	0	0	0
	2	31	0	101	278	0	0	0
	3	190	124	0	125	0	0	0
	4	172	422	164	0	0	0	0
	5	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows (Veh/hr)

	To							
	1	2	3	4	5	6	7	8
From	1	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0
	5	0	0	0	0	50	50	0
	6	0	0	0	0	50	0	50
	7	0	0	0	0	50	0	50
	8	0	0	0	0	50	50	0

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C-1/1	Cx/1	#0000FF
	2	(untitled)	D-2/1	Dx/1	#FF0000
	3	(untitled)	A-1/1	Ax/1	#00FF00
	4	(untitled)	B-1/1	Bx/1	#FFFF00
	5	(untitled)	3:2E, 1:1E	3:2X, 1:1X	#FF00FF
	6	(untitled)	2:1E, 1:2E	2:1X, 1:2X	#008000
	7	(untitled)	5:2E	5:2X	#FFA500
	8	(untitled)	4:1E, 2:2E	4:1X, 2:2X	#00FFFF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (Veh/hr)
1	16		2	4	D-2/1, D/2, Bx/1	Normal	278
	17		2	3	D-2/1, D-1/1, Ax/1	Normal	101
	19		4	2	B-1/1, B/1, Dx/1	Normal	422
	20		3	1	A-1/1, A/1, Cx/1	Normal	190
	39		2	1	D-2/1, D/3, Cx/1	Normal	31
	40		1	4	C-1/1, C/2, Bx/1	Normal	190
	41		1	2	C-1/1, C/1, Dx/1	Normal	25
	42		1	3	C-1/1, C/1, Ax/1	Normal	290
	43		4	3	B-1/1, B/2, Ax/1	Normal	164
	44		4	1	B-1/1, B/1, Cx/1	Normal	172
	45		3	2	A-1/1, A/2, Dx/1	Normal	124
	46		3	4	A-1/1, A/1, Bx/1	Normal	125

Pedestrian Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Pedestrian calculated flow (Ped/hr)
1	14		7	5	5:2E, 5:1X, 3:1E, 3:2X	Normal	50
	15		7	8	5:2E, 5:1X, 4:2E, 4:1X	Normal	50
	18		8	6	2:2E, 2:1X	Normal	50
	23		5	6	1:1E, 1:2X	Normal	50
	34		6	8	2:1E, 2:2X	Normal	50
	35		6	5	1:2E, 1:1X	Normal	50
	36		8	7	4:1E, 4:2X, 5:1E, 5:2X	Normal	50
	37		5	7	3:2E, 3:1X, 5:1E, 5:2X	Normal	50

Signal Timings

Network Default: 120s cycle time; 120 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	120

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Relative

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	3	40	0	0	Unknown	
	B	(untitled)	18	40	0	0	Unknown	
	C	(untitled)	5	40	0	0	Unknown	
	D	(untitled)	5	40	0	0	Unknown	
	E	(untitled)	3	3	0	0	Unknown	
	F	(untitled)	5	300	0	0	Unknown	
	G	(untitled)	5	300	0	0	Unknown	
	H	(untitled)	20	300	0	0	Unknown	
	I	(untitled)	5	300	0	0	Unknown	
	J	(untitled)	5	300	0	0	Pedestrian	0
	K	(untitled)	5	300	0	0	Pedestrian	0
	L	(untitled)	5	300	0	0	Pedestrian	0
	M	(untitled)	5	300	0	0	Pedestrian	0
	N	(untitled)	5	300	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A, B, N	1
	2	A, E, N	1
	3	A, L, M, N	1
	4	B, F, G, J	1
	5	B, F, J, N	1
	6	C, D, N	1
	7	C, I, N	1
	8	C, K, N	1
	9	D, G, H	1
	10	D, G, J, M	1
	11	D, H, N	1
	12	D, J, M, N	1
	13	E, F, G, J	1
	14	E, F, J, N	1
	15	E, G, J, K	1
	16	E, J, K, N	1
	17	F, G, J, L	1
	18	F, J, L, N	1
	19	G, H, I	1
	20	G, H, K, L	1
	21	G, I, M	1
	22	G, J, K, L, M	1
	23	H, I, N	1
	24	H, K, L, N	1
	25	I, M, N	1
	26	J, K, L, M, N	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 6, 2, 4, 19, 22	17, 42, 50, 77, 104, 114
	2	(untitled)	Single	1, 6, 2, 4, 19, 26	14, 42, 61, 79, 97, 115
	3	(untitled)	Single	1, 6, 2, 4, 20, 21	14, 42, 61, 79, 97, 115
	4	(untitled)	Single	1, 6, 2, 4, 20, 25	14, 42, 61, 79, 97, 115
	5	(untitled)	Single	1, 6, 2, 4, 21, 20	14, 42, 61, 79, 97, 115
	6	(untitled)	Single	1, 6, 2, 4, 21, 24	14, 42, 61, 79, 97, 115
	7	(untitled)	Single	1, 6, 2, 4, 22, 19	14, 42, 61, 79, 97, 115
	8	(untitled)	Single	1, 6, 2, 4, 22, 23	14, 42, 61, 79, 97, 115
	9	(untitled)	Single	1, 6, 2, 4, 23, 22	14, 42, 61, 79, 97, 115
	10	(untitled)	Single	1, 6, 2, 4, 23, 26	14, 42, 61, 79, 97, 115

Intergreen Matrix for Controller Stream 1

		To													
		A	B	C	D	E	F	G	H	I	J	K	L	M	N
From	A			5	5		5	5	5	5	0	5			
	B			5	5	5			5	5		5	5	0	
	C	5	5			5	5	5	5		0		5	5	
	D	5	5			5	5			5		0	5		
	E		5	5	5				5	5			0	5	
	F	5		5	5				5	5		0		5	
	G	5		5											5
	H	5	5	5		5	5				5			5	
	I	5	5		5	5	5				5	5	0		
	J	5		5					5	5					
	K	5	5		5		5			5					
	L		5	5	5	5				5					
	M		5	5		5	5		5						
	N							3							

Banned Stage transitions for Controller Stream 1

		To																									
From		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
	1																										
	2																										
	3																										
	4																										
	5																										
	6																										
	7																										
	8																										
	9																										
	10																										
	11																										
	12																										
	13																										
	14																										
	15																										
	16																										
	17																										
	18																										
	19																										
	20																										
	21																										
	22																										
	23																										
	24																										
	25																										
26																											

Interstage Matrix for Controller Stream 1

		To																									
From		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
	1	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	2	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	3	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	4	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	5	5	5	5	5	3	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	6	5	5	5	5	5	0	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	7	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	8	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	9	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	10	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	11	5	5	5	5	5	5	5	5	3	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	12	5	5	5	5	5	5	5	5	5	3	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	13	5	5	5	5	5	5	5	5	5	5	5	5	0	5	0	5	0	5	5	5	5	5	5	5	5	5
	14	5	5	5	5	5	5	5	5	5	5	5	5	3	0	3	0	3	0	5	5	5	5	5	5	5	5
	15	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5
	16	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	0	5	5	5	5	5	5	5	5	5	5
	17	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5
	18	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	0	5	5	5	5	5	5	5	5
	19	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5
	20	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5
	21	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5
	22	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5
	23	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	5	5	5	0	5	5	5
	24	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	5	5	5	0	5	5
	25	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	5	5	5	0	5
	26	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	5	5	5	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B,N	119	17	18	1	18
	2	✓	6	C,D,N	22	42	20	1	5
	3	✓	2	A,E,N	47	50	3	1	3
	4	✓	4	B,F,G,J	55	77	22	1	18
	5	✓	19	G,H,I	82	104	22	1	20
	6	✓	22	G,J,K,L,M	109	114	5	1	5

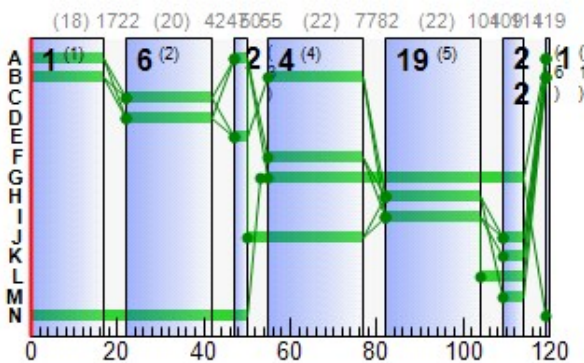
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	47	50	3
		2	✓	119	17	18
	B	1	✓	55	77	22
		2	✓	119	17	18
	C	1	✓	22	42	20
	D	1	✓	22	42	20
	E	1	✓	47	50	3
	F	1	✓	55	77	22
	G	1	✓	55	114	59
	H	1	✓	82	104	22
	I	1	✓	82	104	22
	J	1	✓	50	77	27
		2	✓	109	114	5
	K	1	✓	109	114	5
	L	1	✓	104	114	10
	M	1	✓	109	114	5
	N	1	✓	119	50	51

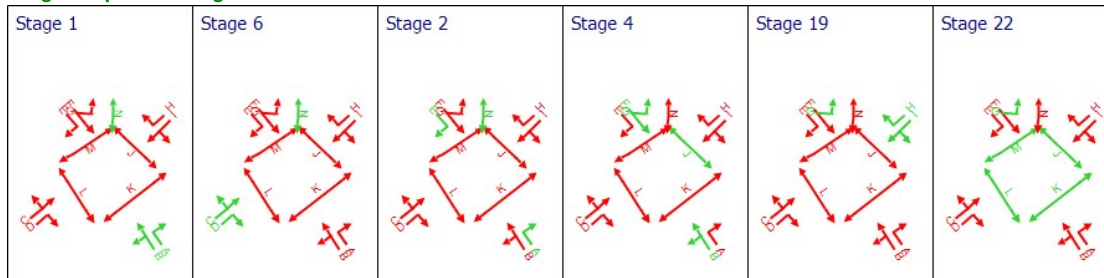
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
A	1	1	1	I	82	104	22			
A	2	1	1	H	82	104	22			
B	1	1	1	B	55	77	22	119	17	18
B	2	1	1	A	47	50	3	119	17	18
C	1	1	1	C	22	42	20			
C	2	1	1	D	22	42	20			
D	2	1	1	F	55	77	22			
D	3	1	1	E	47	50	3			
D-1	1	1	1	G	55	114	59			

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
17:00-18:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (Veh)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:00-18:00	A	1	91	10	315	1800	22	89.50	13.91	68.75	111.21	5.07	116.28
		2	36	178	124	1800	22	45.03	3.68	18.01	22.02	1.37	23.39
	Ax	1	0	Unrestricted	555	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	94	6	594	1800	40	54.55	15.59	73.68	127.81	9.02	136.83
		2	48	110	164	1800	21	29.75	3.58	16.63	19.25	1.92	21.16
	Bx	1	0	Unrestricted	593	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	100	0	315	1800	20	145.51	18.81	73.91	180.79	6.48	187.27
		2	60	66	190	1800	20	54.21	6.26	25.16	40.62	2.33	42.95
	Cx	1	0	Unrestricted	393	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	2	81	24	278	1800	22	66.59	10.36	11.92	73.02	3.84	76.86
		3	52	94	31	1800	3	87.50	1.28	14.28	10.70	0.47	11.17
	Dx	1	0	Unrestricted	571	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	A-1	1	24	310	439	1800	120	0.32	0.04	0.32	0.56	0.00	0.56
	B-1	1	42	137	758	1800	120	0.73	0.15	1.96	2.17	0.00	2.17
	C-1	1	28	256	505	1800	120	0.39	0.05	0.48	0.78	0.00	0.78
	D-1	1	11	791	101	1800	59	16.16	1.77	19.63	6.44	0.66	7.09
	D-2	1	23	339	410	1800	120	0.29	0.03	0.14	0.48	0.00	0.48

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Calculated sat flow (Veh/hr)	Calculated capacity (Veh/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
17:00-18:00	A	1	315	315	0		1800	345	91		10	0.00	22
		2	124	124	0		1800	345	36		178	0.00	22
	Ax	1	555	555	0		Unrestricted	Unrestricted	0		Unrestricted	0.73	120
	B	1	594	594	0		1800	630	94		6	0.00	40
		2	164	164	0		1800	345	48		110	0.00	21
	Bx	1	593	593	0		Unrestricted	Unrestricted	0		Unrestricted	0.63	120
	C	1	315	315	0		1800	315	100	✓	0	0.00	20
		2	190	190	0		1800	315	60		66	0.00	20
	Cx	1	393	393	0		Unrestricted	Unrestricted	0		Unrestricted	0.47	120
	D	2	278	278	0		1800	345	81		24	0.00	22
		3	31	31	0		1800	60	52		94	0.00	3
	Dx	1	571	571	0		Unrestricted	Unrestricted	0		Unrestricted	0.55	120
	A-1	1	439	439	0		1800	1800	24		310	0.00	120
	B-1	1	758	758	0		1800	1800	42		137	0.00	120
	C-1	1	505	505	0		1800	1800	28		256	0.00	120
	D-1	1	101	101	0		1800	900	11		791	0.00	59
	D-2	1	410	410	0		1800	1800	23		339	0.00	120

