



No

ABERLADY ROAD



**HERDMANFLAT
MASTERPLAN**
MEETING OUR CHANGING NEEDS

Appendix 10.2 Transport Assessment November 2023

Transport Assessment

Herdmanflat



Former Herdmanflat Hospital
A6137 Aberlady Road, Haddington

Client: Hub South East
Date: 12 September 2023
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Contents

1.0	Introduction	1
11	Site Location & History	1
12	Site Visit & Scoping Correspondence	2
13	Policy & Guidance	2
14	Report Structure	2
2.0	Planning Policy	3
2.1	National Planning Framework 4	3
2.2	Planning Advice Note 75	3
2.3	Scottish Government Transport Assessment Guidance (TAG)	4
2.4	Designing Streets	4
2.5	Department of Transport Inclusive Mobility (A Guide to Best Practice)	4
2.6	East Lothian Local Development Plan (LDP)	5
2.7	East Lothian Local Transport Strategy	5
2.8	East Lothian Segregated Active Travel Corridor	5
3.0	Existing Transport Conditions	7
3.1	General	7
3.2	Site Context	7
3.3	Existing Pedestrian Conditions	9
3.4	Existing Cycling Conditions	12
3.5	Existing Local Bus Services	13
3.6	Existing Local Rail Services	14
3.7	Existing Local Road Network	14
3.8	Existing Accident Record	16
4.0	Proposed Development & Travel Characteristics	17
4.1	Proposed Development.....	17
4.2	People Trip Generation (160 Units)	17
4.3	Trip Distribution	18
5.0	Traffic Impact Assessment	19
5.1	General & Area of Influence	19
5.2	Observed Traffic Flows	19
5.3	Junction Modelling & Assessment Scenarios	20
5.4	Detailed Junction Capacity Analysis Methodology & Reporting.....	20

5.5	Herdmanflatt/Florabank Road - Priority Junction Capacity Analysis	20
5.6	Dunbar Road/A199 - Priority Junction Capacity Analysis	21
5.7	Hardgate/Victoria Terrace/Market Street - Traffic Signals Capacity Analysis	22
5.8	A6137 Aberlady Road/A199/Haldane Avenue – Roundabout Capacity Analysis	23
5.9	A6137 Aberlady Road/Hope Park/Lydgait – Priority Junction Capacity Analysis	24
5.10	A6137 Aberlady Road/Site Access – Junction Capacity Assessment	24
6.0	Measures To Support the Proposed Development	25
6.1	Introduction	25
6.2	External Walking, Cycling & Public Transport Connections	25
6.3	Internal Site Layout for Walking, Cycling and Vehicular Traffic	28
6.4	Cycle & Car Parking	29
6.5	Proposed Development Access Strategy	30
6.6	External Road Network	30
6.7	Residents Travel Pack	30
6.8	Servicing	31
7.0	Conclusions	32
Figure 1-1	: Site Location (Bing Maps)	1
Figure 2-1	: East Lothian SATC	6
Figure 3-1	: Existing 20 Minute Neighbourhood Catchment	8
Figure 3-2	: A6137 Hope Park Pedestrian Characteristics	9
Figure 3-3	: Hopetoun Mews Pedestrian Characteristics	10
Figure 3-4	: Poor Pedestrian Provision on Lydgait	10
Figure 3-5	: Pedestrian Provision at Lydgait/Hope Street Junction	11
Figure 3-6	: Herdmanflatt Pedestrian Characteristics	11
Figure 3-7	: Local Cycle Routes	12
Figure 3-8	: Station Road Westbound Bus Stop	13
Figure 3-9	: Poor Visibility Looking Left at the Lydgait / A6137 Aberlady Road Junction	15
Figure 3-10	: Vehicle Conflict at the Lydgait / A6137 Aberlady Road Junction	15
Figure 3-11	: A199 Typical Conditions	16
Figure 6-1	: Active Travel Connections	25
Figure 6-2	: Reduction in Active Travel Distances	26
Figure 6-3	: Increase in 20-minute Neighbourhood Catchment	27
Figure 6-4	: Internal Roads & Footpaths (Source: DAS)	28
Table 3-1	: Local Amenities	7
Table 3-2	: Local Bus Services	14
Table 4-1	: People Trip Assessment	17
Table 4-2	: People Trip Generation by Mode	18
Table 4-3	: Trip Distribution & Assignment	18
Table 5-1	: Herdmanflatt/Florabank Road – Junction Capacity Results	21



Table 5-2 : Dunbar Road/A199 – Junction Capacity Results	21
Table 5-3 : Hardgate/Victoria Terrace/Market Street – Junction Capacity Results	22
Table 5-4 : A6137 Aberlady Road/A199/Haldane Avenue – Junction Capacity Results	23
Table 5-5 : A6137 Aberlady Road/Hope Park/Lydgait – Junction Capacity Results	24
Table 5-6 : A6137 Aberlady Road/Site Access – Junction Capacity Results	24
Table 6-1 : Sample Journey Time Reductions with Proposed Active Travel Connections	27
Table 6-2: East Lothian Council Parking Standards	29

APPENDIX 1	ACCIDENT REPORTS
APPENDIX 2	TRICS/DATASHINE DATA
APPENDIX 3	TRAFFIC FLOW MATRICES
APPENDIX 4	JUNCTION OUTPUT FILES
APPENDIX 5	DRAWINGS

1.0 Introduction

Goodson Associates (GA) has been commissioned by Hub South East Scotland on behalf of East Lothian Council (ELC) to prepare a Transport Assessment (TA) in support of a planning permission in principle (PPIP) application for a residential development at the former Herdmanflat Hospital in Haddington.

At the time of writing, the proposed development will comprise up to 160 affordable residential units, which will include a 75% allocation to Housing for Varying Needs (HfVN). This development is being delivered as part of the East Lothian Council Housing Programme and it is assumed that all units will have either 1, 2 or 3 bedrooms.

This report provides an overall assessment of the transport implications of the proposed development including consideration for pedestrians, cyclists and public transport users, as well as vehicular access, parking and potential off-site traffic impacts that the residential development will have on the surrounding transport network.

11 Site Location & History

The site is located on the former Herdmanflat Hospital approximately 350m to the north of Haddington Town Centre. It is a brownfield site, bounded by A6137 Aberlady Road to the west, Lydgait to the south, the A199 to the north and Hopetoun Mews to the east. A map illustrating its location is presented in Figure 1-1 below.



Figure 1-1 : Site Location (Bing Maps)

In terms of site history, Herdmanflat Hospital was a psychiatric hospital first opening in 1866 as East Lothian District Asylum and was modernised and extended throughout its existence. However, in 2014 NHS Lothian proposed creating a community hospital on the site of the Old Roodlands General

Hospital. After all services moved to the new East Lothian Community Hospital, the Herdmanflat Hospital closed in 2020.

12 Site Visit & Scoping Correspondence

A detailed site visit of the local area was undertaken on the 3rd February 2023 and all photographs provided in Chapter 2 of this report are correct as of that date. The scoping parameters of this report have been agreed with East Lothian Council Transport Officers via email correspondence in February 2023.

13 Policy & Guidance

The TA has been undertaken in accordance with transport and planning guidance contained within:

- Scottish Government National Planning Framework 4 (NPF 4)
- Planning Advice Note (PAN) 75, “Planning for Transport”
- Transport Scotland’s, “Transport Assessment Guidance” (TAG)
- Scottish Government’s “Designing Streets”
- Department of Transport Inclusive Mobility (A Guide to Best Practice)
- East Lothian Local Development Plan
- East Lothian Local Transport Strategy
- East Lothian Segregated Active Travel Corridor

Any new or improved infrastructure would be designed to the requirements of Scottish Government’s ‘Designing Streets’, and where applicable the Design Manual for Roads and Bridges (DMRB).

14 Report Structure

Following on from this introductory chapter, the structure of the report is as follows:

- Chapter 2: Policy Summary
- Chapter 3: Existing Transport Conditions
- Chapter 4: Proposed Development and Travel Characteristics
- Chapter 5: Traffic Impact Analysis
- Chapter 6: Measures to Support the Application
- Chapter 7: Conclusions

2.0 Planning Policy

2.1 National Planning Framework 4

The Scottish National Planning Framework 4 (NPF 4) was adopted in early 2023 and seeks to plan future places in a way that improves local living, so that communities are inclusive, empowered, resilient, safe and provide opportunities for learning. Quality homes will be better served by local facilities and services by applying the principles of local living to development.

NPF 4 has been structured so that the policies all interlink, with cross-cutting outcomes. That being said, from a transportation perspective this proposed development aligns directly with several NPF 4 policies as follows:

Policy 9 – Brownfield, vacant and derelict land and empty buildings

Policy 13 - Sustainable transport

Policy 15 - Local Living and 20-minute neighbourhoods

These are discussed later in the report as appropriate.

2.2 Planning Advice Note 75

Planning Advice Note (PAN) 75 provides a good practice guide for planning authorities and developers in relation to carrying out policy development, proposal assessment and project delivery. The aim of the document focuses on how planning and transport can be managed; the role of different bodies / professions in the planning process and provides reference to other sources of information. Respectively, paragraphs 7 and 24 of the document state the following in terms of transport:

“The intention is for new developments to be user focused and for the transport element to promote genuine choice, so that each mode contributes its full potential and people can move easily between different modes. Consideration should be given to freight logistics as well as person travel.”

“Development plan policy should encourage development of significant travel generating proposals at locations which are key nodes on the public transport network that have a potential for higher density development and a potential for mixed use development with an emphasis on high quality design and innovation. These locations should encourage modal shift of people and freight by providing good linkages to rail, walking and cycling networks and with vehicular considerations, including parking, having a less significant role. Mixed use development, for example the inclusion of local shops and services within larger housing developments can encourage multi-purpose trips and reduce overall distances travelled by car by bringing together related land uses.”

Furthermore, maximum travel distances for walking and cycling, as well as, establishing how far people would be prepared to walk to access public transport are contained within PAN 75. From paragraph B13, the document states the following:

“Accessibility to public transport services: - For accessibility of housing to public transport the recommended guidelines are less than 400m to bus services and up to 800m to rail services.”

“Accessibility to local facilities by walking and cycling: - A maximum threshold of 1,600m for walking is broadly in line with observed travel behaviour.”

2.3 Scottish Government Transport Assessment Guidance (TAG)

The above document was published in 2012 and seeks to provide a best practice guide to help identify and deal with the likely impacts of development proposals in-terms of transport. As with SPP, this guidance focuses on the overall accessibility of the development. Detailed below are the key aims of a Transport Assessment.

- Reducing the need to travel, especially by private vehicle.
- Reducing environmental impact of development
- Encouraging accessibility of development / location
- Promotion of measures that influence sustainable travel behavior

TAG provides recommendations for pedestrians, cyclists and public transport accessibility in relation to new development, defining mechanisms for identifying the location and measures.

2.4 Designing Streets

This document is the first policy statement in Scotland for street design and sits alongside Designing Places, setting out government aspirations for design and the role of the planning system in delivering these. Together, they are the Scottish Government’s two key policy statements on design and place making. Both documents are national planning policy and are supported by a range of design-based Planning Advice Notes (PANs).

2.5 Department of Transport Inclusive Mobility (A Guide to Best Practice)

The Department of Transport Inclusive Mobility (A Guide to Best Practice) was published in 2021. The guidance describes features that need to be considered in the provision of an inclusive environment and issues related to disabling barriers, the use of technology, maintenance, awareness of the needs of disabled people, and engagement.

The main purpose of the guidance is to provide good access for disabled people, designs that satisfy their requirements also meet the needs of many other people. People travelling with small children or carrying luggage or heavy shopping will all benefit from an accessible environment, as will people with temporary mobility problems (e.g. a leg in plaster) and many older people.

The overall objective of the document is to enable practitioners and designers to provide an inclusively designed public realm, and through that help achieve social inclusion. It also supports creating and maintaining an inclusive and accessible built environment, and related activities carried out in compliance with requirements of the Equality Act and the public sector Equality Duty set out in the Equality Act 2010.

2.6 East Lothian Local Development Plan (LDP)

The East Lothian Local Development Plan (LDP) was adopted in 2018. It sets out the Council's aims to work towards the vision to create a prosperous, safe and sustainable East Lothian that will allow its people and communities to flourish³. The Council Plan has four objectives, namely, to grow:

- Our economy
- Our communities
- Our people
- The capacity of our Council

With regards to transport it is stated within the plan, East Lothian aim to integrate land use and transport by selecting locations for new development that help to minimise the need to travel and that are well-served by a range of transport modes, particularly public transport and active travel opportunities, including the development of a multifunctional green network in the area, and to help reduce CO₂ emissions.

2.7 East Lothian Local Transport Strategy

The East Lothian Local Transport Strategy 2018-2024 has a vision defined to be:

“East Lothian will have well-connected communities with increased use of sustainable transport modes to access services and amenities”.

Drawing upon the overall Vision and considering the problems and issues identified a set of seven objectives for the Local Transport Strategy were developed, which are:

- To deliver a more attractive and safer environment for pedestrians and cyclists.
- To reduce the overall dependence on the car and the environmental impact of traffic.
- To promote the availability and use of more sustainable means of travel
- To locate new development where it reduces the need to travel.
- To maximise accessibility for all and reduce social exclusion.
- To promote integration and interchange between different means of travel
- To maintain the transport network to a suitable standard to ensure it meets the needs of all users.

2.8 East Lothian Segregated Active Travel Corridor

East Lothian Council are currently well underway in delivering a largely off-road Segregated Active Travel Corridor, which will provide a faster and more direct high quality link to Edinburgh. The route, and its spurs will provide a multi-user path network connecting the principal settlements, employment areas, transport hubs and areas of future together.

The route will provide the primary hierarchy within a regional network linking Edinburgh, Musselburgh, Haddington and Dunbar. It is envisaged the full route illustrated in Figure 2-1 below will be delivered in three sections:

- Section 1 - Macmerry to Newcraighall
- Section 2 - Haddington to Macmerry

Section 3 - Dunbar to Haddington



Figure 2-1 : East Lothian SATC

At the time writing the project delivery timescales for Sections 2 and 3 which will impact Haddington directly are still being finalised, but it is hoped that once this scheme is completed its residents are able to make use of such a ‘strong’ active travel link in the town and also further afield in the local authority area.

3.0 Existing Transport Conditions

3.1 General

This chapter of the report details the existing transport infrastructure provision surrounding the proposed development site in terms of site context, walking, cycling, public transport and the road network as per national policy set out in Transport Scotland's, "Transport Assessment Guidance". Each mode is dealt with in turn below.

3.2 Site Context

As stated in Chapter 1, the proposed development is on a 'brownfield' site within Haddington, on the site of the former Herdmanflat Hospital. NPF 4 encourages the reuse of brownfield sites, covered by Policy 9 a), which states:

Development proposals that will result in the sustainable reuse of brownfield land including vacant and derelict land and buildings, whether permanent or temporary, will be supported.

The site is bounded by A6137 Aberlady Road to the west, Lydgait to the south, the A199 to the north and Hopetoun Mews to the east. Land uses adjacent to the site are primarily of a residential nature. Accordingly, the site is well located to take advantage of being within a short walking /cycling distance of a number of local facilities and attractions which fall within the recommended PAN75 catchments for walking and cycling:

A 20-minute (1600m) catchment zone for walking trips to/from a development site

A 30-minute (8km) catchment zone for cycling trips to/from a development site.

Table 3-1 lists a number of these local amenities, and their calculated walking and cycling time from the centre of the site via existing available routes.

Amenity	Distance (m)	Journey Time (Min)	
		Walking	Cycling
Bus stops on Aberlady Road	250	3	1
Co-op Haddington	760	11	3
Bus stops on Station Road	690	10	3
Haddington Post Office	790	11	3
Tesco superstore	740	10	3
Knox Academy High School	950	13	4
Haddington Primary School	1090	15	4
East Lothian Community Hospital	940	13	4
Assumed walking speed = 1.2 metres/second			
Assumed cycling speed = 16 kilometres/hour			

Table 3-1 : Local Amenities

The close proximity of these local amenities meets the aspirations of the 20-minute neighbourhood approach promoted by Policy 15 a) of NPF 4, which states (in part):

Development proposals will contribute to local living including, where relevant, 20 minute neighbourhoods. To establish this, consideration will be given to existing settlement pattern, and the level and quality of interconnectivity of the proposed development with the surrounding area, including local access to:

- sustainable modes of transport including local public transport and safe, high quality walking, wheeling and cycling networks;*
- employment;*
- shopping;*
- health and social care facilities;*
- childcare, schools and lifelong learning opportunities.*

The current 20 minute neighbourhood walking catchment is shown in Figure 3-1 below.

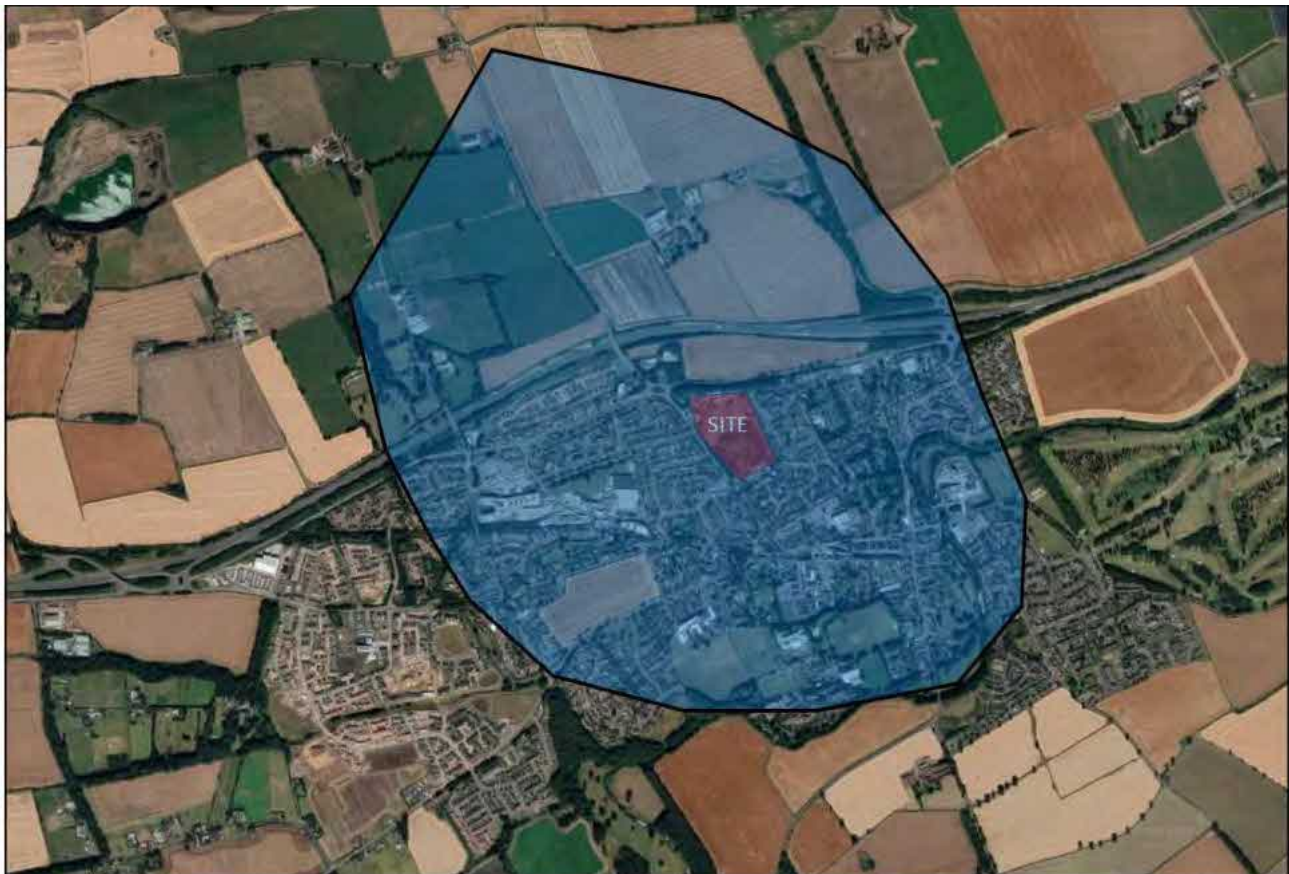


Figure 3-1 : Existing 20 Minute Neighbourhood Catchment

3.3 Existing Pedestrian Conditions

The site benefits from the existing level of pedestrian provision to the north of Haddington Town Centre, which is generally to a suitable or good standard. Wide, lit footways are provided along both sides of the majority of roads in the area, supported by a small number of footpath connections.

All the roads which bound the site would be classed a residential in nature and lightly trafficked. Provisions like these are replicated throughout the north of Haddington.

The A6137 Aberlady Road runs along the western development frontage, running in a north-south direction. The road has well established 1.5m to 2m wide footways adjacent to both sides of the carriageway and street lighting is present throughout. However, as the road heads southwards towards Haddington Town Centre the road is known as Hope Park and a footway is provided adjacent to the southbound carriageway only. The general conditions of this road along its Hope Park section are illustrated in Figure 3-2 below.



Figure 3-2 : A6137 Hope Park Pedestrian Characteristics

Hopetoun Mews runs along the eastern development frontage, running in a north-south direction the road currently has no dedicated pedestrian provisions, due to the nature of its former use as service road for the hospital. Notwithstanding this, the road should be considered conducive to pedestrians

sharing the carriageway with vehicles due to its low-speed limit of 10mph vertical traffic calming and very low existing traffic flows. The typical pedestrian characteristics of Hopetoun Mews are illustrated in Figure 3-3 below.



Figure 3-3 : Hopetoun Mews Pedestrian Characteristics

Lydgait is to the south of the site, has a footway adjacent to the westbound carriageway only. The footway narrows travelling east to west, reducing to less than 800mm at the junction with Hope Park. Street lighting further reduces the available width as illustrated in Figure 3-4 below.



Figure 3-4 : Poor Pedestrian Provision on Lydgait

Pedestrian provision at the junction of Lydgait with Hope Park is also less than ideal, particularly for those heading north, as illustrated in Figure 3.5 overleaf.



Figure 3-5 : Pedestrian Provision at Lydgait/Hope Street Junction

To the east of the site Herdmanflatt runs in an east-west direction. It has a 2m wide footway running adjacent to its eastbound carriageway only. Street lighting is provided in the grass verge. The general characteristics of Herdmanflatt are illustrated in Figure 3-6 below.



Figure 3-6 : Herdmanflatt Pedestrian Characteristics

The A199 to the north of the site is more of a distributor road, linking Haddington with the A1 trunk road. It has a footway on the north side adjacent to the eastbound carriageway.

In addition, East Lothian has a network of core paths in the local area including 71 towards Longniddry, 109 toward Letham Mains and 260 running along the southern settlement boundary of Haddington. More information on East Lothians Core Paths Plan can be accessed on the council website here. [Core paths maps | Core paths | East Lothian Council](#) with maps F and G applicable to Haddington.

3.4 Existing Cycling Conditions

In terms of cycling opportunities, Haddington is relatively well located with regard to the Sustrans national cycle network, with both National Cycle Route (NCR) 76 and 196 passing through the town. NCR 76 passes through West Road, Station Road, Court Street and The Sands in an east-west direction with further links to Longniddry and East Linton respectively. In terms of the site this is located 300m to the north and accesses the route 'on-road' via the Hope Park / Station Road junction. In terms of provision the route is largely 'on-road' within Haddington town centre and eastwards towards East Linton, whereas to the Longniddry to the east an 'off-road' route is provided.

NCR196 is located to the south of Haddington Town Centre, running adjacent to the River Tyne and thus running in an east-west direction. Through Haddington the route is almost all 'off-road' but 'on-road' in outlying rural areas, providing links to East Saltoun and Peaston Bank to the west. From the site this cycle route can be accessed via Sidegate 600m to the south east. Figure 3-7 below illustrates the location of these cycle routes in relation to the site.



Figure 3-7 : Local Cycle Routes

3.5 Existing Local Bus Services

The nearest bus stops to the site are located on the A6137 Aberlady Road adjacent to the western development frontage. Bus stops are provided in both directions with the northbound bus stop equipped with a flagpole, timetable information and ‘painted bus cage’ whereas the southbound bus stop is equipped with a flagpole and timetable information only.

The services at both these bus stops are limited to the 111 and 121 services provided by Prentice Coaches, which combine to provide an hourly frequency of service and links to Haddington Town Centre and Edinburgh Royal Infirmary. The bus services also have intimidatory stops in Musselburgh, Carberry, Wallyford, Port Seton and Longniddry.

Further bus stops which are more strategic in nature are located on Station Road 250m to the south of the southern boundary of the site. Station Road could be described as the main bus ‘throughfare’ for Haddington. Bus stops are provided in both directions with the eastbound bus stop is equipped with a flagpole and timetable information only, whereas the westbound bus stop is equipped with a flagpole, timetable, shelter and ‘painted bus cage’. The characteristics of the westbound bus stop is provided in Figure 3-8 below.



Figure 3-8 : Station Road Westbound Bus Stop

These bus stops are served by the 101,106,107,108,109,111,121,122,253, X6 and X7 services, which combine to provide a frequency of 12 buses per hour in each direction. A breakdown of these bus services including operator, routing and frequency is provided in Table 3-2 below.

Service Number	Operator	Route	Mon - Fri Freq	Sat Freq	Sun Freq
A6137 Aberlady Road Bus Services					
111	Prentice Coaches	Edinburgh Royal Infirmary - Musselburgh-Wallyford-Longniddry-Haddington	60 Mins	No Service	No Service
121	Eve Coaches	North Berwick- Drem- East Fortune-Athelstaneford-Haddington	120 Mins	120 Mins	No Service
Station Road Bus Services					
106	East Coast Buses	Fort Kinnaird or Musselburgh - Haddington or Dunbar	60 Mins	60 Mins	60 Mins
107	East Coast Buses	Edinburgh Western General-Edinburgh City Centre - Musselburgh-Wallyford-Longniddry-Haddington	60 Mins	No Service	No Service
108	Prentice Coaches	Fort Kinnaird - Musselburgh - Wallyford -Prestonpans-Longniddry- Dunbar	60 Mins	60 Mins	No Service
109	Prentice Coaches	Tranent - Longniddry - Gladsmuir - Haddington	3 per Day	No Service	No Service
122	Prentice Coaches	Dirleton-Gullane-Haddington	4 per Day	No Service	No Service
253	Border Buses	Edinburgh- Haddington-Dunbar-Cockburnspath-Reston-Eyemouth-Burnmouth-Berwick on Tweed	60 Mins	120 Mins	120 Mins
x6 /x7	East Coast Buses	Edinburgh City Centre -Meadowbank- Musselburgh-Wallyford-Tranent Longniddry-Haddington	30 Mins	60 Mins	60 Mins

Table 3-2 : Local Bus Services

3.6 Existing Local Rail Services

The nearest railway stations to the site are Longniddry and Drem, both around 8km away. As a result rail travel is not expected to contribute significantly to the trip generation of the site. However, the opportunity is there of prospective residents to use the stations for more strategic trip making (e.g. to Edinburgh and Dunbar). The station at Longniddry can be accessed via NCR 76 which is largely off-road.

3.7 Existing Local Road Network

The site is located in an area of Haddington largely occupied by residential land uses. The local road network immediately adjacent to the site is well established and designed to an appropriate standard to accommodate this type of traffic.

The A6137 Aberlady Road bounds the west of the site. It is a single carriageway road running in a north-south direction between Station Road and the A199 / A6137 Roundabout (for a short section it is called Hope Park to the south of the site). It is approximately 6.5m wide and subject to a 20mph speed limit. Physical traffic calming is not present on the road, but parked cars observed on the northbound carriageway act as a natural speed reducing measure.

Lydgait is to the south of the site. It is a single carriageway road running in an east-west direction from the A6137 Aberlady Road to Victoria Park. The road has a varying width between 5-6m wide and subject to a 20mph speed limit. Physical traffic calming measures in the form of speed cushions are also located at intermittent points to keep vehicle speeds down. On-site observations of the road found its junction with the A6137 Aberlady Road was sub-standard when compared to current design standards, in terms of both junction visibility and carriageway width. To illustrate this Figure 3-9 below shows junction visibility to the left set 4.5m back from the give-way line, which is deemed to be negligible, and Figure 3-10 shows two vehicles trying to negotiate the junction with difficulty.



Figure 3-9 : Poor Visibility Looking Left at the Lydgait / A6137 Aberlady Road Junction



Figure 3-10 : Vehicle Conflict at the Lydgait / A6137 Aberlady Road Junction

Hopetoun Mews is located to the east of the site and is a private road that used to serve the former Herdmanflat Hospital only, the road is in effect a cul-de sac running in a north-south direction from Lydgait.

The A199 is located to the north of the site, and acts as a distributor road for Haddington running parallel with the A1 trunk road. It provides links to the neighbouring settlements within East Lothian, notably East Linton and Dunbar to the east and Macmerry, Tranent, Wallyford and Musselburgh to the west. West of the Aberlady Road roundabout it is known as Haldane Avenue. The road is currently a good standard single carriageway road with a varying speed limit through Haddington of either 30mph or 40mph. However, as it passes the northern boundary of the site it is 40mph. The typical road conditions of the A199 to the east of site are illustrated in Figure 3-11 below.



Figure 3-11 : A199 Typical Conditions

Access to the A1 trunk road can be made to both the east and west via the A199. As a trunk road it is classed as having a national importance and has Transport Scotland as its roads authority, rather than East Lothian Council. It provides links from Edinburgh to the border with England at Berwick on Tweed passing through both East Lothian and the Scottish Borders. In proximity to the site the road is an all-purpose dual carriageway with a 70-mph speed limit and grade-separated junctions.

3.8 Existing Accident Record

A review of the Crashmap website <https://www.crashmap.co.uk/Search> indicates that there has been 2 serious and 1 slight accidents on the local road network over the past 7 years. A summary of each accident is listed below, and its full accident record is provided in Appendix 1.

Accident 1 (Serious) – 23 June 2019, 01:00am on A6137 Aberlady Road (South) involving 2 casualties and 3 vehicles.

Accident 2 (Serious) – 11 January 2017, 11:20am on A6137 Aberlady Road (South) involving 1 casualty and 1 vehicle.

Accident 3 (Slight) – 21 January 2016, 14:49pm on A6137 Aberlady Road (North) involving 1 casualty and 1 vehicle.

4.0 Proposed Development & Travel Characteristics

4.1 Proposed Development

As noted in Chapter 1, the proposed development will comprise up to 160 affordable residential units, which will include a 75% allocation to Housing for Varying Needs (HfVN). This development is being delivered as part of the East Lothian Council Housing Programme and it is assumed that all units will have either 1, 2 or 3 bedrooms.

Details regarding vehicular access, internal layout and car parking are provided in Chapter 6.

Scottish Government policies and guidance focus on achieving a sustainable and integrated transport provision, dealing with reducing the reliance on private cars and promoting greater use of public transport, and walking and cycling as alternatives. A Transport Assessment should now not be on the basis of accommodating car-based trips by creating more road space and capacity through junction improvements but should be balanced with more sustainable modes of transport.

