BANCROFT VIEW SHD.

LANDS ON GREENHILLS ROAD, TALLAGHT, DUBLIN 24

TRAFFIC AND TRANSPORT ASSESSMENT

May 2022

Job No. 6196

Jennings O'Donovan & Partners Limited,
Consulting Engineers,
Finisklin Business Park,
Sligo.
Tel: 071 9161416
Fax: 071 9161080
Email: info@Jodireland.com

JENNINGS O'DONOVAN & PARTNERS LIMITED
Project, Civil and Structural Consulting Engineers,
FINISKLIN BUSINESS PARK,
SLIGO,
IRELAND.

Telephone (071) 9161416
Fax (071) 9161080

Email info@jodireland.com
Web Site www.jodireland.com

DOCUMENT APPROVAL

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6196/405/JD

BANCROFT VIEW SHD, LANDS ON GREENHILLS ROAD, TALLAGHT, DUBLIN 24

CONTENTS

APPENDICES

EXECUTIVE SUMMARY

This traffic and transport assessment (TTA) was carried out by Jennings O'Donovan and Partners Limited. The purpose of the TTA is to determine the ability of the surrounding road network to cater for traffic generated by the proposed Bancroft View SHD on Greenhills Road, Tallaght, Dublin 24. The TTA will quantify traffic generated by the development, parking requirements for residents and visitors and examine sustainable transport options to reduce single occupancy car journeys.

The proposed development will consist of 197 apartments, commercial units with a gross floor area of 872m^2, Creche with a gross floor area of 330m^2, 78 car parking spaces, bicycle parking and landscaped grounds.

The proposed development is located on the Greenhills Road in close proximity to high quality public transport links including bus and Luas light rail services. The development is linked directly to the existing footpath and cycleway network on Greenhills Road. Public transport links and facilities for pedestrians and cyclists are discussed in Chapter 3 and in Chapter 5 of the TTA and detailed in a separate Mobility Management Plan which accompanies the application. The development is located in an urban environment close to existing shops, schools, medical facilities, childcare facilities and employment centres which can be accessed from the development using public transport / walking / cycling.

The proposed development is located adjacent to the planned Core Bus Corridor No.9 which will improve bus services and provide enhanced walking and cycling facilities on the Greenhills Road. The layout of the proposed development has been planned to facilitate future upgrade works on Greenhills Road which will be required to provide additional carriageway width for the Core Bus Corridor.

The proposed development will have secure long and short term bicycle parking in addition to parking for 78 vehicles. The proposed development will have 3 dedicated parking spaces assigned to a car sharing provider such as Go Car. Parking requirements for the development are quantified in Chapter 3 of the TTA and vehicle trips generated by the development during peak demand hours are quantified in Chapter 4 of the TTA.

The proposed development has been subject to a Stage 1 Road safety Audit carried out by an independent consultant. The Road Safety Audit concluded that, "It is considered that the site, as currently proposed, is generally conducive to safe access and egress by all forms of road user".

The proposed development has been subject to a Quality Audit to examine the accessibility of the proposed development. The Quality Audit was carried out by an independent consultant and concluded

that, “It is considered that the site, as currently proposed, is generally conducive to safe access and egress by all forms of road user”.

Vehicular access to the proposed development will be from an existing priority junction on the Hibernian Industrial Estate Road which serves the adjacent Greenhills Retail Park development consisting of a car dealership and mixed commercial units.

Due to the Covid-19 pandemic and nationwide travel restrictions resulting in abnormal traffic flows throughout 2020 and 2021, classified traffic counts from 2019 have been used as a basis for this TTA.

During the AM peak hour, the proposed development will generate 121 additional trips to the public road network, 50 arrivals and 71 departures.

During the PM peak hour, the proposed development will generate 133 additional trips to the public road network, 75 arrivals and 58 departures.

The results of the traffic analysis show that the existing junctions between Greenhills Road / Airton road and Greenhills Road / Hibernian Industrial Estate road are operating within capacity at current traffic levels (pre Covid-19 restrictions).

The results of the traffic analysis show that the Greenhills Road / Hibernian Industrial Estate road junction will continue to operate within capacity in 2038, fifteen years after the development has opened.

The results of the traffic analysis show that the Greenhills Road / Airton road junction will continue to operate within capacity in 2038, fifteen years after the development has opened. The junction will begin to experience some capacity issues in 2028 with increased traffic growth on the public road network.

1. INTRODUCTION

1.1 Brief

Jennings O'Donovan & Partners Limited has been appointed by Greenhills Living Limited., to carry out a Traffic and Transport Assessment (TTA) to review the impact of traffic associated with a proposed strategic housing development (SHD) at Bancroft park / Greenhills Road, Tallaght, Dublin 24. The proposed development will consist of a 197 apartment development, commercial units, creche, car and bicycle parking. Access to the proposed development will be from an existing junction on the Hibernian Industrial Estate road which serves the adjacent Greenhills retail park which consists of a car showroom and mixed commercial units.

1.2 Objectives

The objective of this report is to examine the traffic implications associated with the proposed development in terms of how traffic generated by the development integrates with the existing traffic in the area. The TTA will determine and quantify the volume of traffic generated by the development and the impact of the development traffic on the public road network. The TTA will examine the impact of the development on the Hibernian Industrial Estate Road, Greenhills Road and Airton Road.

1.3 Planning Consultation

A preplanning consultation using Microsoft Teams with South Dublin County Council was held on 11th December 2020 to present the proposed residential development to various Council departments including Roads Forward Planning. Jennings O'Donovan contacted Roads Forward Planning on 07th December 2020 to agree a provisional scope for the TTA. A Section 5 pre application consultation using Microsoft Teams was held on 14th January 2022 with An Board Pleanala and South Dublin County Council.

1.4 Statement of Authority

This report has been prepared by Jennings O'Donovan & Partners Limited, Finisklin Sligo. Established in Sligo in 1950 Jennings O'Donovan & Partners Limited is a Clean Tech Company providing consulting engineering services in the areas of road design, renewable energy, civil and structural engineering, water supply, wastewater collection and treatment, environmental resource management and impact assessment and in the area of industrial and commercial development.

1.5 Design References / Standards

The TTA for the proposed residential development has been based on the following technical documents:

- South Dublin County Council Development Plan .
- Transport Infrastructure Ireland, Specification for Road Works.
- Transport Infrastructure Ireland, PE-PDV-02045 Traffic and Transport Assessment Guidelines.
- Transport Infrastructure Ireland, Project Appraisal Guidelines for National Roads Unit 5.3. PE-PAG-02017 Travel Demand Projections.
- Transport Infrastructure Ireland, Project Appraisal Guidelines for National Roads Unit 16.1. PE-PAG-02039, Expansion Factors for Short Period Traffic Counts.
- Transport Infrastructure Ireland, Design Manual for Roads and Bridges.
- Design Manual for Urban Roads and Streets - DMURS
- Junctions 9 Traffic Analysis Software.

2. PROPOSED DEVELOPMENT

2.1 Site Location

The proposed Bancroft View SHD is located to the east of the R819 Greenhills Road in Tallaght, Dublin 24. The proposed development is situated between Bancroft Park and the Hibernian Industrial Estate Road. The site is approximately 3.0km to the south of Walkinstown and 1.0km to the north of Tallaght. The bulk of the site of the proposed development consists of a greenfield site which is currently unoccupied and unused while the balance is a temporary parking area (Refer to Plate 1). The location of the proposed development site is shown in Figure 1.

Plate 1 – Site Location

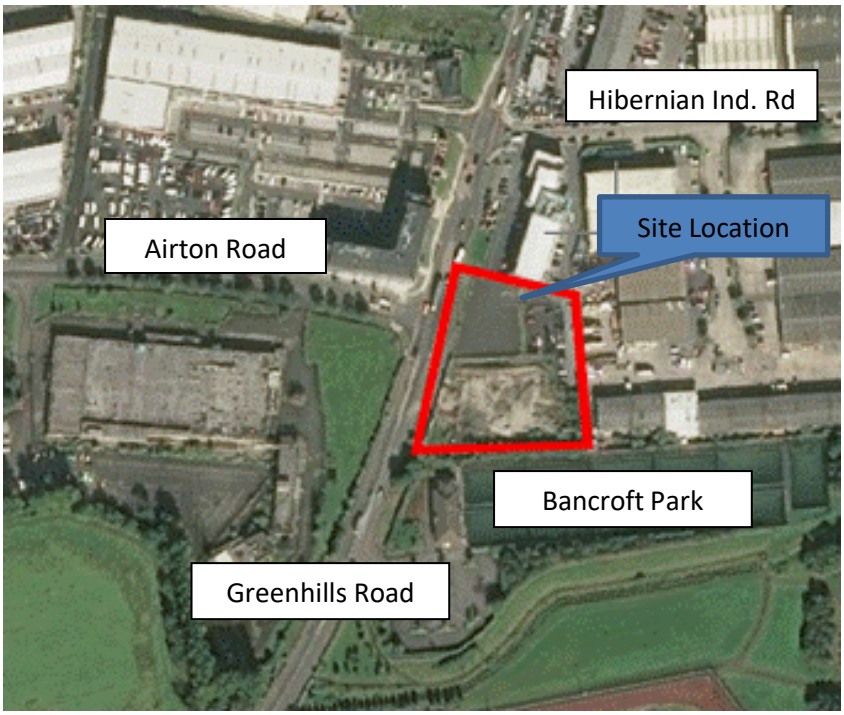


Figure 1 – Site Location

2.2 Proposed Development

The proposed development will consist of residential apartments, commercial units, creche, ground floor car park, bicycle parking and landscaped grounds. Details of the proposed development are shown in Table 1. The layout of the ground floor plan is shown in Figure 2.