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
17:00-18:00	A	1	13.96	89.50	4.16	3.67	111.21	128.42	303.42	101.09	5.07
		2	14.11	45.03	1.45	0.10	22.02	87.89	105.99	2.99	1.37
	Ax	1	25.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	14.60	54.55	3.31	5.69	127.81	121.13	560.58	158.92	9.02
		2	14.88	29.75	1.14	0.21	19.25	93.19	140.26	12.58	1.92
	Bx	1	27.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	17.56	145.51	4.33	8.40	180.79	164.05	309.05	207.71	6.48
		2	17.16	54.21	2.41	0.45	40.62	97.64	172.22	13.29	2.33
	Cx	1	31.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	2	60.00	66.59	3.58	1.56	73.02	110.07	261.07	44.93	3.84
		3	6.18	87.50	0.49	0.26	10.70	120.92	30.10	7.39	0.47
	Dx	1	30.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A-1	1	8.42	0.32	0.00	0.04	0.56	0.00	0.00	0.00	0.00
	B-1	1	5.37	0.73	0.00	0.15	2.17	0.00	0.00	0.00	0.00
	C-1	1	7.92	0.39	0.00	0.05	0.78	0.00	0.00	0.00	0.00
	D-1	1	6.24	16.16	0.45	0.01	6.44	51.72	52.03	0.21	0.66
	D-2	1	16.07	0.29	0.00	0.03	0.48	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (Veh)	Mean max queue (Veh)	Max queue storage (Veh)	Utilised storage (%)	Average storage excess queue (Veh)	Average limit excess queue (Veh)	Excess queue penalty (£ per hr)	Wasted time starvation (s per cycle)	Wasted time blocking back (s per cycle)	Wasted time total (s per cycle)	Estimated blocking
17:00-18:00	A	1	0.00	13.91	20.23	68.75	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	3.68	20.45	18.01	0.00	0.00	0.00	0.00	0.00	0.00	
	Ax	1	0.00	0.00	36.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	B	1	0.00	15.59	21.15	73.68	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	3.58	21.56	16.63	0.00	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	40.22	0.00	0.00	0.00	0.00	19.00	0.00	19.00	
	C	1	0.00	18.81	25.45	73.91	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	6.26	24.87	25.16	0.00	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	46.23	0.00	0.00	0.00	0.00	10.00	0.00	10.00	
	D	2	0.00	10.36	86.96	11.92	0.00	0.00	0.00	0.00	0.00	0.00	
		3	0.00	1.28	8.95	14.28	0.00	0.00	0.00	1.00	0.00	1.00	
	Dx	1	0.00	0.00	44.62	0.00	0.00	0.00	0.00	1.00	0.00	1.00	
	A-1	1	0.00	0.04	12.20	0.32	0.00	0.00	0.00	0.00	0.00	0.00	
	B-1	1	0.00	0.15	7.79	1.96	0.00	0.00	0.00	0.00	0.00	0.00	
	C-1	1	0.00	0.05	11.48	0.48	0.00	0.00	0.00	0.00	0.00	0.00	
	D-1	1	0.00	1.77	9.04	19.63	0.00	0.00	0.00	0.00	0.00	0.00	
	D-2	1	0.00	0.03	23.30	0.14	0.00	0.00	0.00	0.00	0.00	0.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
17:00-18:00	A	1	36.65	9.05	4.05	103.46
		2	14.58	2.04	7.16	59.14
	Ax	1	117.89	3.93	30.00	25.49
	B	1	72.25	11.41	6.33	69.15
		2	20.33	2.03	10.00	44.63
	Bx	1	137.13	4.57	30.00	27.75
	C	1	46.10	14.27	3.23	163.07
		2	27.17	3.77	7.21	71.37
	Cx	1	104.46	3.48	30.00	31.90
	D	2	139.00	9.78	14.22	126.59
		3	1.60	0.81	1.98	93.68
	Dx	1	146.49	4.88	30.00	30.79
	A-1	1	30.81	1.07	28.89	8.74
	B-1	1	33.95	1.28	26.43	6.10
	C-1	1	33.35	1.17	28.59	8.31
	D-1	1	5.25	0.63	8.35	22.40
	D-2	1	54.92	1.86	29.46	16.37

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (Veh)	Max End of Green Queue EoTS (Veh)	Max End of Red Queue EoTS (Veh)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
17:00-18:00	A	1	0.00	0.00	✓	14.34	4.11	12.59	1.00	0.00	116.28
		2	0.00	0.00	✓	3.68	0.10	3.44	1.00	0.00	23.39
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	16.35	6.85	13.22	1.00	0.00	136.83
		2	0.00	0.00	✓	3.59	0.21	3.31	1.00	0.00	21.16
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	22.48	12.07	20.73	1.00	0.00	187.27
		2	0.00	0.00	✓	6.26	0.45	5.68	1.00	0.00	42.95
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	2	0.00	0.00	✓	10.42	1.61	9.10	1.00	0.00	76.86
		3	0.00	0.00	✓	1.29	0.27	1.27	1.00	0.00	11.17
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	A-1	1	0.00	0.00	✓	0.04			1.00	0.00	0.56
	B-1	1	0.00	0.00	✓	0.15			1.00	0.00	2.17
	C-1	1	0.00	0.00	✓	0.05			1.00	0.00	0.78
	D-1	1	0.00	0.00	✓	1.77	0.01	1.69	1.00	0.00	7.09
	D-2	1	0.00	0.00	✓	0.03			1.00	0.00	0.48

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
17:00-18:00	1	1	11	50	11000	5	55.58	1.60	10.96	10.96
		2	11	50	11000	5	55.58	1.60	10.96	10.96
	2	1	5	50	11000	10	50.88	1.53	10.03	10.03
		2	5	50	11000	10	50.88	1.53	10.03	10.03
	3	1	2	50	11000	32	34.50	1.58	6.80	6.80
		2	2	50	11000	32	17.70	0.78	3.49	3.49
	4	1	11	50	11000	5	55.58	1.60	10.96	10.96
		2	11	50	11000	5	93.38	1.67	18.42	18.42
	5	1	2	100	11000	51	17.90	1.15	7.06	7.06
		2	2	100	11000	51	20.13	1.92	7.94	7.94

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
17:00-18:00	1	1	50	50	0		11000	458	11		817	0.00	5
		2	50	50	0		11000	458	11		817	0.00	5
	2	1	50	50	0		11000	917	5		1733	0.00	10
		2	50	50	0		11000	917	5		1733	0.00	10
	3	1	50	50	0		11000	2933	2		5767	1.15	32
		2	50	50	0		11000	2933	2		5767	0.00	32
	4	1	50	50	0		11000	458	11		817	0.00	5
		2	50	50	0		11000	458	11		817	1.15	5
	5	1	100	100	0		11000	4675	2		4575	1.68	51
		2	100	100	0		11000	4675	2		4575	0.00	51

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Weighted cost of delay (£ per hr)
17:00-18:00	1	1	13.00	55.58	0.77	0.00	10.96
		2	13.00	55.58	0.77	0.00	10.96
	2	1	11.67	50.88	0.71	0.00	10.03
		2	11.67	50.88	0.71	0.00	10.03
	3	1	12.67	34.50	0.48	0.00	6.80
		2	11.67	17.70	0.25	0.00	3.49
	4	1	11.00	55.58	0.77	0.00	10.96
		2	12.00	93.38	1.30	0.00	18.42
	5	1	6.00	17.90	0.50	0.00	7.06
		2	5.00	20.13	0.56	0.00	7.94

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
17:00-18:00	1	1	1.60	10.00	15.97	0.00	0.00	0.00
		2	1.60	10.00	15.97	0.00	0.00	0.00
	2	1	1.53	10.00	15.28	0.00	0.00	0.00
		2	1.53	10.00	15.28	0.00	0.00	0.00
	3	1	1.58	10.00	15.83	0.00	0.00	0.00
		2	0.78	10.00	7.78	0.00	0.00	0.00
	4	1	1.60	10.00	15.97	0.00	0.00	0.00
		2	1.67	10.00	16.67	0.00	0.00	0.00
	5	1	1.15	10.00	11.53	0.00	0.00	0.00
		2	1.92	10.00	19.17	0.00	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
17:00-18:00	1	1	0.95	0.95	1.00	68.58
		2	0.95	0.95	1.00	68.58
	2	1	0.85	0.87	0.98	62.54
		2	0.85	0.87	0.98	62.54
	3	1	0.95	0.66	1.45	47.17
		2	0.85	0.41	2.08	29.37
	4	1	0.80	0.92	0.87	66.58
		2	0.90	1.46	0.61	105.38
	5	1	0.90	0.66	1.36	23.90
		2	0.70	0.70	1.00	25.13

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
17:00-18:00	1	1	0.00	0.00	1.60	1.00	0.00	10.96
		2	0.00	0.00	1.60	1.00	0.00	10.96
	2	1	0.00	0.00	1.53	1.00	0.00	10.03
		2	0.00	0.00	1.53	1.00	0.00	10.03
	3	1	0.00	0.00	1.58	1.00	0.00	6.80
		2	0.00	0.00	0.78	1.00	0.00	3.49
	4	1	0.00	0.00	1.60	1.00	0.00	10.96
		2	0.00	0.00	1.67	1.00	0.00	18.42
	5	1	0.00	0.00	1.15	1.00	0.00	7.06
		2	0.00	0.00	1.92	1.00	0.00	7.94

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
1	04/04/2022 15:06:28	04/04/2022 15:06:29	17:00	120	723.66	48.77	100.00	C/1	1	4	C/1	B-1/1	C/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:00-18:00	100	0	6336	1189	23.84	595.86	31.14	627.00

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
17:00-18:00	11	600	206	40.84	96.67	96.67

Network Results: Flows and signals

Time Segment	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
17:00-18:00	6936	6936	0		100	✓	0	1395

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
17:00-18:00	18.54	25.31	28.13	20.64	692.52	35.81	1934.71	549.11	31.14

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
17:00-18:00	73.91	0.00	31.00	0.00	31.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
17:00-18:00	1030.62	84.48	12.20

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
17:00-18:00	0.00	0.00	✓	1.00	0.00	0.00	723.66

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

	To							
	1	2	3	4	5	6	7	8
From	1	0.0	202.2	196.9	107.4	0.0	0.0	0.0
	2	141.9	0.0	64.3	170.7	0.0	0.0	0.0
	3	144.1	98.7	0.0	140.0	0.0	0.0	0.0
	4	107.1	106.0	76.2	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	68.6	53.3	0.0
	6	0.0	0.0	0.0	0.0	68.6	0.0	62.5
	7	0.0	0.0	0.0	0.0	72.3	0.0	130.5
	8	0.0	0.0	0.0	0.0	62.5	90.5	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (Veh/hr)	Pedestrian calculated flow (Ped/hr)	Normal journey time (s)	Pedestrian journey time (s)	Calculated Total Flow (Veh/hr)	Avg journey time (s)
14	7	5		50		72.29	50	72.29
15	7	8		50		130.50	50	130.50
16	2	4	278		170.71		278	170.71
17	2	3	101		64.26		101	64.26
18	8	6		50		62.54	50	62.54
19	4	2	422		106.03		422	106.03
20	3	1	190		144.10		190	144.10
23	5	6		50		68.58	50	68.58
34	6	8		50		62.54	50	62.54
35	6	5		50		68.58	50	68.58
36	8	7		50		90.49	50	90.49
37	5	7		50		53.27	50	53.27
39	2	1	31		141.94		31	141.94
40	1	4	190		107.43		190	107.43
41	1	2	25		202.17		25	202.17
42	1	3	290		196.88		290	196.88
43	4	3	164		76.22		164	76.22
44	4	1	172		107.14		172	107.14
45	3	2	124		98.67		124	98.67
46	3	4	125		139.96		125	139.96

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (Veh)
A	1	(untitled)	1	1	I	315	1800	22	0.00	91	10	103.46	89.50	128.42	13.91
	2		1	1	H	124	1800	22	0.00	36	178	59.14	45.03	87.89	3.68
Ax	1	(untitled)				555	Unrestricted	120	0.00	0	Unrestricted	25.49	0.00	0.00	0.00
B	1	(untitled)	1	1	B	594	1800	40	0.00	94	6	69.15	54.55	121.13	15.59
	2		1	1	A	164	1800	21	0.00	48	110	44.63	29.75	93.19	3.58
Bx	1	(untitled)				593	Unrestricted	120	19.00	0	Unrestricted	27.75	0.00	0.00	0.00
C	1	(untitled)	1	1	C	315	1800	20	0.00	100	0	163.07	145.51	164.05	18.81
	2		1	1	D	190	1800	20	0.00	60	66	71.37	54.21	97.64	6.26
Cx	1	(untitled)				393	Unrestricted	120	10.00	0	Unrestricted	31.90	0.00	0.00	0.00
D	2	(untitled)	1	1	F	278	1800	22	0.00	81	24	126.59	66.59	110.07	10.36
	3		1	1	E	31	1800	3	1.00	52	94	93.68	87.50	120.92	1.28
Dx	1	(untitled)				571	Unrestricted	120	1.00	0	Unrestricted	30.79	0.00	0.00	0.00
A-1	1		1			439	1800	120	0.00	24	310	8.74	0.32	0.00	0.04
B-1	1		1			758	1800	120	0.00	42	137	6.10	0.73	0.00	0.15
C-1	1		1			505	1800	120	0.00	28	256	8.31	0.39	0.00	0.05
D-1	1	(untitled)	1	1	G	101	1800	59	0.00	11	791	22.40	16.16	51.72	1.77
D-2	1		1			410	1800	120	0.00	23	339	16.37	0.29	0.00	0.03

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	PEN
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s per cycle)	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	Co tra pen (£ p
1	1	(untitled)	1	1	K	50	11000	5	11	817	68.58	55.58	1.60	100	0
	2	(untitled)	1	1	K	50	11000	5	11	817	68.58	55.58	1.60	100	0
2	1	(untitled)	1	1	L	50	11000	10	5	1733	62.54	50.88	1.53	100	0
	2	(untitled)	1	1	L	50	11000	10	5	1733	62.54	50.88	1.53	100	0
3	1	(untitled)	1	1	J	50	11000	32	2	5767	47.17	34.50	1.58	100	0
	2	(untitled)	1	1	J	50	11000	32	2	5767	29.37	17.70	0.78	100	0
4	1	(untitled)	1	1	M	50	11000	5	11	817	66.58	55.58	1.60	100	0
	2	(untitled)	1	1	M	50	11000	5	11	817	105.38	93.38	1.67	100	0
5	1	(untitled)		1	N	100	11000	51	2	4575	23.90	17.90	1.15	100	0
	2	(untitled)		1	N	100	11000	51	2	4575	25.13	20.13	1.92	100	0

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	1021.92	76.03	13.44	21.32	20.64	595.86	31.14	0.00	627.00
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	8.70	8.46	1.03	6.81	0.00	96.67	0.00	0.00	96.67
TOTAL	1030.62	84.48	12.20	28.13	20.64	692.52	31.14	0.00	723.66

- 1 < = adjusted flow warning (upstream links/traffic streams are over-saturated)
- 1 * = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%
- 1 ^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%
- 1 + = average link/traffic stream excess queue is greater than 0
- 1 P.I. = PERFORMANCE INDEX

A2 - 2027

D2 - 2027, PM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
2	04/04/2022 15:06:30	04/04/2022 15:06:31	17:00	120	1146.54	77.89	108.89	C/1	3	11	C/1	B-1/1	C/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2027		D2	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2027, PM	(untitled)			17:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		
A-1			1
B-1			1
C-1			1
D-1	(untitled)		1
D-2			1