4.2 People Trip Generation (160 Units)

To determine the people trip generation, the TRICS database has been interrogated under the 'Residential' and 'Mixed Affordable / Local Authority Housing' categories to identify the ratio of people trip arrivals and departures for the Weekday AM and PM Peak periods, respectively. The TRICS output file is attached in Appendix 2, and the calculated trip generation assessment is set out in Table 4-1 below.

	AM Peak 0800-0900			PM Peak 1700-1800		
	Arr	Dep	Two-Way	Arr	Dep	Two-Way
People Trip Rates	0.202	0.700	0.902	0.585	0.358	0.943
Resultant People Trips (160 Units)	32	112	144	94	57	151

Table 4-1 : People Trip Assessment

Table 4-1 above indicates that the proposed residential element of the development is likely to generate a total of 144 and 151 two-way people trips during the weekday AM and PM peak hour periods, respectively. Selecting these land uses from within the TRICS database should be viewed as robust, as most residential units on site (75%) are for HfVN which could be classed as 'Assisted Living' within the TRICS database, which generally produces a lower trip rate.

Secondly, the level of parking provision for the development discussed in Chapter 6 has been agreed with East Lothian Council Transport Officers to be provided in accordance with Local Authority Housing, and this forecasted trip generation would be consistent with that level of parking. Finally, Goodson Associates have experience of delivering planning consents for three sites in the Aberdeen City Council area for HfVN developments, where this land use choice was adopted.

The mode share and vehicle trip generation has been calculated from 2011 Census data for travel to work or place of study. This has been derived from the 'actual travel flows' reported by the Scotland Commute Datashine website for the output zone of 'IZ015- Haddington North' under the 'travel from' category. The results of this exercise are illustrated in Table 4-2 below.

Mode	% Mode Share	AM Peak 0800-0900			PM Peak 1700-1800		
		Arr	Dep	Two-Way	Arr	Dep	Two-Way
Train	1%	0	1	1	1	1	2
Bus	2%	1	3	3	2	1	4
Car Driver	69%	22	78	100	65	40	105
Car Passenger	4%	1	4	6	4	2	6
Cycle	1%	0	1	2	1	1	2
On Foot	22%	7	24	31	21	13	33
Total	100%	32	112	144	94	57	151

Table 4-2 : People Trip Generation by Mode

Table 4-2 indicates that the proposed development could potentially generate a total of 37 and 33 two-way people trips by sustainable modes (foot, bicycle, train, bus) during the weekday AM and PM peak periods, respectively. The development is also forecast to generate 100 and 105 two-way vehicle trips in the AM and PM peak periods.

4.3 Trip Distribution

The trip distribution has been derived from the 'actual vehicle travel flows' contained within the Scotland Commute Datashine website for the output zone of 'IZ015 – Haddington North' under the 'travel from' category. The assignment has been obtained using the route choice determined by Google Maps. Table 4-3 below shows the trip distribution and assignment. The raw Datashine data is provided in Appendix 2.

Route Assignment	% Distribution
A6137 Aberlady Road (North) / A199 (West) / A1 (West)	60.4%
A6137 Aberlady Road (North) / A6137	3.7%
A6137 Aberlady Road (South) / A6093	6.2%
Herdmanflatt / Dunbar Road / A199 (East)	11.1%
Herdmanflatt / Dunbar Road / A199 (East) /A1 East	4.9%
Herdmanflatt /Hardgate	13.7%
Total	100.0%

Table 4-3 : Trip Distribution & Assignment

The trip distribution suggests an approximate 70%/30% split between the west (via A6137 Aberlady Road) and east (via Herdmanflatt) accesses respectively, with the most common routeing heading westwards on the A1 trunk road.

5.0 Traffic Impact Assessment

5.1 General & Area of Influence

Using the trip generation and distribution methodologies set out within the previous chapter, a Traffic Impact Assessment has been undertaken, in which following scoping correspondence with East Lothian Council Transportation Officers the following 5 junctions have been assessed.

1. Herdmanflatt/Florabank Road - priority junction
2. Dunbar Road/A199 - priority junction
3. Hardgate/Victoria Terrace/Market Street - traffic signals
4. A6137 Aberlady Road/A199/Haldane Avenue - roundabout
5. A6137 Aberlady Road / Hope Park / Lydgait – priority junction

In addition, the western site access which utilise the former site access from the A6137 Aberlady Road into Herdmanflat Hospital which accounts for approximately 70% of the development traffic will be subject to a detailed capacity assessment. However, the proposed eastern access onto Herdmanflatt which accounts for approximately 30% of the development traffic will not require assessment as this is expected to take the form of a road continuation rather than a junction.

Traffic flow matrices illustrating the build-up of traffic at each of these identified junctions is provided in Appendix 3. All junction output files are provided in Appendix 4.

5.2 Observed Traffic Flows

Observed traffic counts and queue length surveys were undertaken at the junctions on various dates in Q4 of 2022 and Q1 of 2023, with the date of each junction survey and its identified peak hour listed below.

1. Herdmanflatt/Florabank Road - priority junction (03/11/2022, AM Peak Hour 0815-0915, PM Peak 1615- 1715)
2. Dunbar Road/A199 - priority junction (03/11/2022, AM Peak Hour 0800-0900, PM Peak 1630-1730)
3. Hardgate/Victoria Terrace/Market Street - traffic signals (03/11/2022 AM Peak Hour 0815-0915, PM Peak 1615-1715)
4. A6137 Aberlady Road/A199/Haldane Avenue - roundabout (09/02/2023 AM Peak Hour 0815-0915, PM Peak 1615-1715)
5. A6137 Aberlady Road/Hope Park/Lydgait – priority junction (22/09/2023 AM Peak 0815-0915, PM Peak 1700-1800)

As the surveys were undertaken on different days peak hours differ from junction to junction rather than being able to extrapolate a network peak. Therefore, to ensure a robust assessment the development traffic has been added onto each junction's individual AM and PM peak hours.

The opening year has been taken as 2028 with NRTF 'low' growth applied to the 2022 observed flows, a growth factor of 1.031, to derive the base year flows. 2023 flows have been factored up by a growth factor of 1.026.

5.3 Junction Modelling & Assessment Scenarios

The priority junctions have been modelled in Junctions10 software, with all geometry requirements determined using either topographical survey information or Ordnance Survey mapping.

The traffic signals were modelled in LinSig 3 software. East Lothian Council Transport Officers have provided the controller specification for the Hardgate traffic signals and their assistance in this regard is appreciated. In total three assessment scenarios have been undertaken at each junction.

- 2022 or 2023 Observed Traffic Scenario
- 2028 Base Traffic Scenario
- 2028 Base + Development (Total) Traffic Scenario

5.4 Detailed Junction Capacity Analysis Methodology & Reporting

For priority junctions, Junctions10 software has been utilised. The Junctions 10 analysis reports the Ratio of Flow Capacity (RFC) and maximum forecast queue for each movement within the junction. The RFC of a junction is one of the principal factors in influencing queues and delays. General engineering design principles as set out in the DMRB are that when assessing a priority junction or roundabout, RFC levels should not exceed 0.85 in order for the junction to operate within 'practical' capacity. Should the RFC level exceed 1.0 then the junction is operating above 'theoretical' capacity. Under all Junctions 10 assessments the 'One Hour' modelling scenario function has been utilised.

For traffic signals The LinSig 3 analysis presents the Degree of Saturation (DoS) and Mean Max Queue (MMQ) for each lane while the overall Practical Reserve Capacity (PRC) and junction delay is also included. A DoS of less than 90% indicates that the lane will operate within 'practical' capacity while a positive PRC indicates that the junction as a whole will operate within capacity. A DoS of 100% or more indicates that the lane is operating above theoretical capacity. The MMQ is a combination of vehicles in:

- The vehicle queue at the end of the red period
- Vehicles joining the back of the queue at the start of the green period.
- Random / oversaturated queueing.

5.5 Herdmanflatt/Florabank Road - Priority Junction Capacity Analysis

Ordnance Survey mapping has been used to calculate the required Herdmanflatt / Florabank Road junction geometry for this Junctions 10 assessment, for all three traffic scenarios listed earlier. The results are presented in Table 5-1 below.

	AM Peak Hour			PM Peak Hour		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
2022 Observed						
Stream B-AC	0.0	6.37	0.03	0.0	7.41	0.04
Stream C-AB	0.0	5.48	0.02	0.0	5.65	0.02
2028 Base						
Stream B-AC	0.0	6.38	0.03	0.0	7.44	0.04
Stream C-AB	0.0	5.48	0.02	0.0	5.65	0.02
2028 Base + Development						
Stream B-AC	0.1	6.52	0.07	0.1	7.23	0.06
Stream C-AB	0.0	5.53	0.03	0.1	5.85	0.06
Stream A = Florabank Road Stream B = Herdmanflatt (West) Stream C = Herdmanflatt (East)						

Table 5-1 : Herdmanflatt/Florabank Road – Junction Capacity Results

The junction model results in Table 5-1 above demonstrate that the junction will continue to operate well within its ‘practical’ capacity under all assessment scenarios (i.e., an RFC of 0.85 or below) with virtually no reportable queues. Finally, in the PM peak the proposed development is predicted to increase delay from 5.65 seconds to 5.85 seconds (0.2 second increase) which is considered to be negligible.

5.6 Dunbar Road/A199 - Priority Junction Capacity Analysis

Ordnance Survey mapping has been used to calculate the required Dunbar Road/A199 junction geometry for this Junctions 10 assessment, for all three traffic scenarios listed earlier. The results are presented in Table 5-2 below.

	AM Peak Hour			PM Peak Hour		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
2022 Observed						
Stream B-C	0.2	6.73	0.14	0.3	9.07	0.22
Stream B-A	0.3	9.62	0.21	0.8	13.95	0.45
Stream C-AB	0.3	5.86	0.17	0.3	6.11	0.18
2028 Base						
Stream B-C	0.2	6.8	0.14	0.3	9.38	0.23
Stream B-A	0.3	9.79	0.22	0.9	14.59	0.47
Stream C-AB	0.3	5.89	0.17	0.3	6.16	0.18
2028 Base + Development						
Stream B-C	0.2	6.98	0.14	0.3	9.6	0.24
Stream B-A	0.3	10.09	0.25	0.9	15.03	0.48
Stream C-AB	0.3	5.90	0.17	0.3	6.18	0.18
Stream A = A199 Haldane Avenue (East) Stream B = Dunbar Road Stream C = A199 Haldane Avenue (West)						

Table 5-2 : Dunbar Road/A199 – Junction Capacity Results

The junction model results in Table 5-2 above demonstrate that the junction will continue to operate well within its 'practical' capacity under all assessment scenarios (i.e., an RFC of 0.85 or below). The maximum queue recorded was 0.9 PCUs (1 PCU = a queue Length of 5.75m) in the PM 2028 Base + Development (Total) peak period, which is considered negligible. Finally, in the PM peak the proposed development is predicted to increase delay from 14.59 seconds to 15.01 seconds (0.42 second increase) which is insignificant.

5.7 Hardgate/Victoria Terrace/Market Street - Traffic Signals Capacity Analysis

The TR2500 controller specification for these traffic signals has been provided to GA by East Lothian Council Transport Officers, which includes the signals relevant phasing, staging, intergreens and phase delays which have been replicated in LinSig 3 model. Where junction geometry inputs have been required these have been obtained from Ordnance Survey mapping. All three assessment scenarios have been assessed and the results are presented in Table 5-3 below.

It is understood that these signals have a variable cycle time to adjust to actual 'on-site' traffic conditions. In order to illustrate the amount of 'practical capacity' there is in the junction all cycle times have been set to 120 seconds, which generally recognised as the maximum practical cycle time.

		2022 Observed		2028 Base		2028 Base + Development (Total)	
Item	Lane Description	Deg Sat (%)	Mean Max Queue (pcu)	Deg Sat (%)	Mean Max Queue (pcu)	Deg Sat (%)	Mean Max Queue (pcu)
AM Peak Hour							
1/1	Hardgate (North) Left Ahead	59.30%	10.3	61.20%	10.8	61.30%	11
2/1	Victoria Terrace Right Left	59.30%	6.4	60.90%	6.6	60.90%	6.6
3/1+3/2	Market Street Left Ahead Right	58.7 : 58.7%	6.0	60.4 : 60.4%	6.4	61.9 : 61.9%	6.5
4/1	Hardgate (South) Ahead Right	22.10%	3.3	22.80%	3.4	22.60%	3.4
Junction PRC		51.70%		47.00%		45.30%	
Delay over All Lanes (Seconds)		12.89		13.42		13.62	
PM Peak Hour							
1/1	Hardgate (North) Left Ahead	74.60%	13	77.00%	13.7	77.90%	13.9
2/1	Victoria Terrace Right Left	72.10%	7	74.60%	7.3	74.60%	7.3
3/1+3/2	Market Street Left Ahead Right	76.1 : 76.1%	13.1	78.4 : 78.4%	14.1	78.4 : 78.4%	14.1
4/1	Hardgate (South) Ahead Right	26.50%	3.7	27.30%	3.9	29.00%	4.1
Junction PRC		18.20%		14.70%		14.70%	
Delay over All Lanes (Seconds)		17.74		18.82		19.09	

Table 5-3 : Hardgate/Victoria Terrace/Market Street – Junction Capacity Results

The junction model results in Table 5-3 above demonstrate that the junction will continue to operate well within its 'practical' capacity under all assessment scenarios (i.e., a Degree of Saturation of 90% or below). Delay at the junction is expected to increase by approximately 1 second in the PM Peak comparing the 2028 Base with the 2028 Base + Development (Total) traffic scenarios.

5.8 A6137 Aberlady Road/A199/Haldane Avenue – Roundabout Capacity Analysis

Ordnance Survey mapping has been used to calculate the required Dunbar Road / A199 junction geometry for this Junctions 10 assessment, for all three traffic scenarios listed earlier. The results are presented in Table 5-4 below.

	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
2023 Observed						
Arm 1	0.2	2.45	0.16	0.2	2.47	0.15
Arm 2	0.2	3.77	0.17	0.2	3.69	0.16
Arm 3	0.2	2.28	0.14	0.3	2.45	0.2
Arm 4	0.2	3.26	0.18	0.2	3.4	0.18
2028 Base						
Arm 1	0.2	2.47	0.16	0.2	2.49	0.15
Arm 2	0.2	3.81	0.18	0.2	3.73	0.16
Arm 3	0.2	2.3	0.14	0.3	2.47	0.21
Arm 4	0.2	3.29	0.19	0.2	3.44	0.19
2028 Base + Development						
Arm 1	0.2	2.49	0.17	0.2	2.55	0.16
Arm 2	0.3	4.05	0.23	0.2	3.84	0.19
Arm 3	0.2	2.32	0.15	0.3	2.54	0.23
Arm 4	0.2	3.32	0.19	0.2	3.53	0.20
Arm 1 = A199 (East) Arm 2 = A6137 Aberlady Road (South) Arm 3 = A199 Haldane Avenue (West) Arm 4 = A6137 Aberlady Road (North)						

Table 5-4 : A6137 Aberlady Road/A199/Haldane Avenue – Junction Capacity Results

The junction model results in Table 5-4 above demonstrate that the junction will continue to operate well within its 'practical' capacity under all assessment scenarios (i.e., an RFC of 0.85 or below). The maximum queue recorded was 0.3 PCUs (1 PCU = a queue Length of 5.75m), in the PM 2028 Base + Development (Total) peak period, which is considered negligible. Finally, in the PM peak the proposed development is predicted to increase delay from 3.73 seconds to 3.83 seconds (0.1 second increase) which is also considered to be negligible.

5.9 A6137 Aberlady Road/Hope Park/Lydgait – Priority Junction Capacity Analysis

Topographical survey mapping has been used to calculate the required Hope Park/Lydgait junction geometry for this Junctions 10 assessment, for all three traffic scenarios listed earlier. The results are presented in Table 5-5 below.

	AM Peak Hour			PM Peak Hour		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2022 Observed					
Stream B-AC	0.2	10.77	0.2	0.6	13.51	0.38
Stream C-AB	0.0	5.29	0.02	0.0	5.42	0.03
	2028 Base					
Stream B-AC	0.3	10.93	0.21	0.6	13.84	0.39
Stream C-AB	0.0	5.28	0.02	0.0	5.41	0.03
	2028 Base + Development					
Stream B-AC	0.3	10.96	0.21	0.6	13.9	0.39
Stream C-AB	0.0	5.26	0.02	0.0	5.41	0.03
Stream A = A6137 Aberlady Road Stream B = Lydgait Stream C = Hope Park						

Table 5-5 : A6137 Aberlady Road/Hope Park/Lydgait – Junction Capacity Results

The junction model results in Table 5-5 above demonstrate that the junction will continue to operate well within its ‘practical’ capacity under all assessment scenarios (i.e., an RFC of 0.85 or below). The maximum queue recorded was 0.6 PCUs (1 PCU = a queue Length of 5.75m), in the PM 2028 Base + Development (Total) peak period, which is considered negligible. Finally, in the PM peak the proposed development is predicted to increase delay from 13.84 seconds to 13.89 seconds (0.45 second increase) which is also considered to be negligible.

5.10 A6137 Aberlady Road/Site Access – Junction Capacity Assessment

It is proposed that the site access to the west will utilise the existing junction on the A6137 Aberlady Road which served the former Herdmanflat Hospital.

The results of the junction capacity modelling assessment are set out in Table 5-6 below.

	AM Peak Hour			PM Peak Hour		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2028 Base + Development					
Stream B-AC	0.20	10.10	0.15	0.10	9.27	0.08
Stream C-AB	0.00	5.12	0.00	0.00	5.18	0.01
Stream A = A6137 Aberlady Road (North) Stream B = Site Access Stream C = A6137 Aberlady Road (South)						

Table 5-6 : A6137 Aberlady Road/Site Access – Junction Capacity Results

The results set out in Table 5-6 above clearly illustrate that the existing priority junction arrangement onto the A6137 Aberlady Road can comfortably accommodate the predicted development traffic. All RFCs remain comfortably within ‘practical capacity’ (0.85 or below) with little or no queuing.

6.0 Measures To Support the Proposed Development

6.1 Introduction

This chapter considers the integration of the proposed development into the surrounding transport network as well as identifying measures that are likely to be required to support the development to ensure that it is accessible by a range of transport modes particularly sustainable ones.

The measures described in this section are intended to meet the objectives of Policy 13 of NPF 4 (sustainable transport). The policy intent is noted as:

To encourage, promote and facilitate developments that prioritise walking, wheeling, cycling and public transport for everyday travel and reduce the need to travel unsustainably.

6.2 External Walking, Cycling & Public Transport Connections

As part of the proposals five new active travel connections will be established, linking the site to the surrounding neighbourhood. Two footpath connections will link the site to Aberlady Road/Hope Park to the west, a further 2 connections will link Hopetoun Mews to Herdmanflatt to the east and a 3m active travel link will connect the site to the A199 to the north. The original hospital accesses from Lydgait and Aberlady Road, as well as the link through from Glebe Terrace will also be retained as active travel connections to the south, west and east respectively. These connections are shown in Figure 6-1 below.

An initial analysis of the existing and proposed levels indicates that DDA compliant access can be achieved at all the proposed connection points, with gradients less than 1 in 20.

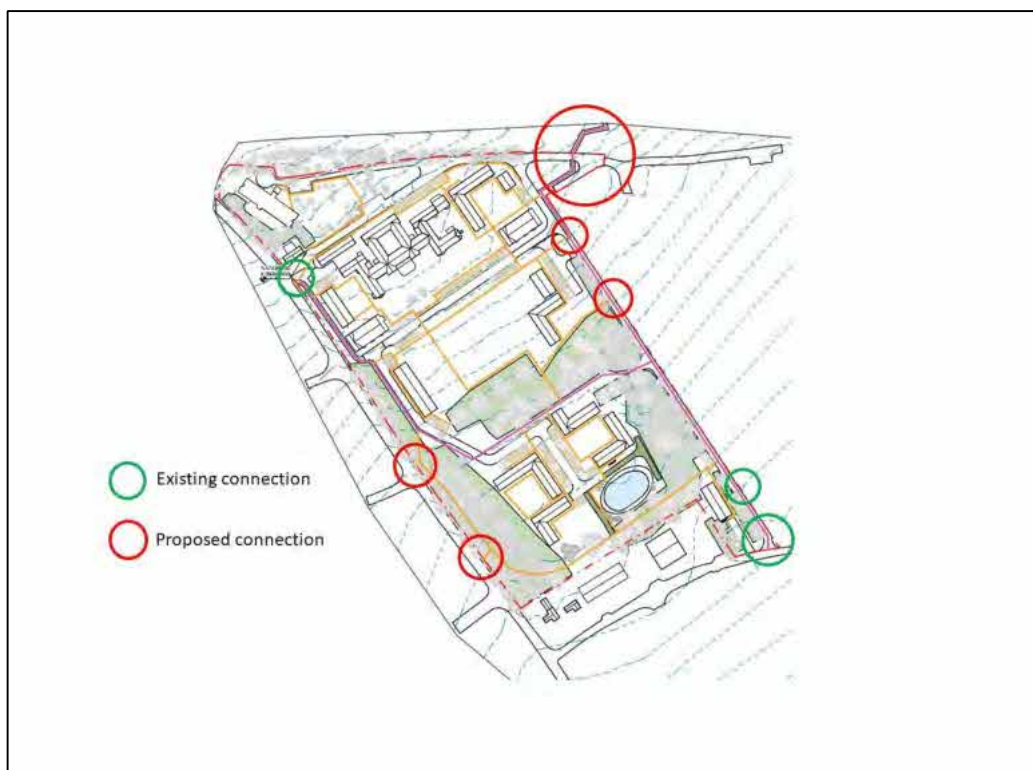


Figure 6-1 : Active Travel Connections

The provision of the new footway connections has a hugely beneficial impact on the site's accessibility. Currently the only pedestrian access to and from the site is either via the existing access junction on Aberlady Road or via Lydgait to the south. Figure 6-2 below illustrates how travel distances reduce with the introduction of the proposed connections.

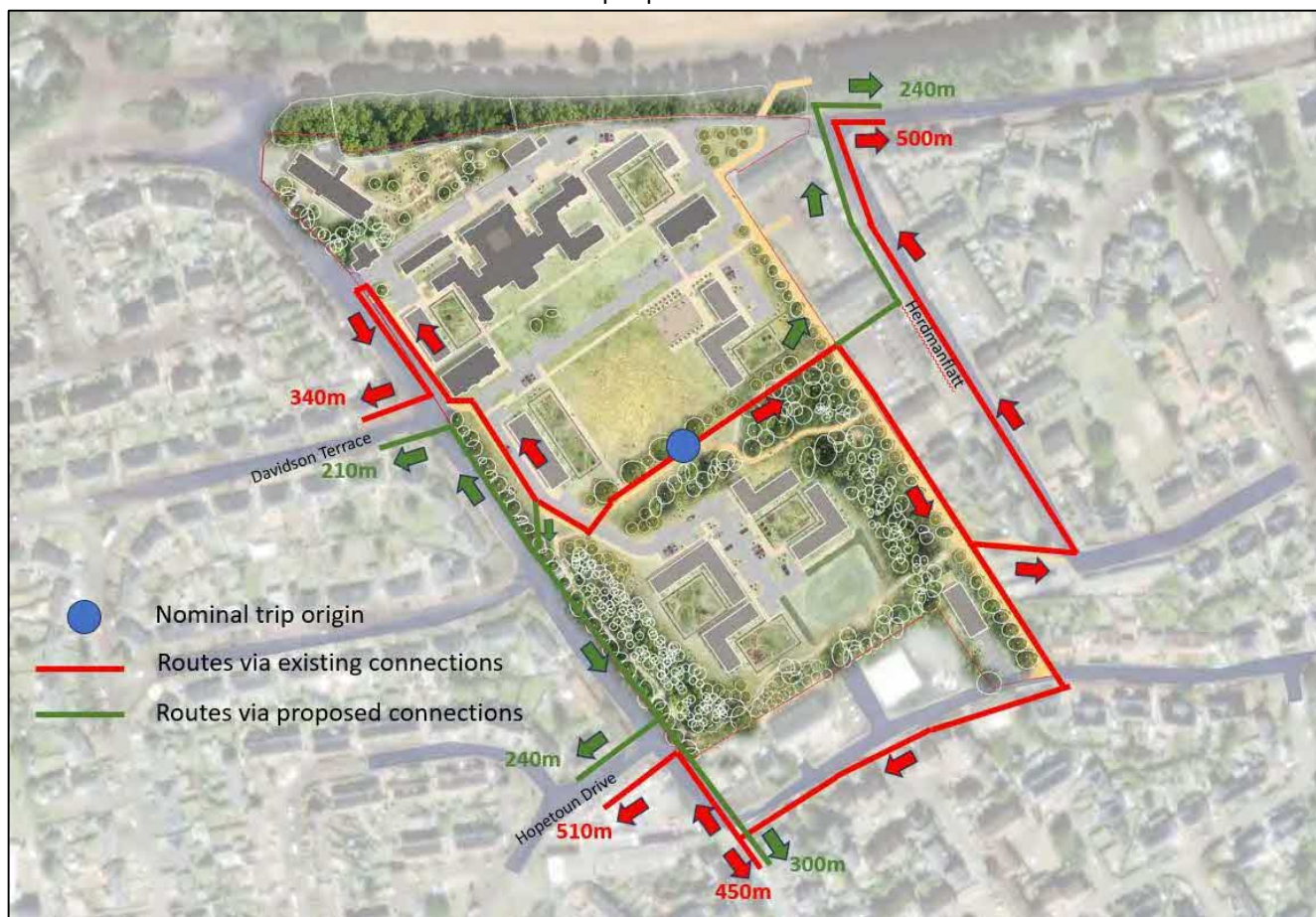


Figure 6-2 : Reduction in Active Travel Distances

As Figure 6-2 illustrates, the travel distance between the site and Davidson Terrace reduces by more than a third from 340m to 210m. The reduction in travel distance to Hopetoun Drive is even more substantial, halving from over 0.5km to 240m. Similar reductions are also achieved to Hermanflatt in the east. Access to the south is also shortened by 150m and avoids the need to use the western end of Lydgait, which is unsuitable to be promoted as an active travel route.

Extrapolating these improvements to the wider neighbourhood, Table 6-1 overleaf illustrates how walking times are improved for three representative journeys within the current 20-minute neighbourhood. These routes are discussed more fully in the Design and Access Statement.

The introduction of these connections also expands the catchment of the 20-minute neighbourhood, as illustrated in Figure 6-3 overleaf.

Journey		Existing		Proposed	
Origin	Destination	Distance (m)	Time (min)	Distance (m)	Time (min)
Herdmanflatt	Community Hospital	1350	19	990	14
Davidson Terrace	Tyne Medical Practice	900	13	870	12
Site	Haddington Co-Op	670	9	380	5

Table 6-1 : Sample Journey Time Reductions with Proposed Active Travel Connections



Figure 6-3 : Increase in 20-minute Neighbourhood Catchment

It is important to ensure that the existing walking infrastructure in the vicinity of the site is suitable to accommodate trips by active travel. The review of walking infrastructure near the site reported in Chapter 3 concluded that the network of footways external to the site is well-established but could possibly benefit from some interventions as these proposals come forward. It is suggested that an active travel audit is undertaken of the roads surrounding the site as part of a future AMSC planning application. This will identify what upgrading measures should be introduced, such as missing dropped kerbs, tactile paving, wayfinding signage etc.

Externally, cycling provision in the local area is also generally of a good standard, with NCR 76 and 196 passing through Haddington. NCR 76 also provides an off-road cycle route between Haddington and Longniddry Station. Many local roads in the town are subject to a 20mph speed limit, which could be considered conducive to cycling. In 'Transport Assessment Guidance', an appropriate journey time for cycling is considered to be 30 - 40 minutes, which equates to a cycle distance of 5km to 13km based on an average cycling speed of 10 to 20kph. From the development, this cycle catchment will encompass all of Haddington as well as the neighbouring settlements of East Linton, Aberlady and Longniddry from the proposed development.

Once the East Lothian SATC, as described in Chapter 2, is delivered in the Haddington area a very strong multi modal active travel link will be provided within the town and its neighbouring settlements for the residents of this development to enjoy.

In terms of public transport, the nearest bus stops are on the A6137 Aberlady Road less than 100m away from the western edge of the proposed development, however these bus stops have a relatively infrequent service (1 bus per hour in each direction). More regular bus services are available from Station Road 300m away which is still within the recommended walking distance to a bus stop of 400m stipulated by PAN75. These bus stops are served by 8/10 buses per hour in each direction. The new active travel connections will reduce the walking distances to these bus stops., encouraging increased bus travel.

6.3 Internal Site Layout for Walking, Cycling and Vehicular Traffic

The overall site masterplan is shown on drawing 11288-LD-PLN-101 in Appendix 5.

The internal road and footpath network has been developed to maximise segregation between vehicles and active travel. Generally speaking, footpaths have been set back from the road carriageway, either behind parking bays or segregated by means of a grass verge.

Where possible, existing roads within the site are being retained and if necessary upgraded, to minimise the impact on the existing landscape setting. The internal road and footpath network is shown in Figure 6-4 below and is discussed more fully in the Design and Access Statement (DAS).



Figure 6-4 : Internal Roads & Footpaths (Source: DAS)

For general circulation and access roads, the carriageway width has been set at 4.8m in accordance with Designing Streets, which is sufficient width for two cars to pass. Where perpendicular parking bays are present, the carriageway width has been increased to 6m to allow for safe manoeuvring in and out of the parking spaces.

Where traffic flows are expected to be low, with minimal 2-way traffic, a road width of 3.7m (with passing places) has been provided.

It is the intention that all the internal roads and footpaths will be adopted.

6.4 Cycle & Car Parking

Generally, cycle and car parking will be provided in accordance with East Lothian Council's parking standards as detailed in their 'Transport Infrastructure for New Developments' guidance. The proposed predominant land use of Housing for Varying Needs (HfVN) is not specifically covered in the standards and falls somewhere between General and Sheltered Housing. The standards are shown in Table 6-2 below.

Land Use	Car parking spaces	Bike parking spaces	Vehicle chargers
Housing (including flats)	1.5 per unit with 5 or fewer habitable rooms, else 2.25 unit - each to have at least 1 private parking space	Require garage/garden and access Otherwise bike store required	1 x Type 2 charger per dwelling
Housing - affordable	As 'Housing (including flats)' - unless otherwise agreed	Require garage/garden and access Otherwise bike store required	
Housing - sheltered	0.25 to 1 space per dwelling plus 1 communal space per 3 dwellings for visitors plus 1 warden space	On merit	Greater of 1 space or 10%

Table 6-2: East Lothian Council Parking Standards

The actual cycle parking provision will be agreed as part of a future AMSC application.

The car parking requirements for general housing are detailed above. Given that the largest dwelling will have 3 bedrooms it is likely that the number of habitable rooms will not exceed 5, in which case the standard is 1.5 spaces per dwelling.

Given the uncertainty surrounding the likely parking demand that the scheme will generate, it is proposed that an initial level of 75% parking is provided at the outset. On the basis of the currently envisaged development of 141 dwellings this equates to 106 spaces.