Area Type	Number / Area
I Bed Apartments	79
2 Bed Apartments	105
3 Bed Apartments	13
Commercial Units	GFA = 872m^2
Creche	GFA = 330m^2
Car Parking	78 Spaces
Bicycle Parking	448 spaces

Table 1 – Proposed Development Schedule

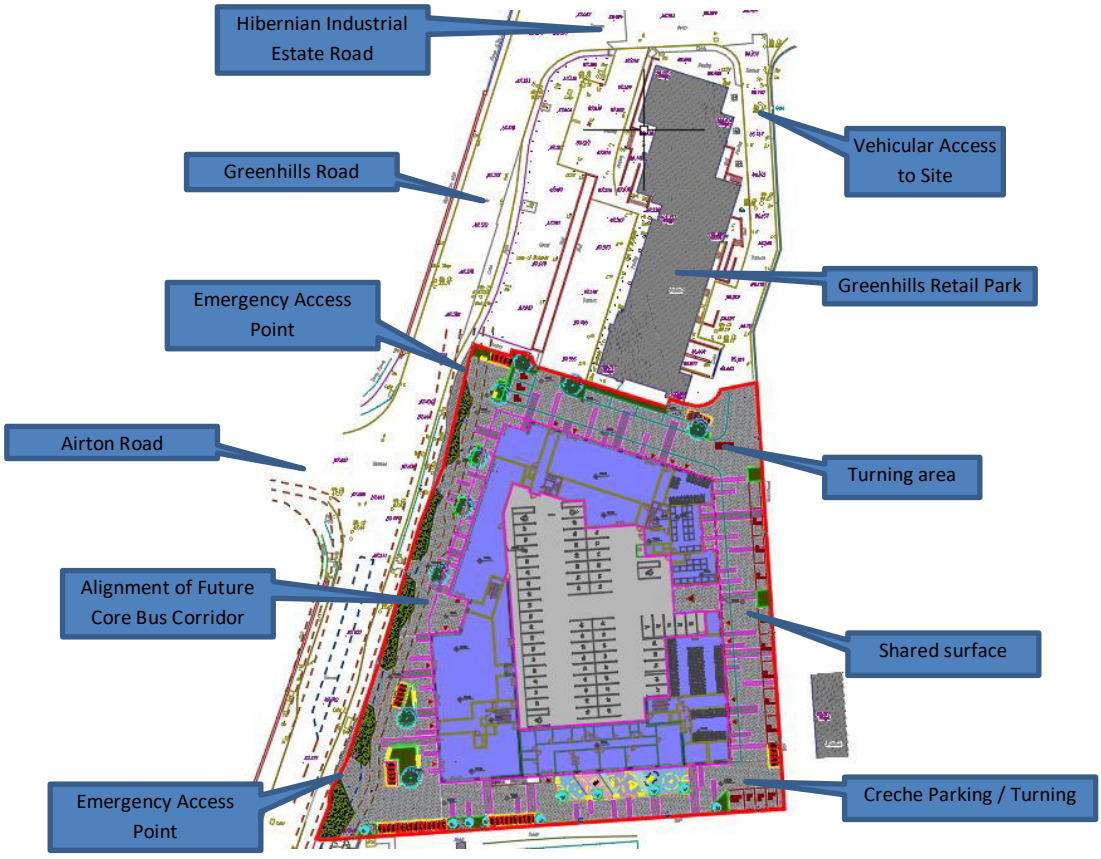


Figure 2 – Proposed Development Ground Floor Layout Plan

3. EXISTING ROAD NETWORK AND TRAFFIC

3.1 Existing Traffic Flows

In order to determine the baseline traffic volumes in the vicinity of the proposed residential development, it is necessary to carry out classified traffic counts at the junctions which will be affected by the proposed development. The COVID-19 pandemic and nationwide travel restrictions throughout 2020 and 2021 have resulted in abnormal traffic flows which are not representative of normal traffic conditions. Due to the COVID-19 pandemic South Dublin County Council have agreed to the use of classified traffic counts from pre 2020 planning applications. The planning applications used as a basis for this TTA include:

- SHD3ABP-306705-20 Mixed Use Development at Former Gallagher Site, Airton Road -2020
- SHD3ABP-305763-19 Mixed Use Development, Belgard road / Airton road - 2019

Peak hour traffic periods for the Greenhills Road, Airton road and Hibernian Estate road are obtained from an examination of the 2019 classified traffic count data and are shown in Table 2. Examination of the classified traffic counts shows that peak traffic during the morning period occurs between the hours of 8am and 10am and between the hours of 2pm and 6pm during the evening period. For the purposes of this TTA report, the peak hours have been chosen as 8am to 9am during the morning and 4pm to 5pm during the evening. The peak hour periods shown in Table 2 are used to carry out capacity analysis at the junctions.

AM Peak Hour	8.00 – 9.00
PM Peak Hour	16.00 – 17.00

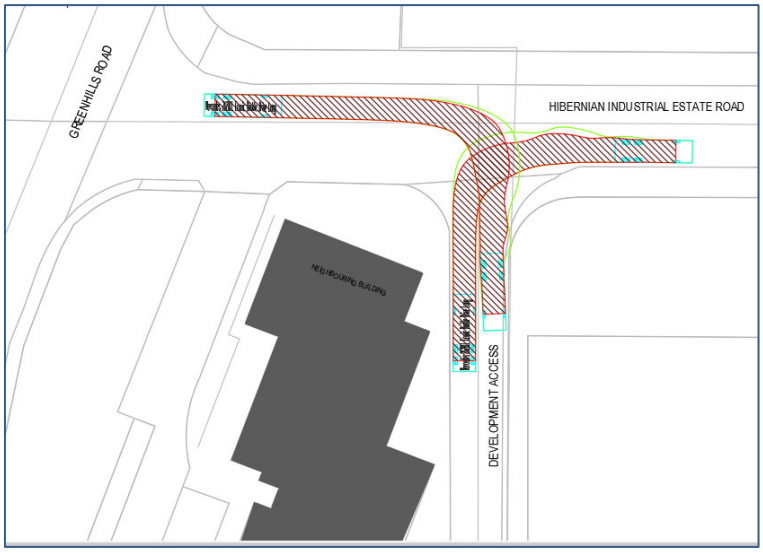
Table 2 –Peak Hour Traffic Periods

3.2 Existing Hibernian Industrial Estate Road / Development Access Road Junction

Vehicular access to the proposed residential development will be from the existing junction on the Hibernian Industrial Estate road at the rear of the car showroom (Reference Plate 2) in the Greenhills Retail Park. The junction is a simple T-junction with priority for Hibernian Ind. Estate road traffic. The junction is lit by public lighting and delineated with roadmarkings. The junction has a pedestrian footpath along the Hibernian Industrial Estate Road which is connected to an existing footpath at the

rear of the car showroom. The existing footpath terminates at the car parking spaces near the end of the cul de sac. The junction is located 50m from the Greenhills signalised junction and has visibility splays in both directions setback from the Hibernian road carriageway edge (Relocation of existing post box required). Autotrack analysis for a refuge vehicle at the junction is shown on SK 001.

Plate 2 – Existing Hibernian Industrial Estate Road / Development Access Road Junction



SK001 – Autotrack - Hibernian Industrial Estate Road / Development Access Road Junction

3.3 Existing Greenhills Road / Hibernian Industrial Estate Road Signalised Junction

The existing junction between the R819 Greenhills Road and the Hibernian Industrial Estate Road is a signalised cross-roads junction (Reference Plate 3) with the access to the Harvey Norman mixed use development site and Primary Care Centre. The junction is located in an urban environment with

facilities for pedestrians and cyclists. The junction is lit by public lighting and is clearly signposted and delineated with roadmarkings.

Plate 3 – Existing Greenhills Road /Hibernian Industrial Estate Road Junction

Traffic analysis carried out for the existing Greenhills Road / Hibernian Road signalised junction using the classified traffic count data show that the existing junction is operating within capacity and does not exceed the 0.85 Degree of Saturation (DOS) during the AM or PM peak hours. The Degree of Saturation (DOS) is calculated from Junctions 9 OSCADY software. A DOS value of 1.0 indicates that the junction is operating at full capacity with a value of 0.85 considered to be the maximum DOS value after which the junction will begin to experience some capacity issues. Due to the Covid-19 pandemic travel restrictions, a number of assumptions have been made regarding AM peak hour traffic flows entering and exiting Hibernian road and the Harvey Norman mixed use development. A TTA carried out in 2015 for the Harvey Norman mixed use development shows the turning movements at the junction during the PM peak hour has been used in combination with the 2020 traffic flows in this analysis. Details of the existing traffic flows at the junction and traffic analysis for the existing traffic flows are included in Appendix A. A summary of the traffic analysis for the junction with existing traffic flows is shown in Table 3.

	AM									PM								
	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
2022 - Greenhills - Hibernian Existing Traffic Flows 2022																		
Arm A	D1	9.2	?	20.33	0.64	C	19.78	B	-100 % [Arm A - Traffic Stream 2]	D2	8.3	?	21.13	0.64	C	24.06	C	-43 % [Arm D - Traffic Stream 1]
Arm B		1.3	?	52.35	0.19	D					3.2	?	39.30	0.46	D			
Arm C		7.1	?	13.85	0.43	B					5.6	?	16.96	0.48	B			
Arm D		1.5	?	53.35	0.24	D					3.4	?	41.56	0.53	D			

Table 3 - Traffic Analysis Summary for the Greenhills Road / Hibernian Industrial Estate Road Junction Existing Traffic Flows 2022

3.4 Existing Greenhills Road / Airton Road Signalised Junction

The existing junction between the R819 Greenhills road and the L3001 Airton road is a signalised T-junction (Reference Plate 4). The junction is located in an urban environment with facilities for pedestrians and cyclists. The junction is lit by public lighting and is clearly signposted and delineated with roadmarkings.