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)		✓	116.35	✓	Sum of lanes	1800	✓		Normal	
	2			✓	117.56	✓	Sum of lanes	1800	✓		Normal	
Ax	1	(untitled)		✓	212.41						Normal	
B	1	(untitled)		✓	121.63	✓	Sum of lanes	1800	✓		Normal	
	2			✓	123.97	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)		✓	231.25						Normal	
C	1	(untitled)		✓	146.36	✓	Sum of lanes	1800	✓		Normal	
	2			✓	143.01	✓	Sum of lanes	1800	✓		Normal	
Cx	1	(untitled)		✓	265.80						Normal	
D	2	(untitled)			500.00	✓	Sum of lanes	1800	✓		Normal	
	3			✓	51.47	✓	Sum of lanes	1800	✓		Normal	
Dx	1	(untitled)		✓	256.55						Normal	
A-1	1			✓	70.18	✓	Sum of lanes	1800			Normal	
B-1	1			✓	44.79	✓	Sum of lanes	1800			Normal	
C-1	1			✓	66.04	✓	Sum of lanes	1800			Normal	
D-1	1	(untitled)		✓	51.99	✓	Sum of lanes	1800	✓	✓	Normal	
D-2	1			✓	133.95	✓	Sum of lanes	1800			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1800
	2	1	(untitled)			1800
Ax	1	1	(untitled)			
B	1	1	(untitled)			1800
	2	1	(untitled)			1800
Bx	1	1	(untitled)			
C	1	1	(untitled)			1800
	2	1	(untitled)			1800
Cx	1	1	(untitled)			
D	2	1	(untitled)			1800
	3	1	(untitled)			1800
Dx	1	1	(untitled)			
A-1	1	1	(untitled)			1800
B-1	1	1	(untitled)			1800
C-1	1	1	(untitled)			1800
D-1	1	1	(untitled)			1800
D-2	1	1	(untitled)			1800

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	120

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (Veh/hr)	Normal Flow (Veh/hr)
A	1	344	344
	2	135	135
Ax	1	605	605
B	1	648	648
	2	179	179
Bx	1	647	647
C	1	343	343
	2	207	207
Cx	1	429	429
D	2	303	303
	3	34	34
Dx	1	622	622
A-1	1	479	479
B-1	1	827	827
C-1	1	550	550
D-1	1	110	110
D-2	1	447	447

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	I	
	2	1	H	
B	1	1	B	
	2	1	A	
C	1	1	C	
	2	1	D	
D	2	1	F	
	3	1	E	
D-1	1	1	G	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A-1	1	8.42	30.00
B-1	1	5.37	30.00
C-1	1	7.92	30.00
D-2	1	16.07	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
A	1	1	A-1/1	A/1	13.96	30.00	✓	Straight	Straight Movement
	2	1	A-1/1	A/2	14.11	30.00	✓	Straight	Straight Movement
Ax	1	1	C/1	Ax/1	25.49	30.00	✓	Straight	Straight Movement
B	1	1	B-1/1	B/1	14.60	30.00	✓	Straight	Straight Movement
	2	1	B-1/1	B/2	14.88	30.00	✓	Straight	Straight Movement
Bx	1	1	A/1	Bx/1	27.75	30.00	✓	Nearside	42.61
C	1	1	C-1/1	C/1	17.56	30.00	✓	Straight	Straight Movement
	2	1	C-1/1	C/2	17.16	30.00	✓	Straight	Straight Movement
Cx	1	1	A/1	Cx/1	31.90	30.00	✓	Straight	Straight Movement
D	2	1	D-2/1	D/2	60.00	30.00	✓	Straight	Straight Movement
	3	1	D-2/1	D/3	6.18	30.00	✓	Straight	Straight Movement
Dx	1	1	C/1	Dx/1	30.79	30.00	✓	Nearside	25.27
D-1	1	1	D-2/1	D-1/1	6.24	30.00	✓	Straight	Straight Movement
Ax	1	2	D-1/1	Ax/1	25.49	30.00	✓	Nearside	43.60
Bx	1	2	C/2	Bx/1	27.75	30.00	✓	Offside	38.45
Cx	1	2	B/1	Cx/1	31.90	30.00	✓	Nearside	39.22
Dx	1	2	B/1	Dx/1	30.79	30.00	✓	Straight	Straight Movement
Ax	1	3	B/2	Ax/1	25.49	30.00	✓	Offside	70.68
Bx	1	3	D/2	Bx/1	27.75	30.00	✓	Straight	Straight Movement
Cx	1	3	D/3	Cx/1	31.90	30.00	✓	Offside	49.21
Dx	1	3	A/2	Dx/1	30.79	30.00	✓	Offside	37.07

Give Way Data

Arm	Traffic Stream	Opposed traffic	Use Step-wise Opposed Turn Model	Visibility restricted
D-1	1	AllTraffic		

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)		1		Farside	18.00	12.00	5.40
2	(untitled)		1		Farside	16.00	10.67	5.40
3	(untitled)		1		Farside	16.00	10.67	5.40
4	(untitled)		1		Farside	15.00	10.00	5.40
5	(untitled)				Farside	6.00	4.00	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
1	1	K	
2	1	L	
3	1	J	
4	1	M	
5	1	N	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
(ALL)	(ALL)	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	100	100		0.00		

Pedestrian Crossing Connectors

Pedestrian Crossing Connectors

Pedestrian crossing connector	Pedestrian crossing1	Pedestrian crossing2	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	5:1	3:1	3.00	2.00	5.40
2	5:1	4:2	3.00	2.00	5.40

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25		

Normal Input Flows (Veh/hr)

	To							
	1	2	3	4	5	6	7	8
From	1	0	27	316	207	0	0	0
	2	34	0	110	303	0	0	0
	3	207	135	0	137	0	0	0
	4	188	460	179	0	0	0	0
	5	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows (Veh/hr)

	To							
	1	2	3	4	5	6	7	8
From	1	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0
	5	0	0	0	0	50	50	0
	6	0	0	0	0	50	0	50
	7	0	0	0	0	50	0	50
	8	0	0	0	0	50	50	0

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C-1/1	Cx/1	#0000FF
	2	(untitled)	D-2/1	Dx/1	#FF0000
	3	(untitled)	A-1/1	Ax/1	#00FF00
	4	(untitled)	B-1/1	Bx/1	#FFFF00
	5	(untitled)	3:2E, 1:1E	3:2X, 1:1X	#FF00FF
	6	(untitled)	2:1E, 1:2E	2:1X, 1:2X	#008000
	7	(untitled)	5:2E	5:2X	#FFA500
	8	(untitled)	4:1E, 2:2E	4:1X, 2:2X	#00FFFF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (Veh/hr)
1	16		2	4	D-2/1, D/2, Bx/1	Normal	303
	17		2	3	D-2/1, D-1/1, Ax/1	Normal	110
	19		4	2	B-1/1, B/1, Dx/1	Normal	460
	20		3	1	A-1/1, A/1, Cx/1	Normal	207
	39		2	1	D-2/1, D/3, Cx/1	Normal	34
	40		1	4	C-1/1, C/2, Bx/1	Normal	207
	41		1	2	C-1/1, C/1, Dx/1	Normal	27
	42		1	3	C-1/1, C/1, Ax/1	Normal	316
	43		4	3	B-1/1, B/2, Ax/1	Normal	179
	44		4	1	B-1/1, B/1, Cx/1	Normal	188
	45		3	2	A-1/1, A/2, Dx/1	Normal	135
	46		3	4	A-1/1, A/1, Bx/1	Normal	137

Pedestrian Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Pedestrian calculated flow (Ped/hr)
1	14		7	5	5:2E, 5:1X, 3:1E, 3:2X	Normal	50
	15		7	8	5:2E, 5:1X, 4:2E, 4:1X	Normal	50
	18		8	6	2:2E, 2:1X	Normal	50
	23		5	6	1:1E, 1:2X	Normal	50
	34		6	8	2:1E, 2:2X	Normal	50
	35		6	5	1:2E, 1:1X	Normal	50
	36		8	7	4:1E, 4:2X, 5:1E, 5:2X	Normal	50
	37		5	7	3:2E, 3:1X, 5:1E, 5:2X	Normal	50

Signal Timings

Network Default: 120s cycle time; 120 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	120

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Relative

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	3	40	0	0	Unknown	
	B	(untitled)	18	40	0	0	Unknown	
	C	(untitled)	5	40	0	0	Unknown	
	D	(untitled)	5	40	0	0	Unknown	
	E	(untitled)	3	3	0	0	Unknown	
	F	(untitled)	5	300	0	0	Unknown	
	G	(untitled)	5	300	0	0	Unknown	
	H	(untitled)	20	300	0	0	Unknown	
	I	(untitled)	5	300	0	0	Unknown	
	J	(untitled)	5	300	0	0	Pedestrian	0
	K	(untitled)	5	300	0	0	Pedestrian	0
	L	(untitled)	5	300	0	0	Pedestrian	0
	M	(untitled)	5	300	0	0	Pedestrian	0
	N	(untitled)	5	300	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A, B, N	1
	2	A, E, N	1
	3	A, L, M, N	1
	4	B, F, G, J	1
	5	B, F, J, N	1
	6	C, D, N	1
	7	C, I, N	1
	8	C, K, N	1
	9	D, G, H	1
	10	D, G, J, M	1
	11	D, H, N	1
	12	D, J, M, N	1
	13	E, F, G, J	1
	14	E, F, J, N	1
	15	E, G, J, K	1
	16	E, J, K, N	1
	17	F, G, J, L	1
	18	F, J, L, N	1
	19	G, H, I	1
	20	G, H, K, L	1
	21	G, I, M	1
	22	G, J, K, L, M	1
	23	H, I, N	1
	24	H, K, L, N	1
	25	I, M, N	1
	26	J, K, L, M, N	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 6, 2, 4, 19, 22	17, 42, 50, 78, 104, 114
	2	(untitled)	Single	1, 6, 2, 4, 19, 26	22, 36, 48, 74, 102, 115
	3	(untitled)	Single	1, 6, 2, 4, 20, 21	22, 36, 48, 74, 102, 115
	4	(untitled)	Single	1, 6, 2, 4, 20, 25	22, 36, 48, 74, 102, 115
	5	(untitled)	Single	1, 6, 2, 4, 21, 20	22, 36, 48, 74, 87, 115
	6	(untitled)	Single	1, 6, 2, 4, 21, 24	22, 36, 48, 74, 87, 115
	7	(untitled)	Single	1, 6, 2, 4, 22, 19	22, 36, 48, 74, 87, 115
	8	(untitled)	Single	1, 6, 2, 4, 22, 23	22, 36, 48, 74, 87, 115
	9	(untitled)	Single	1, 6, 2, 4, 23, 22	22, 36, 48, 74, 102, 115
	10	(untitled)	Single	1, 6, 2, 4, 23, 26	22, 36, 48, 74, 102, 115

Intergreen Matrix for Controller Stream 1

		To													
		A	B	C	D	E	F	G	H	I	J	K	L	M	N
From	A			5	5		5	5	5	5	0	5			
	B			5	5	5			5	5		5	5	0	
	C	5	5			5	5	5	5		0		5	5	
	D	5	5			5	5			5		0	5		
	E		5	5	5				5	5			0	5	
	F	5		5	5				5	5		0		5	
	G	5		5											5
	H	5	5	5		5	5				5			5	
	I	5	5		5	5	5				5	5	0		
	J	5		5					5	5					
	K	5	5		5		5			5					
	L		5	5	5	5				5					
	M		5	5		5	5		5						
	N							3							

Banned Stage transitions for Controller Stream 1

		To																									
From		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
	1																										
	2																										
	3																										
	4																										
	5																										
	6																										
	7																										
	8																										
	9																										
	10																										
	11																										
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	19																										
	20																										
	21																										
	22																										
	23																										
	24																										
	25																										
26																											

Interstage Matrix for Controller Stream 1

		To																									
From		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
	1	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	2	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	3	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	4	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	5	5	5	5	5	3	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	6	5	5	5	5	5	0	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	7	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	8	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	9	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	10	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	11	5	5	5	5	5	5	5	5	3	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	12	5	5	5	5	5	5	5	5	5	3	5	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	13	5	5	5	5	5	5	5	5	5	5	5	5	0	5	0	5	0	5	5	5	5	5	5	5	5	5
	14	5	5	5	5	5	5	5	5	5	5	5	5	3	0	3	0	3	0	5	5	5	5	5	5	5	5
	15	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5
	16	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	0	5	5	5	5	5	5	5	5	5	5
	17	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5
	18	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	0	5	5	5	5	5	5	5	5
	19	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5
	20	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5
	21	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5
	22	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5
	23	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	5	5	5	0	5	5	5
	24	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	5	5	5	0	5	5
	25	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	5	5	5	0	5
26	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	5	5	5	0	

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B,N	119	17	18	1	18
	2	✓	6	C,D,N	22	42	20	1	5
	3	✓	2	A,E,N	47	50	3	1	3
	4	✓	4	B,F,G,J	55	78	23	1	18
	5	✓	19	G,H,I	83	104	21	1	20
	6	✓	22	G,J,K,L,M	109	114	5	1	5

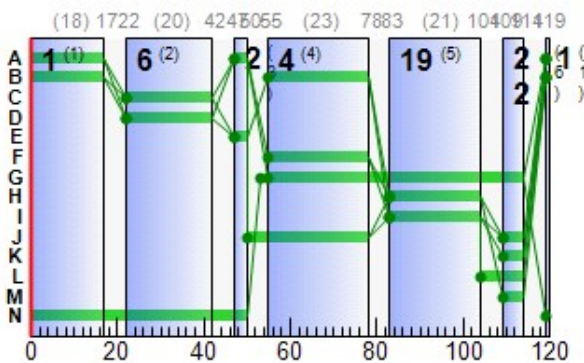
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	47	50	3
		2	✓	119	17	18
	B	1	✓	55	78	23
		2	✓	119	17	18
	C	1	✓	22	42	20
	D	1	✓	22	42	20
	E	1	✓	47	50	3
	F	1	✓	55	78	23
	G	1	✓	55	114	59
	H	1	✓	83	104	21
	I	1	✓	83	104	21
	J	1	✓	50	78	28
		2	✓	109	114	5
	K	1	✓	109	114	5
	L	1	✓	104	114	10
	M	1	✓	109	114	5
	N	1	✓	119	50	51

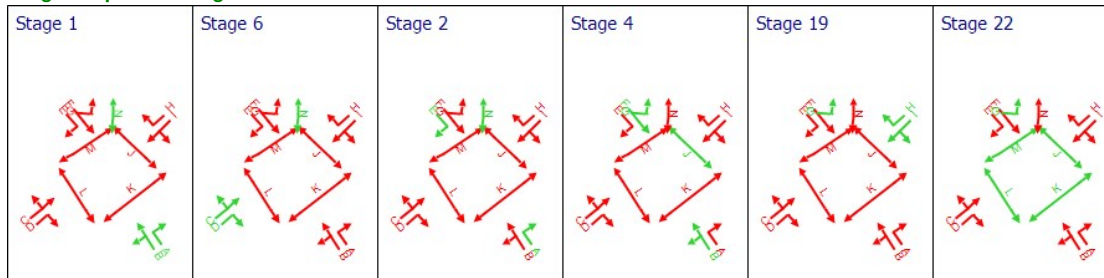
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
A	1	1	1	I	83	104	21			
A	2	1	1	H	83	104	21			
B	1	1	1	B	55	78	23	119	17	18
B	2	1	1	A	47	50	3	119	17	18
C	1	1	1	C	22	42	20			
C	2	1	1	D	22	42	20			
D	2	1	1	F	55	78	23			
D	3	1	1	E	47	50	3			
D-1	1	1	1	G	55	114	59			