The layout has been arranged in such a way that should demand dictate, a further 25% of parking spaces can be easily added by converting some of the soft verges.

Each dwelling will have access to a vehicle charger in accordance with the standards.

6.5 Proposed Development Access Strategy

Vehicle access to the proposed development will be taken from two locations. The first access will utilise the existing junction on the A6137 Aberlady Road which served the former Herdmanflat Hospital. Based on the discussions set out in Chapter 4 is predicted to be used by approximately 70% all development traffic on a day-to-day basis.

The visibility splays at the existing junction have been checked and are shown on drawing HFH-GOO-ZZ-XX-DR-C-0713 Rev P02 in Appendix 5. The maximum achievable splays measure 53m to the right and 33m to the left which exceed the minimum standard of 2.4m x 25m required for a 20mph road.

The capacity assessment detailed in Chapter 5 identified no issues with the junction once the proposed development is operational.

The second access will tie into Herdmanflatt to the east. Based on the discussions set out in Chapter 4 is predicted to be used by approximately 30% all development traffic on a day-to-day basis. More details with regard to this access point will be provided in forthcoming detailed or AMSC planning applications for the site.

During the pre-application stage of this project a study was undertaken looking at the feasibility of providing a third vehicular access via Lydgait. As reported in Chapter 3, the Lydgait/Aberlady Road junction has substandard geometry and very poor visibility for Lydgait traffic exiting onto Aberlady Road. Any intensification of use at this junction is considered undesirable for both operational and road safety reasons and so the proposal for this third access has not been taken forward.

6.6 External Road Network

As discussed in Chapter 5, the proposed development can be accommodated on the local road network with no requirement for any mitigation measures. However, as mentioned earlier in the chapter, an active travel audit will be undertaken as part of any future AMSC application.

6.7 Residents Travel Pack

It is recommended that a welcome pack is produced for each household to increase awareness of the availability of more sustainable forms of transport. This will provide information on existing public transport including routes and frequencies. It will also contain a map indicating the cycle and pedestrian routes that are within a short distance from their home.

The welcome pack would be issued to the residents immediately upon the moving into their new home, therefore advising them of sustainable transport options at the earliest opportunity. A list of possible information to be set out in the welcome pack is provided below:

- Useful Travel Contacts
- High level advice on the benefits of active travel
- High level advice on smarter driving
- Public Transport Routes available

6.8 Servicing

Details regarding how the proposed development will be serviced will be provided as part of any forthcoming detailed or AMSC planning applications for the site.

7.0 Conclusions

Goodson Associates has been commissioned by Hub South East on behalf of East Lothian Council to prepare a Transport Assessment in support of a PPIP application for a residential development of up to 160 dwellings at the former Herdmanflat Hospital in Haddington. The development will consist predominantly of Housing for Varying Needs (HfVN).

The reuse of a brownfield site is one of the key sustainability policies of NPF 4. The provision of HfVN also meets the NPF 4 objective of delivering more accessible, adaptable and wheelchair accessible homes.

This TA has undertaken a comprehensive assessment of the local transport infrastructure to ensure the proposed development can be integrated into the surrounding transport network. Sustainable development principles have been adopted in the preparation of the people trip assessment. The principal aim is to ensure that accessibility to the site by foot, by cycle and by public transport is maximised and that any trips made by car can be accommodated by the existing road network without detriment to existing users.

The development has been assessed using sustainable principles with the level of trips by each mode of travel calculated using a combination of TRICS and Scotland Commute Datashine census data. This assessment, based upon the maximum likely development of 160 dwellings, concluded that the proposed development would generate up to 144 and 151 two-way people trips in the AM and PM peak periods respectively, of which 69% could be attributed to car drivers.

The site location places it within a 20-minute walk of many amenities and facilities, thus meeting the aspirations of a '20 minute neighbourhood' being promoted in NPF 4.

New active travel connections are being proposed, connecting the site to the local area and in doing so supporting the sustainable travel objectives in NPF 4. The new connections will have a major beneficial impact on the accessibility of the site, significantly reducing travel distances and widening the reach of the 20 minute neighbourhood.

It is recommended that a full active travel audit of the surrounding roads is undertaken as part of any future AMSC application, to identify what intervention measures may be required to support active travel to and from the site.

The internal site layout will be more fully developed through subsequent planning applications and designed to the latest adoptable standards being promoted by East Lothian Council via its 'Transport Infrastructure for New Developments' (TIND) and the principles promoted in 'Designing Streets'.

All cycle and car parking within the site will be provided in accordance with East Lothian Council's standards, taking cognisance of the bespoke HfVN requirements.

The development will be served by two points of vehicular access. The first access, to the west, will utilise the existing junction on the A6137 Aberlady Road which served the former Herdmanflat Hospital. The second access will tie into Herdmanflatt to the east of the site.

The junction capacity assessment set out in Chapter 5 confirms that the vehicular traffic from the proposed development can be comfortably accommodated on the surrounding road network, with minimal impact.

This TA has concluded that the proposed development site can be successfully integrated into the local area. The site layout and recommended improvements will ensure that the development is accessible by a range of transport modes, meeting many of the policy objectives set out in NPF 4.

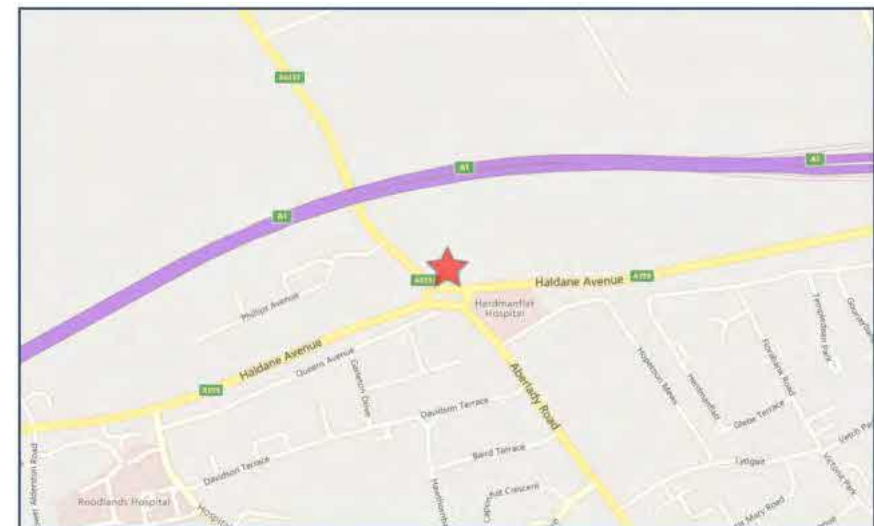
APPENDIX 1 ACCIDENT REPORTS



Validated Data

Crash Date: Thursday, January 21, 2016 Time of Crash: 2:49:00 PM Crash Reference: 2016950004954

Highest Injury Severity:	Serious	Road Number:	A199	Number of Casualties:	1
Highway Authority:	East Lothian			Number of Vehicles:	1
Local Authority:	East Lothian			OS Grid Reference:	350819 674488
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	60				
Light Conditions:	Daylight: regardless of presence of streetlights				
Carriageway Hazards:	None				
Junction Detail:	Roundabout				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				
Road Type:	Roundabout				
Junction Control:	Give way or uncontrolled				





Validated Data

Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneouvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
1	Motorcycle over 125cc and up to 500cc	16	Male	46 - 55	Vehicle is moving off	Did not impact	Unknown	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
1	1	Serious	Driver or rider	Male	46 - 55	Unknown or other	Unknown or other

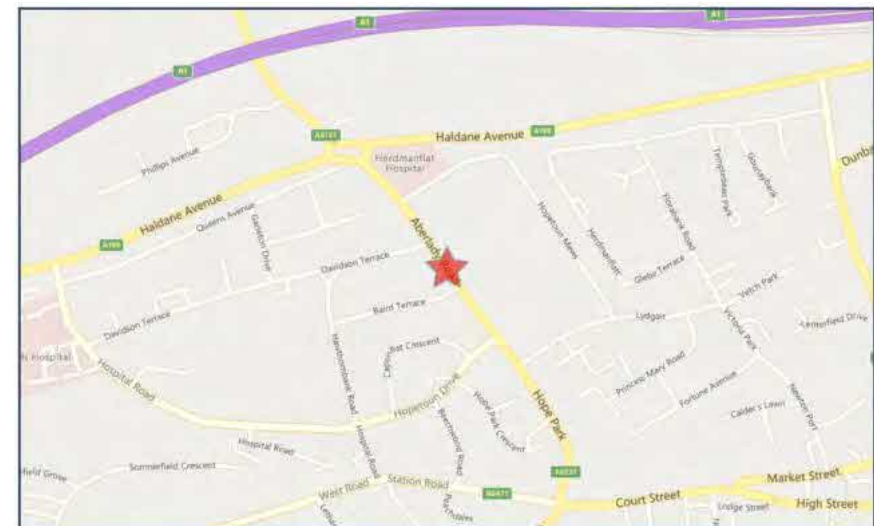
For more information about the data please visit: www.crashmap.co.uk/home/Faq

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Crash Date: Wednesday, January 11, 2017 Time of Crash: 11:20:00 AM Crash Reference: 2017950000073

Highest Injury Severity: Serious Road Number: U0 Number of Casualties: 1
Highway Authority: East Lothian Number of Vehicles: 1
Local Authority: East Lothian OS Grid Reference: 350977 674254
Weather Description: Fine without high winds
Road Surface Description: Dry
Speed Limit: 30
Light Conditions: Daylight: regardless of presence of streetlights
Carriageway Hazards: None
Junction Detail: Not at or within 20 metres of junction
Junction Pedestrian Crossing: No physical crossing facility within 50 metres
Road Type: Single carriageway
Junction Control: Not Applicable





Validated Data

Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneouvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
1	Car (excluding private hire)	6	Female	26 - 35	Vehicle proceeding normally along the carriageway, not on a bend	Front	Commuting to/from work	None	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
1	1	Serious	Pedestrian	Male	Over 75	In carriageway, crossing elsewhere	Crossing from driver's nearside

For more information about the data please visit: www.crashmap.co.uk/home/Faq

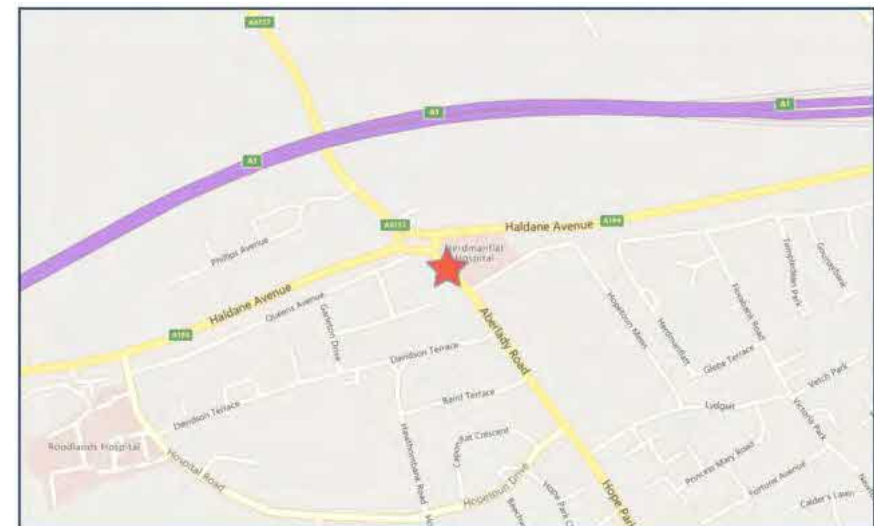
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Validated Data

Crash Date: Sunday, June 23, 2019 Time of Crash: 1:00:00 AM Crash Reference: 2019950000742

Highest Injury Severity:	Slight	Road Number: U0	Number of Casualties: 2
Highway Authority:	East Lothian		Number of Vehicles: 3
Local Authority:	East Lothian		OS Grid Reference: 350868 674397
Weather Description:	Fine without high winds		
Road Surface Description:	Dry		
Speed Limit:	30		
Light Conditions:	Darkness: street lights present and lit		
Carriageway Hazards:	None		
Junction Detail:	Not at or within 20 metres of junction		
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres		
Road Type:	Single carriageway		
Junction Control:	Not Applicable		





Validated Data

Vehicles Involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneouvre	First Point of Impact	Journey Purpose	Hit Object - On Carriageway	Hit Object - Off Carriageway
1	Car (excluding private hire)		3 Female	21 - 25	Vehicle proceeding normally along the carriageway, not on a bend	Offside	Other	Parked vehicle	None
2	Car (excluding private hire)		5 Unknown	Unknown	Vehicle is parked in the carriageway	Back	Other	Parked vehicle	None
3	Car (excluding private hire)		3 Unknown	Unknown	Vehicle is parked in the carriageway	Back	Other	Parked vehicle	None

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
1	1	Slight	Driver or rider	Female	21 - 25	Unknown or other	Unknown or other
1	2	Slight	Vehicle or pillion passenger	Male	26 - 35	Unknown or other	Unknown or other

For more information about the data please visit: www.crashmap.co.uk/home/Faq

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APPENDIX 2 TRICS/DATASHINE DATA

Calculation Reference: AUDIT-440201-221201-1219

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : B - AFFORDABLE/LOCAL AUTHORITY HOUSES
 MULTI-MODAL TOTAL VEHICLES

Selected regions and areas:

04	EAST ANGLIA	
	SF SUFFOLK	1 days
05	EAST MIDLANDS	
	LR LEICESTER	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NY NORTH YORKSHIRE	1 days
	WY WEST YORKSHIRE	2 days
08	NORTH WEST	
	BB BLACKBURN WITH DARWEN	1 days
	MS MERSEYSIDE	1 days
11	SCOTLAND	
	MO MORAY	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: No of Dwellings
 Actual Range: 15 to 280 (units:)
 Range Selected by User: 15 to 280 (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: 01/01/00 to 22/10/21

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	3 days
Wednesday	1 days
Thursday	2 days
Friday	2 days

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

Selected survey types:

Manual count	9 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:

Edge of Town Centre	3
Suburban Area (PPS6 Out of Centre)	4
Edge of Town	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	4
------------------	---

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 9 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	2 days
5,001 to 10,000	1 days
10,001 to 15,000	4 days
25,001 to 50,000	1 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:

5,001 to 25,000	2 days
25,001 to 50,000	2 days
75,001 to 100,000	3 days
125,001 to 250,000	1 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	6 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.

Travel Plan:

No 9 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 9 days

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

LIST OF SITES relevant to selection parameters

1	BB-03-B-01 BILLINGE STREET BLACKBURN	SEMI DETACHED/TERRACED		BLACKBURN WITH DARWEN
	Edge of Town Centre Residential Zone Total No of Dwellings:		15	
	Survey date: MONDAY		10/06/13	Survey Type: MANUAL
2	LR-03-B-01 COLEMAN ROAD LEICESTER	SEMI -DETACHED & TERRACED		LEICESTER
	Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings:		38	
	Survey date: FRIDAY		22/10/21	Survey Type: MANUAL
3	MO-03-B-01 HAWTHORN ROAD ELGIN	SEMI DETACHED		MORAY
	Edge of Town Centre No Sub Category Total No of Dwellings:		15	
	Survey date: FRIDAY		12/05/06	Survey Type: MANUAL
4	MO-03-B-02 PLUSCARDEN ROAD ELGIN	BUNGALOWS		MORAY
	Edge of Town Centre No Sub Category Total No of Dwellings:		40	
	Survey date: WEDNESDAY		10/05/06	Survey Type: MANUAL
5	MS-03-B-01 TARBOCK ROAD LIVERPOOL SPEKE	TERRACED		MERSEYSIDE
	Edge of Town Residential Zone Total No of Dwellings:		16	
	Survey date: TUESDAY		18/06/13	Survey Type: MANUAL
6	NY-03-B-01 NORTHALLERTON ROAD THIRSK NORBY	TERRACED HOUSING		NORTH YORKSHIRE
	Suburban Area (PPS6 Out of Centre) No Sub Category Total No of Dwellings:		280	
	Survey date: THURSDAY		20/09/07	Survey Type: MANUAL
7	SF-03-B-01 A1144 ST PETERS STREET LOWESTOFT	SEMI D./TERRACED		SUFFOLK
	Suburban Area (PPS6 Out of Centre) No Sub Category Total No of Dwellings:		46	
	Survey date: TUESDAY		20/09/05	Survey Type: MANUAL
8	WY-03-B-02 WHITEACRE STREET HUDDERSFIELD DEIGHTON	MIXED HOUSES		WEST YORKSHIRE
	Edge of Town Residential Zone Total No of Dwellings:		54	
	Survey date: TUESDAY		17/09/13	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

9 WY-03-B-03 TERRACED HOUSES WEST YORKSHIRE
LINCOLN GREEN ROAD
LEEDS

Suburban Area (PPS6 Out of Centre)

Built-Up Zone

Total No of Dwellings: 29

Survey date: THURSDAY

19/09/13

Survey Type: MANUAL

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

TRIP RATE for Land Use 03 - RESIDENTIAL/B - AFFORDABLE/LOCAL AUTHORITY HOUSES
MULTI-MODAL TOTAL VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Total People to Total Vehicles ratio (all time periods and directions): 2.35

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	9	59	0.039	9	59	0.126	9	59	0.165
08:00 - 09:00	9	59	0.113	9	59	0.218	9	59	0.331
09:00 - 10:00	9	59	0.122	9	59	0.124	9	59	0.246
10:00 - 11:00	9	59	0.122	9	59	0.128	9	59	0.250
11:00 - 12:00	9	59	0.135	9	59	0.113	9	59	0.248
12:00 - 13:00	9	59	0.118	9	59	0.128	9	59	0.246
13:00 - 14:00	9	59	0.131	9	59	0.105	9	59	0.236
14:00 - 15:00	9	59	0.111	9	59	0.144	9	59	0.255
15:00 - 16:00	9	59	0.169	9	59	0.143	9	59	0.312
16:00 - 17:00	9	59	0.139	9	59	0.129	9	59	0.268
17:00 - 18:00	9	59	0.206	9	59	0.139	9	59	0.345
18:00 - 19:00	9	59	0.129	9	59	0.081	9	59	0.210
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.534			1.578			3.112

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: 15 - 280 (units:)
 Survey date range: 01/01/00 - 22/10/21
 Number of weekdays (Monday-Friday): 9
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys automatically removed from selection: 1
 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.

TRIP RATE for Land Use 03 - RESIDENTIAL/B - AFFORDABLE/LOCAL AUTHORITY HOUSES
MULTI-MODAL TOTAL PEOPLE

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Total People to Total Vehicles ratio (all time periods and directions): 2.35

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	9	59	0.069	9	59	0.242	9	59	0.311
08:00 - 09:00	9	59	0.203	9	59	0.715	9	59	0.918
09:00 - 10:00	9	59	0.255	9	59	0.311	9	59	0.566
10:00 - 11:00	9	59	0.240	9	59	0.283	9	59	0.523
11:00 - 12:00	9	59	0.255	9	59	0.238	9	59	0.493
12:00 - 13:00	9	59	0.285	9	59	0.253	9	59	0.538
13:00 - 14:00	9	59	0.253	9	59	0.205	9	59	0.458
14:00 - 15:00	9	59	0.231	9	59	0.304	9	59	0.535
15:00 - 16:00	9	59	0.595	9	59	0.364	9	59	0.959
16:00 - 17:00	9	59	0.360	9	59	0.323	9	59	0.683
17:00 - 18:00	9	59	0.441	9	59	0.356	9	59	0.797
18:00 - 19:00	9	59	0.310	9	59	0.206	9	59	0.516
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.497			3.800			7.297

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.

Train		
Home	Work	Number
IZ15	Old Town, Princes Street and Leith Street	14

Bus		
Home	Work	Number
IZ15	Old Town, Princes Street and Leith Street	12
IZ15	Deans Village	11
IZ15	New Town West	10

Car Driver		
Home	Work	Number
IZ15	No fixed place	164
IZ15	IZ16	97
IZ15	IZ15	63
IZ15	IZ13	53
IZ15	IZ20	51
IZ15	IZ14	44
IZ15	Old Town, Princes Street and Leith Street	29
IZ15	IZ17	26
IZ15	Craigmillar	25
IZ15	South Gyle	24
IZ15	IZ22	21
IZ15	Tollcross	20
IZ15	IZ19	20
IZ15	Jewel, Brunstane and Newcraigh all	19
IZ15	Deans Village Meadows and Southside	19
IZ15	IZ21	14
IZ15	IZ10	14
IZ15	Ratho, Ingliston and Gogar	13
IZ15	IZ11	13
IZ15	IZ05	13
IZ15	IZ04	13
IZ15	Portobello	13
IZ15	Craigleith, Orchard Brae and Crewe Toll	11
IZ15	IZ01	11
IZ15	Eskbank	10
IZ15	The Shore and Constitution Street	10
IZ15	Craiglockhart	9
IZ15	IZ08	9
IZ15	IZ02	9
IZ15	Newtonrange	8
IZ15	Pentland	8
IZ15	Boswall and Pitton	8
IZ15	Morningside	8
IZ15	IZ18	8
IZ15	Western Harbour and Leith Docks	7
IZ15	Willowbrae and Duddingston Village	7
IZ15	Stenhouse and Saughton Malns	7
IZ15	Broughton North and Powderhall	6
IZ15	Merchiston and Greenhill	6
IZ15	Straiton	6
IZ15	Currie West	6

Car Passenger		
Home	Work	Number
IZ15	No fixed place	21
IZ15	IZ16	11
IZ15	IZ14	8
IZ15	IZ13	7
IZ15	Craigmillar	6

Bike		
Home	Work	Number
IZ15	IZ15	12
IZ15	IZ16	6

On Foot		
Home	Work	Number
IZ15	IZ16	193
IZ15	IZ15	89
IZ15	No fixed place	14

Train	14	1%
Bus	33	2%
Car Driver	937	69%
Car Passenger	53	4%
Cycle	18	1%
On Foot	296	22%
Total	1351	100%

APPENDIX 3 TRAFFIC FLOW MATRICES



Herdmanflatt / Florabank Road Junction

Arm A = Herdmanflatt (East) Arm B = Florabank Road C = Herdmanflatt (West)

AM Observed 03/11/2022 -0815-0915

	A	B	C
A		85	9
B	54		1
C	12	2	

PM Observed 03/11/2022 -1615-1715

	A	B	C
A		82	12
B	128		7
C	7	9	

AM Base

	A	B	C
A		88	9
B	56		1
C	12	2	

PM Base

	A	B	C
A		85	12
B	132		7
C	7	9	

NRTF 'Low' Growth Factor 2022 -2028 =

1.031

AM Distribution

	A	B	C
A		0.00%	29.70%
B	0.00%		0.00%
C	29.70%	0.00%	

PM Distribution

	A	B	C
A		0.00%	29.70%
B	0.00%		0.00%
C	29.70%	0.00%	

AM Development Flows

	A	B	C
A		0	7
B	0		0
C	23	0	

PM Development Flows

	A	B	C
A		0	19
B	0		0
C	12	0	

AM Base + Development Flows (Total)

	A	B	C
A		88	16
B	56		1
C	35	2	

PM Base + Development Flows (Total)

	A	B	C
A		85	32
B	132		7
C	19	9	



Dunbar Road / A199

Arm A = A199 (East) Arm B = Dunbar Road Arm C = A199 (West)

AM Observed 03/11/2022 -0830-0930

	A	B	C
A		75	134
B	90		76
C	158	86	

PM Observed 03/11/2022 -1630-1730

	A	B	C
A		107	172
B	190		103
C	150	88	

AM Base

	A	B	C
A		77	138
B	93		78
C	163	89	

PM Base

	A	B	C
A		110	177
B	196		106
C	155	91	

NRTF 'Low' Growth Factor 2022 -2028 =

1.031

AM Distribution

	A	B	C
A		16.0%	0.00%
B	16.0%		0.00%
C	0.00%	0.00%	

PM Distribution

	A	B	C
A		16.0%	0.00%
B	16.0%		0.00%
C	0.00%	0.00%	

AM Development Flows

	A	B	C
A		4	0
B	13		0
C	0	0	

PM Development Flows

	A	B	C
A		10	0
B	6		0
C	0	0	

AM Base + Development Flows (Total)

	A	B	C
A		81	138
B	105		78
C	163	89	

PM Base + Development Flows (Total)

	A	B	C
A		121	177
B	202		106
C	155	91	



Hardgate /Market Street / Victoria Terrace Signals

Arm A = Hardgate Arm B = Victoria Terrace

Arm C = Sidegate Arm D = Market Street

AM Observed 09/02/2023 -0815-0915

	A	B	C	D
A		55	279	
B	78		109	
C	116	7		
D	112	73	180	

PM Observed 09/02/2023 -1715-1815

	A	B	C	D
A		88	290	
B	100		81	
C	129	6		
D	141	132	292	

AM Base

	A	B	C	D
A		56	286	
B	80		112	
C	119	7		
D	115	75	185	

NRTF 'Low' Growth Factor 2022 -2028 =

PM Base

	A	B	C	D
A		90	298	
B	103		83	
C	132	6		
D	145	135	300	

1.026

AM Distribution

	A	B	C	D
A		0.00%	13.70%	
B	0.00%		0.00%	
C	13.70%	0.00%		
D	0.00%	0.00%	0.00%	

PM Distributor

	A	B	C	D
A		0.00%	13.70%	
B	0.00%		0.00%	
C	13.70%	0.00%		
D	0.00%	0.00%	0.00%	

AM Development Flows

	A	B	C	D
A		0	11	
B	0		0	
C	3	0		
D	0	0	0	

PM Development Flows

	A	B	C	D
A		0	5	
B	0		0	
C	9	0		
D	0	0	0	

AM Base + Development Flows (Tot)

	A	B	C	D
A		56	297	
B	80		112	
C	122	7		
D	115	75	185	

PM Base + Development Flows (Total)

	A	B	C	D
A		90	303	
B	103		83	
C	141	6		
D	145	135	300	



A6137 Aberlady

A199 Haldane Avenue

Arm A = A199 Haldane Avenue (East) Arm B = A6137 Aberlady Road (South)

Arm C = A199 Haldane Avenue (West) Arm D = A6137 Aberlady Road (North)

AM Observed 09/02/2023 -0800-0900

	A	B	C	D
A		60	140	54
B	64		45	74
C	89	71		64
D	78	94	53	

PM Observed 09/02/2023 -1630-1730

	A	B	C	D
A		66	111	55
B	47		59	62
C	146	115		78
D	65	79	73	

AM Base

	A	B	C	D
A		62	144	55
B	66		46	76
C	91	73		66
D	80	96	54	

NRTF 'Low' Growth Factor 2022 -2028 =

PM Base

	A	B	C	D
A		68	114	56
B	48		61	64
C	150	118		80
D	67	81	75	

1.026

AM Base

	A	B	C	D
A		0.00%	0.00%	0.00%
B	0.00%		60.40%	3.70%
C	0.00%	60.40%		0.00%
D	0.00%	3.70%	0.00%	

PM Base

	A	B	C	D
A		0.00%	0.00%	0.00%
B	0.00%		60.40%	3.70%
C	0.00%	60.40%		0.00%
D	0.00%	3.70%	0.00%	

AM Development Flows

	A	B	C	D
A		0	0	0
B	0		47	3
C	0	13		0
D	0	1	0	

PM Development Flow

	A	B	C	D
A		0	0	0
B	0		24	1
C	0	39		0
D	0	2	0	

AM Base + Development Flows (Total)

	A	B	C	D
A		62	144	55
B	66		93	79
C	91	86		66
D	80	97	54	

PM Base + Development Flows (Total)

	A	B	C	D
A		68	114	56
B	48		85	65
C	150	157		80
D	67	83	75	

APPENDIX 4 JUNCTION OUTPUT FILES

Junctions 10
PICADY 10 - Priority Intersection Module
Version: 10.0.4.1693 © Copyright TRL Software Limited, 2021
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Filename: Florabank.j10
Path: M:\P14825\01-WIP\Office\Transport Assessment\Analysis files
Report generation date: 07/08/2023 15:28:14

«2028 Base + Development, PM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Detailed Demand Data
- »Results

Summary of junction performance

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
2022 Observed						
Stream B-AC	0.0	6.37	0.03	0.0	7.41	0.04
Stream C-AB	0.0	5.48	0.02	0.0	5.65	0.02
2028 Base						
Stream B-AC	0.0	6.38	0.03	0.0	7.44	0.04
Stream C-AB	0.0	5.48	0.02	0.0	5.65	0.02
2028 Base + Development						
Stream B-AC	0.1	6.52	0.07	0.1	7.23	0.06
Stream C-AB	0.0	5.53	0.03	0.1	5.85	0.06

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

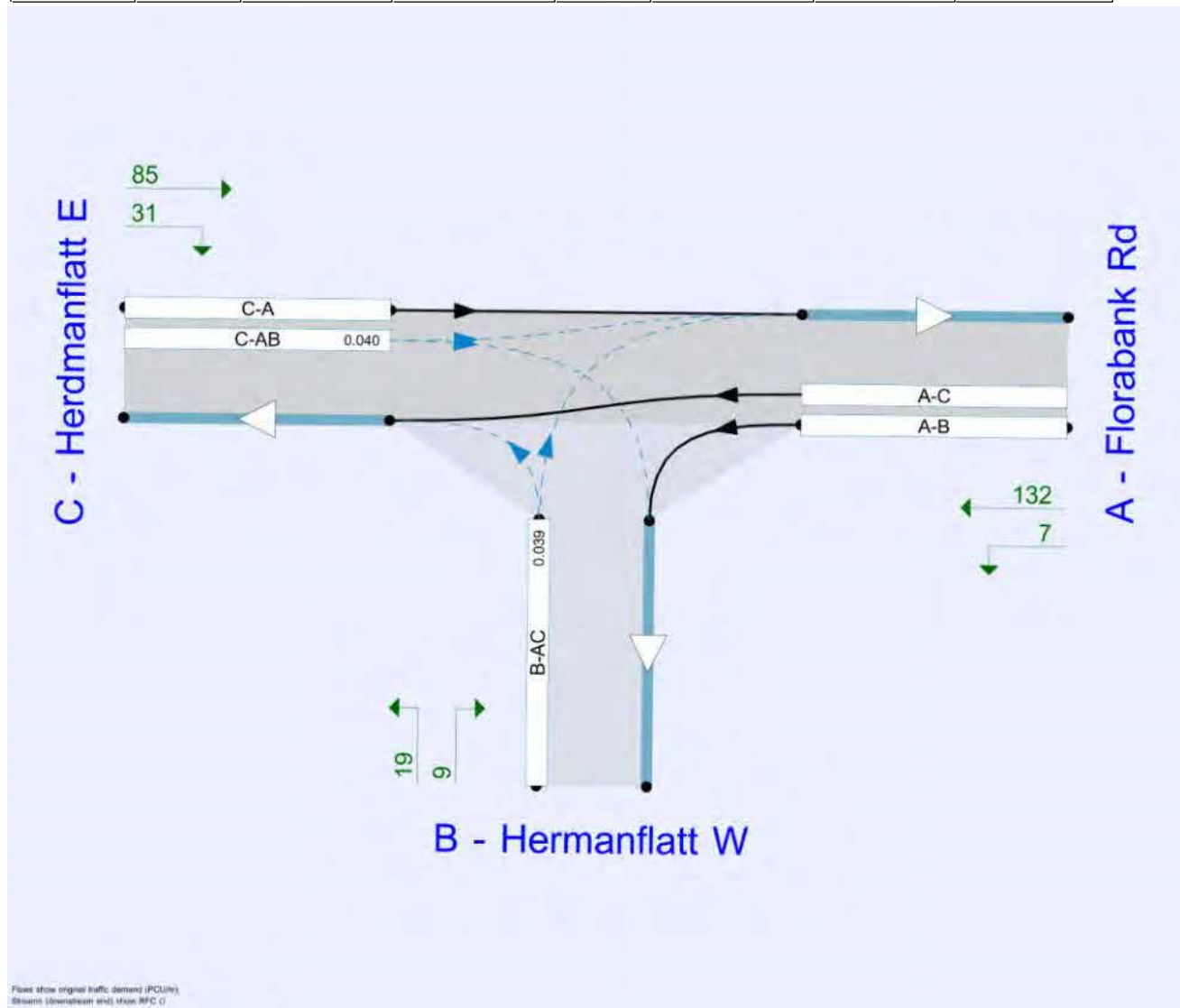
File summary

File Description

Title	Herdmanflatt Hospital
Location	Florabank Rd
Site number	
Date	28/11/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	GOODSON\DCole
Description	

Units

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



Analysis Options

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

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	<input type="checkbox"/>	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D8	2028 Base + Development	PM	ONE HOUR	16:00	17:30	15	<input type="checkbox"/>	Simple	D4+D6

2028 Base + Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	C - Herdmanflatt E - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.
Warning	Demand Set Relationship	D7 - 2028 Base + Development, AM	Demand Set relationships are chained. This may slow down the file.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		1.46	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	1.46	A

Arms

Arms

Arm	Name	Description	Arm type
A	Florabank Rd		Major
B	Hermanflatt W		Minor
C	Herdmanflatt E		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right-turn storage	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Herdmanflatt E	5.27			100.0	U	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	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Hermanflatt W	One lane	2.70	112	21

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	508	0.095	0.240	0.151	0.343
B-C	618	0.098	0.248	-	-
C-B	632	0.253	0.253	-	-

The slopes and intercepts shown above include custom intercept adjustments only.