Plate 4 – Existing Greenhills Road /Airton Road Junction

Traffic analysis carried out for the existing Greenhills road / Airton Road signalised junction using the classified traffic counts show that the existing junction is operating within capacity and does not exceed the 0.85 Degree of Saturation (DOS) value during the AM or PM peak hours. Details of the existing traffic flows at the junction and traffic analysis for the existing traffic flows are included in Appendix A. A summary of the traffic analysis for the junction with existing traffic flows is shown in Table 4.

	AM									PM								
	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
2022 - Greenhills - Airton Existing Traffic Flows 2022																		
Arm A	D1	6.3	?	22.75	0.78	C	20.92	C	2 % [Arm C - Traffic Stream 2]	D2	4.1	?	22.55	0.69	C	16.87	B	22 % [Arm A - Traffic Stream 1]
Arm B		3.4	?	24.59	0.54	C					2.9	?	19.57	0.45	B			
Arm C		4.9	?	17.07	0.71	B					4.6	?	12.28	0.62	B			

Table 4 – Traffic Analysis Summary for the Greenhills Road / Airton Road Junction using Existing Traffic Flows 2022

3.5 Accident Data

Latest mapped statistics for accident data taken from the RSI website show that there were three minor accidents recorded in the vicinity of the proposed development dating from 2007, 2008 and 2018. The accident data from the RSI website is shown in Figure 3.

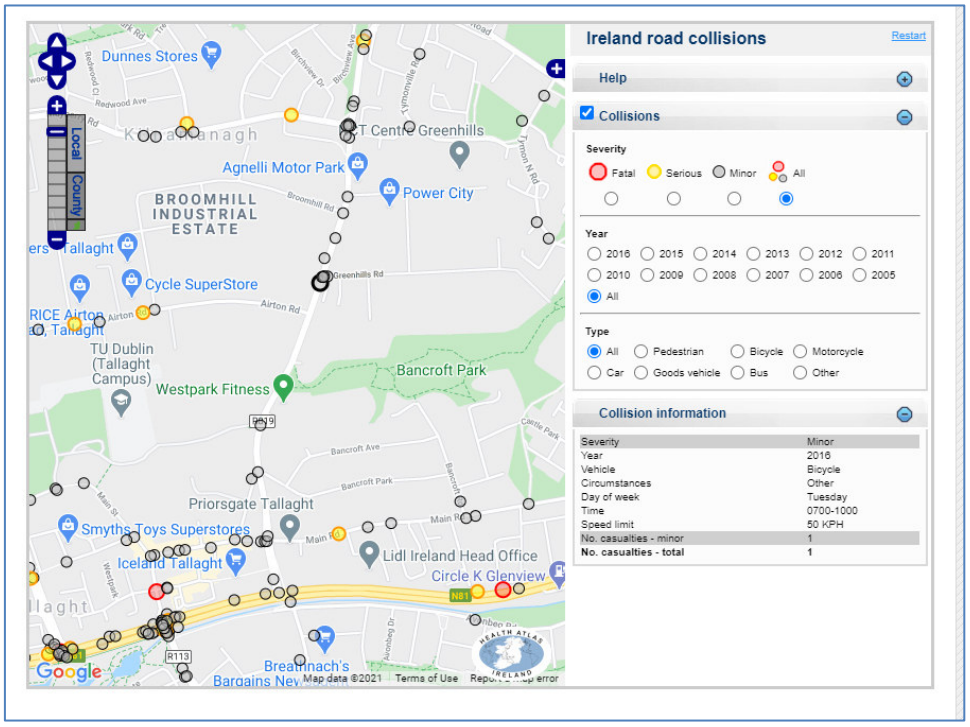


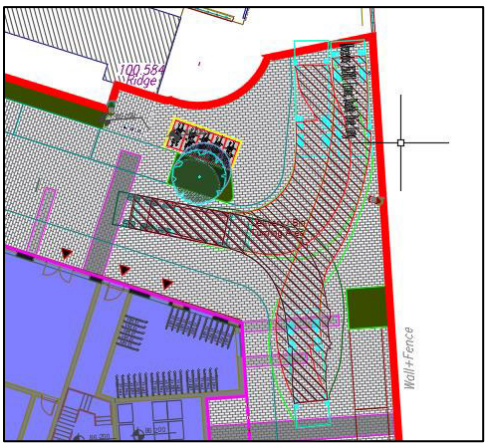
Figure 3 – Accident Data

3.6 Parking Facilities

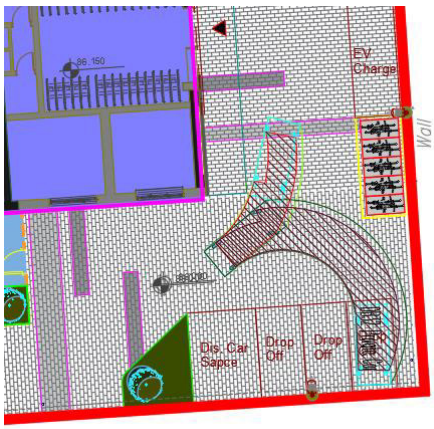
Car parking for the proposed development is to be provided at ground floor level as shown in Figure 2. There are parking spaces provided for 78 vehicles within the development including 4 accessible parking spaces, 3 car share parking spaces and 8 EV parking spaces. 4 No. set-down parking spaces (including 1 no. accessible space) are provided to serve the creche facility. Parking for the proposed development is based on published data from the TRICS Database and is determined from a comparison of the arrivals and departures throughout the day. The data shows that approximately 70 individual vehicles will be used by residents of the development to make trips throughout the day resulting in a requirement for a similar number of parking spaces. Vehicles will leave the development and vacate parking spaces which will then become available for use by the creche and retail units within the development. A summary of the parking requirements for the development is shown in Table 5. The number of parking spaces is considered to be sufficient to serve the development which is located in close proximity to high quality public transport links including bus route No. 27 and Luas Red Line, commercial / shopping centers, medical centers and educational facilities. Public transport links and pedestrian facilities are covered in the following chapters and in a separate Mobility Management Plan which accompanies the application. Turning facilities are provided for vehicles within the grounds of the development, Autotrack analysis for a refuge vehicle is shown on SK002 and turning facilities for vehicles using the creche is shown on SK003.

Time	Trip Rate Arrivals	Trip Rate Departures	Trips Arrivals	Trips Departures	Individual Vehicle Count (Max Number)	Parking Spaces Occupied (Number)	Parking Spaces available (Number)
06 - 07						78	0
07 - 08	0.032	0.135	6	27	33	51	29
08 - 09	0.044	0.186	9	37	61	23	57
09 - 10	0.055	0.081	11	16	66	18	62
10 - 11	0.044	0.059	9	12	69	15	65
11 - 12	0.055	0.059	11	12	70	15	65
12 - 13	0.068	0.065	13	13	69	15	65
13 - 14	0.066	0.071	13	14	70	14	66
14 - 15	0.064	0.061	13	12	70	15	65
15 - 16	0.075	0.053	15	10	65	19	61
16 - 17	0.1	0.058	20	11	57	27	53
17 -18	0.157	0.062	31	12	38	46	34
18 - 19	0.133	0.076	26	15	27	57	23
19 - 20							

Table 5 – Parking Requirements for Proposed Development



SK002 – Autotrack – Refuge Vehicle



SK003 –Autotrack – Creche

3.7 Facilities for Pedestrians and Cyclists

The proposed Bancroft View SHD is well served with existing pedestrian footpaths and cycleways. The development will have direct access onto the Greenhills Road pedestrian footpath and cycleway which links the development to the greater Dublin footpath and cycleway network. Major junctions in the vicinity of the development cater for pedestrians and cyclists and are fitted with signalised crossing points, pedestrian guardrails, dropped kerbs and tactile paving. The pedestrian access to the development from the Hibernian Industrial Estate road is to be via a shared surface treatment within

the development grounds and the existing section of footpath at the rear of the adjacent development leading to the cul de sac. Secure long term bicycle parking is to be provided in bicycle stores located on the ground floor of the development, short term covered bicycle parking is to be provided within the grounds of the proposed development. Bicycle parking spaces are provided in accordance with "Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities 2020"..

3.8 Public Transport Accessibility of the Proposed Development

The proposed residential development is located on bus route 27 which links Jobstown to Artane via Dublin City Centre. The development is located in close proximity to the northbound and southbound bus stops on Greenhills road. Bus route 27 provides a daily service at 10-minute intervals between the hours of 05.15 and 23.30. Greenhills Road is also served by the 77n nightlink service between Dublin City Centre and Tallaght. The development is located approximately 1.0km from bus route 67 which runs between Tallaght and Chapelizod along the Belgard road at 20-minute intervals. The proposed development is located adjacent to the proposed Core Bus Corridor (CBC) No. 9 which is currently at planning stage and runs along Greenhills Road between Greenhills and Dublin City Centre. The CBC will provide enhanced walking, cycling and bus infrastructure in the area. CBC No.9 is expected to reduce the 12km journey between Greenhills and the city Centre from 80 minutes to 40 minutes when constructed.