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
17:00-18:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (Veh)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:00-18:00	A	1	104	-4	344	1800	21	182.32	23.84	117.81	247.39	7.85	255.24
		2	41	144	135	1800	21	47.02	4.08	19.95	25.04	1.52	26.55
	Ax	1	0	Unrestricted	579	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
		2	100	0	648	1800	41	94.37	24.84	117.42	241.21	12.17	253.38
	B	1	52	93	179	1800	21	30.87	4.01	18.58	21.80	2.15	23.95
		2	0	Unrestricted	641	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Bx	1	0	Unrestricted	641	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
		2	109	-8	343	1800	20	235.65	28.53	112.10	318.83	8.66	327.48
	C	1	66	52	207	1800	20	56.85	7.00	28.14	46.42	2.60	49.02
		2	0	Unrestricted	420	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Cx	1	0	Unrestricted	420	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
		2	84	19	303	1800	23	70.33	11.71	13.47	84.05	4.32	88.37
	D	1	57	76	34	1800	3	93.86	1.46	16.32	12.59	0.54	13.12
		2	0	Unrestricted	618	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	Dx	1	0	Unrestricted	618	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
		2	27	276	479	1800	120	0.36	0.05	0.40	0.68	0.00	0.68
	A-1	1	46	118	827	1800	120	0.85	0.19	2.50	2.77	0.00	2.77
		2	31	227	550	1800	120	0.44	0.07	0.58	0.95	0.00	0.95
	B-1	1	12	718	110	1800	59	16.26	1.93	21.39	7.06	0.71	7.77
		2	25	303	447	1800	120	0.33	0.04	0.18	0.58	0.00	0.58

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Calculated sat flow (Veh/hr)	Calculated capacity (Veh/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
17:00-18:00	A	1	344	330	0		1800	330	104	✓	-4	0.00	21
		2	135	135	0		1800	330	41		144	0.00	21
	Ax	1	579	579	26	✓	Unrestricted	Unrestricted	0		Unrestricted	0.71	120
		2	648	645	0		1800	645	100	✓	0	0.00	41
	B	1	179	179	0		1800	345	52		93	0.00	21
		2	641	641	6	✓	Unrestricted	Unrestricted	0		Unrestricted	0.60	120
	Bx	1	641	641	6	✓	Unrestricted	Unrestricted	0		Unrestricted	0.60	120
		2	343	315	0		1800	315	109	✓	-8	0.00	20
	C	1	207	207	0		1800	315	66		52	0.00	20
		2	420	420	9	✓	Unrestricted	Unrestricted	0		Unrestricted	0.45	120
	Cx	1	420	420	9	✓	Unrestricted	Unrestricted	0		Unrestricted	0.45	120
		2	303	303	0		1800	360	84		19	0.00	23
	D	1	34	34	0		1800	60	57		76	0.00	3
		2	618	618	4	✓	Unrestricted	Unrestricted	0		Unrestricted	0.55	120
	Dx	1	618	618	4	✓	Unrestricted	Unrestricted	0		Unrestricted	0.55	120
		2	479	479	0		1800	1800	27		276	0.00	120
	A-1	1	827	827	0		1800	1800	46		118	0.00	120
		2	550	550	0		1800	1800	31		227	0.00	120
	B-1	1	110	110	0		1800	900	12		718	0.00	59
		2	447	447	0		1800	1800	25		303	0.00	120

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
17:00-18:00	A	1	13.96	182.32	4.49	12.93	247.39	189.72	329.57	296.50	7.85
		2	14.11	47.02	1.62	0.14	25.04	89.62	116.79	4.19	1.52
	Ax	1	25.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	14.60	94.37	3.97	13.02	241.21	150.51	633.61	337.18	12.17
		2	14.88	30.87	1.26	0.28	21.80	95.93	155.47	16.24	2.15
	Bx	1	27.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	17.56	235.65	4.33	18.12	318.83	219.18	315.00	375.43	8.66
		2	17.16	56.85	2.65	0.62	46.42	100.21	189.39	18.05	2.60
	Cx	1	31.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	2	60.00	70.33	3.89	2.03	84.05	113.75	286.65	58.01	4.32
		3	6.18	93.86	0.54	0.35	12.59	125.69	33.10	9.64	0.54
		1	30.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	A-1	1	8.42	0.36	0.00	0.05	0.68	0.00	0.00	0.00	0.00
	B-1	1	5.37	0.85	0.00	0.19	2.77	0.00	0.00	0.00	0.00
	C-1	1	7.92	0.44	0.00	0.07	0.95	0.00	0.00	0.00	0.00
	D-1	1	6.24	16.26	0.49	0.01	7.06	51.75	56.67	0.26	0.71
	D-2	1	16.07	0.33	0.00	0.04	0.58	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (Veh)	Mean max queue (Veh)	Max queue storage (Veh)	Utilised storage (%)	Average storage excess queue (Veh)	Average limit excess queue (Veh)	Excess queue penalty (£ per hr)	Wasted time starvation (s per cycle)	Wasted time blocking back (s per cycle)	Wasted time total (s per cycle)	Estimated blocking
17:00-18:00	A	1	0.00	23.84	20.23	117.81	0.61	0.00	0.00	0.00	0.00	0.00	
		2	0.00	4.08	20.45	19.95	0.00	0.00	0.00	0.00	0.00	0.00	
	Ax	1	0.00	0.00	36.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	B	1	0.00	24.84	21.15	117.42	0.52	0.00	0.00	0.00	0.00	0.00	
		2	0.00	4.01	21.56	18.58	0.00	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	40.22	0.00	0.00	0.00	0.00	17.00	0.00	17.00	
	C	1	0.00	28.53	25.45	112.10	0.46	0.00	0.00	0.00	0.00	0.00	
		2	0.00	7.00	24.87	28.14	0.00	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	46.23	0.00	0.00	0.00	0.00	10.00	0.00	10.00	
	D	2	0.00	11.71	86.96	13.47	0.00	0.00	0.00	0.00	0.00	0.00	
		3	0.00	1.46	8.95	16.32	0.00	0.00	0.00	1.00	0.00	1.00	
	Dx	1	0.00	0.00	44.62	0.00	0.00	0.00	0.00	2.00	0.00	2.00	
	A-1	1	0.00	0.05	12.20	0.40	0.00	0.00	0.00	0.00	40.00	40.00	
	B-1	1	0.00	0.19	7.79	2.50	0.00	0.00	0.00	0.00	37.00	37.00	
	C-1	1	0.00	0.07	11.48	0.58	0.00	0.00	0.00	0.00	36.00	36.00	
	D-1	1	0.00	1.93	9.04	21.39	0.00	0.00	0.00	0.00	0.00	0.00	
	D-2	1	0.00	0.04	23.30	0.18	0.00	0.00	0.00	0.00	0.00	0.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
17:00-18:00	A	1	40.02	18.76	2.13	196.28
		2	15.87	2.29	6.92	61.13
	Ax	1	123.03	4.10	30.00	25.49
	B	1	78.82	19.61	4.02	108.97
		2	22.19	2.27	9.75	45.75
	Bx	1	148.33	4.94	30.00	27.75
	C	1	50.20	24.13	2.08	253.22
		2	29.60	4.26	6.96	74.01
	Cx	1	111.56	3.72	30.00	31.90
	D	2	151.50	10.97	13.81	130.33
		3	1.75	0.94	1.85	100.03
	Dx	1	158.46	5.28	30.00	30.79
	A-1	1	33.62	1.17	28.76	8.78
	B-1	1	37.04	1.43	25.91	6.22
	C-1	1	36.32	1.28	28.42	8.36
	D-1	1	5.72	0.69	8.32	22.50
	D-2	1	59.88	2.04	29.40	16.40

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (Veh)	Max End of Green Queue EoTS (Veh)	Max End of Red Queue EoTS (Veh)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
17:00-18:00	A	1	0.00	0.00	✓	32.29	21.38	30.36	1.00	0.00	255.24
		2	0.00	0.00	✓	4.08	0.14	3.82	1.00	0.00	26.55
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	30.90	20.15	26.77	1.00	0.00	253.38
		2	0.00	0.00	✓	4.01	0.28	3.66	1.00	0.00	23.95
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	43.09	32.68	41.34	1.00	0.00	327.48
		2	0.00	0.00	✓	7.00	0.62	6.31	1.00	0.00	49.02
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	2	0.00	0.00	✓	11.81	2.13	10.21	1.00	0.00	88.37
		3	0.00	0.00	✓	1.47	0.36	1.45	1.00	0.00	13.12
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	A-1	1	0.00	0.00	✓	0.05			1.00	0.00	0.68
	B-1	1	0.00	0.00	✓	0.20			1.00	0.00	2.77
	C-1	1	0.00	0.00	✓	0.07			1.00	0.00	0.95
	D-1	1	0.00	0.00	✓	1.93	0.01	1.84	1.00	0.00	7.77
	D-2	1	0.00	0.00	✓	0.04			1.00	0.00	0.58

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
17:00-18:00	1	1	11	50	11000	5	55.58	1.60	10.96	10.96
		2	11	50	11000	5	55.58	1.60	10.96	10.96
	2	1	5	50	11000	10	50.88	1.53	10.03	10.03
		2	5	50	11000	10	50.88	1.53	10.03	10.03
	3	1	2	50	11000	33	34.50	1.58	6.80	6.80
		2	2	50	11000	33	17.43	0.78	3.44	3.44
	4	1	11	50	11000	5	55.58	1.60	10.96	10.96
		2	11	50	11000	5	93.38	1.67	18.42	18.42
	5	1	2	100	11000	51	18.03	1.17	7.11	7.11
		2	2	100	11000	51	20.13	1.92	7.94	7.94

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
17:00-18:00	1	1	50	50	0		11000	458	11		817	0.00	5
		2	50	50	0		11000	458	11		817	0.00	5
	2	1	50	50	0		11000	917	5		1733	0.00	10
		2	50	50	0		11000	917	5		1733	0.00	10
	3	1	50	50	0		11000	3025	2		5950	1.15	33
		2	50	50	0		11000	3025	2		5950	0.00	33
	4	1	50	50	0		11000	458	11		817	0.00	5
		2	50	50	0		11000	458	11		817	1.15	5
	5	1	100	100	0		11000	4675	2		4575	1.67	51
		2	100	100	0		11000	4675	2		4575	0.00	51

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Weighted cost of delay (£ per hr)
17:00-18:00	1	1	13.00	55.58	0.77	0.00	10.96
		2	13.00	55.58	0.77	0.00	10.96
	2	1	11.67	50.88	0.71	0.00	10.03
		2	11.67	50.88	0.71	0.00	10.03
	3	1	12.67	34.50	0.48	0.00	6.80
		2	11.67	17.43	0.24	0.00	3.44
	4	1	11.00	55.58	0.77	0.00	10.96
		2	12.00	93.38	1.30	0.00	18.42
	5	1	6.00	18.03	0.50	0.00	7.11
		2	5.00	20.13	0.56	0.00	7.94

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
17:00-18:00	1	1	1.60	10.00	15.97	0.00	0.00	0.00
		2	1.60	10.00	15.97	0.00	0.00	0.00
	2	1	1.53	10.00	15.28	0.00	0.00	0.00
		2	1.53	10.00	15.28	0.00	0.00	0.00
	3	1	1.58	10.00	15.83	0.00	0.00	0.00
		2	0.78	10.00	7.78	0.00	0.00	0.00
	4	1	1.60	10.00	15.97	0.00	0.00	0.00
		2	1.67	10.00	16.67	0.00	0.00	0.00
	5	1	1.17	10.00	11.67	0.00	0.00	0.00
		2	1.92	10.00	19.17	0.00	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
17:00-18:00	1	1	0.95	0.95	1.00	68.58
		2	0.95	0.95	1.00	68.58
	2	1	0.85	0.87	0.98	62.54
		2	0.85	0.87	0.98	62.54
	3	1	0.95	0.66	1.45	47.17
		2	0.85	0.40	2.10	29.10
	4	1	0.80	0.92	0.87	66.58
		2	0.90	1.46	0.61	105.38
	5	1	0.90	0.67	1.35	24.03
		2	0.70	0.70	1.00	25.13

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
17:00-18:00	1	1	0.00	0.00	1.60	1.00	0.00	10.96
		2	0.00	0.00	1.60	1.00	0.00	10.96
	2	1	0.00	0.00	1.53	1.00	0.00	10.03
		2	0.00	0.00	1.53	1.00	0.00	10.03
	3	1	0.00	0.00	1.58	1.00	0.00	6.80
		2	0.00	0.00	0.78	1.00	0.00	3.44
	4	1	0.00	0.00	1.60	1.00	0.00	10.96
		2	0.00	0.00	1.67	1.00	0.00	18.42
	5	1	0.00	0.00	1.17	1.00	0.00	7.11
		2	0.00	0.00	1.92	1.00	0.00	7.94

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Item with worst over PR
2	04/04/2022 15:06:30	04/04/2022 15:06:31	17:00	120	1146.54	77.89	108.89	C/1	3	11	C/1	B-1/1	C/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Actual green (s per cycle)	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:00-18:00	109	-8	6864	1189	37.28	1009.36	40.52	1049.88

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
17:00-18:00	11	600	208	40.84	96.66	96.66

Network Results: Flows and signals

Time Segment	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
17:00-18:00	7464	7419	45	✓	109	✓	-8	1397

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
17:00-18:00	18.54	37.57	30.05	47.84	1106.02	44.54	2116.26	1115.51	40.52

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
17:00-18:00	117.81	0.00	30.00	113.00	143.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
17:00-18:00	1112.61	116.33	9.56

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
17:00-18:00	0.00	0.00	✓	1.00	0.00	0.00	1146.54