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

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
ü	ü	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Florabank Rd		ONE HOUR	ü	139	100.000
B - Hermanflatt W		ONE HOUR	ü	28	100.000
C - Herdmanflatt E		ONE HOUR	ü	116	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To		
	A - Florabank Rd	B - Hermanflatt W	C - Herdmanflatt E
A - Florabank Rd	0	7	132
B - Hermanflatt W	9	0	19
C - Herdmanflatt E	85	31	0

Proportions

From	To		
	A - Florabank Rd	B - Hermanflatt W	C - Herdmanflatt E
A - Florabank Rd	0.00	0.05	0.95
B - Hermanflatt W	0.33	0.00	0.67
C - Herdmanflatt E	0.73	0.27	0.00

Vehicle Mix

Heavy Vehicle Percentages

From	To		
	A - Florabank Rd	B - Hermanflatt W	C - Herdmanflatt E
A - Florabank Rd	0	0	0
B - Hermanflatt W	0	0	0
C - Herdmanflatt E	0	0	0

Average PCU Per Veh

From	To		
	A - Florabank Rd	B - Hermanflatt W	C - Herdmanflatt E
A - Florabank Rd	1.000	1.000	1.000
B - Hermanflatt W	1.000	1.000	1.000
C - Herdmanflatt E	1.000	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
16:00-16:15	A - Florabank Rd	105	105
	B - Hermanflatt W	21	21
	C - Herdmanflatt E	87	87
16:15-16:30	A - Florabank Rd	125	125
	B - Hermanflatt W	26	26
	C - Herdmanflatt E	104	104
16:30-16:45	A - Florabank Rd	153	153
	B - Hermanflatt W	31	31
	C - Herdmanflatt E	128	128
16:45-17:00	A - Florabank Rd	153	153
	B - Hermanflatt W	31	31
	C - Herdmanflatt E	128	128
17:00-17:15	A - Florabank Rd	125	125
	B - Hermanflatt W	26	26
	C - Herdmanflatt E	104	104
17:15-17:30	A - Florabank Rd	105	105
	B - Hermanflatt W	21	21
	C - Herdmanflatt E	87	87

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.06	7.23	0.1	0.5	A	26	39
C-AB	0.06	5.85	0.1	0.5	A	33	49
C-A						74	110
A-B						7	10
A-C						121	182

Main Results for each time segment

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	5	544	0.039	21	0.0	0.0	6.881	A
C-AB	26	7	648	0.040	26	0.0	0.0	5.789	A
C-A	61	15			61				
A-B	5	1			5				
A-C	99	25			99				

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	26	6	538	0.048	26	0.0	0.0	7.026	A
C-AB	32	8	651	0.049	32	0.0	0.1	5.815	A
C-A	72	18			72				
A-B	6	2			6				
A-C	119	30			119				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	31	8	529	0.059	31	0.0	0.1	7.233	A
C-AB	40	10	656	0.061	40	0.1	0.1	5.850	A
C-A	87	22			87				
A-B	8	2			8				
A-C	145	36			145				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	31	8	529	0.059	31	0.1	0.1	7.233	A
C-AB	40	10	656	0.061	40	0.1	0.1	5.851	A
C-A	87	22			87				
A-B	8	2			8				
A-C	145	36			145				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	26	6	538	0.048	26	0.1	0.1	7.030	A
C-AB	32	8	651	0.049	32	0.1	0.1	5.817	A
C-A	72	18			72				
A-B	6	2			6				
A-C	119	30			119				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	5	544	0.039	21	0.1	0.0	6.885	A
C-AB	26	7	648	0.040	26	0.1	0.1	5.793	A
C-A	61	15			61				
A-B	5	1			5				
A-C	99	25			99				

Queue Variation Results for each time segment

16:00 - 16:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.04	0.00	0.00	0.04	0.04			N/A	N/A
C-AB	0.05	0.00	0.00	0.05	0.05			N/A	N/A

16:15 - 16:30

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.05	0.03	0.25	0.45	0.48			N/A	N/A
C-AB	0.06	0.03	0.25	0.45	0.48			N/A	N/A

16:30 - 16:45

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.06	0.03	0.26	0.47	0.49			N/A	N/A
C-AB	0.08	0.03	0.26	0.47	0.50			N/A	N/A

16:45 - 17:00

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.06	0.00	0.00	0.06	0.06			N/A	N/A
C-AB	0.08	0.00	0.00	0.08	0.08			N/A	N/A

17:00 - 17:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.05	0.00	0.00	0.05	0.05			N/A	N/A
C-AB	0.06	0.00	0.00	0.06	0.06			N/A	N/A

17:15 - 17:30

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.04	0.00	0.00	0.04	0.04			N/A	N/A
C-AB	0.05	0.00	0.00	0.05	0.05			N/A	N/A

Junctions 10
PICADY 10 - Priority Intersection Module
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Filename: A199 Dunbar Priority Junction.j10
Path: M:\P14825\01-WIP\Office\Transport Assessment\Analysis files
Report generation date: 07/08/2023 15:37:14

- »2022 Observed, AM
- »2022 Observed, PM
- »2028 Base, AM
- »2028 Base, PM
- »2028 Base + Development, AM
- »2028 Base + Development , PM

Summary of junction performance

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
2022 Observed						
Stream B-C	0.2	6.73	0.14	0.3	9.07	0.22
Stream B-A	0.3	9.62	0.21	0.8	13.95	0.45
Stream C-AB	0.3	5.86	0.17	0.3	6.11	0.18
2028 Base						
Stream B-C	0.2	6.80	0.14	0.3	9.38	0.23
Stream B-A	0.3	9.79	0.22	0.9	14.59	0.47
Stream C-AB	0.3	5.89	0.17	0.3	6.16	0.18
2028 Base + Development						
Stream B-C	0.2	6.98	0.14	0.3	9.60	0.24
Stream B-A	0.3	10.09	0.25	0.9	15.03	0.48
Stream C-AB	0.3	5.90	0.17	0.3	6.18	0.18

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

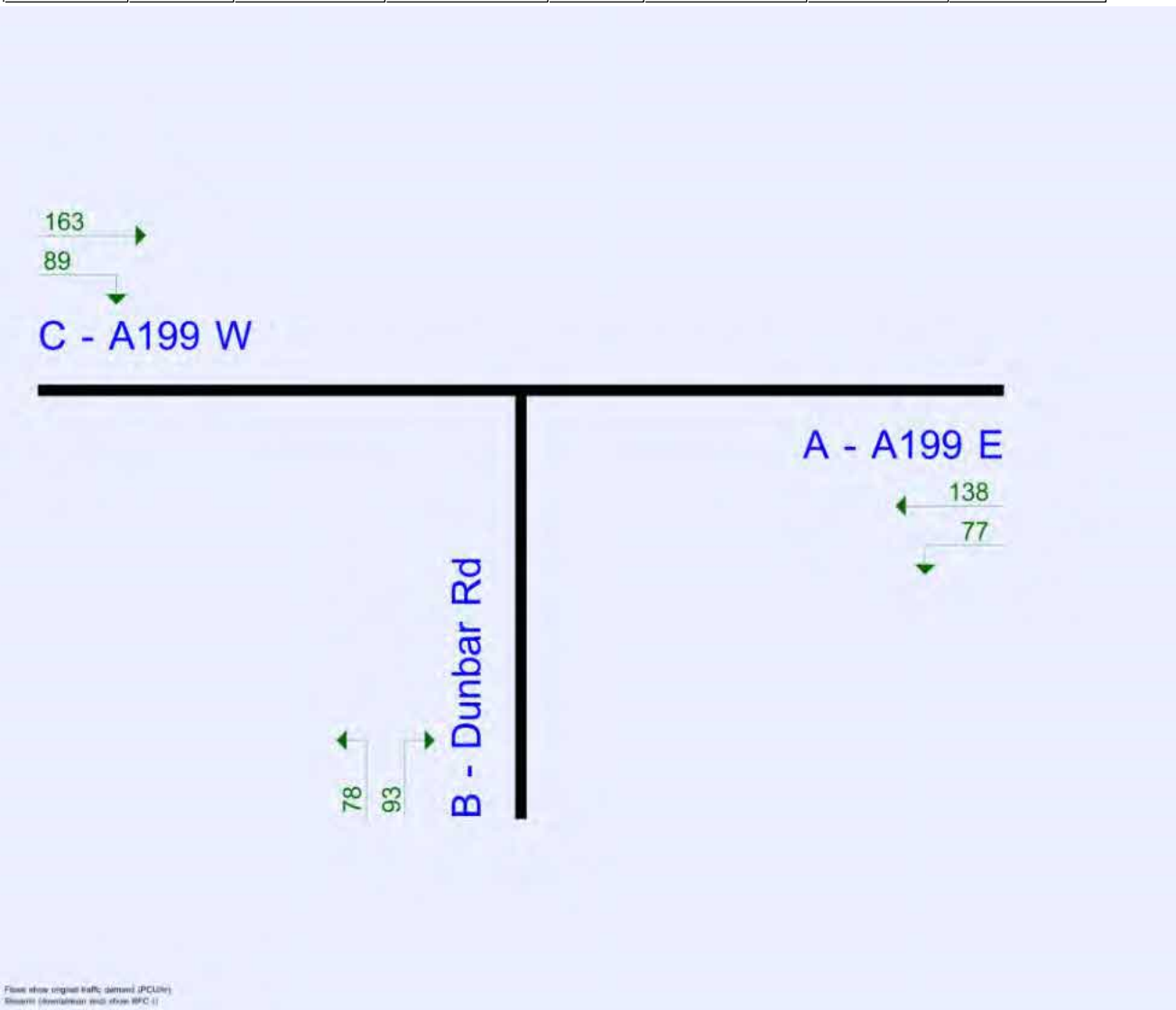
File summary

File Description

Title	
Location	
Site number	
Date	29/11/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	GOODSON\Nick
Description	

Units

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



The junction diagram reflects the last run of Junctions.

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D1	2022 Observed	AM	ONE HOUR	08:00	09:30	15	<input type="checkbox"/>		
D2	2022 Observed	PM	ONE HOUR	17:00	18:30	15	<input type="checkbox"/>		
D3	2028 Base	AM	ONE HOUR	08:00	09:30	15	<input type="checkbox"/>	Simple	D1*1.031
D4	2028 Base	PM	ONE HOUR	17:00	18:30	15	<input type="checkbox"/>	Simple	D2*1.031
D5	2028 Development	AM	ONE HOUR	08:00	09:30	15	<input type="checkbox"/>		
D6	2028 Development	PM	ONE HOUR	17:00	18:30	15	<input type="checkbox"/>		
D7	2028 Base + Development	AM	ONE HOUR	08:00	09:30	15	<input type="checkbox"/>	Simple	D3+D5
D8	2028 Base + Development	PM	ONE HOUR	17:00	18:30	15	<input type="checkbox"/>	Simple	D4+D6

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	<input type="checkbox"/>	100.000	100.000

2022 Observed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D7 - 2028 Base + Development, AM	Demand Set relationships are chained. This may slow down the file.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	A199/Dunbar Rd	T-Junction	Two-way	Two-way	Two-way		3.25	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.25	A

Arms

Arms

Arm	Name	Description	Arm type
A	A199 E		Major
B	Dunbar Rd		Minor
C	A199 W		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right-turn storage	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - A199 W	6.91			190.0	ü	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 - Dunbar Rd	One lane plus flare	10.00	6.27	4.29	4.14	4.08	ü	1.00	80	36

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	584	0.101	0.256	0.161	0.365
B-C	707	0.105	0.266	-	-
C-B	684	0.255	0.255	-	-

The slopes and intercepts shown above include custom intercept adjustments only.

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)	Run automatically
D1	2022 Observed	AM	ONE HOUR	08:00	09:30	15	<input type="checkbox"/>

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
<input type="checkbox"/>	<input type="checkbox"/>	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A199 E		ONE HOUR	<input type="checkbox"/>	209	100.000
B - Dunbar Rd		ONE HOUR	<input type="checkbox"/>	166	100.000
C - A199 W		ONE HOUR	<input type="checkbox"/>	244	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To		
	A - A199 E	B - Dunbar Rd	C - A199 W
A - A199 E	0	75	134
B - Dunbar Rd	90	0	76
C - A199 W	158	86	0

Proportions

From	To		
	A - A199 E	B - Dunbar Rd	C - A199 W
A - A199 E	0.00	0.36	0.64
B - Dunbar Rd	0.54	0.00	0.46
C - A199 W	0.65	0.35	0.00

Vehicle Mix

Heavy Vehicle Percentages

From	To		
	A - A199 E	B - Dunbar Rd	C - A199 W
A - A199 E	0	0	0
B - Dunbar Rd	0	0	0
C - A199 W	0	0	0

Average PCU Per Veh

From	To		
	A - A199 E	B - Dunbar Rd	C - A199 W
A - A199 E	1.000	1.000	1.000
B - Dunbar Rd	1.000	1.000	1.000
C - A199 W	1.000	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
08:00-08:15	A - A199 E	157	157
	B - Dunbar Rd	125	125
	C - A199 W	184	184
08:15-08:30	A - A199 E	188	188
	B - Dunbar Rd	149	149
	C - A199 W	219	219
08:30-08:45	A - A199 E	230	230
	B - Dunbar Rd	183	183
	C - A199 W	269	269
08:45-09:00	A - A199 E	230	230
	B - Dunbar Rd	183	183
	C - A199 W	269	269
09:00-09:15	A - A199 E	188	188
	B - Dunbar Rd	149	149
	C - A199 W	219	219
09:15-09:30	A - A199 E	157	157
	B - Dunbar Rd	125	125
	C - A199 W	184	184

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.14	6.73	0.2	A	70	105
B-A	0.21	9.62	0.3	A	83	124
C-AB	0.17	5.86	0.3	A	99	149
C-A					125	187
A-B					69	103
A-C					123	184

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	57	14	651	0.088	57	0.0	0.1	6.060	A
B-A	68	17	509	0.133	67	0.0	0.2	8.134	A
C-AB	78	19	720	0.108	77	0.0	0.1	5.593	A
C-A	106	27			106				
A-B	56	14			56				
A-C	101	25			101				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	68	17	638	0.107	68	0.1	0.1	6.321	A
B-A	81	20	494	0.164	81	0.2	0.2	8.701	A
C-AB	96	24	728	0.132	96	0.1	0.2	5.696	A
C-A	123	31			123				
A-B	67	17			67				
A-C	120	30			120				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	84	21	619	0.135	84	0.1	0.2	6.721	A
B-A	99	25	473	0.209	99	0.2	0.3	9.602	A
C-AB	124	31	739	0.168	124	0.2	0.3	5.852	A
C-A	145	36			145				
A-B	83	21			83				
A-C	148	37			148				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	84	21	619	0.135	84	0.2	0.2	6.726	A
B-A	99	25	473	0.209	99	0.3	0.3	9.616	A
C-AB	124	31	739	0.168	124	0.3	0.3	5.859	A
C-A	145	36			145				
A-B	83	21			83				
A-C	148	37			148				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	68	17	637	0.107	68	0.2	0.1	6.330	A
B-A	81	20	494	0.164	81	0.3	0.2	8.721	A
C-AB	96	24	728	0.132	97	0.3	0.2	5.703	A
C-A	123	31			123				
A-B	67	17			67				
A-C	120	30			120				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	57	14	650	0.088	57	0.1	0.1	6.073	A
B-A	68	17	509	0.133	68	0.2	0.2	8.165	A
C-AB	78	19	720	0.108	78	0.2	0.1	5.607	A
C-A	106	27			106				
A-B	56	14			56				
A-C	101	25			101				

2022 Observed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D7 - 2028 Base + Development, AM	Demand Set relationships are chained. This may slow down the file.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	A199/Dunbar Rd	T-Junction	Two-way	Two-way	Two-way		5.25	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	5.25	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2022 Observed	PM	ONE HOUR	17:00	18:30	15	☐

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
☐	☐	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A199 E		ONE HOUR	☐	279	100.000
B - Dunbar Rd		ONE HOUR	☐	293	100.000
C - A199 W		ONE HOUR	☐	238	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To		
	A - A199 E	B - Dunbar Rd	C - A199 W
A - A199 E	0	107	172
B - Dunbar Rd	190	0	103
C - A199 W	150	88	0

Proportions

From	To		
	A - A199 E	B - Dunbar Rd	C - A199 W
A - A199 E	0.00	0.38	0.62
B - Dunbar Rd	0.65	0.00	0.35
C - A199 W	0.63	0.37	0.00

Vehicle Mix

Heavy Vehicle Percentages

From	To		
	A - A199 E	B - Dunbar Rd	C - A199 W
A - A199 E	0	0	0
B - Dunbar Rd	0	0	0
C - A199 W	0	0	0

Average PCU Per Veh

From	To		
	A - A199 E	B - Dunbar Rd	C - A199 W
A - A199 E	1.000	1.000	1.000
B - Dunbar Rd	1.000	1.000	1.000
C - A199 W	1.000	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
17:00-17:15	A - A199 E	210	210
	B - Dunbar Rd	221	221
	C - A199 W	179	179
17:15-17:30	A - A199 E	251	251
	B - Dunbar Rd	263	263
	C - A199 W	214	214
17:30-17:45	A - A199 E	307	307
	B - Dunbar Rd	323	323
	C - A199 W	262	262
17:45-18:00	A - A199 E	307	307
	B - Dunbar Rd	323	323
	C - A199 W	262	262
18:00-18:15	A - A199 E	251	251
	B - Dunbar Rd	263	263
	C - A199 W	214	214
18:15-18:30	A - A199 E	210	210
	B - Dunbar Rd	221	221
	C - A199 W	179	179

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.22	9.07	0.3	A	95	142
B-A	0.45	13.95	0.8	B	174	262
C-AB	0.18	6.11	0.3	A	101	152
C-A					117	176
A-B					98	147
A-C					158	237

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	78	19	588	0.132	77	0.0	0.2	7.042	A
B-A	143	36	513	0.279	142	0.0	0.4	9.648	A
C-AB	79	20	704	0.112	78	0.0	0.2	5.750	A
C-A	100	25			100				
A-B	81	20			81				
A-C	129	32			129				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	93	23	559	0.166	92	0.2	0.2	7.707	A
B-A	171	43	494	0.345	170	0.4	0.5	11.085	B
C-AB	98	24	709	0.138	98	0.2	0.2	5.893	A
C-A	116	29			116				
A-B	96	24			96				
A-C	155	39			155				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	113	28	511	0.222	113	0.2	0.3	9.030	A
B-A	209	52	467	0.448	208	0.5	0.8	13.830	B
C-AB	126	32	715	0.176	126	0.2	0.3	6.108	A
C-A	136	34			136				
A-B	118	29			118				
A-C	189	47			189				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	113	28	510	0.222	113	0.3	0.3	9.069	A
B-A	209	52	467	0.448	209	0.8	0.8	13.946	B
C-AB	126	32	716	0.176	126	0.3	0.3	6.112	A
C-A	136	34			136				
A-B	118	29			118				
A-C	189	47			189				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	93	23	558	0.166	93	0.3	0.2	7.747	A
B-A	171	43	494	0.346	172	0.8	0.5	11.198	B
C-AB	98	24	709	0.138	98	0.3	0.2	5.901	A
C-A	116	29			116				
A-B	96	24			96				
A-C	155	39			155				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	78	19	586	0.132	78	0.2	0.2	7.082	A
B-A	143	36	513	0.279	144	0.5	0.4	9.763	A
C-AB	79	20	704	0.112	79	0.2	0.2	5.765	A
C-A	100	25			100				
A-B	81	20			81				
A-C	129	32			129				

2028 Base, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D7 - 2028 Base + Development, AM	Demand Set relationships are chained. This may slow down the file.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	A199/Dunbar Rd	T-Junction	Two-way	Two-way	Two-way		3.30	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.30	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D3	2028 Base	AM	ONE HOUR	08:00	09:30	15	ü	Simple	D1*1.031

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
ü	ü	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A199 E		ONE HOUR	ü	215	100.000
B - Dunbar Rd		ONE HOUR	ü	171	100.000
C - A199 W		ONE HOUR	ü	252	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - A199 E	B - Dunbar Rd	C - A199 W
From	A - A199 E	0	77	138
	B - Dunbar Rd	93	0	78
	C - A199 W	163	89	0

Proportions

	To			
		A - A199 E	B - Dunbar Rd	C - A199 W
From	A - A199 E	0.00	0.36	0.64
	B - Dunbar Rd	0.54	0.00	0.46
	C - A199 W	0.65	0.35	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - A199 E	B - Dunbar Rd	C - A199 W
From	A - A199 E	0	0	0
	B - Dunbar Rd	0	0	0
	C - A199 W	0	0	0

Average PCU Per Veh

	To			
		A - A199 E	B - Dunbar Rd	C - A199 W
From	A - A199 E	1.000	1.000	1.000
	B - Dunbar Rd	1.000	1.000	1.000
	C - A199 W	1.000	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
08:00-08:15	A - A199 E	162	162
	B - Dunbar Rd	129	129
	C - A199 W	189	189
08:15-08:30	A - A199 E	194	194
	B - Dunbar Rd	154	154
	C - A199 W	226	226
08:30-08:45	A - A199 E	237	237
	B - Dunbar Rd	188	188
	C - A199 W	277	277
08:45-09:00	A - A199 E	237	237
	B - Dunbar Rd	188	188
	C - A199 W	277	277
09:00-09:15	A - A199 E	194	194
	B - Dunbar Rd	154	154
	C - A199 W	226	226
09:15-09:30	A - A199 E	162	162
	B - Dunbar Rd	129	129
	C - A199 W	189	189

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.14	6.80	0.2	A	72	108
B-A	0.22	9.79	0.3	A	85	128
C-AB	0.17	5.89	0.3	A	103	155
C-A					128	192
A-B					71	106
A-C					127	190

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	59	15	649	0.091	59	0.0	0.1	6.098	A
B-A	70	17	507	0.138	69	0.0	0.2	8.215	A
C-AB	80	20	722	0.111	80	0.0	0.2	5.607	A
C-A	109	27			109				
A-B	58	15			58				
A-C	104	26			104				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	70	18	635	0.111	70	0.1	0.1	6.373	A
B-A	83	21	491	0.170	83	0.2	0.2	8.815	A
C-AB	100	25	730	0.137	100	0.2	0.2	5.716	A
C-A	126	32			126				
A-B	70	17			70				
A-C	124	31			124				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	86	22	616	0.140	86	0.1	0.2	6.797	A
B-A	102	26	470	0.217	102	0.2	0.3	9.773	A
C-AB	129	32	741	0.174	129	0.2	0.3	5.882	A
C-A	148	37			148				
A-B	85	21			85				
A-C	152	38			152				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	86	22	615	0.140	86	0.2	0.2	6.802	A
B-A	102	26	470	0.217	102	0.3	0.3	9.790	A
C-AB	129	32	741	0.174	129	0.3	0.3	5.889	A
C-A	148	37			148				
A-B	85	21			85				
A-C	152	38			152				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	70	18	635	0.111	71	0.2	0.1	6.380	A
B-A	83	21	491	0.170	84	0.3	0.2	8.836	A
C-AB	100	25	730	0.137	100	0.3	0.2	5.726	A
C-A	126	32			126				
A-B	70	17			70				
A-C	124	31			124				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	59	15	648	0.091	59	0.1	0.1	6.112	A
B-A	70	17	507	0.138	70	0.2	0.2	8.247	A
C-AB	81	20	722	0.112	81	0.2	0.2	5.622	A
C-A	109	27			109				
A-B	58	15			58				
A-C	104	26			104				

2028 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D7 - 2028 Base + Development, AM	Demand Set relationships are chained. This may slow down the file.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	A199/Dunbar Rd	T-Junction	Two-way	Two-way	Two-way		5.46	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	5.46	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D4	2028 Base	PM	ONE HOUR	17:00	18:30	15	ü	Simple	D2*1.031

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
ü	ü	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A199 E		ONE HOUR	ü	288	100.000
B - Dunbar Rd		ONE HOUR	ü	302	100.000
C - A199 W		ONE HOUR	ü	245	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To			
	A - A199 E	B - Dunbar Rd	C - A199 W	
A - A199 E	0	110	177	
B - Dunbar Rd	196	0	106	
C - A199 W	155	91	0	

Proportions

From	To			
	A - A199 E	B - Dunbar Rd	C - A199 W	
A - A199 E	0.00	0.38	0.62	
B - Dunbar Rd	0.65	0.00	0.35	
C - A199 W	0.63	0.37	0.00	

Vehicle Mix

Heavy Vehicle Percentages

From	To			
	A - A199 E	B - Dunbar Rd	C - A199 W	
A - A199 E	0	0	0	
B - Dunbar Rd	0	0	0	
C - A199 W	0	0	0	

Average PCU Per Veh

From	To			
	A - A199 E	B - Dunbar Rd	C - A199 W	
A - A199 E	1.000	1.000	1.000	
B - Dunbar Rd	1.000	1.000	1.000	
C - A199 W	1.000	1.000	1.000	

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
17:00-17:15	A - A199 E	217	217
	B - Dunbar Rd	227	227
	C - A199 W	185	185
17:15-17:30	A - A199 E	259	259
	B - Dunbar Rd	272	272
	C - A199 W	221	221
17:30-17:45	A - A199 E	317	317
	B - Dunbar Rd	333	333
	C - A199 W	270	270
17:45-18:00	A - A199 E	317	317
	B - Dunbar Rd	333	333
	C - A199 W	270	270
18:00-18:15	A - A199 E	259	259
	B - Dunbar Rd	272	272
	C - A199 W	221	221
18:15-18:30	A - A199 E	217	217
	B - Dunbar Rd	227	227
	C - A199 W	185	185

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.23	9.38	0.3	A	97	146
B-A	0.47	14.59	0.9	B	180	270
C-AB	0.18	6.16	0.3	A	105	157
C-A					120	180
A-B					101	152
A-C					163	244

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	80	20	584	0.137	79	0.0	0.2	7.128	A
B-A	147	37	510	0.289	146	0.0	0.4	9.838	A
C-AB	82	20	705	0.116	81	0.0	0.2	5.770	A
C-A	103	26			103				
A-B	83	21			83				
A-C	134	33			134				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	95	24	553	0.173	95	0.2	0.2	7.854	A
B-A	176	44	491	0.359	176	0.4	0.5	11.394	B
C-AB	102	25	710	0.143	101	0.2	0.2	5.920	A
C-A	119	30			119				
A-B	99	25			99				
A-C	159	40			159				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	117	29	502	0.233	117	0.2	0.3	9.330	A
B-A	216	54	462	0.466	214	0.5	0.8	14.444	B
C-AB	131	33	717	0.183	131	0.2	0.3	6.148	A
C-A	139	35			139				
A-B	121	30			121				
A-C	195	49			195				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	117	29	501	0.234	117	0.3	0.3	9.380	A
B-A	216	54	462	0.467	216	0.8	0.9	14.586	B
C-AB	131	33	717	0.183	131	0.3	0.3	6.155	A
C-A	139	35			139				
A-B	121	30			121				
A-C	195	49			195				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	95	24	552	0.173	96	0.3	0.2	7.900	A
B-A	176	44	491	0.359	177	0.9	0.6	11.529	B
C-AB	102	25	710	0.143	102	0.3	0.2	5.931	A
C-A	119	30			119				
A-B	99	25			99				
A-C	159	40			159				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	80	20	582	0.137	80	0.2	0.2	7.175	A
B-A	147	37	510	0.289	148	0.6	0.4	9.964	A
C-AB	82	20	705	0.116	82	0.2	0.2	5.785	A
C-A	103	26			103				
A-B	83	21			83				
A-C	134	33			134				

2028 Base + Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D7 - 2028 Base + Development, AM	Demand Set relationships are chained. This may slow down the file.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	A199/Dunbar Rd	T-Junction	Two-way	Two-way	Two-way		3.48	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.48	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D7	2028 Base + Development	AM	ONE HOUR	08:00	09:30	15	<input type="checkbox"/>	Simple	D3+D5

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
<input type="checkbox"/>	<input type="checkbox"/>	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A199 E		ONE HOUR	<input type="checkbox"/>	219	100.000
B - Dunbar Rd		ONE HOUR	<input type="checkbox"/>	184	100.000
C - A199 W		ONE HOUR	<input type="checkbox"/>	252	100.000

Origin-Destination Data

Demand (PCU/hr)

	To		
	A - A199 E	B - Dunbar Rd	C - A199 W
From			
A - A199 E	0	81	138
B - Dunbar Rd	106	0	78
C - A199 W	163	89	0

Proportions

	To		
	A - A199 E	B - Dunbar Rd	C - A199 W
From			
A - A199 E	0.00	0.37	0.63
B - Dunbar Rd	0.57	0.00	0.43
C - A199 W	0.65	0.35	0.00