The proposed residential development is located within 1.9km of the Luas light rail red line which runs between Tallaght and Dublin City Centre. The proposed development is within walking distance from Tallaght and Belgard Luas stops taking approximately 20 minutes. The Luas stop at Tallaght car be accessed from the proposed residential development using bus route 27. The Luas red line runs at 3-to-5-minute intervals during peak hours and 10-to-15-minute intervals during off peak hours.

4. TRAFFIC GENERATION AND TRIP DISTRIBUTION

4.1 Trip Generation Associated with the Proposed Development

The proposed development will consist of:

- 197 apartments
- Commercial Units (Gross Floor area = 872m^2)
- Creche (Gross Floor area = 330m^2)

The trip rate for the proposed development are based on trip rates from the TRICS database with reference to developments which have been granted planning permission in the vicinity of Greenhills Road and Airton road. The trip rates for the proposed development are shown in Table 6 and the resultant traffic volumes generated by the proposed development are shown in Table 7.

Area	Trip Rate Arrivals (AM)	Trip Rate Departures (AM)	Trip Rate Arrivals (PM)	Trip Rate Departures (PM)
197 apartment units	0.044	0.18	0.17	0.066
Commercial Units (GFA / 100m^2)	3.3	2.9	4.1	4.6
Creche GFA / 100m^2)	3.5	3.3	1.57	1.49

Table 6 – Trip Rates for Proposed Development

Area	Arrivals (AM)	Departures (AM)	Arrivals (PM)	Departures (PM)
197 apartment units	9	35	34	13
Commercial Units (GFA = 872m^2)	29	25	36	40
Creche GFA = 330m^2)	12	11	5	5
Total	**50**	**71**	**75**	**58**

Table 7 – Traffic Volumes Generated by the Proposed Development

4.2 Traffic Distribution

The distribution of traffic generated by the proposed development to the public road network is based on turning proportions at the Greenhills Road / Airton Road junction obtained from the 2019 classified traffic counts carried out for the nearby Gallaghers site. The distribution of development traffic for the purpose of junction analysis is shown in Figure 4.

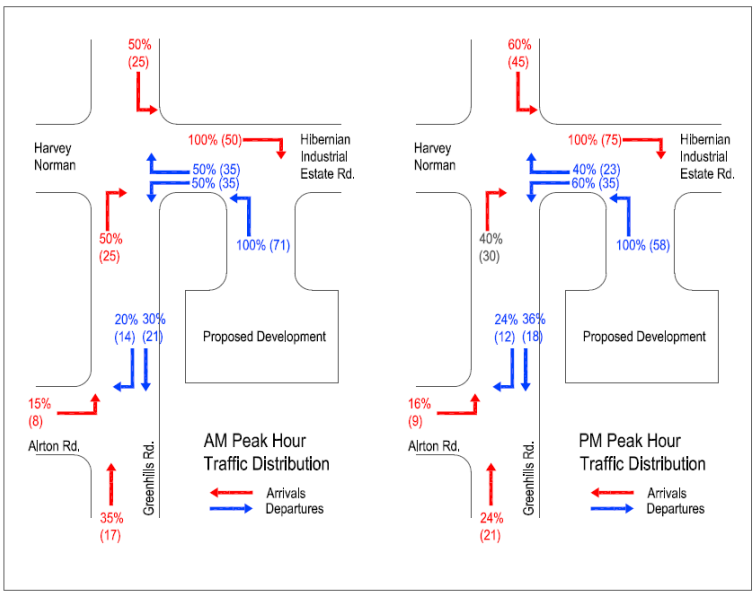


Figure 4 – Traffic Distribution

5. FUTURE TRAFFIC GENERATION

5.1 Future Traffic Growth on the Public Road Network

Traffic Infrastructure Ireland (TII) forecasts for future traffic growth on the public road network are published in PE-PAG-02017 Travel Demand Projections. The growth factors are applied to the baseline 2020 traffic flows to approximate the traffic flows on the public road network in the future when the development is opened in 2023, five years after opening in 2028 and fifteen years after opening in 2038. The growth factors for the relevant assessment years are shown in Table 8.

Year	Growth Factor
2020	1.0
2023	1.05
2028	1.15
2038	1.24

Table 8 – Traffic Growth Factors for Public Roads

A traffic analysis at the Greenhills Road / Hibernian Industrial Estate road junction has been carried without the development in place to determine if the junction will operate within capacity using the TII traffic growth factors shown in Table 8 when the development is opened in 2023, five years after opening in 2028 and fifteen years after opening in 2038. The results of the analysis show that the junction will not exceed the 0.85 Degree of Saturation (DOS) value during the AM or PM hours in 2038. The junction will continue to operate within capacity beyond 2038. The results of the analysis are summarized in Table 9, full results from the analysis are included in Appendix A.

	AM									PM							
	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
2022 - Greenhills - Hibernian Existing Traffic Flows 2022																		
Arm A	D1	9.2	?	20.33	0.64	C	19.78	B	-100 % [Arm A - Traffic Stream 2]	D2	8.3	?	21.13	0.64	C	24.06	C	-43 % [Arm D - Traffic Stream 1]
Arm B		1.3	?	52.35	0.19	D					3.2	?	39.30	0.46	D			
Arm C		7.1	?	13.85	0.43	B					5.6	?	16.96	0.48	B			
Arm D		1.5	?	53.35	0.24	D					3.4	?	41.56	0.53	D			
2023 - Greenhills - Hibernian 2023 Without Development																		
Arm A	D3	9.7	?	20.15	0.61	C	20.03	C	-100 % [Arm A - Traffic Stream 2]	D6	8.8	?	22.15	0.67	C	24.93	C	-46 % [Arm D - Traffic Stream 1]
Arm B		1.3	?	53.16	0.20	D					3.4	?	40.18	0.48	D			
Arm C		7.6	?	14.49	0.45	B					5.9	?	17.38	0.50	B			
Arm D		1.5	?	54.20	0.25	D					3.7	?	43.00	0.56	D			
2028 - Greenhills - Hibernian 2028 Without Development																		
Arm A	D4	10.8	?	23.17	0.73	C	21.59	C	-100 % [Arm A - Traffic Stream 2]	D7	9.5	?	23.18	0.71	C	26.02	C	-53 % [Arm D - Traffic Stream 1]
Arm B		1.4	?	52.24	0.21	D					3.7	?	42.16	0.51	D			
Arm C		8.0	?	14.71	0.48	B					6.3	?	17.73	0.53	B			
Arm D		1.7	?	53.72	0.27	D					4.0	?	45.74	0.60	D			
2038 - Greenhills - Hibernian 2038 Without Development																		
Arm A	D5	12.2	?	25.40	0.79	C	23.07	C	-100 % [Arm A - Traffic Stream 2]	D8	**10.8**	**?**	**23.62**	**0.73**	C	**28.67**	C	**-79 % [Arm D - Traffic Stream 1]**
Arm B		1.6	?	52.91	0.24	D					**4.7**	**?**	**51.62**	**0.62**	D			
Arm C		8.9	?	15.60	0.53	B					**7.1**	**?**	**17.48**	**0.54**	B			
Arm D		1.8	?	54.20	0.29	D					**5.3**	**?**	**59.07**	**0.72**	E			

Table 9 – Traffic Analysis Summary for the Greenhills Road / Hibernian Industrial Estate Road - Future Traffic Flows 2023, 2028 and 2038 Without Proposed Development in Place

A traffic analysis at the Greenhills Road / Airton road junction has been carried without the development in place to determine if the junction will operate within capacity using the TII traffic growth factors shown in Table 8 when the development is opened in 2023, five years after opening in 2028 and fifteen years after opening in 2038. The results of the analysis show that the junction will marginally exceed the 0.85 Degree of Saturation (DOS) value during the AM peak hour in 2038. The results of the analysis show that the junction will begin to experience some delays in 2038 but will continue to operate within capacity beyond 2038. The results of the analysis are summarized in Table 10, full results from the analysis are included in Appendix A.

	AM								PM							
	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
2022 - Greenhills - Airton Existing Traffic Flows 2022																		
Arm A	D1	6.3	?	22.75	0.78	C	20.92	C	2 % [Arm C - Traffic Stream 2]	D2	4.1	?	22.55	0.69	C	16.87	B	22 % [Arm A - Traffic Stream 1]
Arm B		3.4	?	24.59	0.54	C					2.9	?	19.57	0.45	B			
Arm C		4.9	?	17.07	0.71	B					4.6	?	12.28	0.62	B			
2023 - Greenhills - Airton 2023 Without Development																		
Arm A	**D3**	**6.2**	**?**	**21.85**	**0.77**	C	**21.37**	C	-3 % **[Arm C - Traffic Stream 2]**	D4	3.8	?	19.67	0.65	B	16.71	B	25 % [Arm C - Traffic Stream 2]
Arm B		**3.6**	**?**	**25.91**	**0.56**	C					3.3	?	22.91	0.52	C			
Arm C		**5.2**	**?**	**18.55**	**0.74**	B					4.6	?	12.19	0.63	B			
2028 - Greenhills - Airton 2028 without Development																		
Arm A	D5	7.8	?	27.63	0.84	C	24.94	C	-5 % [Arm C - Traffic Stream 2]	D6	4.9	?	25.77	0.74	C	19.66	B	6 % [Arm C - Traffic Stream 2]
Arm B		4.4	?	30.22	0.64	C					3.4	?	20.01	0.47	C			
Arm C		5.9	?	19.34	0.77	B					5.9	?	15.85	0.73	B			
2038 - Greenhills - Airton 2038 Without Development																		
Arm A	D7	10.6	?	37.37	0.90	D	32.24	C	-16 % [Arm B - Traffic Stream 1]	D8	5.4	?	25.16	0.75	C	21.61	C	1 % [Arm C - Traffic Stream 2]
Arm B		5.8	?	39.58	0.76	D					4.5	?	27.09	0.61	C			
Arm C		7.2	?	22.94	0.83	C					6.8	?	17.07	0.77	B			

Table 10 – Traffic Analysis Summary for the Greenhills Road / Airton Road Junction - Future Traffic Flows 2023, 2028 and 2038 Without Proposed Development in Place

5.2 Traffic Analysis with the Proposed Development in Place

A traffic analysis at the Greenhills Road / Hibernian Industrial Estate Road junction has been carried with the development in place to determine if the junction will operate within capacity using the TII traffic growth factors shown in Table 8 combined with new trips generated by the proposed development when the development is opened in 2023, five years after opening in 2028 and fifteen years after opening in 2038. The results of the analysis show that the junction will not exceed the 0.85 Degree of Saturation (DOS) value during the AM or PM hours in 2023, 2028 or 2038. The junction will continue to operate within capacity beyond 2038. The results of the analysis are summarized in Table 11, full results from the analysis are included in Appendix B.