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

	To							
	1	2	3	4	5	6	7	8
From	1	0.0	292.4	287.1	110.1	0.0	0.0	0.0
	2	148.3	0.0	64.4	174.5	0.0	0.0	0.0
	3	237.0	100.7	0.0	232.8	0.0	0.0	0.0
	4	147.1	146.0	77.5	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	68.6	53.1	0.0
	6	0.0	0.0	0.0	0.0	68.6	0.0	62.5
	7	0.0	0.0	0.0	0.0	72.3	0.0	130.5
	8	0.0	0.0	0.0	0.0	62.5	90.6	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (Veh/hr)	Pedestrian calculated flow (Ped/hr)	Normal journey time (s)	Pedestrian journey time (s)	Calculated Total Flow (Veh/hr)	Avg journey time (s)
14	7	5		50		72.29	50	72.29
15	7	8		50		130.50	50	130.50
16	2	4	303		174.48		303	174.48
17	2	3	110		64.39		110	64.39
18	8	6		50		62.54	50	62.54
19	4	2	460		145.98		460	145.98
20	3	1	207		236.96		207	236.96
23	5	6		50		68.58	50	68.58
34	6	8		50		62.54	50	62.54
35	6	5		50		68.58	50	68.58
36	8	7		50		90.61	50	90.61
37	5	7		50		53.13	50	53.13
39	2	1	34		148.33		34	148.33
40	1	4	207		110.12		207	110.12
41	1	2	27		292.37		27	292.37
42	1	3	316		287.07		316	287.07
43	4	3	179		77.46		179	77.46
44	4	1	188		147.09		188	147.09
45	3	2	135		100.70		135	100.70
46	3	4	137		232.82		137	232.82

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (Veh)
A	1	(untitled)	1	1	I	344 <	1800	21	0.00	104	-4	196.28	182.32	189.72	23.84 +
	2		1	1	H	135	1800	21	0.00	41	144	61.13	47.02	89.62	4.08
Ax	1	(untitled)				579	Unrestricted	120	0.00	0	Unrestricted	25.49	0.00	0.00	0.00
B	1	(untitled)	1	1	B	648 <	1800	41	0.00	100	0	108.97	94.37	150.51	24.84 +
	2		1	1	A	179	1800	21	0.00	52	93	45.75	30.87	95.93	4.01
Bx	1	(untitled)				641	Unrestricted	120	17.00	0	Unrestricted	27.75	0.00	0.00	0.00
C	1	(untitled)	1	1	C	343 <	1800	20	0.00	109	-8	253.22	235.65	219.18	28.53 +
	2		1	1	D	207	1800	20	0.00	66	52	74.01	56.85	100.21	7.00
Cx	1	(untitled)				420	Unrestricted	120	10.00	0	Unrestricted	31.90	0.00	0.00	0.00
D	2	(untitled)	1	1	F	303	1800	23	0.00	84	19	130.33	70.33	113.75	11.71
	3		1	1	E	34	1800	3	1.00	57	76	100.03	93.86	125.69	1.46
Dx	1	(untitled)				618	Unrestricted	120	2.00	0	Unrestricted	30.79	0.00	0.00	0.00
A-1	1		1			479	1800	120	40.00	27	276	8.78	0.36	0.00	0.05
B-1	1		1			827	1800	120	37.00	46	118	6.22	0.85	0.00	0.19
C-1	1		1			550	1800	120	36.00	31	227	8.36	0.44	0.00	0.07
D-1	1	(untitled)	1	1	G	110	1800	59	0.00	12	718	22.50	16.26	51.75	1.93
D-2	1		1			447	1800	120	0.00	25	303	16.40	0.33	0.00	0.04

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	PEN
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s per cycle)	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	Co tra pen (£ p
1	1	(untitled)	1	1	K	50	11000	5	11	817	68.58	55.58	1.60	100	0
	2	(untitled)	1	1	K	50	11000	5	11	817	68.58	55.58	1.60	100	0
2	1	(untitled)	1	1	L	50	11000	10	5	1733	62.54	50.88	1.53	100	0
	2	(untitled)	1	1	L	50	11000	10	5	1733	62.54	50.88	1.53	100	0
3	1	(untitled)	1	1	J	50	11000	33	2	5950	47.17	34.50	1.58	100	0
	2	(untitled)	1	1	J	50	11000	33	2	5950	29.10	17.43	0.78	100	0
4	1	(untitled)	1	1	M	50	11000	5	11	817	66.58	55.58	1.60	100	0
	2	(untitled)	1	1	M	50	11000	5	11	817	105.38	93.38	1.67	100	0
5	1	(untitled)		1	N	100	11000	51	2	4575	24.03	18.03	1.17	100	0
	2	(untitled)		1	N	100	11000	51	2	4575	25.13	20.13	1.92	100	0

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	1103.91	107.88	10.23	23.24	47.84	1009.36	40.52	0.00	1049.88
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	8.70	8.46	1.03	6.81	0.00	96.66	0.00	0.00	96.66
TOTAL	1112.61	116.33	9.56	30.05	47.84	1106.02	40.52	0.00	1146.54

- 1 < = adjusted flow warning (upstream links/traffic streams are over-saturated)
- 1 * = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%
- 1 ^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%
- 1 + = average link/traffic stream excess queue is greater than 0
- 1 P.I. = PERFORMANCE INDEX

Junctions 9	
ARCADY 9 - Roundabout Module	
Version: 9.5.1.7462 © Copyright TRL Limited, 2019	
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk	
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Filename: Junction 4 - AM-PM.j9

Path: M:\Projects\21\21-011 - Mooretown Phase 3\Design\Traffic\Junction Modelling\August 2021\Junction 4

Report generation date: 12/04/2022 11:23:35

-
- »Junction 4 - 2022, AM
 - »Junction 4 - 2022, PM
 - »Junction 4 - 2027, AM
 - »Junction 4 - 2027, PM
 - »Junction 4 - 2027 + LAP Developments, AM
 - »Junction 4 - 2027 + LAP Developments, PM
 - »Junction 4 - 2032, AM
 - »Junction 4 - 2032, PM
 - »Junction 4 - 2032+ Overall LAP, AM
 - »Junction 4 - 2032+ Overall LAP, PM
 - »Junction 4 - 2042, AM
 - »Junction 4 - 2042, PM
 - »Junction 4 - 2042 + Overall LAP, AM
 - »Junction 4 - 2042 + Overall LAP, PM

Summary of junction performance

	AM			PM		
	Set ID	Queue (Veh)	RFC	Set ID	Queue (Veh)	RFC
	Junction 4 - 2022					
Arm 1	D1	0.4	0.30	D2	0.6	0.37
Arm 2		0.5	0.34		0.5	0.35
Arm 3		1.1	0.51		0.3	0.24
Arm 4		0.4	0.27		0.2	0.15
	Junction 4 - 2027					
Arm 1	D3	0.8	0.45	D4	0.7	0.41
Arm 2		0.8	0.44		0.6	0.38
Arm 3		2.8	0.74		0.3	0.26
Arm 4		0.6	0.39		0.2	0.17
	Junction 4 - 2027 + LAP Developments					
Arm 1	D5	0.8	0.45	D6	1.1	0.52
Arm 2		0.8	0.44		0.8	0.45
Arm 3		2.8	0.74		0.5	0.33
Arm 4		0.6	0.39		0.2	0.18
	Junction 4 - 2032					
Arm 1	D7	0.5	0.35	D8	0.7	0.43
Arm 2		0.6	0.38		0.7	0.40
Arm 3		1.4	0.59		0.4	0.27
Arm 4		0.5	0.33		0.2	0.17
	Junction 4 - 2032+ Overall LAP					
Arm 1	D9	0.9	0.47	D10	1.2	0.54
Arm 2		0.9	0.46		0.9	0.47
Arm 3		3.2	0.77		0.5	0.35
Arm 4		0.7	0.41		0.2	0.19
	Junction 4 - 2042					
Arm 1	D11	0.6	0.37	D12	0.8	0.44
Arm 2		0.7	0.40		0.7	0.42
Arm 3		1.6	0.61		0.4	0.28
Arm 4		0.5	0.35		0.2	0.18
	Junction 4 - 2042 + Overall LAP					
Arm 1	D13	0.9	0.48	D14	1.2	0.55
Arm 2		0.7	0.41		0.9	0.49
Arm 3		3.1	0.76		0.6	0.36
Arm 4		0.7	0.41		0.2	0.20

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

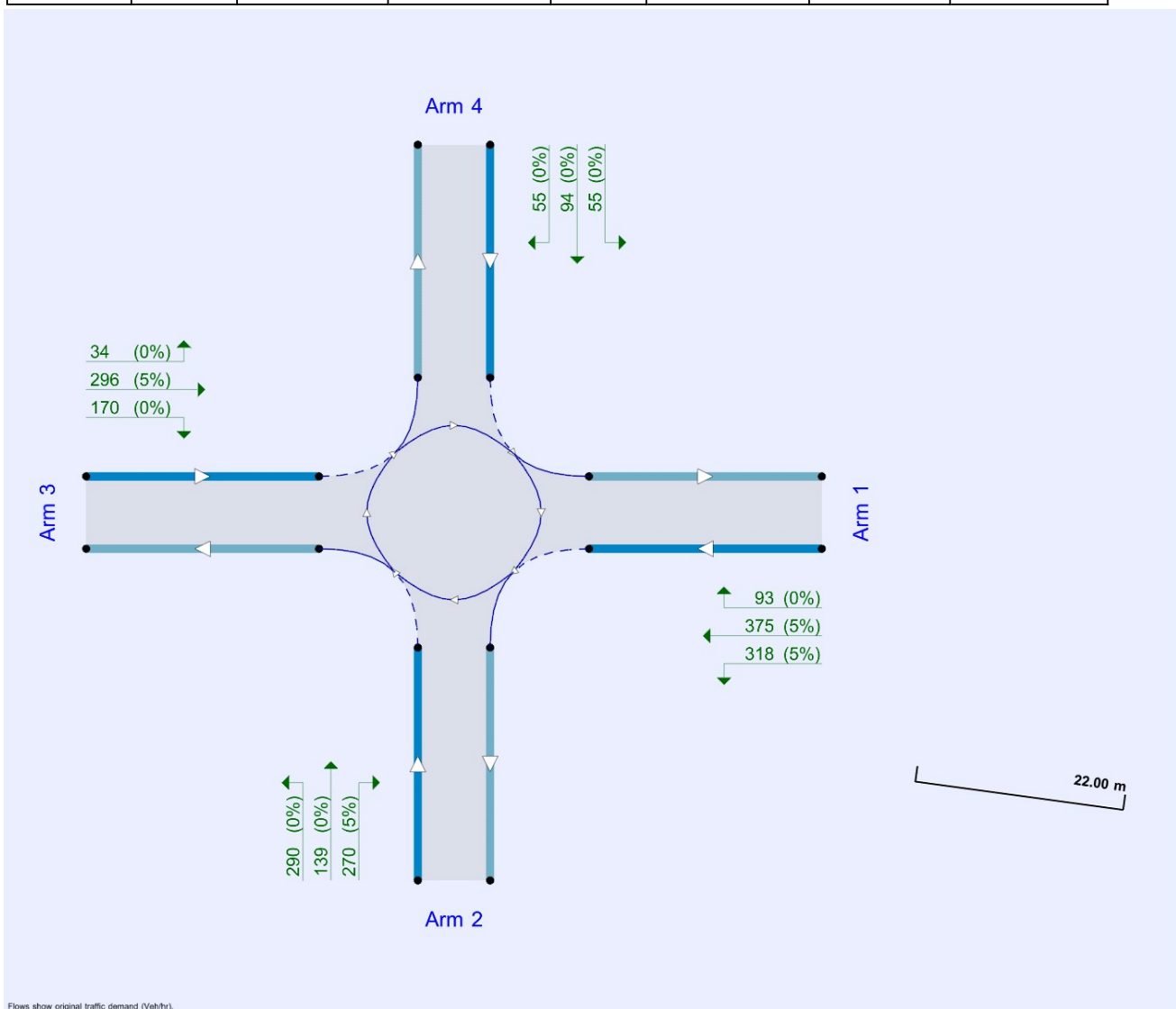
File summary

File Description

Title	
Location	
Site number	
Date	27/03/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DOMAINf.silva
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	Veh	Veh	perHour	s	-Min	perMin



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)	Single time segment only
D1	2022	AM	FLAT	08:00	09:00	60	✓
D2	2022	PM	FLAT	17:00	18:00	60	✓
D3	2027	AM	FLAT	08:00	09:00	60	✓
D4	2027	PM	FLAT	17:00	18:00	60	✓
D5	2027 + LAP Developments	AM	FLAT	08:00	09:00	60	✓
D6	2027 + LAP Developments	PM	FLAT	17:00	18:00	60	✓
D7	2032	AM	FLAT	08:00	09:00	60	✓
D8	2032	PM	FLAT	17:00	18:00	60	✓
D9	2032+ Overall LAP	AM	FLAT	08:00	09:00	60	✓
D10	2032+ Overall LAP	PM	FLAT	17:00	18:00	60	✓
D11	2042	AM	FLAT	08:00	09:00	60	✓
D12	2042	PM	FLAT	17:00	18:00	60	✓
D13	2042 + Overall LAP	AM	FLAT	08:00	09:00	60	✓
D14	2042 + Overall LAP	PM	FLAT	17:00	18:00	60	✓

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Junction 4	100.000

Junction 4 - 2022, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.37	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Glen Ellan Road (E)	
2	Glen Ellan Road (S)	
3	Glen Ellan Road (W)	
4	Northern Arm	

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)	Exit only
1	4.30	6.50	12.1	38.0	45.0	44.3	
2	4.40	7.46	11.5	69.6	45.0	43.7	
3	4.35	8.70	8.4	30.4	45.0	42.7	
4	4.50	6.03	2.3	27.3	45.0	43.4	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.615	1677
2	0.646	1812
3	0.632	1764
4	0.571	1461

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)	Single time segment only
D1	2022	AM	FLAT	08:00	09:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
1		✓	401	100.000
2		✓	530	100.000
3		✓	766	100.000
4		✓	243	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
	1	2	3	4	
From	1	0	137	205	59
	2	221	0	231	78
	3	396	331	0	39
	4	89	121	33	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
	1	2	3	4	
From	1	0	5	5	0
	2	5	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 (Veh)	Max LOS
1	0.30	3.90	0.4	A
2	0.34	3.42	0.5	A
3	0.51	4.94	1.1	A
4	0.27	5.46	0.4	A

Main Results for each time segment

08:00 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	401	484	1323	0.303	401	0.4	3.902	A
2	530	297	1581	0.335	529	0.5	3.421	A
3	766	358	1492	0.513	765	1.1	4.942	A
4	243	947	902	0.269	243	0.4	5.455	A

Junction 4 - 2022, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.65	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Single time segment only
D2	2022	PM	FLAT	17:00	18:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
1		✓	546	100.000
2		✓	538	100.000
3		✓	335	100.000
4		✓	172	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
	1	2	3	4	
From	1	0	247	219	80
	2	216	0	119	203
	3	190	116	0	29
	4	47	81	44	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
	1	2	3	4	
From	1	0	5	5	0
	2	5	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 (Veh)	Max LOS
1	0.37	3.91	0.6	A
2	0.35	3.54	0.5	A
3	0.24	3.37	0.3	A
4	0.15	3.68	0.2	A