Vehicle Mix

Heavy Vehicle Percentages

	To		
	A - A199 E	B - Dunbar Rd	C - A199 W
From			
A - A199 E	0	0	0
B - Dunbar Rd	0	0	0
C - A199 W	0	0	0

Average PCU Per Veh

	To		
	A - A199 E	B - Dunbar Rd	C - A199 W
From			
A - A199 E	1.000	1.000	1.000
B - Dunbar Rd	1.000	1.000	1.000
C - A199 W	1.000	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
08:00-08:15	A - A199 E	165	165
	B - Dunbar Rd	139	139
	C - A199 W	189	189
08:15-08:30	A - A199 E	197	197
	B - Dunbar Rd	166	166
	C - A199 W	226	226
08:30-08:45	A - A199 E	242	242
	B - Dunbar Rd	203	203
	C - A199 W	277	277
08:45-09:00	A - A199 E	242	242
	B - Dunbar Rd	203	203
	C - A199 W	277	277
09:00-09:15	A - A199 E	197	197
	B - Dunbar Rd	166	166
	C - A199 W	226	226
09:15-09:30	A - A199 E	165	165
	B - Dunbar Rd	139	139
	C - A199 W	189	189

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.14	6.98	0.2	A	72	108
B-A	0.25	10.09	0.3	B	97	146
C-AB	0.17	5.90	0.3	A	103	155
C-A					128	191
A-B					75	112
A-C					127	190

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	59	15	639	0.092	59	0.0	0.1	6.203	A
B-A	80	20	511	0.156	79	0.0	0.2	8.316	A
C-AB	80	20	721	0.112	80	0.0	0.2	5.617	A
C-A	109	27			109				
A-B	61	15			61				
A-C	104	26			104				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	70	18	624	0.113	70	0.1	0.1	6.501	A
B-A	95	24	495	0.192	95	0.2	0.2	8.984	A
C-AB	100	25	729	0.137	100	0.2	0.2	5.724	A
C-A	126	32			126				
A-B	73	18			73				
A-C	124	31			124				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	86	22	602	0.143	86	0.1	0.2	6.971	A
B-A	116	29	473	0.246	116	0.2	0.3	10.064	B
C-AB	129	32	740	0.174	129	0.2	0.3	5.892	A
C-A	148	37			148				
A-B	90	22			90				
A-C	152	38			152				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	86	22	602	0.143	86	0.2	0.2	6.977	A
B-A	116	29	473	0.246	116	0.3	0.3	10.086	B
C-AB	129	32	740	0.175	129	0.3	0.3	5.899	A
C-A	148	37			148				
A-B	90	22			90				
A-C	152	38			152				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	70	18	624	0.113	71	0.2	0.1	6.509	A
B-A	95	24	495	0.192	95	0.3	0.2	9.010	A
C-AB	100	25	729	0.137	100	0.3	0.2	5.732	A
C-A	126	32			126				
A-B	73	18			73				
A-C	124	31			124				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	59	15	638	0.092	59	0.1	0.1	6.218	A
B-A	80	20	511	0.156	80	0.2	0.2	8.357	A
C-AB	81	20	721	0.112	81	0.2	0.2	5.628	A
C-A	109	27			109				
A-B	61	15			61				
A-C	104	26			104				

2028 Base + Development , PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D7 - 2028 Base + Development, AM	Demand Set relationships are chained. This may slow down the file.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	A199/Dunbar Rd	T-Junction	Two-way	Two-way	Two-way		5.59	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	5.59	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically	Relationship type	Relationship
D8	2028 Base + Development	PM	ONE HOUR	17:00	18:30	15	☑	Simple	D4+D6

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
☑	☑	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A199 E		ONE HOUR	☑	298	100.000
B - Dunbar Rd		ONE HOUR	☑	308	100.000
C - A199 W		ONE HOUR	☑	245	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To		
	A - A199 E	B - Dunbar Rd	C - A199 W
A - A199 E	0	120	177
B - Dunbar Rd	202	0	106
C - A199 W	155	91	0

Proportions

From	To		
	A - A199 E	B - Dunbar Rd	C - A199 W
A - A199 E	0.00	0.40	0.60
B - Dunbar Rd	0.66	0.00	0.34
C - A199 W	0.63	0.37	0.00

Vehicle Mix

Heavy Vehicle Percentages

From	To		
	A - A199 E	B - Dunbar Rd	C - A199 W
A - A199 E	0	0	0
B - Dunbar Rd	0	0	0
C - A199 W	0	0	0

Average PCU Per Veh

From	To		
	A - A199 E	B - Dunbar Rd	C - A199 W
A - A199 E	1.000	1.000	1.000
B - Dunbar Rd	1.000	1.000	1.000
C - A199 W	1.000	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
17:00-17:15	A - A199 E	224	224
	B - Dunbar Rd	232	232
	C - A199 W	185	185
17:15-17:30	A - A199 E	268	268
	B - Dunbar Rd	277	277
	C - A199 W	221	221
17:30-17:45	A - A199 E	328	328
	B - Dunbar Rd	339	339
	C - A199 W	270	270
17:45-18:00	A - A199 E	328	328
	B - Dunbar Rd	339	339
	C - A199 W	270	270
18:00-18:15	A - A199 E	268	268
	B - Dunbar Rd	277	277
	C - A199 W	221	221
18:15-18:30	A - A199 E	224	224
	B - Dunbar Rd	232	232
	C - A199 W	185	185

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.24	9.60	0.3	A	97	146
B-A	0.48	15.03	0.9	C	185	278
C-AB	0.18	6.18	0.3	A	105	158
C-A					120	180
A-B					110	166
A-C					163	244

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	80	20	579	0.138	79	0.0	0.2	7.191	A
B-A	152	38	510	0.298	150	0.0	0.4	9.956	A
C-AB	82	20	703	0.116	81	0.0	0.2	5.787	A
C-A	103	26			103				
A-B	91	23			91				
A-C	134	33			134				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	95	24	548	0.174	95	0.2	0.2	7.955	A
B-A	181	45	491	0.370	181	0.4	0.6	11.596	B
C-AB	102	25	707	0.144	101	0.2	0.2	5.942	A
C-A	119	30			119				
A-B	108	27			108				
A-C	159	40			159				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	117	29	493	0.237	117	0.2	0.3	9.543	A
B-A	222	56	462	0.481	221	0.6	0.9	14.855	B
C-AB	131	33	714	0.184	131	0.2	0.3	6.176	A
C-A	139	35			139				
A-B	132	33			132				
A-C	195	49			195				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	117	29	492	0.238	117	0.3	0.3	9.598	A
B-A	222	56	462	0.482	222	0.9	0.9	15.027	C
C-AB	131	33	714	0.184	131	0.3	0.3	6.183	A
C-A	139	35			139				
A-B	132	33			132				
A-C	195	49			195				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	95	24	546	0.175	96	0.3	0.2	8.004	A
B-A	181	45	491	0.370	183	0.9	0.6	11.745	B
C-AB	102	25	708	0.144	102	0.3	0.2	5.953	A
C-A	119	30			119				
A-B	108	27			108				
A-C	159	40			159				

18:15 - 18:30

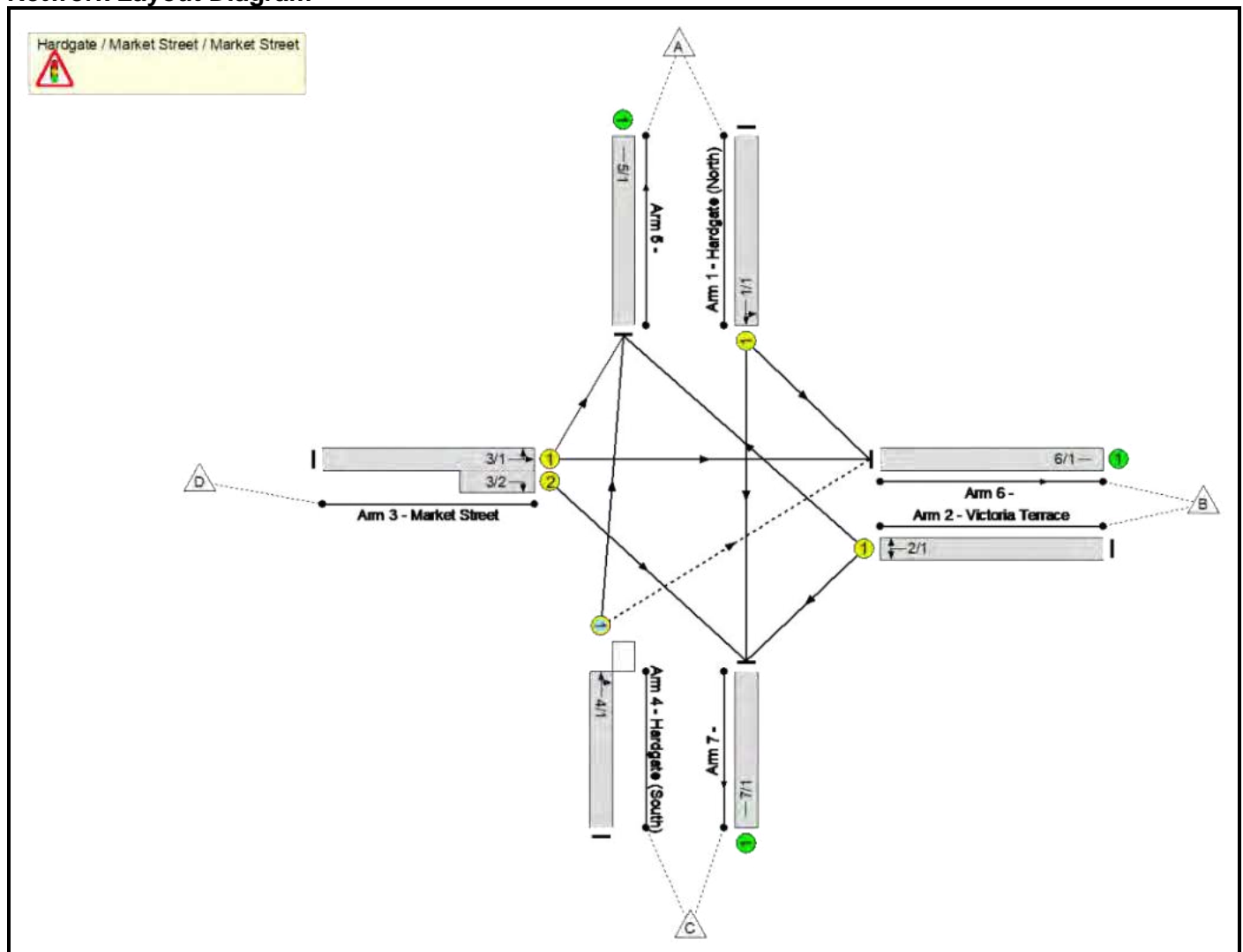
Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	80	20	578	0.138	80	0.2	0.2	7.240	A
B-A	152	38	510	0.298	153	0.6	0.4	10.090	B
C-AB	82	21	703	0.117	82	0.2	0.2	5.805	A
C-A	103	26			103				
A-B	91	23			91				
A-C	134	33			134				

Full Input Data And Results
Full Input Data And Results

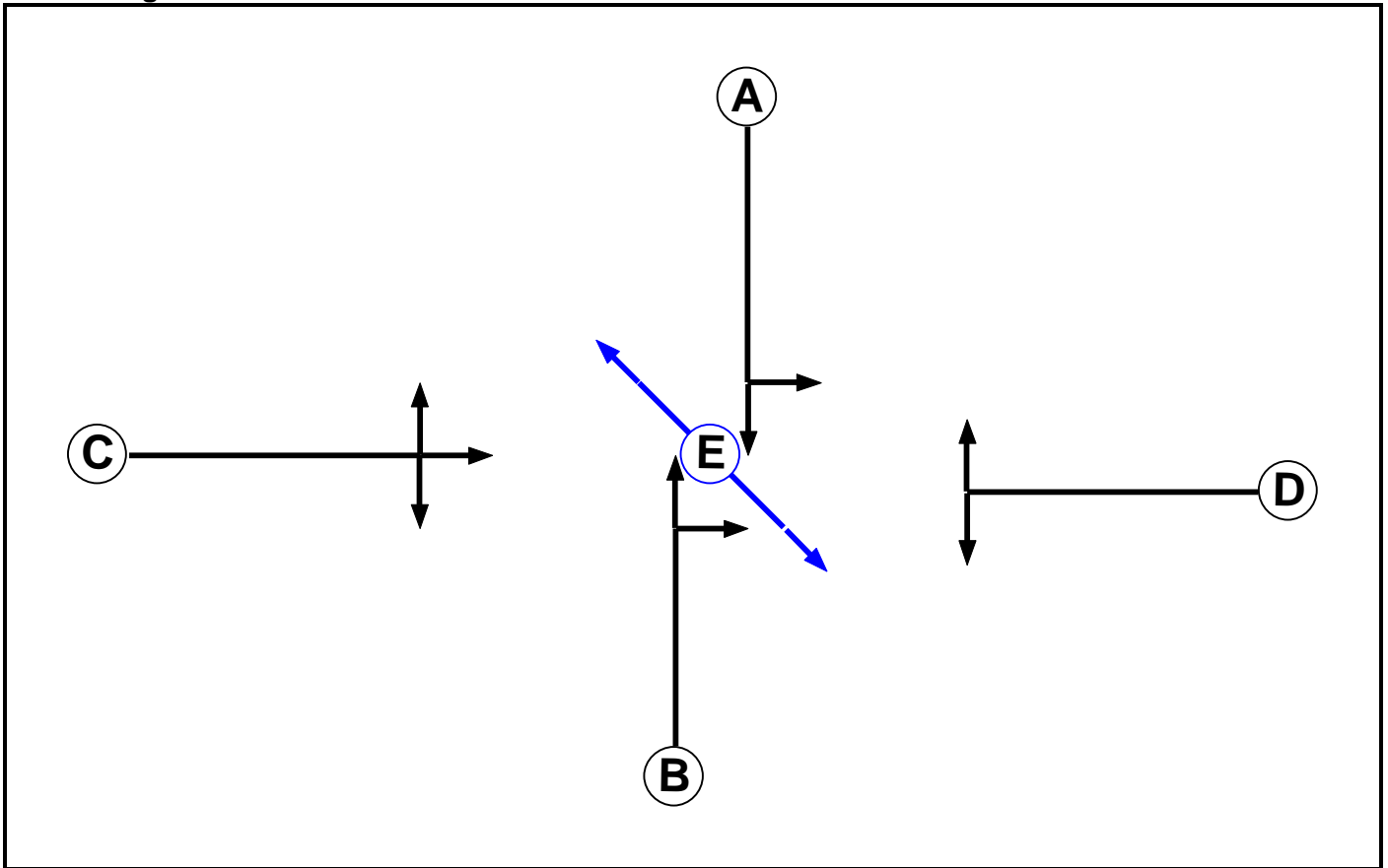
User and Project Details

Project:	P14825 – Herdmanflat
Title:	Proposed HFVN Housing
Location:	Haddington, East Lothian
Additional detail:	
File name:	Hardgate Signals.lsg3x
Author:	
Company:	Goodson Associates
Address:	53 Melville Street,

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Pedestrian		7	7

Full Input Data And Results

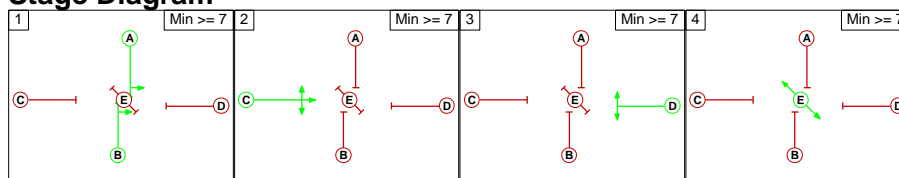
Phase Intergrens Matrix

		Starting Phase				
		A	B	C	D	E
Terminating Phase	A	-	5	5	6	
	B	5	-	10	10	11
	C	5	5	-	5	6
	D	5	5	5	-	6
	E	7	7	7	7	-

Phases in Stage

Stage No.	Phases in Stage
1	A B
2	C
3	D
4	E

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

		To Stage			
		1	2	3	4
From Stage	1	-	10	10	11
	2	5	-	5	6
	3	5	5	-	6
	4	7	7	7	-

Full Input Data And Results

Give-Way Lane Input Data

Junction: Hardgate / Market Street / Market Street											
Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
4/1 (Hardgate (South))	6/1 (Right)	1439	0	1/1	1.09	All	2.00	2.00	0.50	2	2.00

Full Input Data And Results

Lane Input Data

Junction: Hardgate / Market Street / Market Street												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (Hardgate (North))	U	A	2	3	60.0	Geom	-	4.44	0.00	Y	Arm 6 Left	7.00
											Arm 7 Ahead	Inf
2/1 (Victoria Terrace)	U	D	2	3	60.0	Geom	-	4.21	0.00	Y	Arm 5 Right	10.00
											Arm 7 Left	5.00
3/1 (Market Street)	U	C	2	3	60.0	Geom	-	4.10	0.00	Y	Arm 5 Left	12.00
											Arm 6 Ahead	Inf
3/2 (Market Street)	U	C	2	3	5.0	Geom	-	4.10	0.00	Y	Arm 7 Right	15.00
4/1 (Hardgate (South))	O	B	2	3	60.0	Geom	-	3.85	0.00	Y	Arm 5 Ahead	Inf
											Arm 6 Right	5.00
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2022 AM Observed'	08:15	09:15	01:00	
2: '2022 PM Observed'	16:15	17:15	01:00	
3: '2028 AM Base'	08:15	09:15	01:00	F1*1.031
4: '2028 PM Base'	16:15	17:15	01:00	F2*1.031
7: '2028 AM Base Plus Development'	08:15	09:15	01:00	F3+F5
8: '2028 PM Base Plus Development'	16:15	17:15	01:00	F4+F6

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

Traffic Flows, Desired

Desired Flow :

	Destination					Tot.
	A	B	C	D		
Origin	A	0	55	279	0	334
	B	78	0	109	0	187
	C	116	7	0	0	123
	D	112	73	180	0	365
	Tot.	306	135	568	0	1009

Traffic Lane Flows

Lane	Scenario 1: 2022 AM Observed
Junction: Hardgate / Market Street / Market Street	
1/1	334
2/1	187
3/1 (with short)	365(In) 185(Out)
3/2 (short)	180
4/1	123
5/1	306
6/1	135
7/1	568

Full Input Data And Results

Lane Saturation Flows

Junction: Hardgate / Market Street / Market Street								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Hardgate (North))	4.44	0.00	Y	Arm 6 Left	7.00	16.5 %	1989	1989
				Arm 7 Ahead	Inf	83.5 %		
2/1 (Victoria Terrace)	4.21	0.00	Y	Arm 5 Right	10.00	41.7 %	1645	1645
				Arm 7 Left	5.00	58.3 %		
3/1 (Market Street)	4.10	0.00	Y	Arm 5 Left	12.00	60.5 %	1883	1883
3/2 (Market Street)	4.10	0.00	Y	Arm 6 Ahead	Inf	39.5 %	1841	1841
				Arm 7 Right	15.00	100.0 %		
4/1 (Hardgate (South))	3.85	0.00	Y	Arm 5 Ahead	Inf	94.3 %	1966	1966
				Arm 6 Right	5.00	5.7 %		
5/1				Infinite Saturation Flow			Inf	Inf
6/1				Infinite Saturation Flow			Inf	Inf
7/1				Infinite Saturation Flow			Inf	Inf

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

Traffic Flows, Desired

Desired Flow :

	Destination					
	A	B	C	D	Tot.	
Origin	A	0	88	290	0	378
	B	100	0	81	0	181
	C	129	6	0	0	135
	D	141	132	292	0	565
	Tot.	370	226	663	0	1259

Traffic Lane Flows

Lane	Scenario 2: 2022 PM Observed
Junction: Hardgate / Market Street / Market Street	
1/1	378
2/1	181
3/1 (with short)	565(In) 273(Out)
3/2 (short)	292
4/1	135
5/1	370
6/1	226
7/1	663

Full Input Data And Results

Lane Saturation Flows

Junction: Hardgate / Market Street / Market Street								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Hardgate (North))	4.44	0.00	Y	Arm 6 Left	7.00	23.3 %	1961	1961
				Arm 7 Ahead	Inf	76.7 %		
2/1 (Victoria Terrace)	4.21	0.00	Y	Arm 5 Right	10.00	55.2 %	1673	1673
				Arm 7 Left	5.00	44.8 %		
3/1 (Market Street)	4.10	0.00	Y	Arm 5 Left	12.00	51.6 %	1902	1902
				Arm 6 Ahead	Inf	48.4 %		
3/2 (Market Street)	4.10	0.00	Y	Arm 7 Right	15.00	100.0 %	1841	1841
4/1 (Hardgate (South))	3.85	0.00	Y	Arm 5 Ahead	Inf	95.6 %	1974	1974
				Arm 6 Right	5.00	4.4 %		
5/1				Infinite Saturation Flow			Inf	Inf
6/1				Infinite Saturation Flow			Inf	Inf
7/1				Infinite Saturation Flow			Inf	Inf

Scenario 3: '2028 AM Base' (FG3: '2028 AM Base', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination					
	A	B	C	D	Tot.	
Origin	A	0	57	288	0	345
	B	80	0	112	0	192
	C	120	7	0	0	127
	D	115	75	186	0	376
	Tot.	315	139	586	0	1040

Traffic Lane Flows

Lane	Scenario 3: 2028 AM Base
Junction: Hardgate / Market Street / Market Street	
1/1	345
2/1	192
3/1 (with short)	376(In) 190(Out)
3/2 (short)	186
4/1	127
5/1	315
6/1	139
7/1	586

Full Input Data And Results

Lane Saturation Flows

Junction: Hardgate / Market Street / Market Street								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Hardgate (North))	4.44	0.00	Y	Arm 6 Left	7.00	16.5 %	1989	1989
				Arm 7 Ahead	Inf	83.5 %		
2/1 (Victoria Terrace)	4.21	0.00	Y	Arm 5 Right	10.00	41.7 %	1645	1645
				Arm 7 Left	5.00	58.3 %		
3/1 (Market Street)	4.10	0.00	Y	Arm 5 Left	12.00	60.5 %	1883	1883
3/2 (Market Street)	4.10	0.00	Y	Arm 6 Ahead	Inf	39.5 %	1841	1841
				Arm 7 Right	15.00	100.0 %		
4/1 (Hardgate (South))	3.85	0.00	Y	Arm 5 Ahead	Inf	94.5 %	1967	1967
				Arm 6 Right	5.00	5.5 %		
5/1				Infinite Saturation Flow			Inf	Inf
6/1				Infinite Saturation Flow			Inf	Inf
7/1				Infinite Saturation Flow			Inf	Inf

Scenario 4: '2028 PM Base' (FG4: '2028 PM Base', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination					
	A	B	C	D	Tot.	
Origin	A	0	91	299	0	390
	B	103	0	84	0	187
	C	133	6	0	0	139
	D	145	136	301	0	582
	Tot.	381	233	684	0	1298

Traffic Lane Flows

Lane	Scenario 4: 2028 PM Base
Junction: Hardgate / Market Street / Market Street	
1/1	390
2/1	187
3/1 (with short)	582(In) 281(Out)
3/2 (short)	301
4/1	139
5/1	381
6/1	233
7/1	684

Full Input Data And Results

Lane Saturation Flows

Junction: Hardgate / Market Street / Market Street								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Hardgate (North))	4.44	0.00	Y	Arm 6 Left	7.00	23.3 %	1961	1961
				Arm 7 Ahead	Inf	76.7 %		
2/1 (Victoria Terrace)	4.21	0.00	Y	Arm 5 Right	10.00	55.1 %	1672	1672
				Arm 7 Left	5.00	44.9 %		
3/1 (Market Street)	4.10	0.00	Y	Arm 5 Left	12.00	51.6 %	1902	1902
				Arm 6 Ahead	Inf	48.4 %		
3/2 (Market Street)	4.10	0.00	Y	Arm 7 Right	15.00	100.0 %	1841	1841
4/1 (Hardgate (South))	3.85	0.00	Y	Arm 5 Ahead	Inf	95.7 %	1974	1974
				Arm 6 Right	5.00	4.3 %		
5/1				Infinite Saturation Flow			Inf	Inf
6/1				Infinite Saturation Flow			Inf	Inf
7/1				Infinite Saturation Flow			Inf	Inf

Scenario 5: '2028 AM Base + Development' (FG7: '2028 AM Base Plus Development', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	57	299	0	356
	B	80	0	112	0	192
	C	123	7	0	0	130
	D	115	75	186	0	376
	Tot.	318	139	597	0	1054

Traffic Lane Flows

Lane	Scenario 5: 2028 AM Base + Development
Junction: Hardgate / Market Street / Market Street	
1/1	356
2/1	192
3/1 (with short)	376(In) 190(Out)
3/2 (short)	186
4/1	130
5/1	318
6/1	139
7/1	597

Full Input Data And Results

Lane Saturation Flows

Junction: Hardgate / Market Street / Market Street								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Hardgate (North))	4.44	0.00	Y	Arm 6 Left	7.00	16.0 %	1991	1991
				Arm 7 Ahead	Inf	84.0 %		
2/1 (Victoria Terrace)	4.21	0.00	Y	Arm 5 Right	10.00	41.7 %	1645	1645
				Arm 7 Left	5.00	58.3 %		
3/1 (Market Street)	4.10	0.00	Y	Arm 5 Left	12.00	60.5 %	1883	1883
3/2 (Market Street)	4.10	0.00	Y	Arm 6 Ahead	Inf	39.5 %	1841	1841
				Arm 7 Right	15.00	100.0 %		
4/1 (Hardgate (South))	3.85	0.00	Y	Arm 5 Ahead	Inf	94.6 %	1968	1968
				Arm 6 Right	5.00	5.4 %		
5/1				Infinite Saturation Flow			Inf	Inf
6/1				Infinite Saturation Flow			Inf	Inf
7/1				Infinite Saturation Flow			Inf	Inf

Scenario 6: '2028 PM Base + Development' (FG8: '2028 PM Base Plus Development', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	91	304	0	395
	B	103	0	84	0	187
	C	142	6	0	0	148
	D	145	136	301	0	582
	Tot.	390	233	689	0	1312

Traffic Lane Flows

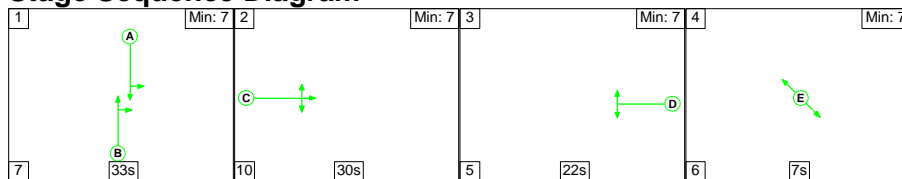
Lane	Scenario 6: 2028 PM Base + Development
Junction: Hardgate / Market Street / Market Street	
1/1	395
2/1	187
3/1 (with short)	582(In) 281(Out)
3/2 (short)	301
4/1	148
5/1	390
6/1	233
7/1	689

Lane Saturation Flows

Junction: Hardgate / Market Street / Market Street								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Hardgate (North))	4.44	0.00	Y	Arm 6 Left	7.00	23.0 %	1962	1962
				Arm 7 Ahead	Inf	77.0 %		
2/1 (Victoria Terrace)	4.21	0.00	Y	Arm 5 Right	10.00	55.1 %	1672	1672
				Arm 7 Left	5.00	44.9 %		
3/1 (Market Street)	4.10	0.00	Y	Arm 5 Left	12.00	51.6 %	1902	1902
				Arm 6 Ahead	Inf	48.4 %		
3/2 (Market Street)	4.10	0.00	Y	Arm 7 Right	15.00	100.0 %	1841	1841
4/1 (Hardgate (South))	3.85	0.00	Y	Arm 5 Ahead	Inf	95.9 %	1976	1976
				Arm 6 Right	5.00	4.1 %		
5/1				Infinite Saturation Flow			Inf	Inf
6/1				Infinite Saturation Flow			Inf	Inf
7/1				Infinite Saturation Flow			Inf	Inf