	AM									PM							
	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
2023 - Greenhills - Hibernian 2023 With Development																		
Arm A	D3	9.2	?	20.66	0.58	C	22.15	C	-82 % [Arm A - Traffic Stream 2]	D6	9.8	?	23.65	0.72	C	28.89	C	-64 % [Arm B - Traffic Stream 1]
Arm B		2.8	?	42.63	0.38	D					5.9	?	56.47	0.72	E			
Arm C		8.0	?	18.52	0.55	B					6.7	?	18.68	0.49	B			
Arm D		1.1	?	37.36	0.19	D					3.8	?	45.06	0.57	D			
2028 - Greenhills - Hibernian 2028 With Development																		
Arm A	D4	10.0	?	21.83	0.61	C	22.96	C	-89 % [Arm A - Traffic Stream 2]	D7	10.6	?	25.58	0.76	C	30.44	C	-65 % [Arm B - Traffic Stream 1]
Arm B		2.9	?	43.58	0.39	D					6.3	?	59.42	0.75	E			
Arm C		8.6	?	19.03	0.58	B					7.1	?	19.17	0.52	B			
Arm D		1.3	?	38.31	0.21	D					4.1	?	46.87	0.61	D			
2038 - Greenhills - Hibernian 2038 With Development																		
Arm A	D5	11.8	?	23.51	0.70	C	24.72	C	-100 % [Arm A - Traffic Stream 2]	D8	**12.6**	**?**	**29.52**	**0.82**	C	**33.72**	C	**-75 % [Arm D - Traffic Stream 1]**
Arm B		3.7	?	55.42	0.48	E					**7.0**	**?**	**60.60**	**0.76**	E			
Arm C		9.7	?	18.74	0.57	B					**8.1**	**?**	**20.33**	**0.56**	C			
Arm D		1.6	?	46.86	0.26	D					**5.2**	**?**	**57.43**	**0.71**	E			

Table 11 – Traffic Analysis Summary for the Greenhills Road / Hibernian Industrial Estate Road - Future Traffic Flows 2023, 2028 and 2038 With Proposed Development in Place

A traffic analysis at the Greenhills Road / Airton Road junction has been carried out with the development in place to determine if the junction will operate within capacity using the TII traffic growth factors shown in Table 8 combined with new trips generated by the proposed development when the development is opened in 2023, five years after opening in 2028 and fifteen years after opening in 2038. The results of the analysis show that the junction will marginally exceed the 0.85 Degree of Saturation (DOS) value during the AM peak hour in 2038. The results of the analysis show that the junction will begin to experience some delays in 2038 but will continue to operate within capacity beyond 2038. The results of the analysis are summarized in Table 12, full results from the analysis are included in Appendix B.

	AM									PM							
	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
2023 - Greenhills - Airton 2023 With Development																		
Arm A	D3	7.1	?	25.41	0.81	C	22.70	C	1 % [Arm C - Traffic Stream 2]	D4	4.4	?	22.69	0.70	C	17.99	B	15 % [Arm C - Traffic Stream 2]
Arm B		3.9	?	27.94	0.61	C					3.3	?	21.22	0.50	C			
Arm C		5.4	?	17.29	0.73	B					5.3	?	13.78	0.68	B			
2028 - Greenhills - Airton 2028 with Development																		
Arm A	D5	8.0	?	27.30	0.84	C	26.90	C	-13 % [Arm C - Traffic Stream 2]	D6	5.1	?	25.20	0.74	C	19.78	B	11 % [Arm C - Traffic Stream 2]
Arm B		4.8	?	33.10	0.69	C					3.9	?	24.58	0.57	C			
Arm C		7.0	?	23.46	0.83	C					5.9	?	14.47	0.71	B			
2038 - Greenhills - Airton 2038 With Development																		
Arm A	**D7**	**10.8**	**?**	**37.06**	**0.91**	D	**35.50**	D	**-22 % [Arm B - Traffic Stream 1]**	D8	6.4	?	30.30	0.81	C	23.04	C	4 % [Arm C - Traffic Stream 2]
Arm B		**6.5**	**?**	**45.20**	**0.80**	D					4.9	?	29.59	0.65	C			
Arm C		**8.9**	**?**	**29.11**	**0.89**	C					6.9	?	15.86	0.76	B			

Table 12 – Traffic Analysis Summary for the Greenhills Road / Airton Road Junction - Future Traffic Flows 2023, 2028 and 2038 With Proposed Development in Place

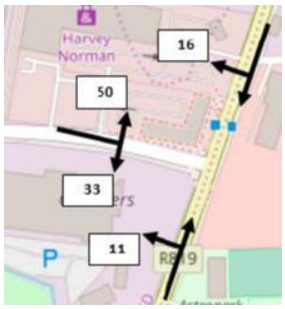
5.3 Traffic Analysis with the Proposed Development in Place, Committed Developments and Potential Future Developments

There are a number of planned developments in the vicinity of the proposed residential development which will generate additional traffic flows in the area, Traffic analysis to determine the effect of the increased traffic volumes from the combined developments on future traffic flows in the area has been carried out in this section. The additional developments include:

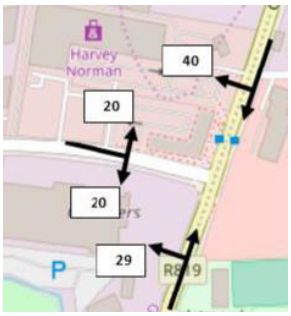
SHD3ABP-306705-20 Mixed Use Development at Former Gallagher Site, Airton Road

SHD3ABP-305763-19 Mixed Use Development, Belgard road / Airton road

The additional traffic volumes generated by the unrelated developments is shown in Figure 5.



Am Peak Hour



Pm Peak Hour

Figure 5 – Additional Traffic Generated by Other Planned Developments

A traffic analysis at the Greenhills Road / Hibernian Industrial Estate Road junction has been carried out to determine the effect of development traffic combined with traffic generated by adjacent planned developments and future traffic flows using the TII traffic growth factors shown in Table 8 on the junctions in the vicinity of the site. The analysis is carried out when the development is opened in 2023, five years after opening in 2028 and fifteen years after opening in 2038. The results of the analysis show that the junction will marginally exceed the 0.85 Degree of Saturation (DOS) value during the PM hour in 2038. The junction will continue to operate within capacity beyond 2038. The results of the analysis are summarized in Table 13, full results from the analysis are included in Appendix C.

	AM									PM								
	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
2023 - Greenhills - Hibernian 2023 With Development																		
Arm A	D3	9.5	?	20.61	0.58	C	22.36	C	-99 % [Arm A - Traffic Stream 2]	D6	**8.6**	**?**	**22.32**	**0.67**	C	**27.68**	C	**-54 % [Arm B - Traffic Stream 1]**
Arm B		2.9	?	44.82	0.40	D					**5.5**	**?**	**51.50**	**0.70**	D			
Arm C		8.8	?	18.87	0.58	B					**7.0**	**?**	**19.54**	**0.54**	B			
Arm D		1.2	?	39.05	0.19	D					**3.6**	**?**	**42.00**	**0.55**	D			
2028 - Greenhills - Hibernian 2028 With Development																		
Arm A	D4	10.8	?	21.21	0.61	C	23.62	C	-100 % [Arm A - Traffic Stream 2]	D7	11.5	?	26.20	0.78	C	31.97	C	-78 % [Arm B - Traffic Stream 1]
Arm B		3.7	?	57.73	0.48	E					7.0	?	68.00	0.79	E			
Arm C		9.6	?	18.22	0.56	B					7.4	?	18.89	0.52	B			
Arm D		1.6	?	48.88	0.25	D					4.5	?	51.68	0.64	D			
2038 - Greenhills - Hibernian 2038 With Development																		
Arm A	D5	12.5	?	24.82	0.74	C	25.90	C	-100 % [Arm A - Traffic Stream 2]	D8	14.4	?	33.73	0.86	C	35.39	D	-86 % [Arm D - Traffic Stream 1]
Arm B		3.9	?	59.78	0.51	E					6.7	?	55.18	0.72	E			
Arm C		10.8	?	19.73	0.61	B					8.6	?	21.02	0.58	C			
Arm D		1.6	?	47.89	0.24	D					5.6	?	62.54	0.73	E			

Table 13 – Traffic Analysis Summary for the Greenhills Road / Hibernian Industrial Estate Road Junction - Future Traffic Flows 2023, 2028 and 2038 With Combined Traffic From Planned Developments

A traffic analysis at the Greenhills Road / Airton Road junction has been carried out to determine the effect of development traffic combined with traffic generated by adjacent planned developments and future traffic flows using the TII traffic growth factors shown in Table 8 on the junctions in the vicinity of the site. The analysis is carried out when the development is opened in 2023, five years after opening in 2028 and fifteen years after opening in 2038. The results of the analysis show that the junction will marginally exceed the 0.85 Degree of Saturation (DOS) value during the AM peak hour in 2028. The results of the analysis show that the junction will begin to experience some delays in 2028 but will continue to operate within capacity beyond 2038. The results of the analysis are summarized in Table 13, full results from the analysis are included in Appendix C.