Main Results for each time segment

17:00 - 18:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	546	241	1466	0.372	545	0.6	3.906	A
2	538	343	1553	0.347	537	0.5	3.544	A
3	335	499	1402	0.239	335	0.3	3.372	A
4	172	522	1151	0.149	172	0.2	3.675	A

Junction 4 - 2027, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	7.14	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Single time segment only
D3	2027	AM	FLAT	08:00	09:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
1		✓	568	100.000
2		✓	669	100.000
3		✓	1059	100.000
4		✓	264	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1	2	3	4
From	1	0	193	311	64
	2	305	0	279	85
	3	596	421	0	42
	4	97	132	35	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1	2	3	4
From	1	0	5	5	0
	2	5	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 (Veh)	Max LOS
1	0.45	5.19	0.8	A
2	0.44	4.31	0.8	A
3	0.74	9.62	2.8	A
4	0.39	8.59	0.6	A

Main Results for each time segment

08:00 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	568	586	1260	0.451	567	0.8	5.187	A
2	669	409	1503	0.445	668	0.8	4.307	A
3	1059	453	1427	0.742	1056	2.8	9.622	A
4	264	1319	682	0.387	263	0.6	8.594	A

Junction 4 - 2027, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.85	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Single time segment only
D4	2027	PM	FLAT	17:00	18:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
1		✓	595	100.000
2		✓	586	100.000
3		✓	366	100.000
4		✓	188	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
	1	2	3	4	
From	1	0	269	239	87
	2	236	0	221	129
	3	207	127	0	32
	4	52	88	48	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
	1	2	3	4	
From	1	0	5	5	0
	2	5	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 (Veh)	Max LOS
1	0.41	4.19	0.7	A
2	0.38	3.80	0.6	A
3	0.26	3.38	0.3	A
4	0.17	3.85	0.2	A

Main Results for each time segment

17:00 - 18:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	595	263	1453	0.409	594	0.7	4.187	A
2	586	374	1532	0.382	585	0.6	3.800	A
3	366	452	1431	0.256	366	0.3	3.380	A
4	188	569	1123	0.167	188	0.2	3.849	A

Junction 4 - 2027 + LAP Developments, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	7.11	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Single time segment only
D5	2027 + LAP Developments	AM	FLAT	08:00	09:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
1		✓	566	100.000
2		✓	668	100.000
3		✓	1058	100.000
4		✓	264	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
	1	2	3	4	
From	1	0	192	310	64
	2	304	0	279	85
	3	595	421	0	42
	4	97	132	35	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
	1	2	3	4	
From	1	0	5	5	0
	2	5	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 (Veh)	Max LOS
1	0.45	5.17	0.8	A
2	0.44	4.30	0.8	A
3	0.74	9.58	2.8	A
4	0.39	8.57	0.6	A

Main Results for each time segment

08:00 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	566	586	1260	0.449	565	0.8	5.174	A
2	668	408	1504	0.444	667	0.8	4.298	A
3	1058	452	1428	0.741	1055	2.8	9.580	A
4	264	1317	683	0.387	263	0.6	8.569	A

Junction 4 - 2027 + LAP Developments, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.58	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Single time segment only
D6	2027 + LAP Developments	PM	FLAT	17:00	18:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
1		✓	744	100.000
2		✓	656	100.000
3		✓	474	100.000
4		✓	188	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
	1	2	3	4	
From	1	0	299	358	87
	2	253	0	274	129
	3	281	161	0	32
	4	52	88	48	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
	1	2	3	4	
From	1	0	5	5	0
	2	5	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 (Veh)	Max LOS
1	0.52	5.22	1.1	A
2	0.45	4.50	0.8	A
3	0.33	3.81	0.5	A
4	0.18	4.18	0.2	A

Main Results for each time segment

17:00 - 18:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	744	297	1431	0.520	743	1.1	5.222	A
2	656	492	1455	0.451	655	0.8	4.498	A
3	474	468	1418	0.334	473	0.5	3.810	A
4	188	694	1049	0.179	188	0.2	4.179	A

Junction 4 - 2032, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	5.09	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Single time segment only
D7	2032	AM	FLAT	08:00	09:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
1		✓	452	100.000
2		✓	599	100.000
3		✓	865	100.000
4		✓	274	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1	2	3	4
From	1	0	155	231	66
	2	250	0	261	88
	3	447	374	0	44
	4	101	136	37	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1	2	3	4
From	1	0	5	5	0
	2	5	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 (Veh)	Max LOS
1	0.35	4.31	0.5	A
2	0.38	3.75	0.6	A
3	0.59	5.99	1.4	A
4	0.33	6.46	0.5	A

Main Results for each time segment

08:00 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	452	546	1286	0.351	451	0.5	4.310	A
2	599	334	1557	0.385	598	0.6	3.754	A
3	865	404	1463	0.591	864	1.4	5.989	A
4	274	1069	830	0.330	274	0.5	6.464	A

Junction 4 - 2032, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.97	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Single time segment only
D8	2032	PM	FLAT	17:00	18:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
1		✓	617	100.000
2		✓	607	100.000
3		✓	380	100.000
4		✓	194	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
	1	2	3	4	
From	1	0	279	248	90
	2	244	0	229	134
	3	215	132	0	33
	4	53	91	50	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
	1	2	3	4	
From	1	0	5	5	0
	2	5	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 (Veh)	Max LOS
1	0.43	4.33	0.7	A
2	0.40	3.92	0.7	A
3	0.27	3.46	0.4	A
4	0.17	3.93	0.2	A

Main Results for each time segment

17:00 - 18:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	617	273	1447	0.426	616	0.7	4.327	A
2	607	388	1523	0.398	606	0.7	3.924	A
3	380	467	1421	0.268	380	0.4	3.458	A
4	194	590	1110	0.175	194	0.2	3.926	A

Junction 4 - 2032+ Overall LAP, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	7.71	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Single time segment only
D9	2032+ Overall LAP	AM	FLAT	08:00	09:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
1		✓	582	100.000
2		✓	689	100.000
3		✓	1088	100.000
4		✓	274	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
	1	2	3	4	
From	1	0	198	318	66
	2	313	0	288	88
	3	610	434	0	44
	4	101	136	37	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
	1	2	3	4	
From	1	0	5	5	0
	2	5	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 (Veh)	Max LOS
1	0.47	5.38	0.9	A
2	0.46	4.45	0.9	A
3	0.77	10.66	3.2	B
4	0.41	9.26	0.7	A

Main Results for each time segment

08:00 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	582	605	1249	0.466	581	0.9	5.382	A
2	689	420	1496	0.460	688	0.9	4.449	A
3	1088	466	1419	0.767	1085	3.2	10.656	B
4	274	1353	661	0.414	273	0.7	9.263	A

Junction 4 - 2032+ Overall LAP, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.74	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Single time segment only
D10	2032+ Overall LAP	PM	FLAT	17:00	18:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
1		✓	766	100.000
2		✓	678	100.000
3		✓	487	100.000
4		✓	194	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
	1	2	3	4	
From	1	0	309	367	90
	2	262	0	282	134
	3	289	165	0	33
	4	53	91	50	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
	1	2	3	4	
From	1	0	5	5	0
	2	5	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 (Veh)	Max LOS
1	0.54	5.44	1.2	A
2	0.47	4.68	0.9	A
3	0.35	3.91	0.5	A
4	0.19	4.27	0.2	A

Main Results for each time segment

17:00 - 18:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	766	306	1426	0.537	765	1.2	5.436	A
2	678	506	1445	0.469	677	0.9	4.681	A
3	487	485	1407	0.346	486	0.5	3.909	A
4	194	715	1036	0.187	194	0.2	4.271	A

Junction 4 - 2042, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	5.35	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Single time segment only
D11	2042	AM	FLAT	08:00	09:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
1		✓	469	100.000
2		✓	620	100.000
3		✓	893	100.000
4		✓	283	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
	1	2	3	4	
From	1	0	161	239	69
	2	259	0	270	91
	3	462	386	0	45
	4	104	141	38	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
	1	2	3	4	
From	1	0	5	5	0
	2	5	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 (Veh)	Max LOS
1	0.37	4.46	0.6	A
2	0.40	3.87	0.7	A
3	0.61	6.39	1.6	A
4	0.35	6.83	0.5	A

Main Results for each time segment

08:00 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	469	564	1276	0.368	468	0.6	4.457	A
2	620	346	1549	0.400	619	0.7	3.870	A
3	893	419	1454	0.614	891	1.6	6.386	A
4	283	1105	809	0.350	282	0.5	6.832	A

Junction 4 - 2042, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.08	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Single time segment only
D12	2042	PM	FLAT	17:00	18:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
1		✓	637	100.000
2		✓	629	100.000
3		✓	392	100.000
4		✓	200	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1	2	3	4
From	1	0	288	256	93
	2	253	0	237	139
	3	222	136	0	34
	4	55	94	51	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1	2	3	4
From	1	0	5	5	0
	2	5	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 (Veh)	Max LOS
1	0.44	4.46	0.8	A
2	0.42	4.05	0.7	A
3	0.28	3.54	0.4	A
4	0.18	4.00	0.2	A

Main Results for each time segment

17:00 - 18:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	637	281	1443	0.442	636	0.8	4.460	A
2	629	400	1515	0.415	628	0.7	4.054	A
3	392	484	1410	0.278	392	0.4	3.536	A
4	200	610	1098	0.182	200	0.2	4.004	A

Junction 4 - 2042 + Overall LAP, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	7.47	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Single time segment only
D13	2042 + Overall LAP	AM	FLAT	08:00	09:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
1		✓	598	100.000
2		✓	618	100.000
3		✓	1116	100.000
4		✓	283	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
	1	2	3	4	
From	1	0	203	326	69
	2	231	0	296	91
	3	625	446	0	45
	4	104	141	38	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
	1	2	3	4	
From	1	0	5	5	0
	2	5	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 (Veh)	Max LOS
1	0.48	5.60	0.9	A
2	0.41	4.10	0.7	A
3	0.76	10.03	3.1	B
4	0.41	8.72	0.7	A

Main Results for each time segment

08:00 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	598	623	1239	0.483	597	0.9	5.603	A
2	618	432	1495	0.414	617	0.7	4.100	A
3	1116	391	1469	0.760	1113	3.1	10.032	B
4	283	1299	694	0.408	282	0.7	8.721	A

Junction 4 - 2042 + Overall LAP, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.92	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Single time segment only
D14	2042 + Overall LAP	PM	FLAT	17:00	18:00	60	✓

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 (Veh/hr)	Scaling Factor (%)
1		✓	786	100.000
2		✓	699	100.000
3		✓	500	100.000
4		✓	204	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
	1	2	3	4	
From	1	0	318	375	93
	2	270	0	290	139
	3	296	170	0	34
	4	55	94	55	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
	1	2	3	4	
From	1	0	5	5	0
	2	5	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 (Veh)	Max LOS
1	0.55	5.67	1.2	A
2	0.49	4.88	0.9	A
3	0.36	4.01	0.6	A
4	0.20	4.38	0.2	A

Main Results for each time segment

17:00 - 18:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	786	319	1418	0.554	785	1.2	5.671	A
2	699	522	1435	0.487	698	0.9	4.878	A
3	500	501	1397	0.358	499	0.6	4.007	A
4	204	735	1025	0.199	204	0.2	4.384	A

D. GoCar – Letter of Intent



Gerard Gannon Properties
Kinvara House
52 Northumberland House
Ballsbridge
Dublin 4

28/03/2022

To Whom It May Concern,

This is a letter to confirm that GoCar intends to provide a service of up to 6no. shared car club vehicles in the proposed Strategic Housing Development (SHD) at Mooretown, Swords, Co. Dublin. GoCar representatives have discussed the project with representatives of Gerard Gannon Properties, who are the developers for this project, and are excited to provide a car sharing service at this location. While it is the intention for these vehicles to be used primarily by the residents of the development, the vehicles will be open for access to other GoCar members nearby.

GoCar is Ireland's leading car sharing service with over 60,000 members and over 860 cars and vans on fleet. Car sharing is a sustainable community service. Each GoCar which is placed in a community has the potential to replace the journeys of up to 15 private vehicles. With the recent addition of vans to the GoCar fleet it gives members the ability to transport bulky items when moving accommodation or transporting larger appliances along with DIY materials.

The Department of Housing's Design Standards for New Apartments - Guidelines for Planning Authorities 2018 outline: "For all types of location, where it is sought to eliminate or reduce car parking provision, it is necessary to ensure... provision is also to be made for alternative mobility solutions including facilities for car sharing club vehicles."

By allowing multiple people to use the same vehicle at different times, car sharing reduces car ownership, car dependency, congestion, noise, and air pollution. It frees up land which would otherwise be used for additional parking spaces. Most GoCar users only use a car when necessary and walk and use public transport more often than car owners.

By having GoCar car sharing vehicles in a development such as this, the residents therein will have access to pay-as-you-go driving, in close proximity to their homes, which will increase usership of the service.

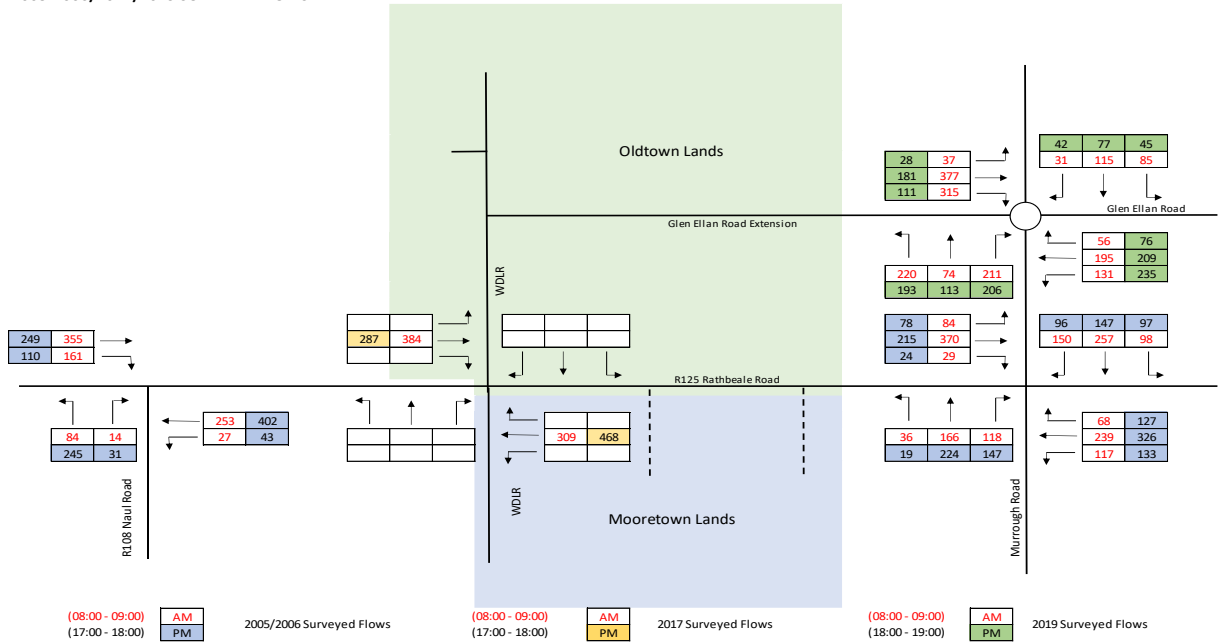
I trust that this information is satisfactory. For any queries, please do not hesitate to contact me.