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

Stage Sequence Diagram

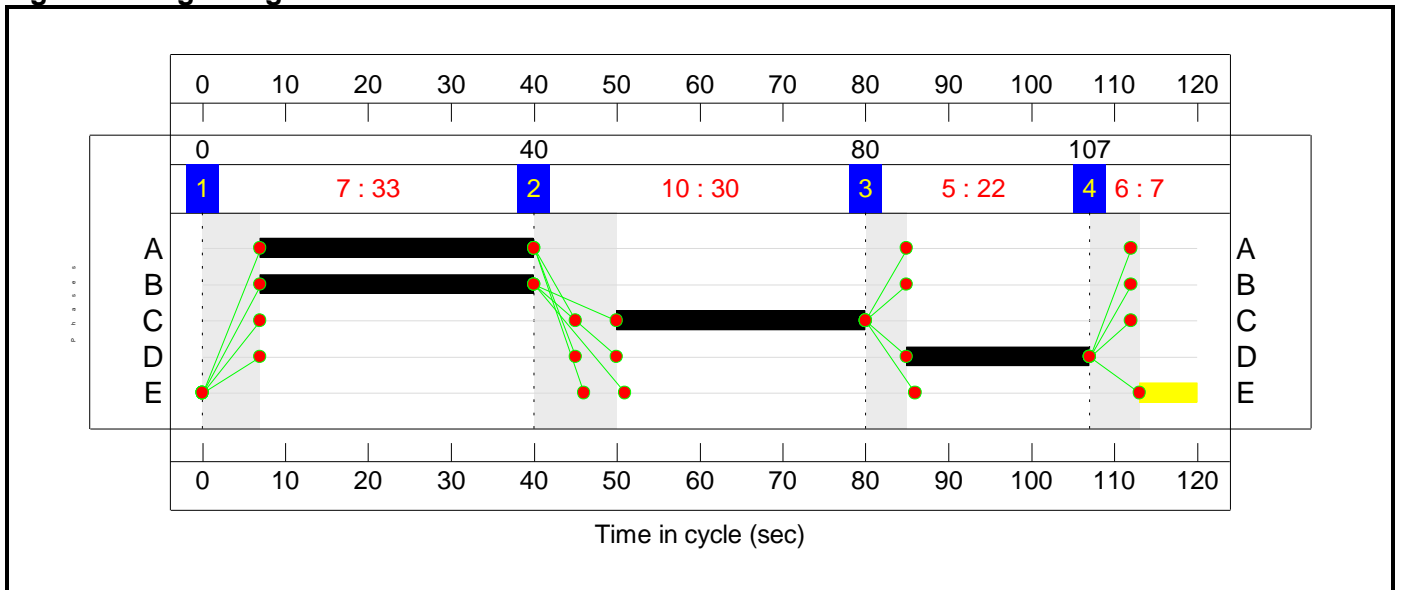


Stage Timings

Stage	1	2	3	4
Duration	33	30	22	7
Change Point	0	40	80	107

Full Input Data And Results

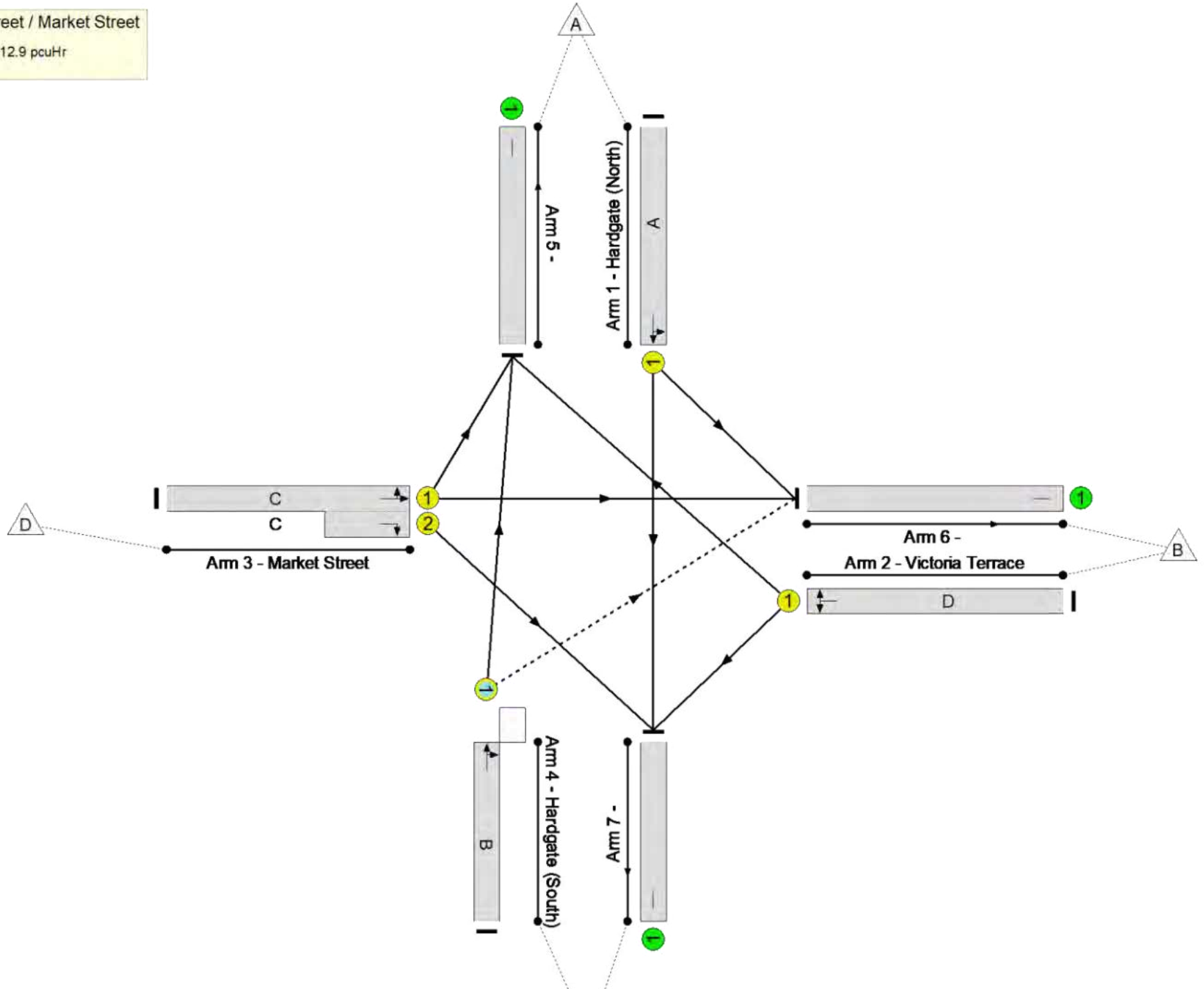
Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram

Full Input Data And Results

Hardgate / Market Street / Market Street
PRC: 51.7 %
Total Traffic Delay: 12.9 pcuHr



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	59.3%
Hardgate / Market Street / Market Street	-	-	N/A	-	-		-	-	-	-	-	-	59.3%
1/1	Hardgate (North) Left Ahead	U	N/A	N/A	A		1	33	-	334	1989	564	59.3%
2/1	Victoria Terrace Right Left	U	N/A	N/A	D		1	22	-	187	1645	315	59.3%
3/1+3/2	Market Street Left Ahead Right	U	N/A	N/A	C		1	30	-	365	1883:1841	315+307	58.7 : 58.7%
4/1	Hardgate (South) Ahead Right	O	N/A	N/A	B		1	33	-	123	1966	557	22.1%
5/1		U	N/A	N/A	-		-	-	-	306	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	135	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	568	Inf	Inf	0.0%

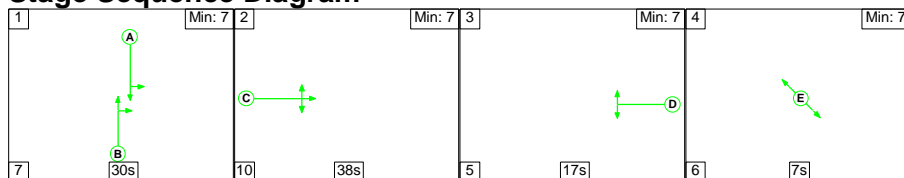
Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	7	0	0	10.6	2.3	0.0	12.9	-	-	-	-
Hardgate / Market Street / Market Street	-	-	7	0	0	10.6	2.3	0.0	12.9	-	-	-	-
1/1	334	334	-	-	-	3.4	0.7	-	4.2	44.8	9.6	0.7	10.3
2/1	187	187	-	-	-	2.3	0.7	-	3.0	58.1	5.7	0.7	6.4
3/1+3/2	365	365	-	-	-	3.7	0.7	-	4.4	43.6	5.3	0.7	6.0
4/1	123	123	7	0	0	1.1	0.1	0.0	1.3	37.7	3.1	0.1	3.3
5/1	306	306	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	135	135	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	568	568	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
<p>C1 PRC for Signalled Lanes (%): 51.7 Total Delay for Signalled Lanes (pcuHr): 12.89 Cycle Time (s): 120 PRC Over All Lanes (%): 51.7 Total Delay Over All Lanes(pcuHr): 12.89</p>													

Full Input Data And Results

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

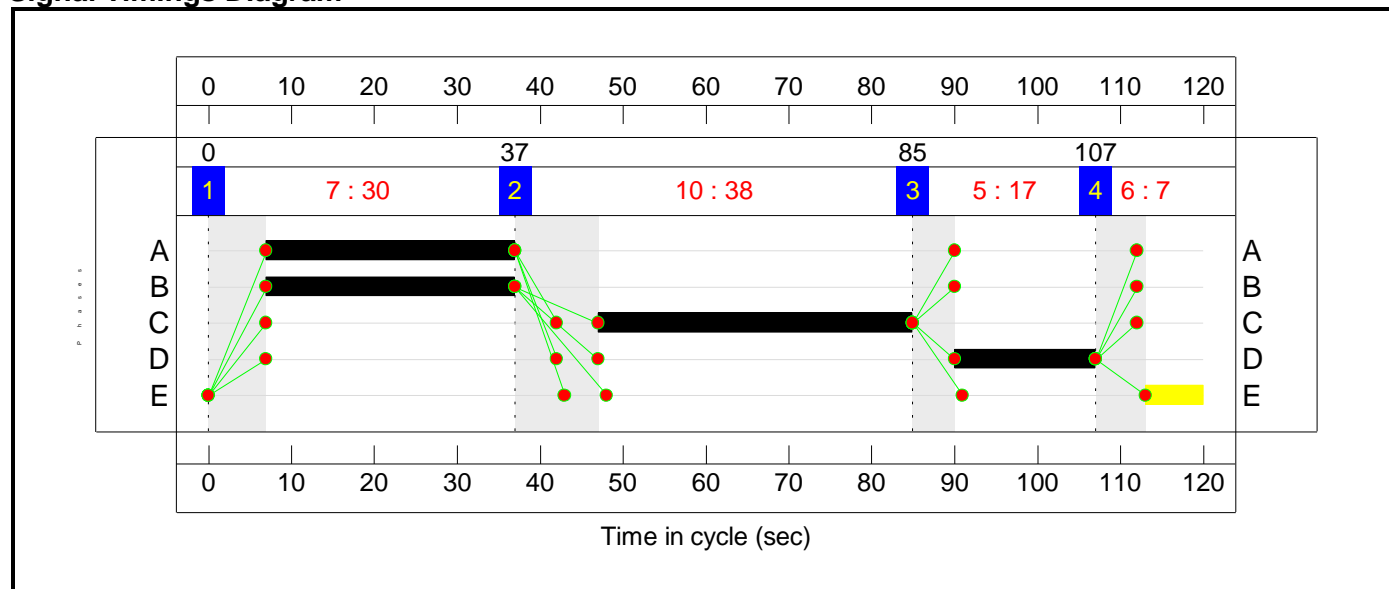
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	30	38	17	7
Change Point	0	37	85	107

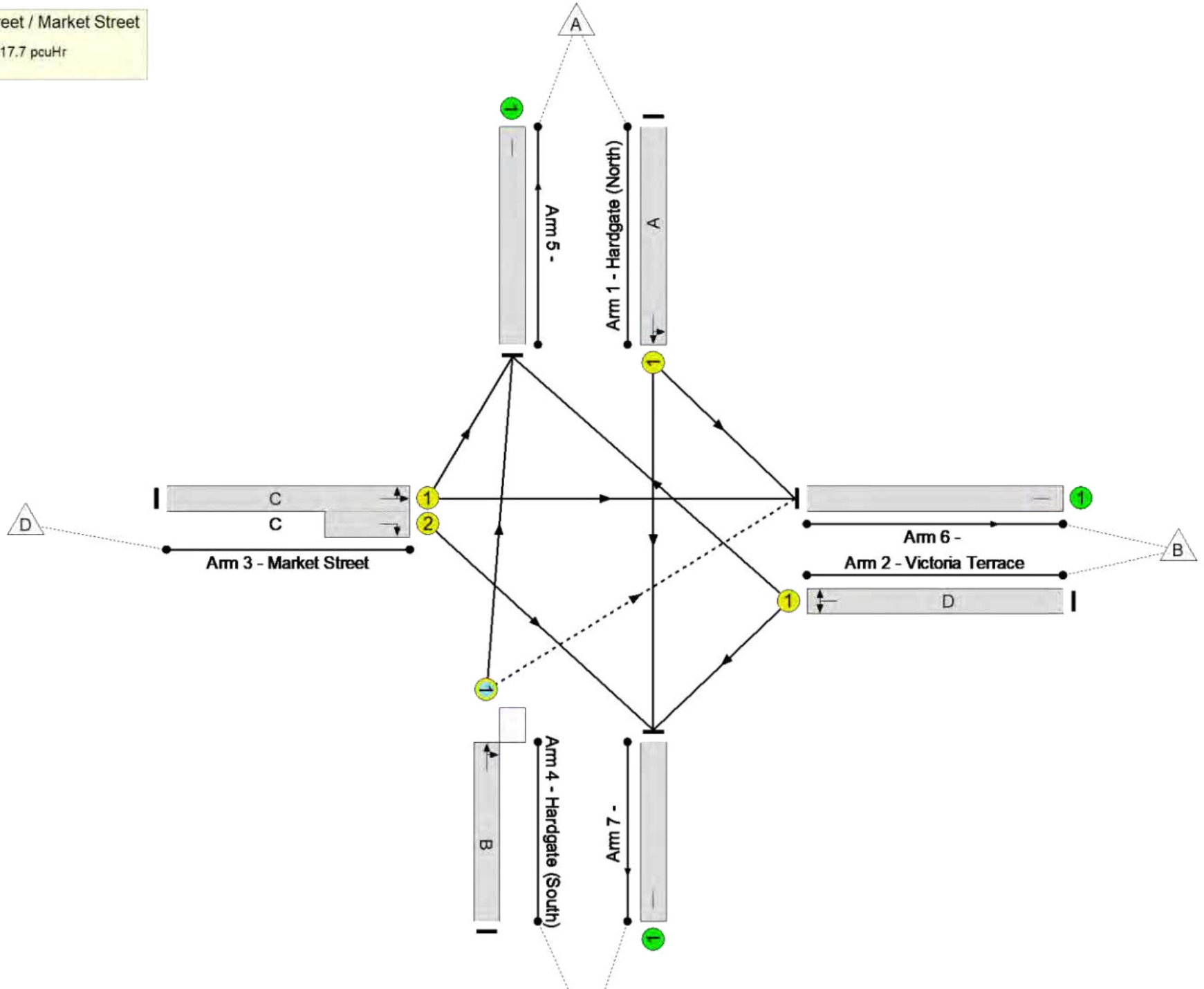
Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram

Full Input Data And Results

Hardgate / Market Street / Market Street
PRC: 18.2 %
Total Traffic Delay: 17.7 pcuHr



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	76.1%
Hardgate / Market Street / Market Street	-	-	N/A	-	-		-	-	-	-	-	-	76.1%
1/1	Hardgate (North) Left Ahead	U	N/A	N/A	A		1	30	-	378	1961	507	74.6%
2/1	Victoria Terrace Right Left	U	N/A	N/A	D		1	17	-	181	1673	251	72.1%
3/1+3/2	Market Street Left Ahead Right	U	N/A	N/A	C		1	38	-	565	1902:1841	359+384	76.1 : 76.1%
4/1	Hardgate (South) Ahead Right	O	N/A	N/A	B		1	30	-	135	1974	510	26.5%
5/1		U	N/A	N/A	-		-	-	-	370	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	226	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	663	Inf	Inf	0.0%

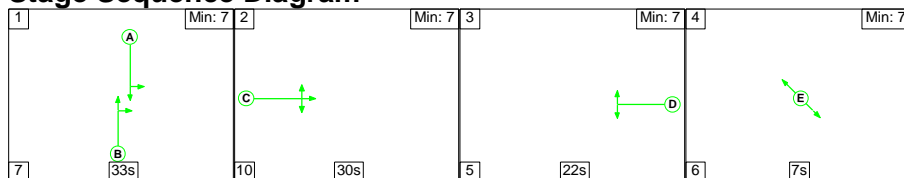
Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	6	0	0	13.3	4.4	0.0	17.7	-	-	-	-
Hardgate / Market Street / Market Street	-	-	6	0	0	13.3	4.4	0.0	17.7	-	-	-	-
1/1	378	378	-	-	-	4.3	1.4	-	5.7	54.6	11.6	1.4	13.0
2/1	181	181	-	-	-	2.4	1.2	-	3.7	73.5	5.7	1.2	7.0
3/1+3/2	565	565	-	-	-	5.2	1.6	-	6.8	43.2	11.5	1.6	13.1
4/1	135	135	6	0	0	1.3	0.2	0.0	1.5	40.9	3.6	0.2	3.7
5/1	370	370	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	226	226	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	663	663	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
<p>C1 PRC for Signalled Lanes (%): 18.2 Total Delay for Signalled Lanes (pcuHr): 17.74 Cycle Time (s): 120</p> <p> PRC Over All Lanes (%): 18.2 Total Delay Over All Lanes(pcuHr): 17.74</p>													

Full Input Data And Results

Scenario 3: '2028 AM Base' (FG3: '2028 AM Base', Plan 1: 'Network Control Plan 1')

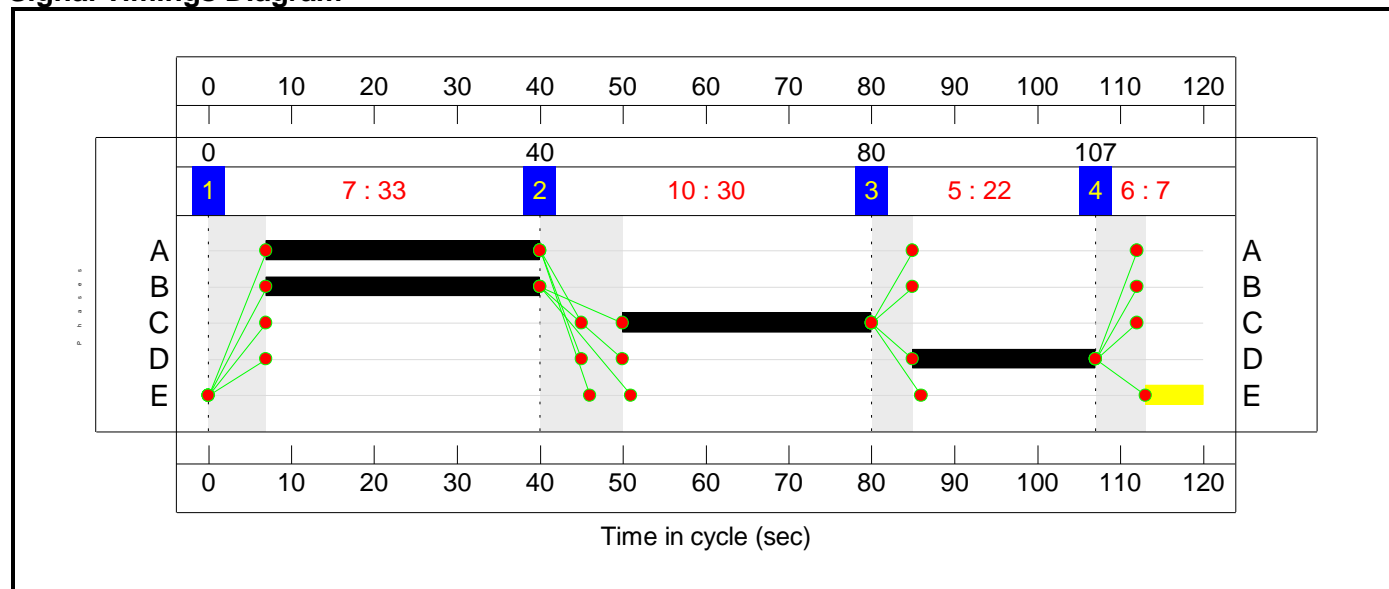
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	33	30	22	7
Change Point	0	40	80	107

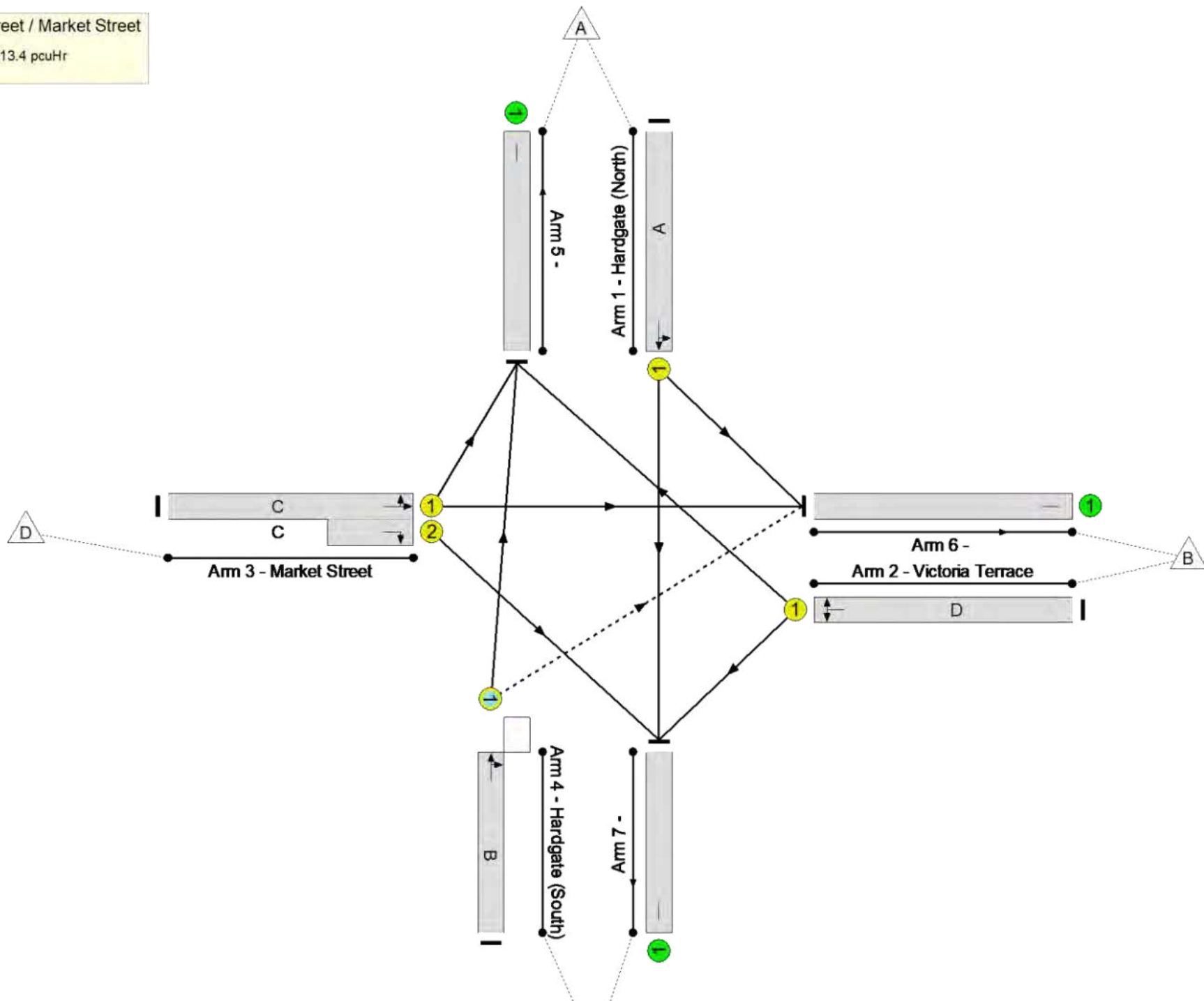
Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram

Full Input Data And Results

Hardgate / Market Street / Market Street
PRC: 47.0 %
Total Traffic Delay: 13.4 pcuHr



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	61.2%
Hardgate / Market Street / Market Street	-	-	N/A	-	-		-	-	-	-	-	-	61.2%
1/1	Hardgate (North) Left Ahead	U	N/A	N/A	A		1	33	-	345	1989	564	61.2%
2/1	Victoria Terrace Right Left	U	N/A	N/A	D		1	22	-	192	1645	315	60.9%
3/1+3/2	Market Street Left Ahead Right	U	N/A	N/A	C		1	30	-	376	1883:1841	315+308	60.4 : 60.4%
4/1	Hardgate (South) Ahead Right	O	N/A	N/A	B		1	33	-	127	1967	557	22.8%
5/1		U	N/A	N/A	-		-	-	-	315	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	139	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	586	Inf	Inf	0.0%

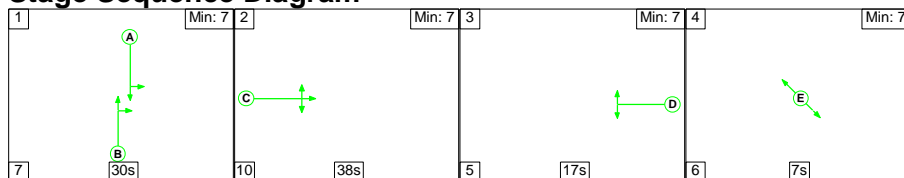
Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	7	0	0	10.9	2.5	0.0	13.4	-	-	-	-
Hardgate / Market Street / Market Street	-	-	7	0	0	10.9	2.5	0.0	13.4	-	-	-	-
1/1	345	345	-	-	-	3.6	0.8	-	4.4	45.5	10.0	0.8	10.8
2/1	192	192	-	-	-	2.4	0.8	-	3.1	58.8	5.8	0.8	6.6
3/1+3/2	376	376	-	-	-	3.8	0.8	-	4.6	44.0	5.6	0.8	6.4
4/1	127	127	7	0	0	1.2	0.1	0.0	1.3	37.8	3.2	0.1	3.4
5/1	315	315	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	139	139	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	586	586	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
<p>C1 PRC for Signalled Lanes (%): 47.0 Total Delay for Signalled Lanes (pcuHr): 13.42 Cycle Time (s): 120</p> <p> PRC Over All Lanes (%): 47.0 Total Delay Over All Lanes(pcuHr): 13.42</p>													

Full Input Data And Results

Scenario 4: '2028 PM Base' (FG4: '2028 PM Base', Plan 1: 'Network Control Plan 1')

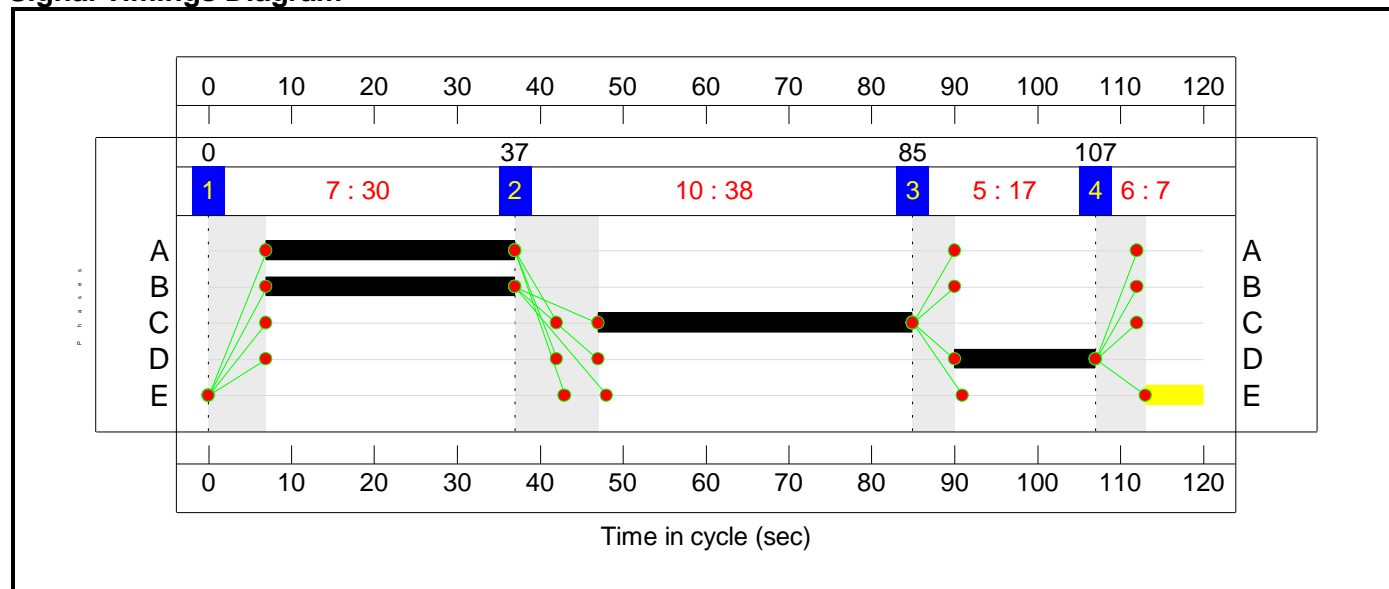
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	30	38	17	7
Change Point	0	37	85	107

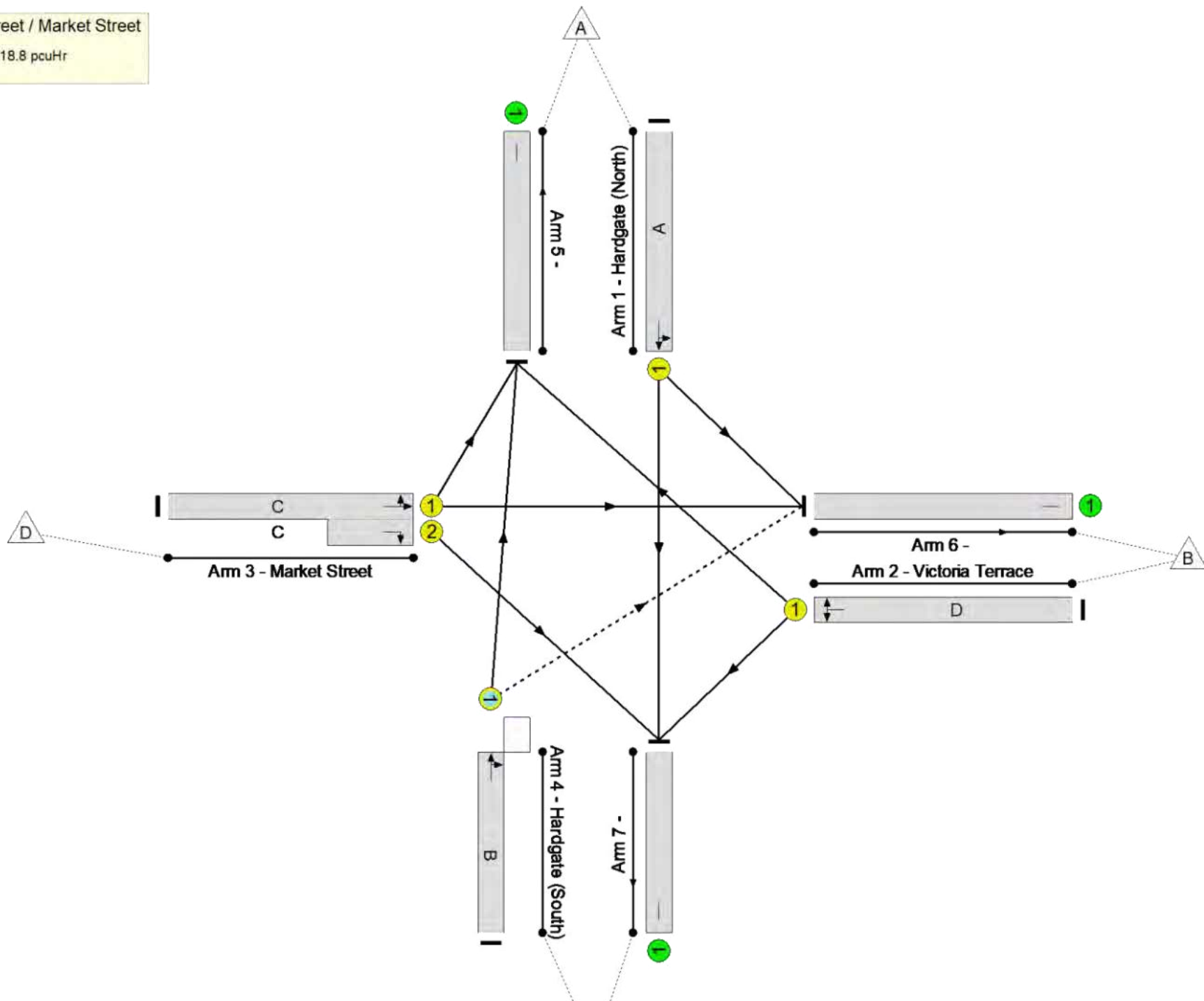
Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram

Full Input Data And Results

Hardgate / Market Street / Market Street
PRC: 14.7 %
Total Traffic Delay: 18.8 pcuHr