	AM									PM								
	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
2023 - Greenhills - Airton 2023 With Development																		
Arm A	D3	7.4	?	27.62	0.84	C	27.24	C	-12 % [Arm C - Traffic Stream 2]	D4	4.4	?	20.32	0.69	C	17.27	B	18 % [Arm C - Traffic Stream 2]
Arm B		4.8	?	32.69	0.73	C					3.8	?	22.20	0.55	C			
Arm C		6.5	?	23.88	0.83	C					4.5	?	12.38	0.63	B			
2028 - Greenhills - Airton 2028 with Development																		
Arm A	D5	10.0	?	37.26	0.90	D	34.80	C	-18 % [Arm C - Traffic Stream 2]	D6	6.0	?	28.50	0.79	C	23.50	C	1 % [Arm C - Traffic Stream 2]
Arm B		6.7	?	38.90	0.80	D					4.7	?	29.59	0.67	C			
Arm C		8.3	?	29.72	0.88	C					7.1	?	17.82	0.78	B			
2038 - Greenhills - Airton 2038 With Development																		
Arm A	D7	17.1	?	63.36	0.97	E	47.23	D	-22 % [Arm C - Traffic Stream 2]	D8	**8.5**	**?**	**42.82**	**0.88**	D	**29.68**	C	**-8 % [Arm B - Traffic Stream 1]**
Arm B		7.6	?	41.73	0.80	D					**6.2**	**?**	**36.34**	**0.74**	D			
Arm C		10.2	?	33.42	0.91	C					**8.0**	**?**	**18.66**	**0.81**	B			

Table 14 – Traffic Analysis Summary for the Greenhills Road / Airton Road Junction - Future Traffic Flows 2022, 2027 and 2037 With Combined Traffic From Planned Developments

5.4 Core Bus Corridor Future Road and Junction Improvements

It is not proposed to carry out modifications to the existing public road junctions as part of the proposed residential development. Modifications to junctions on Greenhills Road may be carried out in the future as part of Core Bus Corridor (CBC) No. 9 which is currently at planning stage. The CBC will deliver enhanced bus services, walking and cycling facilities on Greenhills Road. The layout of the proposed development has been designed to facilitate future CBC upgrade works on Greenhills Road which may be necessary to provide additional road width for bus lanes in front of the development. It is proposed as part of the CBC to prohibit right turning traffic from Greenhills Road to the Hibernian industrial Estate road, northbound traffic will enter the proposed development from the Hibernian Industrial estate entrance to the north of Broomhill Road. The proposed road and junction layout with CBC 9 in place is shown in Figure 6.

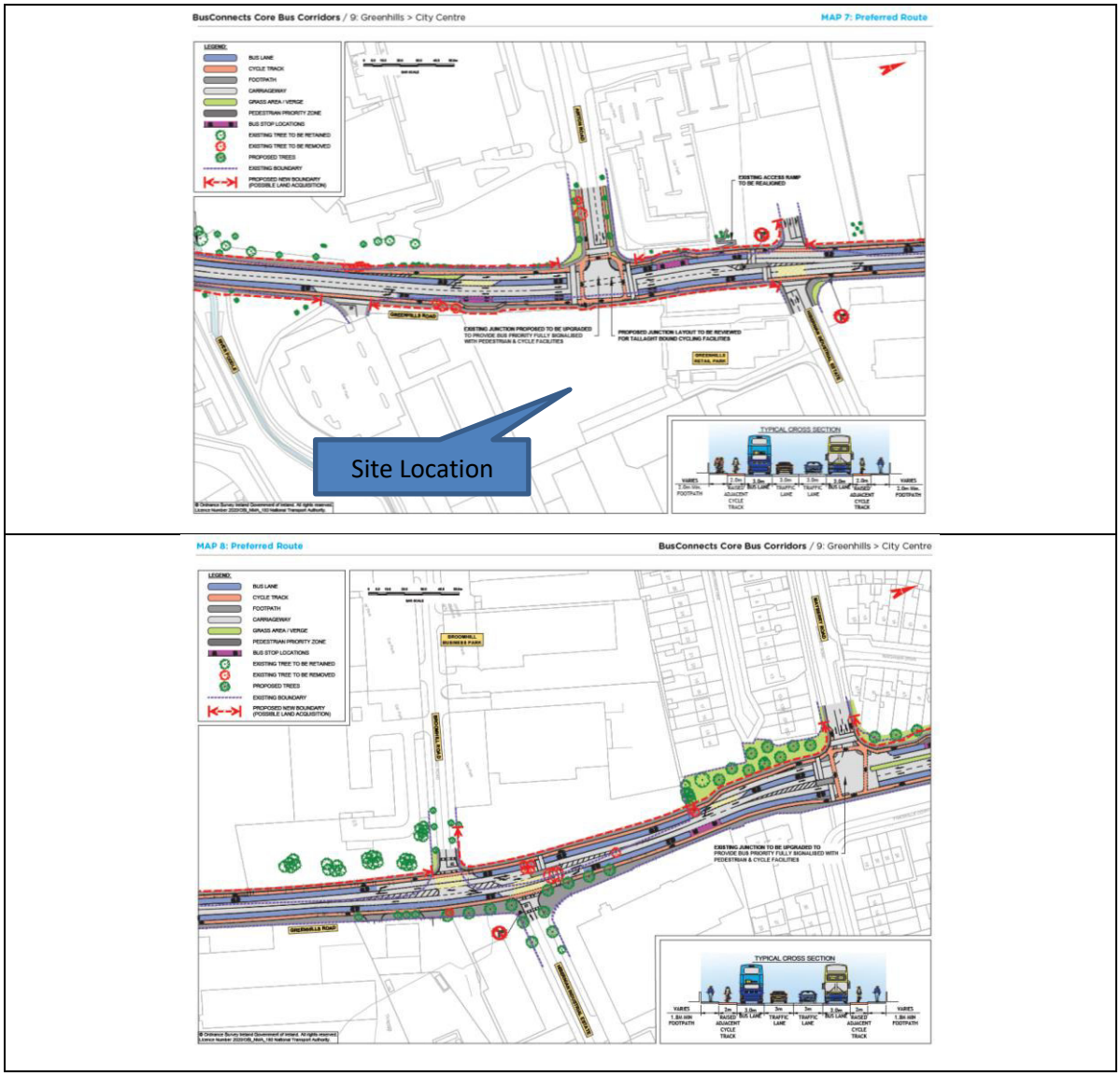


Figure 6 – Core Bus corridor 9 – Road and Junction Layout

6. SUMMARY

This transport assessment was carried out by Jennings O'Donovan and Partners Limited. The purpose of the TTA is to determine the effects of the traffic generated by the proposed Bancroft View SHD on the public road network with the development opening and fully occupied in 2023, five years after opening in 2028 and fifteen years after opening in 2038.

- The proposed development consists of 197 residential units, Commercial units, creche, car parking, bicycle parking and landscaped grounds.

- The proposed development will be accessed from an existing junction on the Hibernian Industrial Estate road at the rear of The Greenhills Retail Park.

- During the AM peak hour, the proposed development will generate 121 additional trips to the public road network, 50 arrivals and 71 departures.

- During the PM peak hour, the proposed development will generate 133 additional trips to the public road network, 75 arrivals and 58 departures.

- The results of the traffic analysis show that the existing junctions between Greenhills Road / Airton Road and Greenhills Road / Hibernian Industrial Estate Road are operating within capacity at current traffic levels (pre Covid-19 restrictions).

- The results of the traffic analysis show that the Greenhills Road / Hibernian Industrial Estate Road junction will continue to operate within capacity in 2038, fifteen years after the development has opened.

- The results of the traffic analysis show that the Greenhills Road / Airton Road junction will continue to operate within capacity in 2038, fifteen years after the development has opened. The junction will begin to experience some capacity issues in 2028 with increased traffic growth on the public road network.

- The proposed residential development is located adjacent to the Greenhills Road in close proximity to high quality public transport including bus and Luas light rail services.

- The proposed residential development is linked directly to the existing footpath and cycleway network on Greenhills Road.

- The proposed development is located adjacent to the planned Core Bus Corridor No.9 which will improve bus services and provide enhanced walking and cycling facilities on the Greenhills Road. The layout of the proposed development has been designed to allow future widening of the Greenhills Road for bus lanes planned as part of the core bus corridor.

- The proposed development will have long and short-term bicycle parking in addition to parking for 78 vehicles. The proposed development will have 3 dedicated parking spaces assigned to a car sharing provider such as Go Car.

- Two emergency access points from the Greehhills Road are provided for emergency service vehicles to access the development.

- Turning facilities for refuge and delivery vehicles are provided within the grounds of the development.

- The proposed development has been subject to a Stage 1 Road safety Audit carried out by an independent consultant. The Road Safety Audit concluded that, "It is considered that the site, as currently proposed, is generally conducive to safe access and egress by all forms of road user".

- The proposed development has been subject to a Quality Audit to examine the accessibility of the proposed development. The Quality Audit was carried out by an independent consultant and concluded that, "It is considered that the site, as currently proposed, is generally conducive to safe access and egress by all forms of road user".