A handwritten signature in black ink, appearing to read 'Rob Montgomery'.

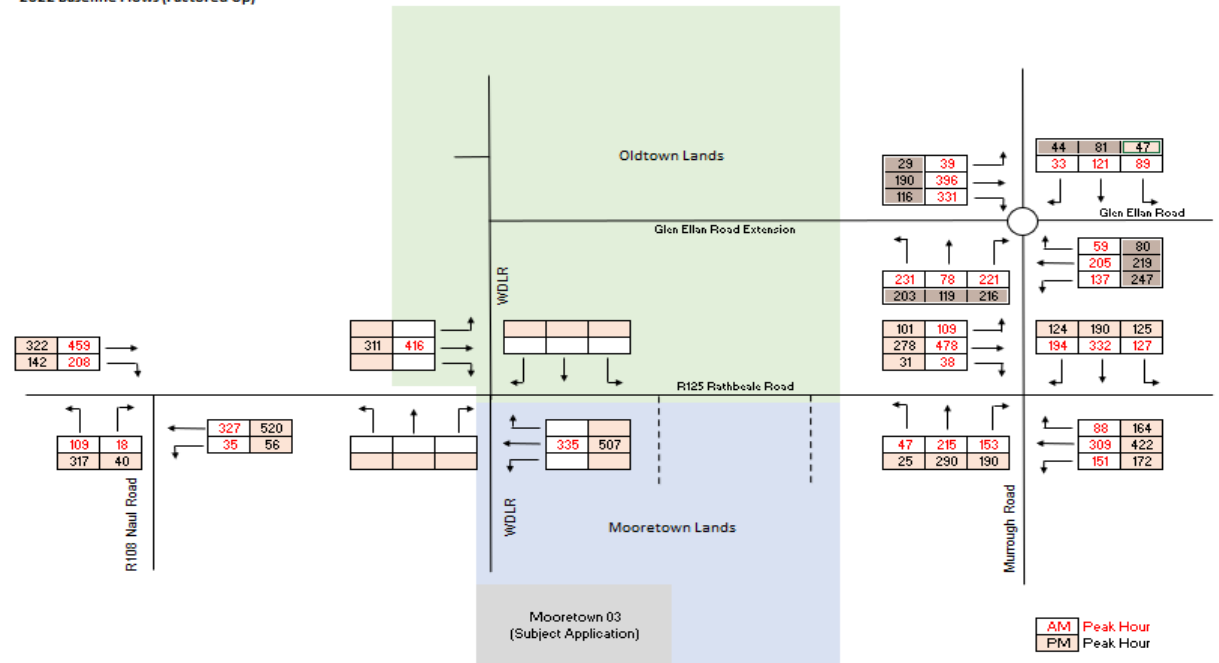
Rob Montgomery
Revenue and Growth Manager
GoCar Carsharing Ltd
Mobile: 086 609 7096
E: robert.montgomery@gocar.ie

E. Traffic Flow Diagrams

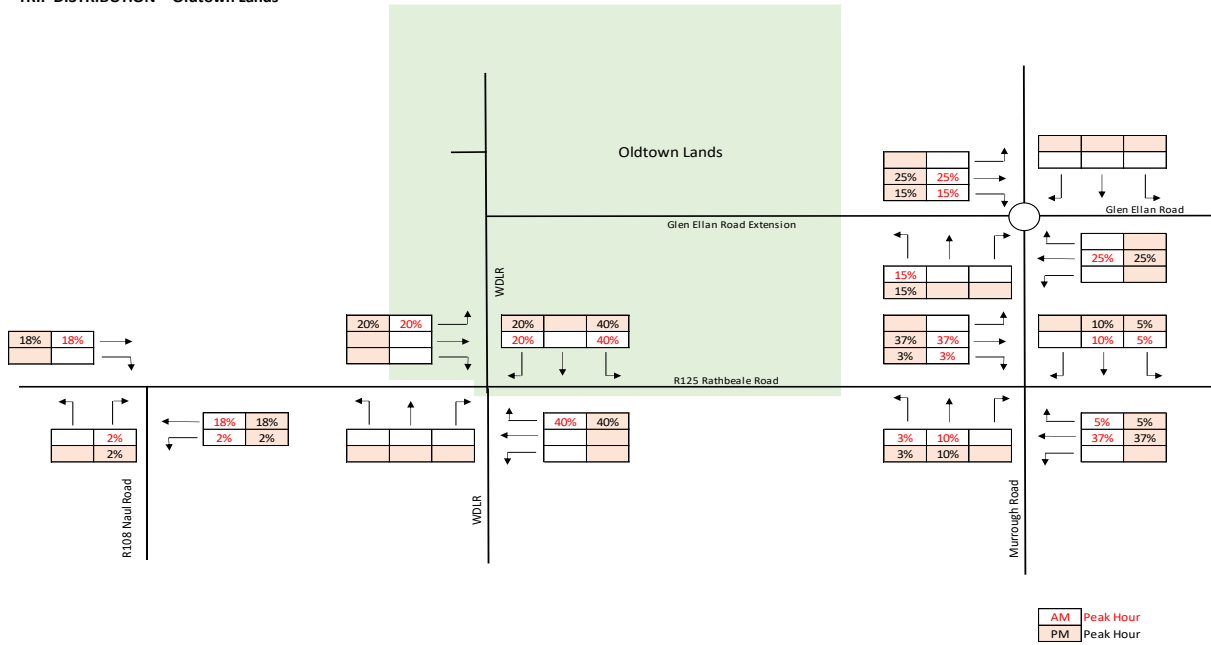
2005-2006/2017/2019 SURVEYED FLOWS



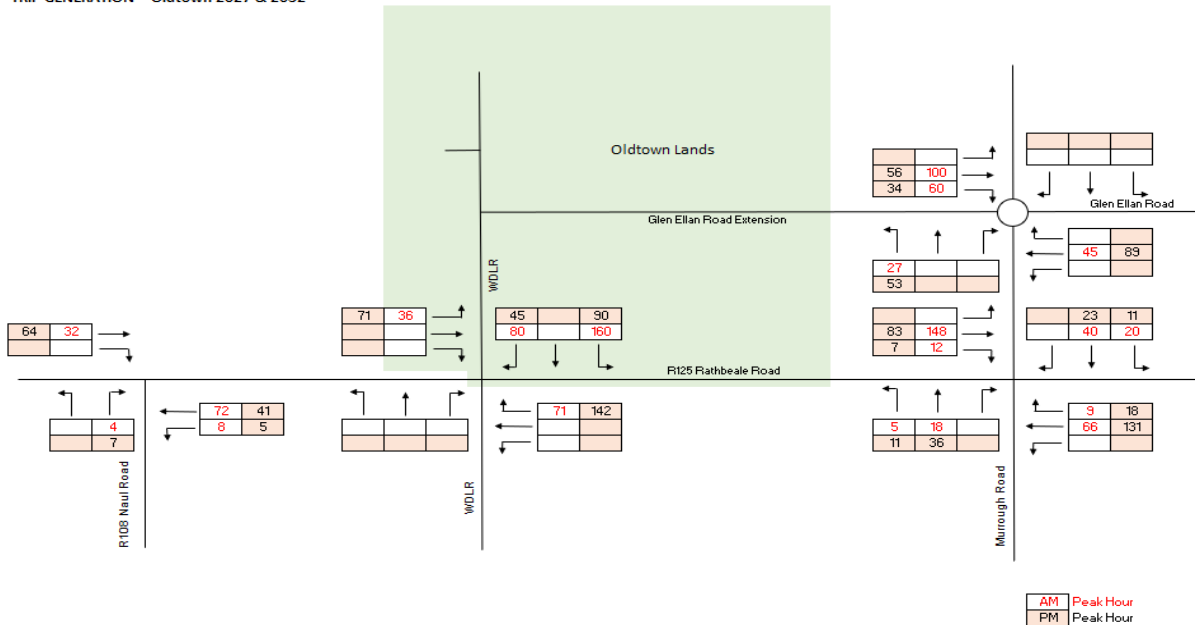
2022 Baseline Flows (Factored Up)