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	78.4%
Hardgate / Market Street / Market Street	-	-	N/A	-	-		-	-	-	-	-	-	78.4%
1/1	Hardgate (North) Left Ahead	U	N/A	N/A	A		1	30	-	390	1961	507	77.0%
2/1	Victoria Terrace Right Left	U	N/A	N/A	D		1	17	-	187	1672	251	74.6%
3/1+3/2	Market Street Left Ahead Right	U	N/A	N/A	C		1	38	-	582	1902:1841	358+384	78.4 : 78.4%
4/1	Hardgate (South) Ahead Right	O	N/A	N/A	B		1	30	-	139	1974	510	27.3%
5/1		U	N/A	N/A	-		-	-	-	381	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	233	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	684	Inf	Inf	0.0%

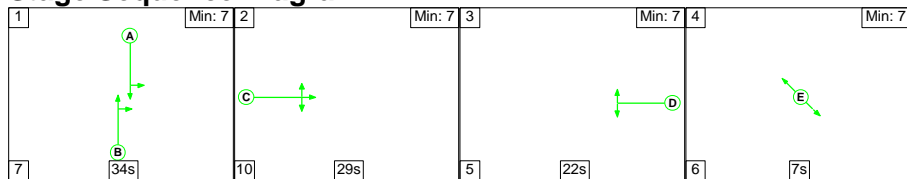
Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	6	0	0	13.8	5.0	0.0	18.8	-	-	-	-
Hardgate / Market Street / Market Street	-	-	6	0	0	13.8	5.0	0.0	18.8	-	-	-	-
1/1	390	390	-	-	-	4.5	1.6	-	6.1	56.2	12.0	1.6	13.7
2/1	187	187	-	-	-	2.5	1.4	-	3.9	75.8	5.9	1.4	7.3
3/1+3/2	582	582	-	-	-	5.4	1.8	-	7.2	44.6	12.3	1.8	14.1
4/1	139	139	6	0	0	1.4	0.2	0.0	1.6	41.1	3.7	0.2	3.9
5/1	381	381	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	233	233	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	684	684	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
<p>C1 PRC for Signalled Lanes (%): 14.7 Total Delay for Signalled Lanes (pcuHr): 18.82 Cycle Time (s): 120</p> <p> PRC Over All Lanes (%): 14.7 Total Delay Over All Lanes(pcuHr): 18.82</p>													

Full Input Data And Results

Scenario 5: '2028 AM Base + Development' (FG7: '2028 AM Base Plus Development', Plan 1: 'Network Control Plan 1')

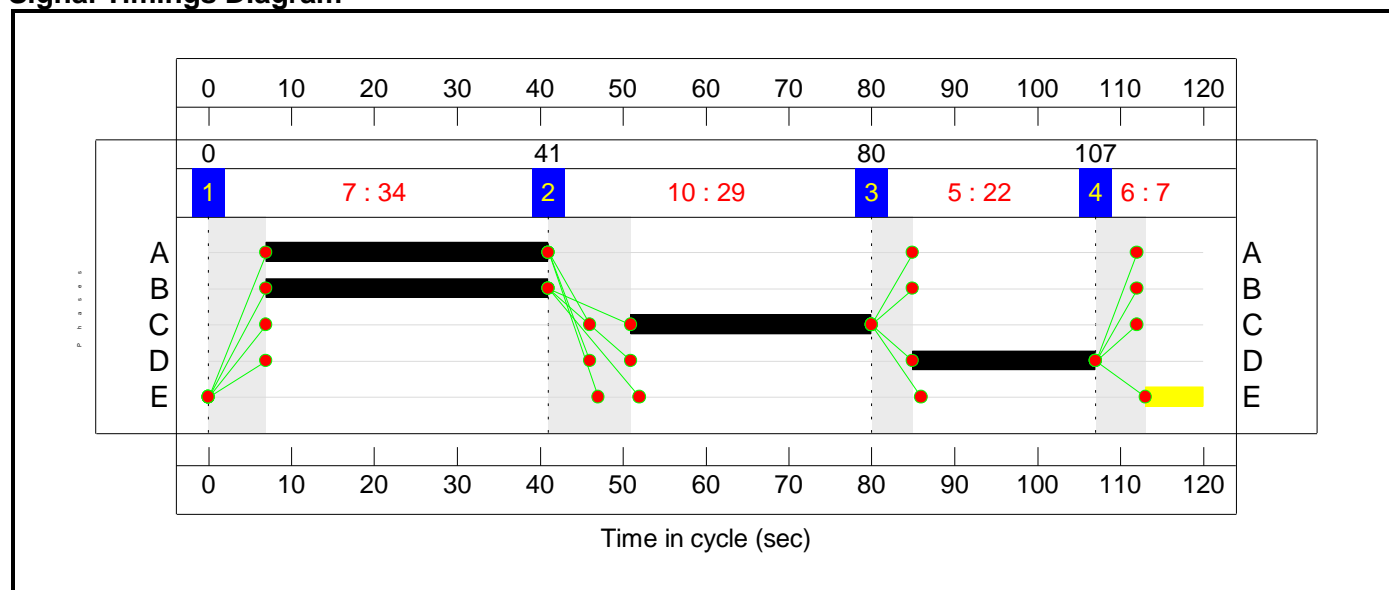
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	34	29	22	7
Change Point	0	41	80	107

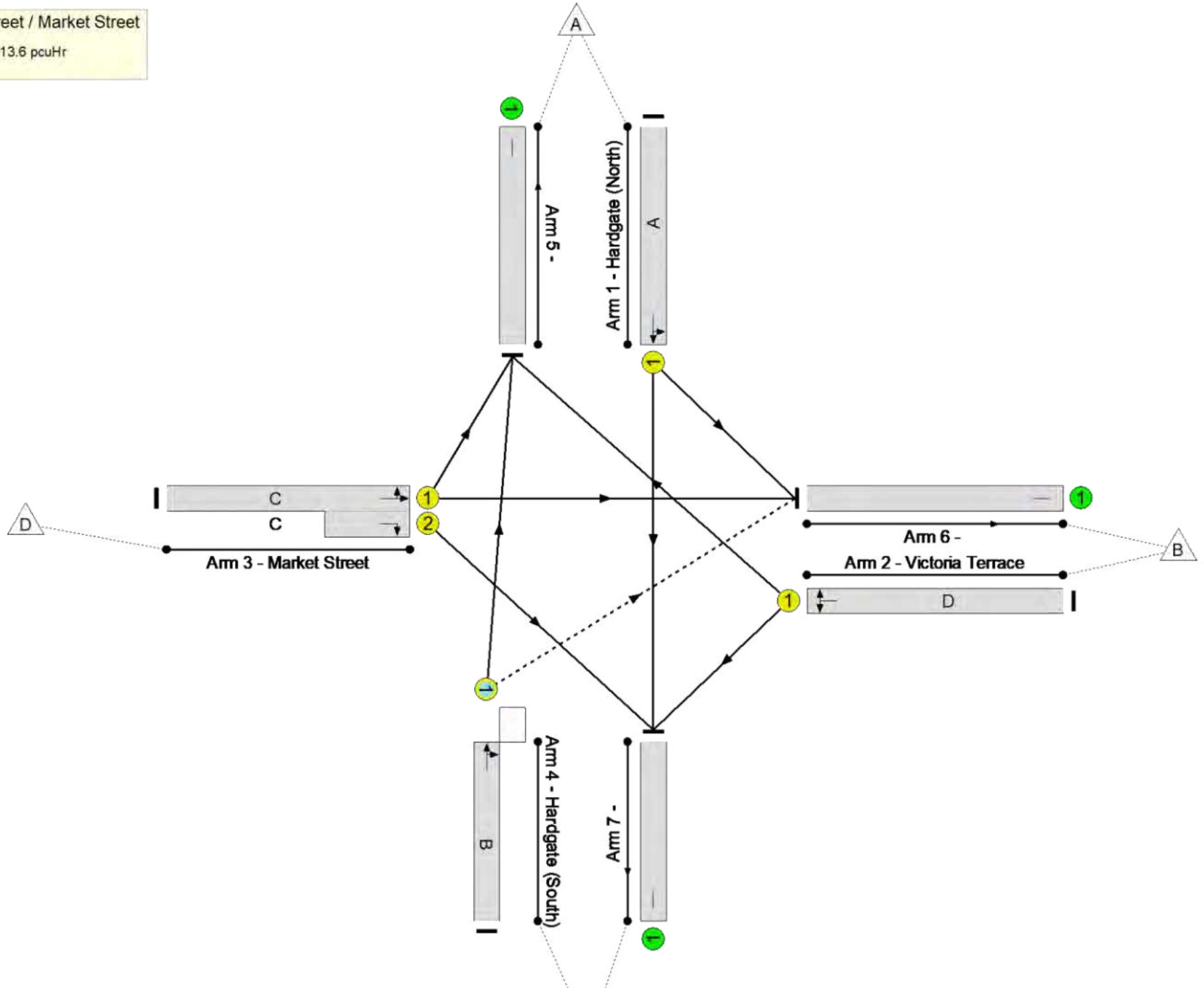
Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram

Full Input Data And Results

Hardgate / Market Street / Market Street
PRC: 45.3 %
Total Traffic Delay: 13.6 pcuHr



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	61.9%
Hardgate / Market Street / Market Street	-	-	N/A	-	-		-	-	-	-	-	-	61.9%
1/1	Hardgate (North) Left Ahead	U	N/A	N/A	A		1	34	-	356	1991	581	61.3%
2/1	Victoria Terrace Right Left	U	N/A	N/A	D		1	22	-	192	1645	315	60.9%
3/1+3/2	Market Street Left Ahead Right	U	N/A	N/A	C		1	29	-	376	1883:1841	307+300	61.9 : 61.9%
4/1	Hardgate (South) Ahead Right	O	N/A	N/A	B		1	34	-	130	1968	574	22.6%
5/1		U	N/A	N/A	-		-	-	-	318	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	139	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	597	Inf	Inf	0.0%

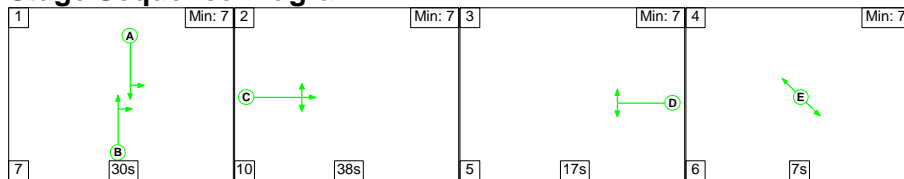
Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	7	0	0	11.1	2.5	0.0	13.6	-	-	-	-
Hardgate / Market Street / Market Street	-	-	7	0	0	11.1	2.5	0.0	13.6	-	-	-	-
1/1	356	356	-	-	-	3.6	0.8	-	4.4	44.6	10.2	0.8	11.0
2/1	192	192	-	-	-	2.4	0.8	-	3.1	58.8	5.8	0.8	6.6
3/1+3/2	376	376	-	-	-	3.9	0.8	-	4.7	45.3	5.7	0.8	6.5
4/1	130	130	7	0	0	1.2	0.1	0.0	1.3	37.0	3.3	0.1	3.4
5/1	318	318	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	139	139	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	597	597	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
<p>C1 PRC for Signalled Lanes (%): 45.3 Total Delay for Signalled Lanes (pcuHr): 13.62 Cycle Time (s): 120</p> <p> PRC Over All Lanes (%): 45.3 Total Delay Over All Lanes(pcuHr): 13.62</p>													

Full Input Data And Results

Scenario 6: '2028 PM Base + Development' (FG8: '2028 PM Base Plus Development', Plan 1: 'Network Control Plan 1')

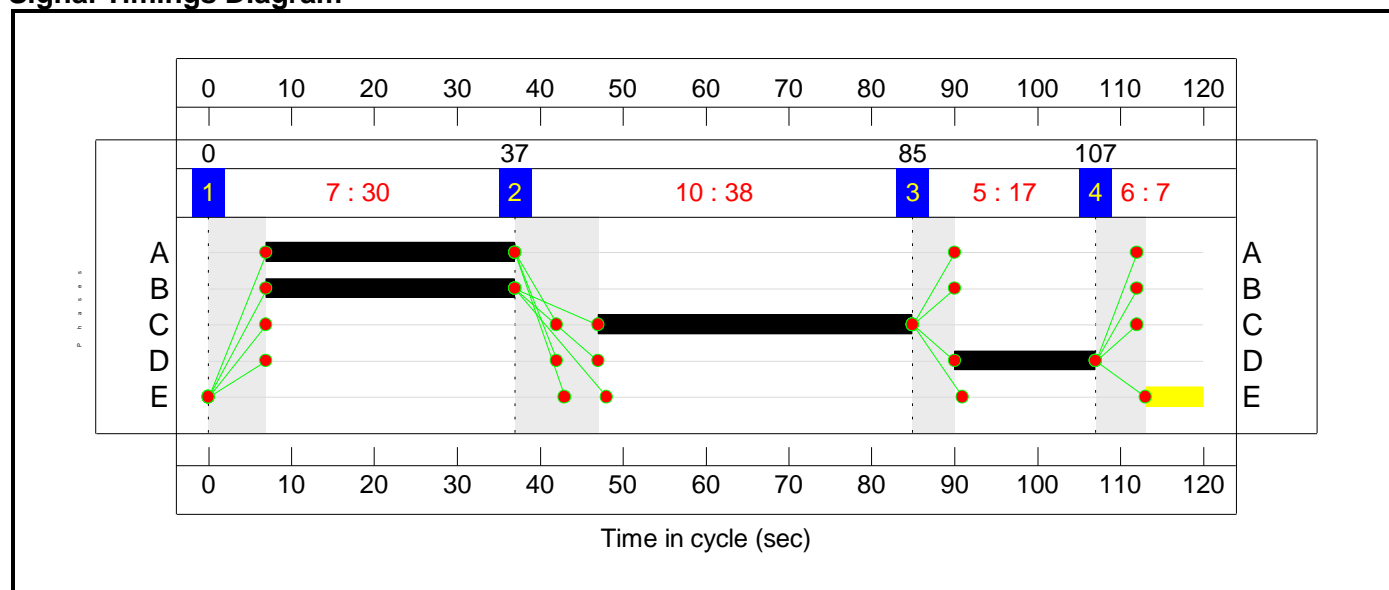
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	30	38	17	7
Change Point	0	37	85	107

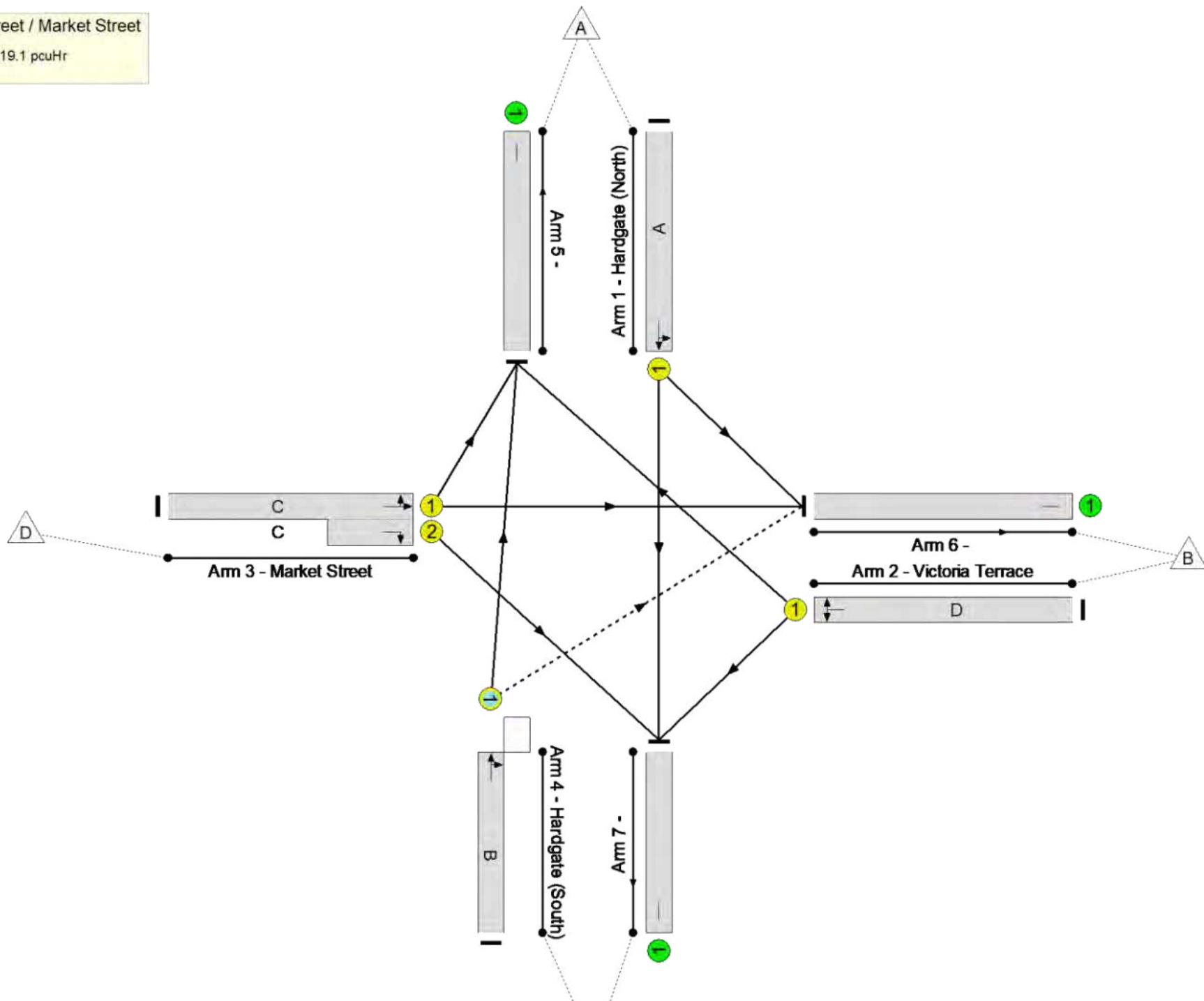
Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram

Full Input Data And Results

Hardgate / Market Street / Market Street
PRC: 14.7 %
Total Traffic Delay: 19.1 pcuHr



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	78.4%
Hardgate / Market Street / Market Street	-	-	N/A	-	-		-	-	-	-	-	-	78.4%
1/1	Hardgate (North) Left Ahead	U	N/A	N/A	A		1	30	-	395	1962	507	77.9%
2/1	Victoria Terrace Right Left	U	N/A	N/A	D		1	17	-	187	1672	251	74.6%
3/1+3/2	Market Street Left Ahead Right	U	N/A	N/A	C		1	38	-	582	1902:1841	358+384	78.4 : 78.4%
4/1	Hardgate (South) Ahead Right	O	N/A	N/A	B		1	30	-	148	1976	510	29.0%
5/1		U	N/A	N/A	-		-	-	-	390	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	233	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	689	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	6	0	0	14.0	5.1	0.0	19.1	-	-	-	-
Hardgate / Market Street / Market Street	-	-	6	0	0	14.0	5.1	0.0	19.1	-	-	-	-
1/1	395	395	-	-	-	4.5	1.7	-	6.2	56.9	12.2	1.7	13.9
2/1	187	187	-	-	-	2.5	1.4	-	3.9	75.8	5.9	1.4	7.3
3/1+3/2	582	582	-	-	-	5.4	1.8	-	7.2	44.6	12.3	1.8	14.1
4/1	148	148	6	0	0	1.5	0.2	0.0	1.7	41.3	3.9	0.2	4.2
5/1	390	390	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	233	233	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	689	689	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
<p>C1 PRC for Signalled Lanes (%): 14.7 Total Delay for Signalled Lanes (pcuHr): 19.09 Cycle Time (s): 120 PRC Over All Lanes (%): 14.7 Total Delay Over All Lanes(pcuHr): 19.09</p>													

Junctions 10
ARCADY 10 - Roundabout Module
Version: 10.0.4.1693 © Copyright TRL Software Limited, 2021
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Filename: A199 A6137 Roundabout.j10
Path: M:\P14825\01-WIP\Office\Transport Assessment\Analysis files
Report generation date: 07/08/2023 15:42:08

- »2023 Observed, AM
- »2023 Observed, PM
- »2028 Base, AM
- »2028 Base, PM
- »2028 Base + Development, AM
- »2028 Base + Development, PM

Summary of junction performance

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
2023 Observed						
1 - A199 E	0.2	2.45	0.16	0.2	2.47	0.15
2 - Aberlady Road	0.2	3.77	0.17	0.2	3.69	0.16
3 - A199 W	0.2	2.28	0.14	0.3	2.45	0.20
4 - A6137 N	0.2	3.26	0.18	0.2	3.40	0.18
2028 Base						
1 - A199 E	0.2	2.47	0.16	0.2	2.49	0.15
2 - Aberlady Road	0.2	3.81	0.18	0.2	3.73	0.16
3 - A199 W	0.2	2.30	0.14	0.3	2.47	0.21
4 - A6137 N	0.2	3.29	0.19	0.2	3.44	0.19
2028 Base + Development						
1 - A199 E	0.2	2.49	0.17	0.2	2.55	0.16
2 - Aberlady Road	0.3	4.05	0.23	0.2	3.84	0.19
3 - A199 W	0.2	2.32	0.15	0.3	2.54	0.23
4 - A6137 N	0.2	3.32	0.19	0.2	3.53	0.20

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

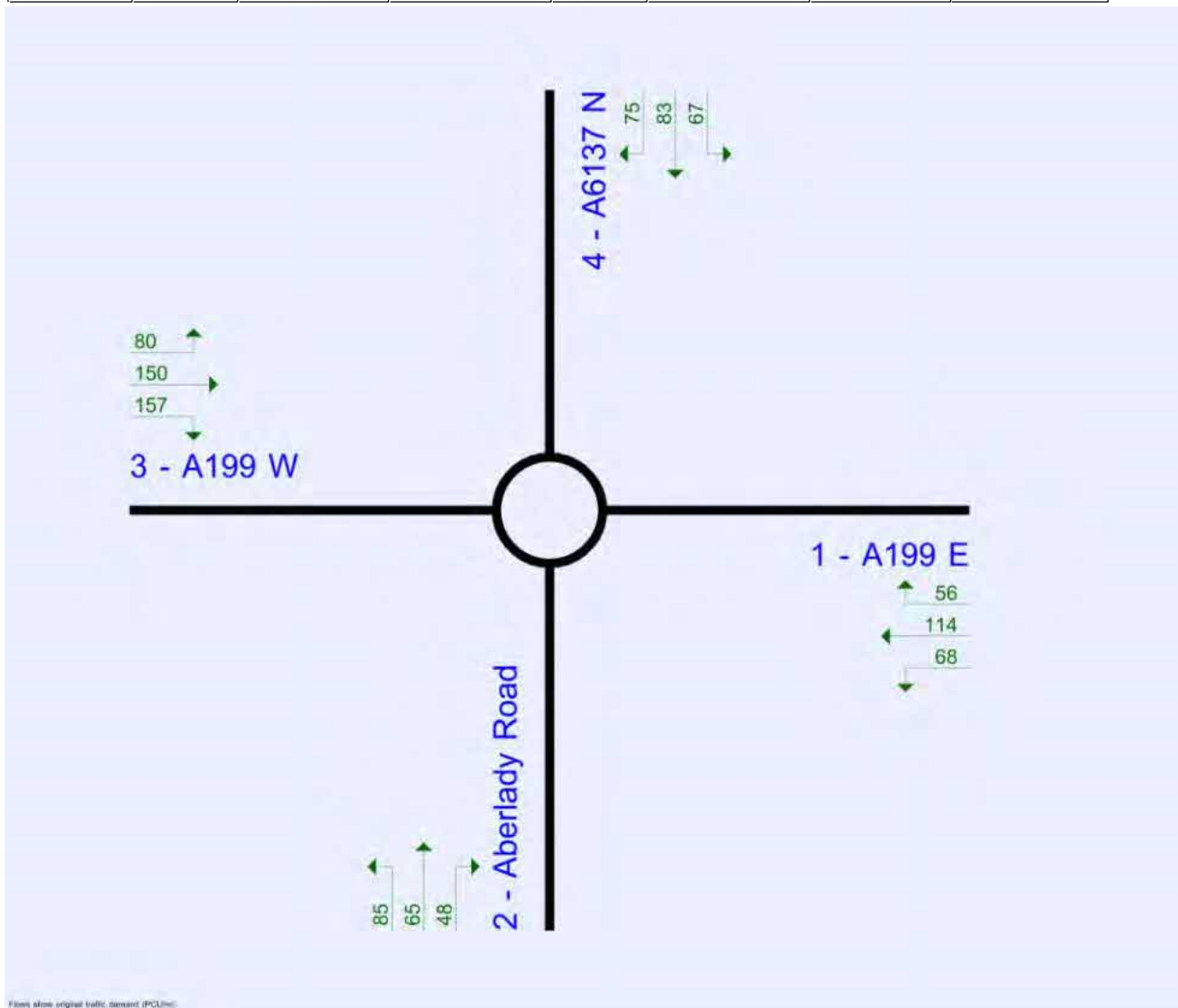
File summary

File Description

Title	
Location	
Site number	
Date	17/02/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	GOODSON\Nick
Description	

Units

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



Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2023 Observed	AM	ONE HOUR	07:45	09:15	15	<input type="checkbox"/>
D2	2023 Observed	PM	ONE HOUR	16:15	17:45	15	<input type="checkbox"/>
D3	2028 Base	AM	ONE HOUR	07:45	09:15	15	<input type="checkbox"/>
D4	2028 Base	PM	ONE HOUR	16:15	17:45	15	<input type="checkbox"/>
D5	2028 Base + Development	AM	ONE HOUR	07:45	09:15	15	<input type="checkbox"/>
D6	2028 Base + Development	PM	ONE HOUR	16:15	17:45	15	<input type="checkbox"/>

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	<input type="checkbox"/>	100.000	100.000

2023 Observed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A199/Aberlady Road	Standard Roundabout		1, 2, 3, 4	2.89	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.89	A

Arms

Arms

Arm	Name	Description	No give-way line
1	A199 E		
2	Aberlady Road		
3	A199 W		
4	A6137 N		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1 - A199 E	4.81	7.20	10.6	22.6	40.0	26.0		
2 - Aberlady Road	3.84	4.64	6.9	13.8	40.0	31.0		
3 - A199 W	5.13	7.37	7.9	24.7	41.0	23.5		
4 - A6137 N	3.46	7.19	10.2	22.0	41.0	45.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A199 E	0.691	1915
2 - Aberlady Road	0.556	1306
3 - A199 W	0.703	1972
4 - A6137 N	0.584	1496

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2023 Observed	AM	ONE HOUR	07:45	09:15	15	ü

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
Ü	Ü	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A199 E		ONE HOUR	Ü	254	100.000
2 - Aberlady Road		ONE HOUR	Ü	183	100.000
3 - A199 W		ONE HOUR	Ü	224	100.000
4 - A6137 N		ONE HOUR	Ü	225	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A199 E	2 - Aberlady Road	3 - A199 W	4 - A6137 N
From	1 - A199 E	0	60	140	54
	2 - Aberlady Road	64	0	45	74
	3 - A199 W	89	71	0	64
	4 - A6137 N	78	94	53	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A199 E	2 - Aberlady Road	3 - A199 W	4 - A6137 N
From	1 - A199 E	0	0	0	0
	2 - Aberlady Road	0	0	0	0
	3 - A199 W	0	0	0	0
	4 - A6137 N	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A199 E	0.16	2.45	0.2	A	233	350
2 - Aberlady Road	0.17	3.77	0.2	A	168	252
3 - A199 W	0.14	2.28	0.2	A	206	308
4 - A6137 N	0.18	3.26	0.2	A	206	310

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	191	48	164	1802	0.106	191	173	0.0	0.1	2.235	A
2 - Aberlady Road	138	34	185	1203	0.115	137	169	0.0	0.1	3.376	A
3 - A199 W	169	42	144	1871	0.090	168	179	0.0	0.1	2.114	A
4 - A6137 N	169	42	168	1397	0.121	169	144	0.0	0.1	2.929	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	228	57	196	1779	0.128	228	208	0.1	0.1	2.320	A
2 - Aberlady Road	165	41	222	1183	0.139	164	202	0.1	0.2	3.534	A
3 - A199 W	201	50	172	1851	0.109	201	214	0.1	0.1	2.182	A
4 - A6137 N	202	51	201	1378	0.147	202	173	0.1	0.2	3.061	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	280	70	240	1749	0.160	279	254	0.1	0.2	2.449	A
2 - Aberlady Road	201	50	272	1155	0.174	201	248	0.2	0.2	3.774	A
3 - A199 W	247	62	211	1823	0.135	246	262	0.1	0.2	2.282	A
4 - A6137 N	248	62	246	1351	0.183	248	211	0.2	0.2	3.260	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	280	70	240	1749	0.160	280	254	0.2	0.2	2.450	A
2 - Aberlady Road	201	50	272	1155	0.174	201	248	0.2	0.2	3.774	A
3 - A199 W	247	62	211	1823	0.135	247	262	0.2	0.2	2.282	A
4 - A6137 N	248	62	247	1351	0.183	248	211	0.2	0.2	3.261	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	228	57	196	1779	0.128	229	208	0.2	0.1	2.323	A
2 - Aberlady Road	165	41	222	1183	0.139	165	202	0.2	0.2	3.536	A
3 - A199 W	201	50	173	1851	0.109	202	214	0.2	0.1	2.184	A
4 - A6137 N	202	51	202	1378	0.147	202	173	0.2	0.2	3.063	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	191	48	164	1801	0.106	191	174	0.1	0.1	2.237	A
2 - Aberlady Road	138	34	186	1203	0.115	138	170	0.2	0.1	3.383	A
3 - A199 W	169	42	145	1870	0.090	169	179	0.1	0.1	2.117	A
4 - A6137 N	169	42	169	1397	0.121	170	145	0.2	0.1	2.935	A

2023 Observed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A199/Aberlady Road	Standard Roundabout		1, 2, 3, 4	2.89	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.89	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2023 Observed	PM	ONE HOUR	16:15	17:45	15	ü

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
ü	ü	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A199 E		ONE HOUR	ü	232	100.000
2 - Aberlady Road		ONE HOUR	ü	168	100.000
3 - A199 W		ONE HOUR	ü	339	100.000
4 - A6137 N		ONE HOUR	ü	217	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
	1 - A199 E	2 - Aberlady Road	3 - A199 W	4 - A6137 N	
From	1 - A199 E	0	66	111	55
	2 - Aberlady Road	47	0	59	62
	3 - A199 W	146	115	0	78
	4 - A6137 N	65	79	73	0

Vehicle Mix

Heavy Vehicle Percentages

From	To			
	1 - A199 E	2 - Aberlady Road	3 - A199 W	4 - A6137 N
1 - A199 E	0	0	0	0
2 - Aberlady Road	0	0	0	0
3 - A199 W	0	0	0	0
4 - A6137 N	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A199 E	0.15	2.47	0.2	A	213	319
2 - Aberlady Road	0.16	3.69	0.2	A	154	231
3 - A199 W	0.20	2.45	0.3	A	311	467
4 - A6137 N	0.18	3.40	0.2	A	199	299