7. CONCLUSION

The traffic and transport assessment shows that the proposed Bancroft View SHD will generate low volumes of traffic and will not impact adversely on the public road network. Traffic generated by the proposed development will pass through the existing Greenhills Road / Hibernian Industrial Estate Road junction which will continue to operate within capacity when the development is opened in 2023, fifteen years after opening in 2038 and will cater for traffic growth beyond 2038. The development is located close to high quality public transport services and is well served by existing footpaths and cycleways. The development is located close to shops, schools / colleges, medical facilities, childcare facilities and employment centres which can be accessed from the development using sustainable transport.

,

Appendix A

Traffic Analysis – Existing & Future Traffic Flows Without Development

Junctions 9

OSCADY 9 - Signalised Intersection Module

Version: 9.5.1.7462

For sales and distribution information, program advice and maintenance, contact TRL:
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Filename: 2022 to 2038 Greenhills - Hibernian Without Development.j9
Path: P:\Jod-jobs\6196 Greenhills Tallaght\400 Planning\403 Planning Application\1 Submissions\Greenhills Road\2022 Development - Greenhills Road\2022 Updated TTA
Report generation date: 04/05/2022 09:37:07

Summary of junction performance

	AM									PM								
	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
2022 - Greenhills - Hibernian Existing Traffic Flows 2022																		
Arm A	D1	9.2	?	20.33	0.64	C	19.78	B	-100 % [Arm A - Traffic Stream 2]	D2	8.3	?	21.13	0.64	C	24.06	C	-43 % [Arm D - Traffic Stream 1]
Arm B		1.3	?	52.35	0.19	D					3.2	?	39.30	0.46	D			
Arm C		7.1	?	13.85	0.43	B					5.6	?	16.96	0.48	B			
Arm D		1.5	?	53.35	0.24	D					3.4	?	41.56	0.53	D			
2023 - Greenhills - Hibernian 2023 Without Development																		
Arm A	D3	9.7	?	20.15	0.61	C	20.03	C	-100 % [Arm A - Traffic Stream 2]	D6	8.8	?	22.15	0.67	C	24.93	C	-46 % [Arm D - Traffic Stream 1]
Arm B		1.3	?	53.16	0.20	D					3.4	?	40.18	0.48	D			
Arm C		7.6	?	14.49	0.45	B					5.9	?	17.38	0.50	B			
Arm D		1.5	?	54.20	0.25	D					3.7	?	43.00	0.56	D			
2028 - Greenhills - Hibernian 2028 Without Development																		
Arm A	D4	10.8	?	23.17	0.73	C	21.59	C	-100 % [Arm A - Traffic Stream 2]	D7	9.5	?	23.18	0.71	C	26.02	C	-53 % [Arm D - Traffic Stream 1]
Arm B		1.4	?	52.24	0.21	D					3.7	?	42.16	0.51	D			
Arm C		8.0	?	14.71	0.48	B					6.3	?	17.73	0.53	B			
Arm D		1.7	?	53.72	0.27	D					4.0	?	45.74	0.60	D			
2038 - Greenhills - Hibernian 2038 Without Development																		
Arm A	D5	12.2	?	25.40	0.79	C	23.07	C	-100 % [Arm A - Traffic Stream 2]	D8	10.8	?	23.62	0.73	C	28.67	C	-79 % [Arm D - Traffic Stream 1]
Arm B		1.6	?	52.91	0.24	D					4.7	?	51.62	0.62	D			
Arm C		8.9	?	15.60	0.53	B					7.1	?	17.48	0.54	B			
Arm D		1.8	?	54.20	0.29	D					5.3	?	59.07	0.72	E			

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. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

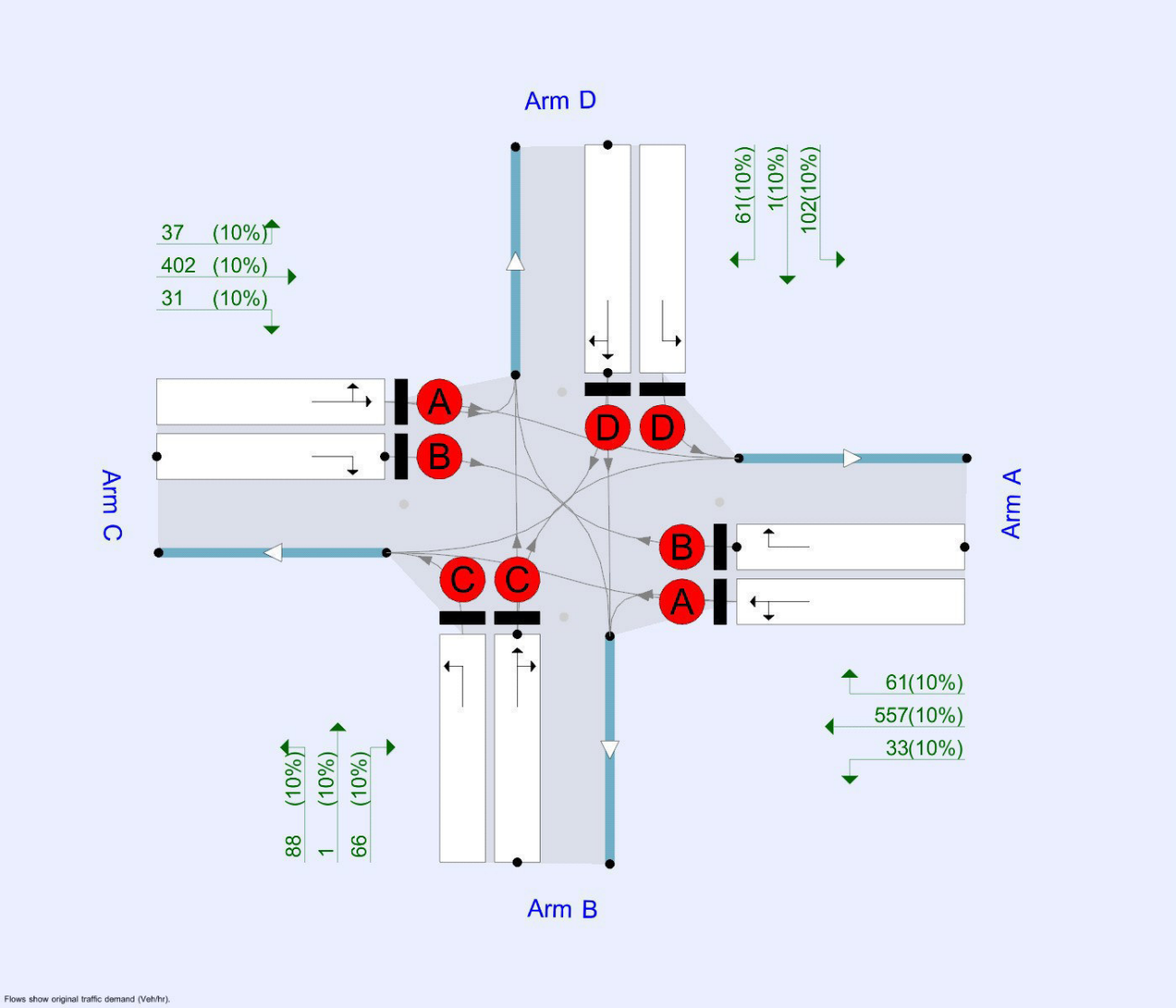
File summary

File Description

Title	Greenhi8lls Road - Harvey Norman - Hibernian
Location	Tallaght
Site number	
Date	23/04/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	JODIRELAND\jdoogan
Description	

Units

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



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	DOS Threshold	Average Delay threshold (s)	Queue threshold (PCU)
✓	✓	Delay	0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2022 - Greenhills - Hibernian Existing Traffic Flows 2022	AM	ONE HOUR	08:30	10:00	15
D2	2022 - Greenhills - Hibernian Existing Traffic Flows 2022	PM	ONE HOUR	16:00	17:30	15
D3	2023 - Greenhills - Hibernian 2023 Without Development	AM	ONE HOUR	08:30	10:00	15
D4	2028 - Greenhills - Hibernian 2028 Without Development	AM	ONE HOUR	08:30	10:00	15
D5	2038 - Greenhills - Hibernian 2038 Without Development	AM	ONE HOUR	08:30	10:00	15
D6	2023 - Greenhills - Hibernian 2023 Without Development	PM	ONE HOUR	16:00	17:30	15
D7	2028 - Greenhills - Hibernian 2028 Without Development	PM	ONE HOUR	16:00	17:30	15
D8	2038 - Greenhills - Hibernian 2038 Without Development	PM	ONE HOUR	16:00	17:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

,

Appendix A

Traffic Analysis – Existing & Future Traffic Flows Without Development

2022 - Greenhills - Hibernian Existing Traffic Flows 2022, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		19.78	B

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-100	Arm A - Traffic Stream 2

Arms

Arms

Arm	Name	Description
A	Greenhills Road North	
B	Hibernian Estate Road	
C	Greenhills Road South	
D	harvey Norman access road	

OSCADY Traffic Streams

Arm	Traffic Stream	Phase	Destination arms	Straight move
A	1	A	B, C	C
	2	B	D	C
B	1	C	C	D
	2	C	A, D	D
C	1	A	A, D	A
	2	B	B	A
D	1	D	A	B
	2	D	B, C	B

OSCADY Lanes

Arm	Traffic Stream	Destination arms	Gradient (%)	Width (m)	Turning radius (m)	Nearside lane	Has bay
A	1	B, C	0	3.00	10.00	✓	
	2	D	0	3.00	10.00		
B	1	C	0	3.00	10.00	✓	
	2	A, D	0	3.00	10.00		
C	1	A, D	0	3.00	10.00	✓	
	2	B	0	3.00	10.00		
D	1	A	0	3.00	10.00	✓	
	2	B, C	0	3.00	10.00		

Signal Timings

Junction 1

Junction	Sequence to use	Cycle time (s)	Maximum cycle time (s)	Start displacement (s)	End displacement (s)
1	1	113	300	1.40	2.90

Optimisation options

Junction	Optimise stage lengths	Optimise cycle time	Optimiser demand source	Optimiser message
1	✓	✓	Average	Timings provide delay minimisation.