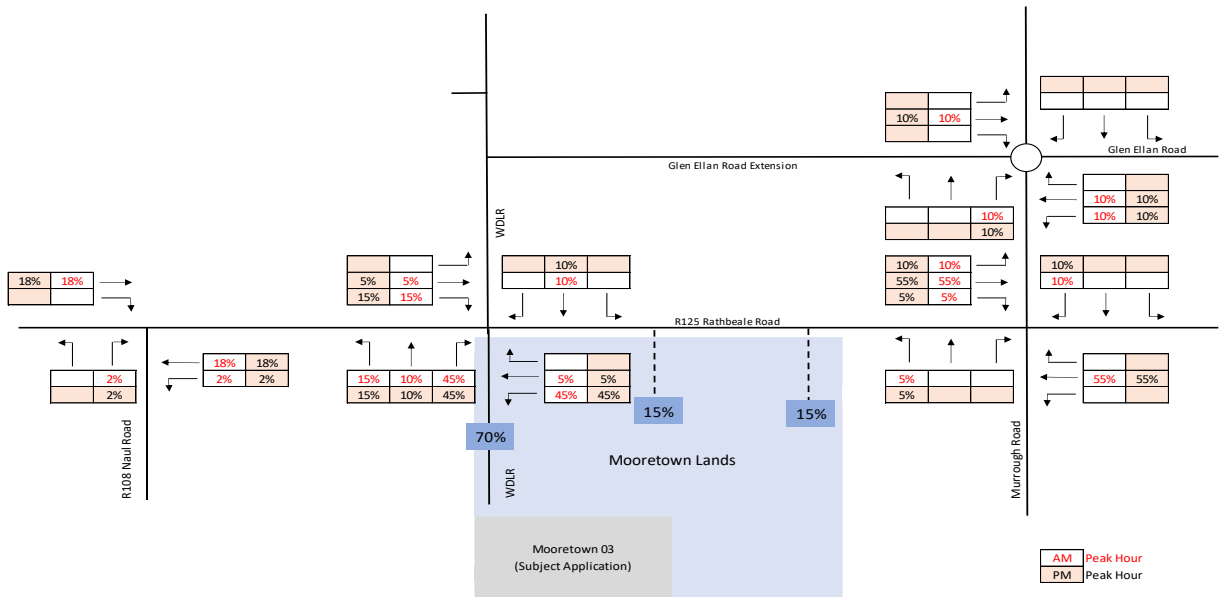
TRIP DISTRIBUTION - Oldtown Lands



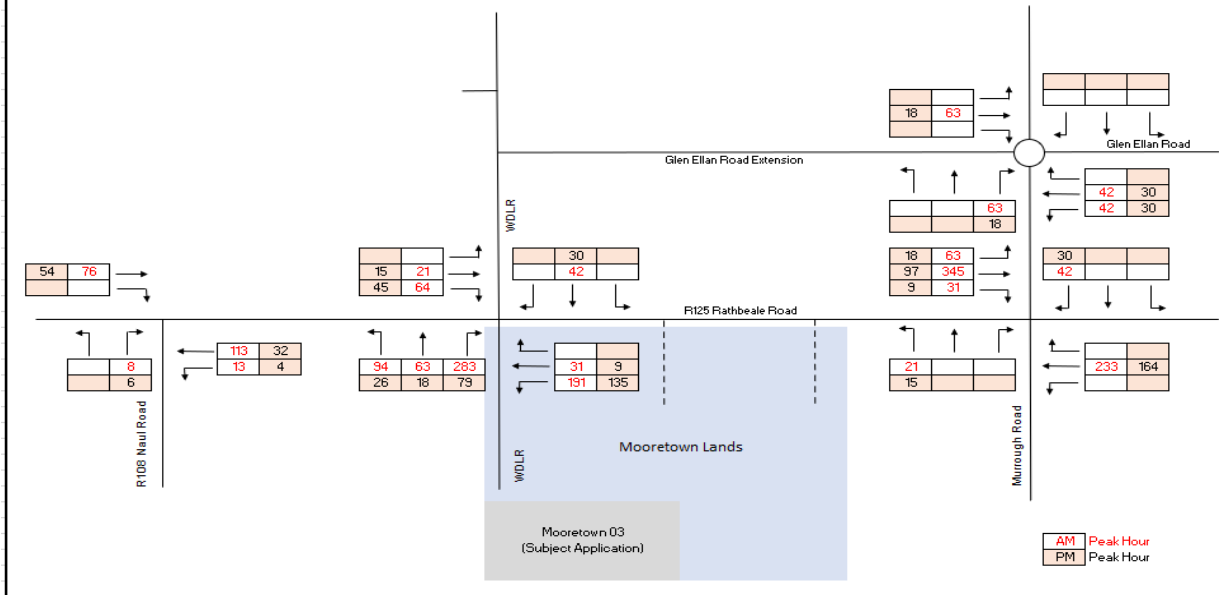
TRIP GENERATION - Oldtown 2027 & 2032



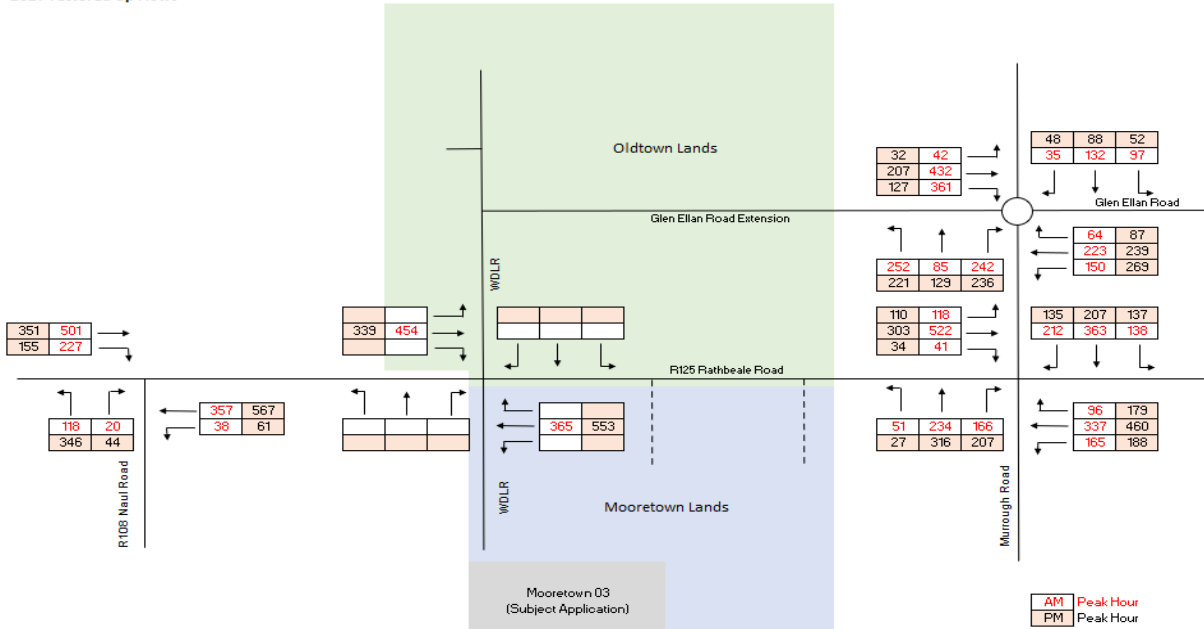
TRIP DISTRIBUTION - Mooretown Lands



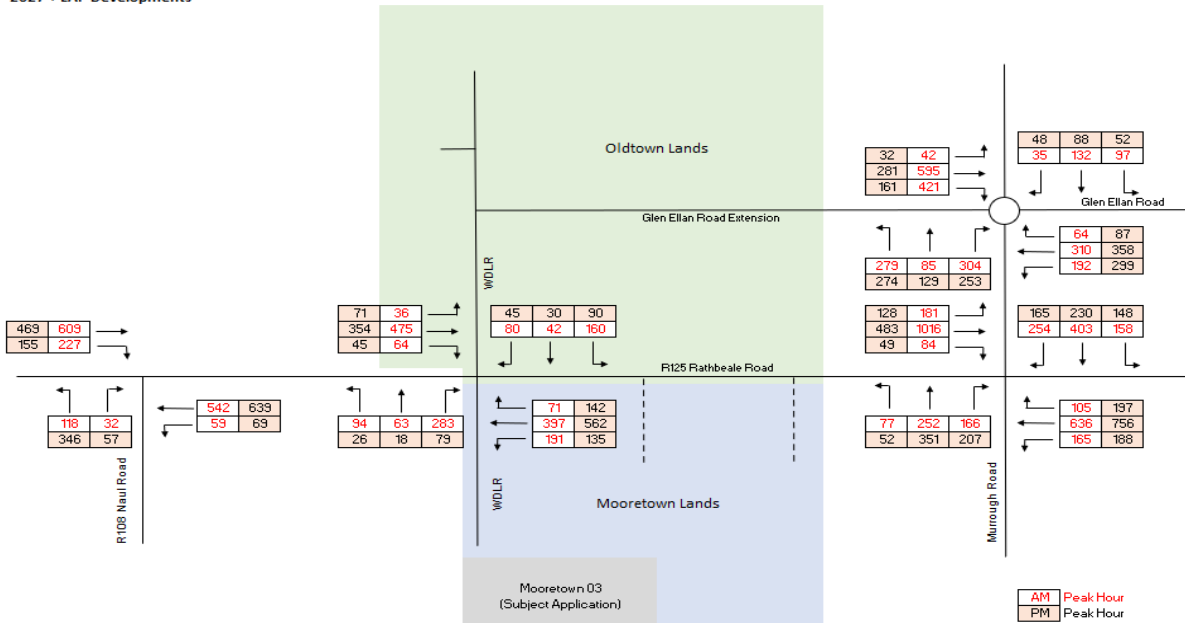
TRIP GENERATION - Mooretown 2027



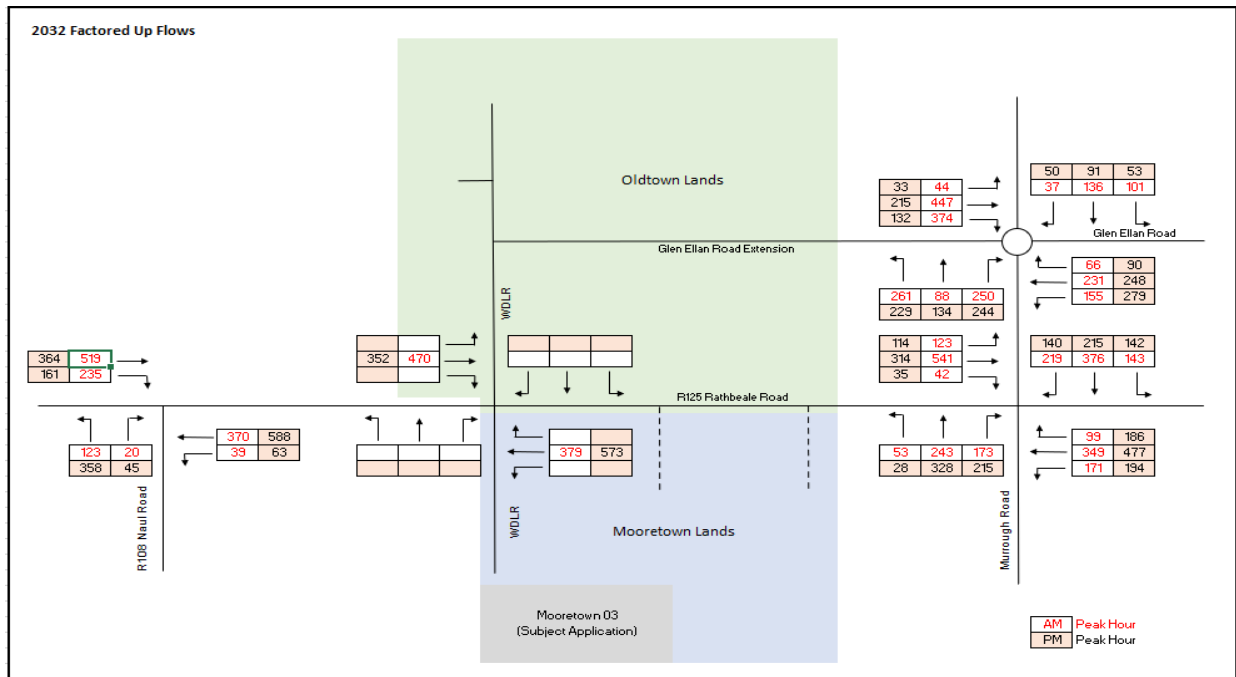
2027 Factored Up Flows



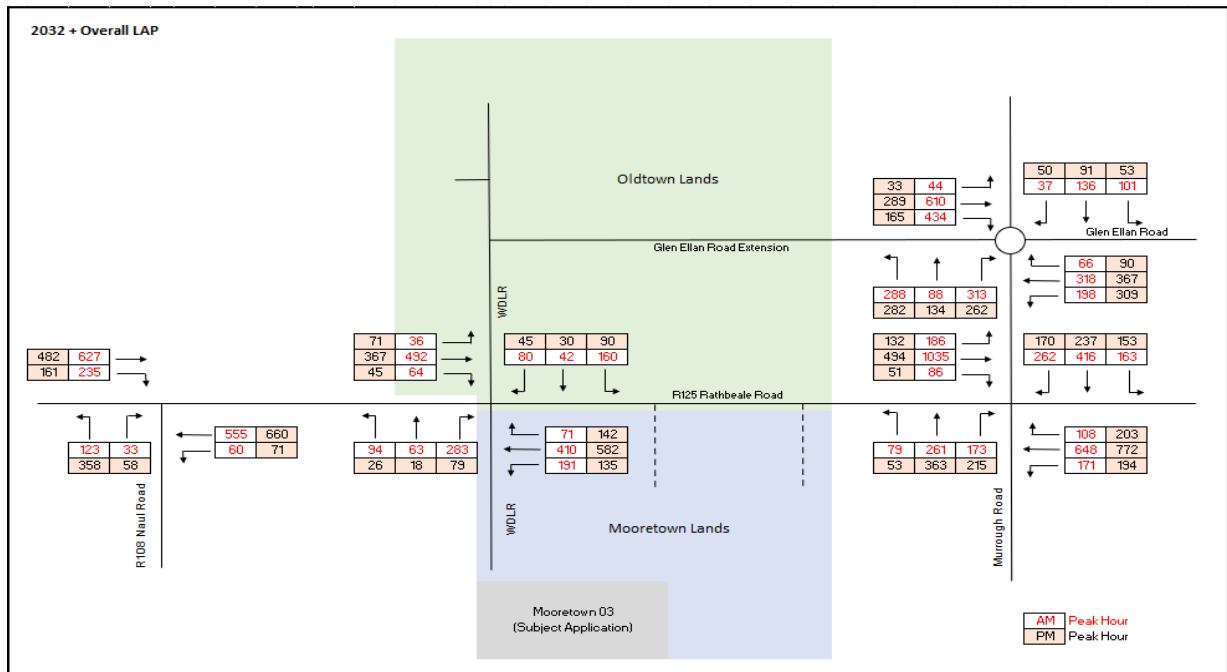
2027 + LAP Developments

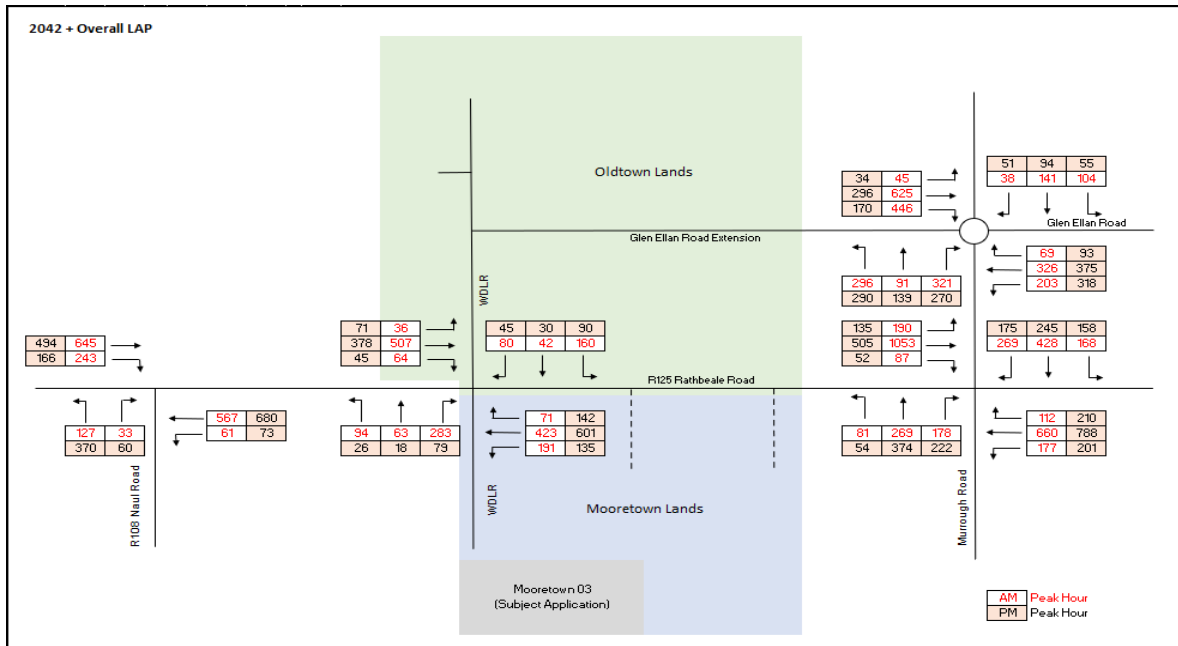
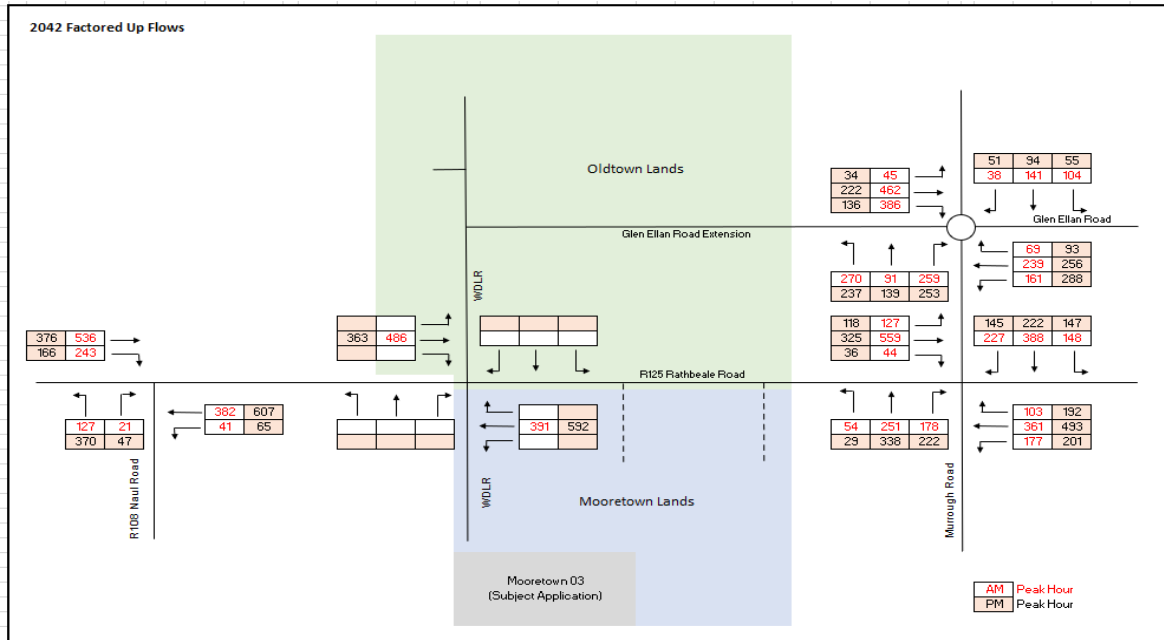


2032 Factored Up Flows



2032 + Overall LAP





UK and Ireland Office Locations