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	175	44	200	1776	0.098	174	194	0.0	0.1	2.247	A
2 - Aberlady Road	126	32	179	1206	0.105	126	195	0.0	0.1	3.330	A
3 - A199 W	255	64	123	1885	0.135	255	182	0.0	0.2	2.207	A
4 - A6137 N	163	41	231	1360	0.120	163	146	0.0	0.1	3.004	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	209	52	240	1749	0.119	208	232	0.1	0.1	2.336	A
2 - Aberlady Road	151	38	215	1187	0.127	151	234	0.1	0.1	3.475	A
3 - A199 W	305	76	147	1868	0.163	305	218	0.2	0.2	2.301	A
4 - A6137 N	195	49	277	1334	0.146	195	175	0.1	0.2	3.160	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	255	64	294	1712	0.149	255	284	0.1	0.2	2.471	A
2 - Aberlady Road	185	46	263	1160	0.159	185	286	0.1	0.2	3.691	A
3 - A199 W	373	93	180	1845	0.202	373	267	0.2	0.3	2.445	A
4 - A6137 N	239	60	339	1297	0.184	239	215	0.2	0.2	3.400	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	255	64	294	1711	0.149	255	284	0.2	0.2	2.471	A
2 - Aberlady Road	185	46	263	1160	0.159	185	286	0.2	0.2	3.691	A
3 - A199 W	373	93	181	1845	0.202	373	268	0.3	0.3	2.445	A
4 - A6137 N	239	60	339	1297	0.184	239	215	0.2	0.2	3.400	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	209	52	240	1749	0.119	209	232	0.2	0.1	2.337	A
2 - Aberlady Road	151	38	215	1187	0.127	151	234	0.2	0.1	3.479	A
3 - A199 W	305	76	148	1868	0.163	305	219	0.3	0.2	2.302	A
4 - A6137 N	195	49	277	1334	0.146	195	175	0.2	0.2	3.165	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	175	44	201	1776	0.098	175	194	0.1	0.1	2.248	A
2 - Aberlady Road	126	32	180	1206	0.105	127	196	0.1	0.1	3.334	A
3 - A199 W	255	64	124	1885	0.135	255	183	0.2	0.2	2.210	A
4 - A6137 N	163	41	232	1360	0.120	164	147	0.2	0.1	3.008	A

2028 Base, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A199/Aberlady Road	Standard Roundabout		1, 2, 3, 4	2.91	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.91	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2028 Base	AM	ONE HOUR	07:45	09:15	15	ü

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
ü	ü	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A199 E		ONE HOUR	ü	261	100.000
2 - Aberlady Road		ONE HOUR	ü	188	100.000
3 - A199 W		ONE HOUR	ü	230	100.000
4 - A6137 N		ONE HOUR	ü	230	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A199 E	2 - Aberlady Road	3 - A199 W	4 - A6137 N
From	1 - A199 E	0	62	144	55
	2 - Aberlady Road	66	0	46	76
	3 - A199 W	91	73	0	66
	4 - A6137 N	80	96	54	0

Vehicle Mix

Heavy Vehicle Percentages

From	To			
	1 - A199 E	2 - Aberlady Road	3 - A199 W	4 - A6137 N
1 - A199 E	0	0	0	0
2 - Aberlady Road	0	0	0	0
3 - A199 W	0	0	0	0
4 - A6137 N	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A199 E	0.16	2.47	0.2	A	239	359
2 - Aberlady Road	0.18	3.81	0.2	A	173	259
3 - A199 W	0.14	2.30	0.2	A	211	317
4 - A6137 N	0.19	3.29	0.2	A	211	317

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	196	49	167	1799	0.109	196	178	0.0	0.1	2.246	A
2 - Aberlady Road	142	35	190	1200	0.118	141	173	0.0	0.1	3.396	A
3 - A199 W	173	43	148	1868	0.093	173	183	0.0	0.1	2.123	A
4 - A6137 N	173	43	173	1395	0.124	173	148	0.0	0.1	2.944	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	235	59	200	1776	0.132	235	213	0.1	0.2	2.334	A
2 - Aberlady Road	169	42	227	1180	0.143	169	208	0.1	0.2	3.560	A
3 - A199 W	207	52	177	1848	0.112	207	219	0.1	0.1	2.193	A
4 - A6137 N	207	52	207	1375	0.150	207	177	0.1	0.2	3.081	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	287	72	245	1745	0.165	287	261	0.2	0.2	2.469	A
2 - Aberlady Road	207	52	278	1151	0.180	207	254	0.2	0.2	3.810	A
3 - A199 W	253	63	217	1820	0.139	253	268	0.1	0.2	2.297	A
4 - A6137 N	253	63	253	1348	0.188	253	217	0.2	0.2	3.288	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	287	72	246	1745	0.165	287	261	0.2	0.2	2.469	A
2 - Aberlady Road	207	52	279	1151	0.180	207	254	0.2	0.2	3.811	A
3 - A199 W	253	63	217	1819	0.139	253	269	0.2	0.2	2.298	A
4 - A6137 N	253	63	253	1348	0.188	253	217	0.2	0.2	3.289	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	235	59	201	1776	0.132	235	213	0.2	0.2	2.335	A
2 - Aberlady Road	169	42	228	1180	0.143	169	208	0.2	0.2	3.562	A
3 - A199 W	207	52	177	1847	0.112	207	220	0.2	0.1	2.196	A
4 - A6137 N	207	52	207	1375	0.150	207	177	0.2	0.2	3.085	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	196	49	168	1798	0.109	197	179	0.2	0.1	2.247	A
2 - Aberlady Road	142	35	191	1200	0.118	142	174	0.2	0.1	3.403	A
3 - A199 W	173	43	148	1868	0.093	173	184	0.1	0.1	2.126	A
4 - A6137 N	173	43	173	1394	0.124	173	148	0.2	0.1	2.948	A

2028 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A199/Aberlady Road	Standard Roundabout		1, 2, 3, 4	2.92	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.92	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2028 Base	PM	ONE HOUR	16:15	17:45	15	ü

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
ü	ü	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A199 E		ONE HOUR	ü	238	100.000
2 - Aberlady Road		ONE HOUR	ü	173	100.000
3 - A199 W		ONE HOUR	ü	348	100.000
4 - A6137 N		ONE HOUR	ü	223	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To			
	1 - A199 E	2 - Aberlady Road	3 - A199 W	4 - A6137 N
1 - A199 E	0	68	114	56
2 - Aberlady Road	48	0	61	64
3 - A199 W	150	118	0	80
4 - A6137 N	67	81	75	0

Vehicle Mix

Heavy Vehicle Percentages

From	To			
	1 - A199 E	2 - Aberlady Road	3 - A199 W	4 - A6137 N
1 - A199 E	0	0	0	0
2 - Aberlady Road	0	0	0	0
3 - A199 W	0	0	0	0
4 - A6137 N	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A199 E	0.15	2.49	0.2	A	218	328
2 - Aberlady Road	0.16	3.73	0.2	A	159	238
3 - A199 W	0.21	2.47	0.3	A	319	479
4 - A6137 N	0.19	3.44	0.2	A	205	307

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	179	45	206	1772	0.101	179	199	0.0	0.1	2.259	A
2 - Aberlady Road	130	33	184	1204	0.108	130	200	0.0	0.1	3.349	A
3 - A199 W	262	65	126	1883	0.139	261	188	0.0	0.2	2.218	A
4 - A6137 N	168	42	237	1357	0.124	167	150	0.0	0.1	3.024	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	214	53	246	1745	0.123	214	238	0.1	0.1	2.351	A
2 - Aberlady Road	156	39	220	1184	0.131	155	240	0.1	0.2	3.500	A
3 - A199 W	313	78	151	1866	0.168	313	225	0.2	0.2	2.317	A
4 - A6137 N	200	50	284	1330	0.151	200	180	0.1	0.2	3.187	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	262	66	301	1706	0.154	262	292	0.1	0.2	2.492	A
2 - Aberlady Road	190	48	270	1156	0.165	190	294	0.2	0.2	3.726	A
3 - A199 W	383	96	185	1842	0.208	383	275	0.2	0.3	2.467	A
4 - A6137 N	246	61	348	1292	0.190	245	220	0.2	0.2	3.438	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	262	66	302	1706	0.154	262	292	0.2	0.2	2.492	A
2 - Aberlady Road	190	48	270	1156	0.165	190	294	0.2	0.2	3.726	A
3 - A199 W	383	96	185	1842	0.208	383	275	0.3	0.3	2.467	A
4 - A6137 N	246	61	348	1292	0.190	246	220	0.2	0.2	3.438	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	214	53	247	1744	0.123	214	238	0.2	0.1	2.354	A
2 - Aberlady Road	156	39	220	1184	0.131	156	240	0.2	0.2	3.502	A
3 - A199 W	313	78	151	1866	0.168	313	225	0.3	0.2	2.318	A
4 - A6137 N	200	50	284	1329	0.151	201	180	0.2	0.2	3.192	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	179	45	206	1772	0.101	179	200	0.1	0.1	2.261	A
2 - Aberlady Road	130	33	185	1203	0.108	130	201	0.2	0.1	3.354	A
3 - A199 W	262	65	127	1883	0.139	262	188	0.2	0.2	2.222	A
4 - A6137 N	168	42	238	1356	0.124	168	151	0.2	0.1	3.029	A

2028 Base + Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A199/Aberlady Road	Standard Roundabout		1, 2, 3, 4	3.02	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.02	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2028 Base + Development	AM	ONE HOUR	07:45	09:15	15	ü

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
ü	ü	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A199 E		ONE HOUR	ü	261	100.000
2 - Aberlady Road		ONE HOUR	ü	238	100.000
3 - A199 W		ONE HOUR	ü	243	100.000
4 - A6137 N		ONE HOUR	ü	231	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A199 E	2 - Aberlady Road	3 - A199 W	4 - A6137 N
From	1 - A199 E	0	62	144	55
	2 - Aberlady Road	66	0	93	79
	3 - A199 W	91	86	0	66
	4 - A6137 N	80	97	54	0

Vehicle Mix

Heavy Vehicle Percentages

From	To			
	1 - A199 E	2 - Aberlady Road	3 - A199 W	4 - A6137 N
1 - A199 E	0	0	0	0
2 - Aberlady Road	0	0	0	0
3 - A199 W	0	0	0	0
4 - A6137 N	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A199 E	0.17	2.49	0.2	A	239	359
2 - Aberlady Road	0.23	4.05	0.3	A	218	328
3 - A199 W	0.15	2.32	0.2	A	223	334
4 - A6137 N	0.19	3.32	0.2	A	212	318

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	196	49	178	1792	0.110	196	178	0.0	0.1	2.256	A
2 - Aberlady Road	179	45	190	1200	0.149	178	184	0.0	0.2	3.521	A
3 - A199 W	183	46	150	1867	0.098	183	218	0.0	0.1	2.137	A
4 - A6137 N	174	43	182	1389	0.125	173	150	0.0	0.1	2.960	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	235	59	213	1767	0.133	235	213	0.1	0.2	2.348	A
2 - Aberlady Road	214	53	227	1180	0.181	214	220	0.2	0.2	3.726	A
3 - A199 W	218	55	180	1846	0.118	218	261	0.1	0.1	2.211	A
4 - A6137 N	208	52	218	1368	0.152	208	180	0.1	0.2	3.102	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	287	72	261	1734	0.166	287	261	0.2	0.2	2.487	A
2 - Aberlady Road	262	66	278	1151	0.228	262	270	0.2	0.3	4.046	A
3 - A199 W	268	67	220	1817	0.147	267	320	0.1	0.2	2.322	A
4 - A6137 N	254	64	267	1339	0.190	254	220	0.2	0.2	3.317	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	287	72	261	1734	0.166	287	261	0.2	0.2	2.487	A
2 - Aberlady Road	262	66	279	1151	0.228	262	270	0.3	0.3	4.048	A
3 - A199 W	268	67	220	1817	0.147	268	320	0.2	0.2	2.322	A
4 - A6137 N	254	64	268	1339	0.190	254	220	0.2	0.2	3.317	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	235	59	213	1767	0.133	235	213	0.2	0.2	2.349	A
2 - Aberlady Road	214	53	228	1180	0.181	214	220	0.3	0.2	3.732	A
3 - A199 W	218	55	180	1845	0.118	219	262	0.2	0.1	2.212	A
4 - A6137 N	208	52	219	1368	0.152	208	180	0.2	0.2	3.103	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	196	49	179	1791	0.110	197	179	0.2	0.1	2.259	A
2 - Aberlady Road	179	45	191	1200	0.149	179	185	0.2	0.2	3.529	A
3 - A199 W	183	46	151	1866	0.098	183	219	0.1	0.1	2.138	A
4 - A6137 N	174	43	183	1389	0.125	174	151	0.2	0.1	2.963	A

2028 Base + Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A199/Aberlady Road	Standard Roundabout		1, 2, 3, 4	3.00	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.00	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2028 Base + Development	PM	ONE HOUR	16:15	17:45	15	ü

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
ü	ü	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A199 E		ONE HOUR	ü	238	100.000
2 - Aberlady Road		ONE HOUR	ü	198	100.000
3 - A199 W		ONE HOUR	ü	387	100.000
4 - A6137 N		ONE HOUR	ü	225	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A199 E	2 - Aberlady Road	3 - A199 W	4 - A6137 N
From	1 - A199 E	0	68	114	56
	2 - Aberlady Road	48	0	85	65
	3 - A199 W	150	157	0	80
	4 - A6137 N	67	83	75	0

Vehicle Mix

Heavy Vehicle Percentages

From	To			
	1 - A199 E	2 - Aberlady Road	3 - A199 W	4 - A6137 N
1 - A199 E	0	0	0	0
2 - Aberlady Road	0	0	0	0
3 - A199 W	0	0	0	0
4 - A6137 N	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A199 E	0.16	2.55	0.2	A	218	328
2 - Aberlady Road	0.19	3.84	0.2	A	182	273
3 - A199 W	0.23	2.54	0.3	A	355	533
4 - A6137 N	0.20	3.53	0.2	A	206	310

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	179	45	236	1751	0.102	179	199	0.0	0.1	2.289	A
2 - Aberlady Road	149	37	184	1204	0.124	149	231	0.0	0.1	3.409	A
3 - A199 W	291	73	127	1883	0.155	291	206	0.0	0.2	2.259	A
4 - A6137 N	169	42	267	1340	0.126	169	151	0.0	0.1	3.072	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	214	53	283	1719	0.124	214	238	0.1	0.1	2.391	A
2 - Aberlady Road	178	44	220	1184	0.150	178	277	0.1	0.2	3.578	A
3 - A199 W	348	87	152	1865	0.187	348	246	0.2	0.2	2.372	A
4 - A6137 N	202	51	319	1309	0.155	202	181	0.1	0.2	3.251	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	262	66	347	1675	0.156	262	292	0.1	0.2	2.547	A
2 - Aberlady Road	218	55	270	1156	0.189	218	339	0.2	0.2	3.835	A
3 - A199 W	426	107	186	1841	0.231	426	301	0.2	0.3	2.543	A
4 - A6137 N	248	62	391	1267	0.195	247	221	0.2	0.2	3.530	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	262	66	347	1675	0.156	262	292	0.2	0.2	2.547	A
2 - Aberlady Road	218	55	270	1156	0.189	218	339	0.2	0.2	3.836	A
3 - A199 W	426	107	186	1841	0.231	426	302	0.3	0.3	2.543	A
4 - A6137 N	248	62	391	1267	0.196	248	221	0.2	0.2	3.530	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	214	53	283	1719	0.124	214	238	0.2	0.1	2.394	A
2 - Aberlady Road	178	44	220	1184	0.150	178	277	0.2	0.2	3.583	A
3 - A199 W	348	87	152	1865	0.187	348	247	0.3	0.2	2.373	A
4 - A6137 N	202	51	319	1309	0.155	203	181	0.2	0.2	3.256	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A199 E	179	45	237	1751	0.102	179	200	0.1	0.1	2.292	A
2 - Aberlady Road	149	37	185	1203	0.124	149	232	0.2	0.1	3.414	A
3 - A199 W	291	73	127	1882	0.155	292	206	0.2	0.2	2.262	A
4 - A6137 N	169	42	267	1339	0.126	170	151	0.2	0.1	3.077	A

Junctions 10
PICADY 10 - Priority Intersection Module
Version: 10.0.4.1693 © Copyright TRL Software Limited, 2021
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Filename: Aberlady Rd.j10
 Path: M:\P14825\01-WIP\Office\Transport Assessment\Analysis files
 Report generation date: 07/08/2023 15:45:14

- «Development, PM
 - »Junction Network
 - »Arms
 - »Traffic Demand
 - »Origin-Destination Data
 - »Vehicle Mix
 - »Results

Summary of junction performance

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2028 Base + Development					
Stream B-AC	0.2	10.10	0.15	0.1	9.27	0.08
Stream C-AB	0.0	5.12	0.00	0.0	5.18	0.01

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

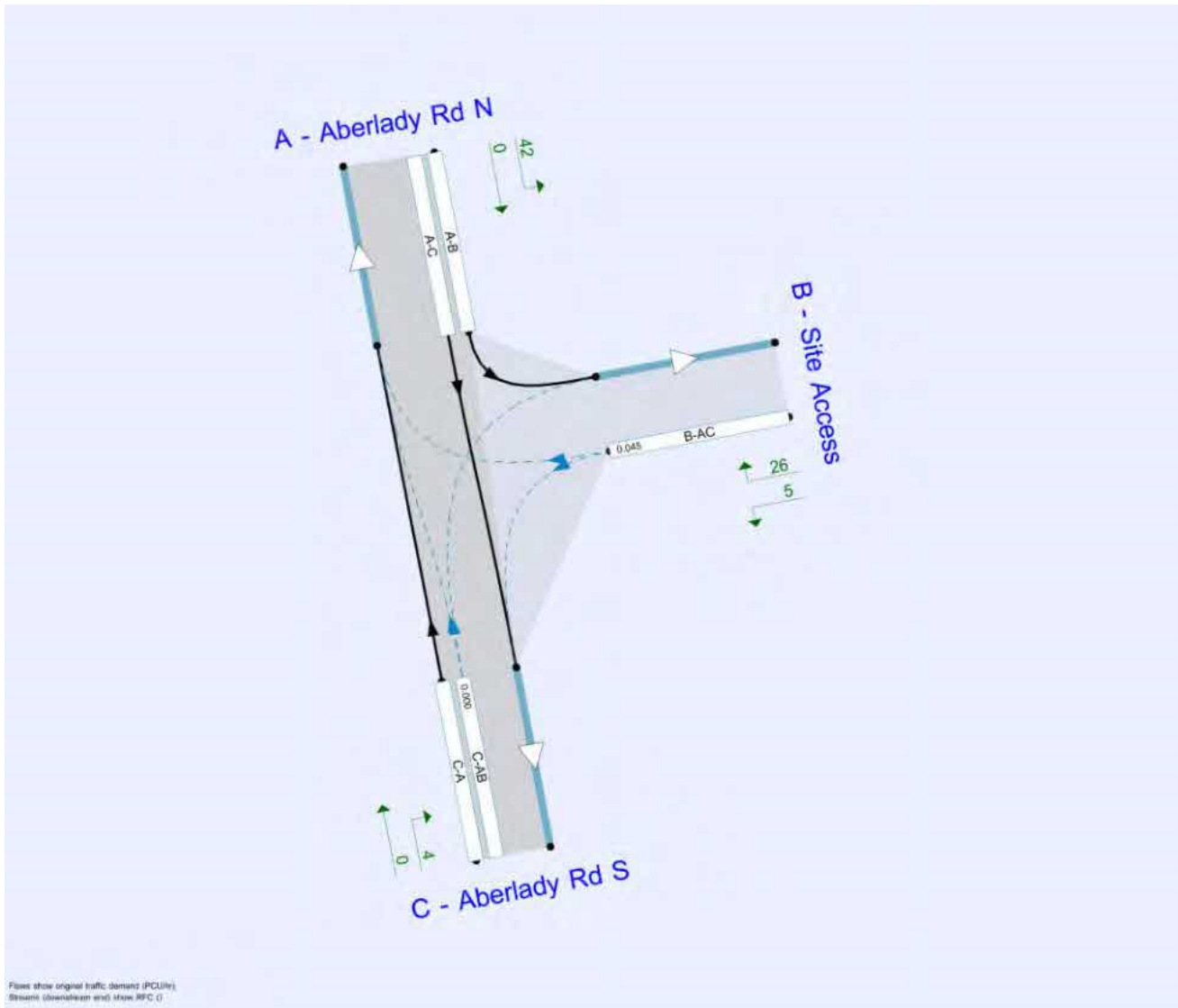
File summary

File Description

Title	Herdmanflat Hospital
Location	Florabank Rd
Site number	
Date	28/11/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	GOODSON\DCole
Description	

Units

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



Flows show original traffic demand (PCU/hr)
Stream (between and) Max RFC (%)

The junction diagram reflects the last run of Junctions.

Analysis Options

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

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	<input type="checkbox"/>	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	Development	PM	ONE HOUR	16:00	17:30	15

Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Set Relationship	D7 - 2028 Base + Development, AM	Demand Set relationships are chained. This may slow down the file.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Site Access	T-Junction	Two-way	Two-way	Two-way		3.20	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.20	A

Arms

Arms

Arm	Name	Description	Arm type
A	Aberlady Rd N		Major
B	Site Access		Minor
C	Aberlady Rd S		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right-turn storage	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Aberlady Rd S	7.30			100.0	U	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	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Site Access	One lane	3.00	25	25

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	498	0.086	0.216	0.136	0.309
B-C	640	0.093	0.234	-	-
C-B	632	0.231	0.231	-	-

The slopes and intercepts shown above include custom intercept adjustments only.

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

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
ü	ü	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Aberlady Rd N		ONE HOUR	ü	42	100.000
B - Site Access		ONE HOUR	ü	31	100.000
C - Aberlady Rd S		ONE HOUR	ü	4	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A - Aberlady Rd N	B - Site Access	C - Aberlady Rd S	
From	A - Aberlady Rd N	0	42	0
	B - Site Access	26	0	5
	C - Aberlady Rd S	0	4	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A - Aberlady Rd N	B - Site Access	C - Aberlady Rd S	
From	A - Aberlady Rd N	0	0	0
	B - Site Access	0	0	0
	C - Aberlady Rd S	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.07	7.53	0.1	0.5	A	28	43
C-AB	0.00	0.00	0.0	~1	A	0	0
C-A						0	0
A-B						39	58
A-C						0	0

Main Results for each time segment

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	23	6	514	0.045	23	0.0	0.0	7.339	A
C-AB	0	0	625	0.000	0	0.0	0.0	0.000	A
C-A	0	0			0				
A-B	32	8			32				
A-C	0	0			0				

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	28	7	513	0.054	28	0.0	0.1	7.417	A
C-AB	0	0	623	0.000	0	0.0	0.0	0.000	A
C-A	0	0			0				
A-B	38	9			38				
A-C	0	0			0				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	34	9	512	0.067	34	0.1	0.1	7.525	A
C-AB	0	0	621	0.000	0	0.0	0.0	0.000	A
C-A	0	0			0				
A-B	46	12			46				
A-C	0	0			0				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	34	9	512	0.067	34	0.1	0.1	7.525	A
C-AB	0	0	621	0.000	0	0.0	0.0	0.000	A
C-A	0	0			0				
A-B	46	12			46				
A-C	0	0			0				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	28	7	513	0.054	28	0.1	0.1	7.421	A
C-AB	0	0	623	0.000	0	0.0	0.0	0.000	A
C-A	0	0			0				
A-B	38	9			38				
A-C	0	0			0				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	23	6	514	0.045	23	0.1	0.0	7.342	A
C-AB	0	0	625	0.000	0	0.0	0.0	0.000	A
C-A	0	0			0				
A-B	32	8			32				
A-C	0	0			0				

Queue Variation Results for each time segment
16:00 - 16:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.05	0.00	0.00	0.05	0.05			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

16:15 - 16:30

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.06	0.03	0.25	0.45	0.48			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

16:30 - 16:45

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.07	0.03	0.26	0.47	0.49			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

16:45 - 17:00

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.07	0.00	0.00	0.07	0.07			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

17:00 - 17:15

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.06	0.00	0.00	0.06	0.06			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

17:15 - 17:30

Stream	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.05	0.00	0.00	0.05	0.05			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

APPENDIX 5 DRAWINGS



KEY 1:1000

- RED LINE BOUNDARY
- ① LANDSCAPE PRINCIPLES Orchard and community garden
- ② Formal terrace
- ③ Primary Area of community open space
- ④ Recreational space with pétanque pitches
- ⑤ Private terrace - 3m strip
- ⑥ Semi-private spaces
- ⑦ Green corridor - succession planting and paths
Woodland - succession planting, paths and incidental play
- ⑧ Protected tree line avenues with succession planting
- ⑨ Wet meadow creation linked to SUDS
- ⑩ Private gardens for complex care use
- ⑪ Existing boundary wall retained
- ⑫ Active travel routes connecting site to wider area - 3m wide

REV	DATE	DESCRIPTION	BY	CHK	APP

Scale 1:1000

Do not scale from this drawing
All dimensions are to be verified on site
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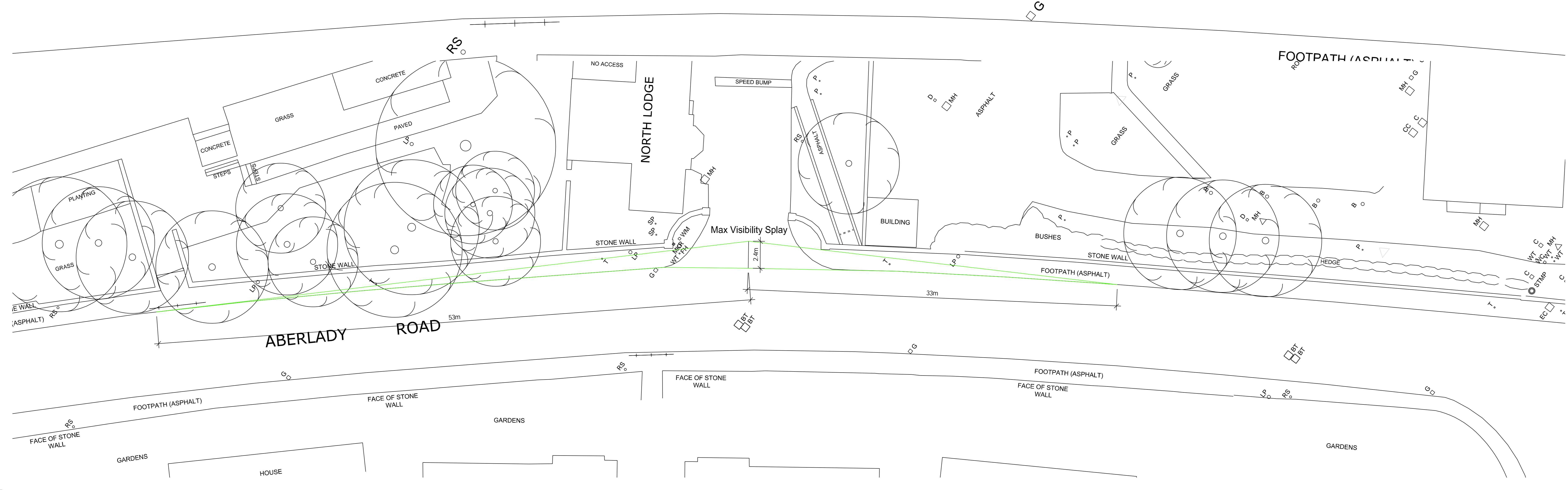
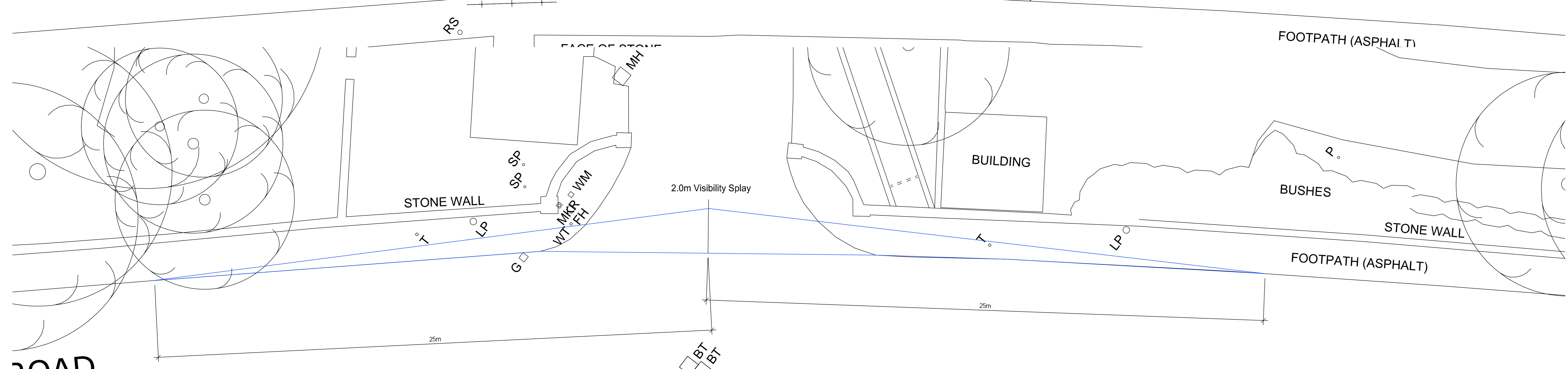
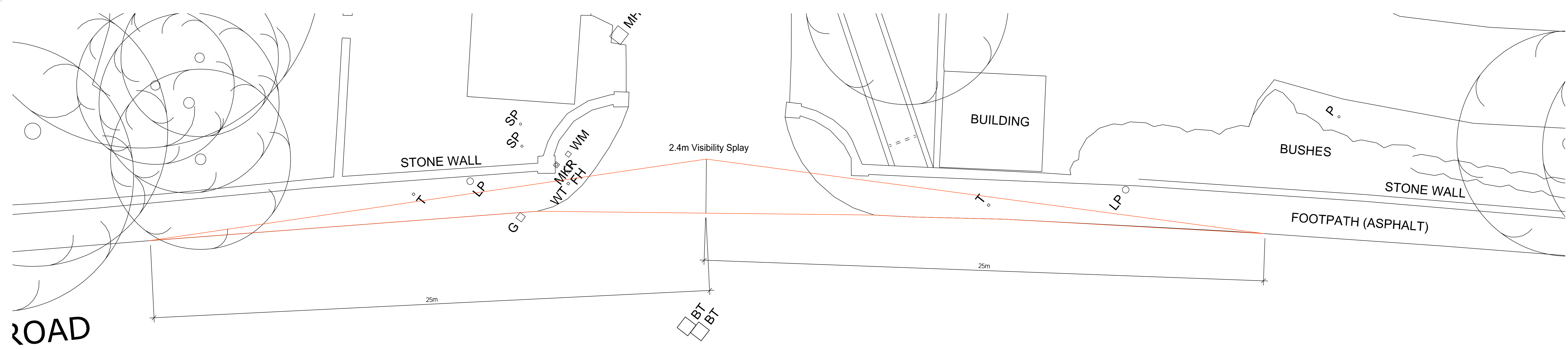
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Herdmanflat Hospital

Client
Hub South East Scotland

LUC Job No 11288 Scale @A1 Status Planning

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