Phases

Junction	Phase	Name	Minimum green (s)
1	A		7
	B		7
	C		7
	D		7

Library Stages

Junction	Library Stage	Phases in stage	User stage minimum (s)	Run every N cycles	Probability of running (%)
1	1	A	1		
	2	B	1		
	3	C	1		
	4	D	1		

Stage Sequences

Junction	Sequence	Name	Stage IDs	Stage ends
1	1		1, 2, 3, 4	77, 89, 101, 0

Intergreen Matrix for Junction 1

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

Interstage Matrix for Junction 1

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

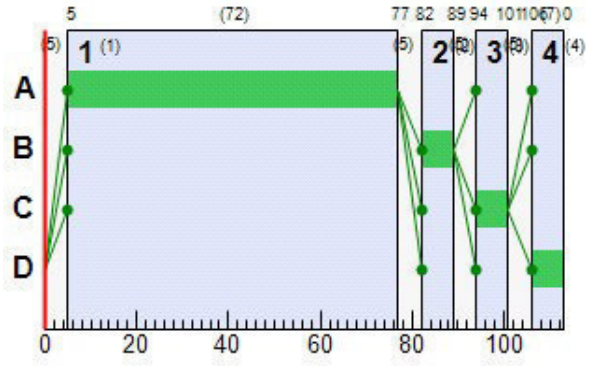
Resultant Stages

Junction	Resultant Stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	1	A	5	77	72	1	7
	2	2	B	82	89	7	1	7
	3	3	C	94	101	7	1	7
	4	4	D	106	0	7	1	7

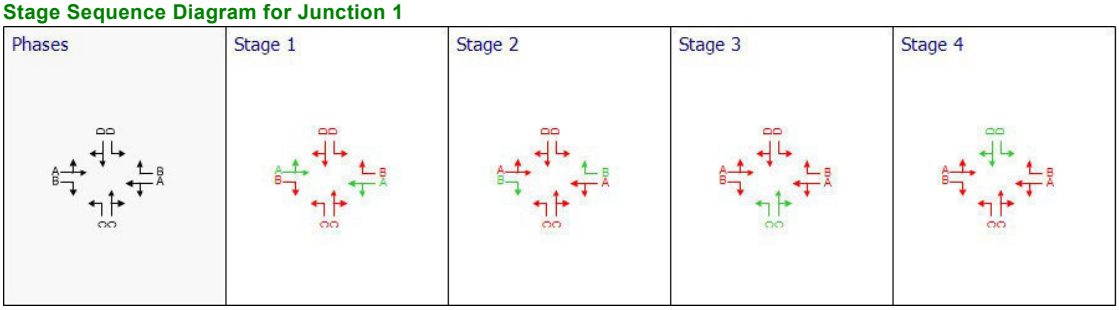
Resultant Phase Green Periods

Junction	Phase	Green period	Start time (s)	End time (s)	Duration (s)
1	A	1	5	77	72
	B	1	82	89	7
	C	1	94	101	7
	D	1	106	0	7

Phase Timings Diagram for Junction 1



Stage Sequence Diagram for Junction 1



Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2022 - Greenhills - Hibernian Existing Traffic Flows 2022	AM	ONE HOUR	08:30	10:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	563	100.000
B		✓	38	100.000
C		✓	509	100.000
D		✓	44	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	40	445	78
	B	16	0	22	0
	C	425	34	0	50
	D	27	0	17	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.64	20.33	9.2	?	C
B	0.19	52.35	1.3	?	D
C	0.43	13.85	7.1	?	B
D	0.24	53.35	1.5	?	D

2022 - Greenhills - Hibernian Existing Traffic Flows 2022, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		24.06	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-43	Arm D - Traffic Stream 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2022 - Greenhills - Hibernian Existing Traffic Flows 2022	PM	ONE HOUR	16:00	17:30	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	525	100.000
B		✓	126	100.000
C		✓	379	100.000
D		✓	132	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	27	449	49
	B	54	0	71	1
	C	324	25	0	30
	D	82	1	49	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	10	10	10	10
	B	10	10	10	10
	C	10	10	10	10
	D	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.64	21.13	8.3	?	C
B	0.46	39.30	3.2	?	D
C	0.48	16.96	5.6	?	B
D	0.53	41.56	3.4	?	D

2023 - Greenhills - Hibernian 2023 Without Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		20.03	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-100	Arm A - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2023 - Greenhills - Hibernian 2023 Without Development	AM	ONE HOUR	08:30	10:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	591	100.000
B		✓	40	100.000
C		✓	536	100.000
D		✓	46	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	42	467	82
	B	17	0	23	0
	C	447	36	0	53
	D	28	0	18	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.61	20.15	9.7	?	C
B	0.20	53.16	1.3	?	D
C	0.45	14.49	7.6	?	B
D	0.25	54.20	1.5	?	D

2028 - Greenhills - Hibernian 2028 Without Development , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		21.59	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-100	Arm A - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2028 - Greenhills - Hibernian 2028 Without Development	AM	ONE HOUR	08:30	10:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	632	100.000
B		✓	42	100.000
C		✓	571	100.000
D		✓	51	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	45	497	90
	B	18	0	24	0
	C	475	38	0	58
	D	31	0	20	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.73	23.17	10.8	?	C
B	0.21	52.24	1.4	?	D
C	0.48	14.71	8.0	?	B
D	0.27	53.72	1.7	?	D

2038 - Greenhills - Hibernian 2038 Without Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		23.07	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-100	Arm A - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2038 - Greenhills - Hibernian 2038 Without Development	AM	ONE HOUR	08:30	10:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	699	100.000
B		✓	47	100.000
C		✓	631	100.000
D		✓	54	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	50	552	97
	B	20	0	27	0
	C	527	42	0	62
	D	33	0	21	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.79	25.40	12.2	?	C
B	0.24	52.91	1.6	?	D
C	0.53	15.60	8.9	?	B
D	0.29	54.20	1.8	?	D

2023 - Greenhills - Hibernian 2023 Without Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		24.93	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-46	Arm D - Traffic Stream 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2023 - Greenhills - Hibernian 2023 Without Development	PM	ONE HOUR	16:00	17:30	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	552	100.000
B		✓	132	100.000
C		✓	398	100.000
D		✓	140	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	28	472	52
	B	56	0	75	1
	C	341	26	0	31
	D	87	1	52	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	10	10	10	10
	B	10	10	10	10
	C	10	10	10	10
	D	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.67	22.15	8.8	?	C
B	0.48	40.18	3.4	?	D
C	0.50	17.38	5.9	?	B
D	0.56	43.00	3.7	?	D

2028 - Greenhills - Hibernian 2028 Without Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		26.02	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-53	Arm D - Traffic Stream 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2028 - Greenhills - Hibernian 2028 Without Development	PM	ONE HOUR	16:00	17:30	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	586	100.000
B		✓	140	100.000
C		✓	423	100.000
D		✓	148	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	30	501	55
	B	60	0	79	1
	C	362	28	0	33
	D	92	1	55	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	10	10	10	10
	B	10	10	10	10
	C	10	10	10	10
	D	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.71	23.18	9.5	?	C
B	0.51	42.16	3.7	?	D
C	0.53	17.73	6.3	?	B
D	0.60	45.74	4.0	?	D

2038 - Greenhills - Hibernian 2038 Without Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		28.67	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-79	Arm D - Traffic Stream 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	2038 - Greenhills - Hibernian 2038 Without Development	PM	ONE HOUR	16:00	17:30	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	651	100.000
B		✓	155	100.000
C		✓	470	100.000
D		✓	164	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	33	557	61
	B	66	0	88	1
	C	402	31	0	37
	D	102	1	61	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	10	10	10	10
	B	10	10	10	10
	C	10	10	10	10
	D	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.73	23.62	10.8	?	C
B	0.62	51.62	4.7	?	D
C	0.54	17.48	7.1	?	B
D	0.72	59.07	5.3	?	E

Junctions 9

OSCADY 9 - Signalised Intersection Module

Version: 9.5.1.7462

For sales and distribution information, program advice and maintenance, contact TRL:
+44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk

Filename: 2022 to 2038 Greenhills - Airton Without Development.j9
Path: P:\Jod-jobs\6196 Greenhills Tallaght\400 Planning\403 Planning Application\1 Submissions\Greenhills Road\2022 Development - Greenhills Road\2022 Updated TTA
Report generation date: 04/05/2022 09:42:17

Summary of junction performance

	AM									PM								
	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
2022 - Greenhills - Airton Existing Traffic Flows 2022																		
Arm A	D1	6.3	?	22.75	0.78	C	20.92	C	2 % [Arm C - Traffic Stream 2]	D2	4.1	?	22.55	0.69	C	16.87	B	22 % [Arm A - Traffic Stream 1]
Arm B		3.4	?	24.59	0.54	C					2.9	?	19.57	0.45	B			
Arm C		4.9	?	17.07	0.71	B					4.6	?	12.28	0.62	B			
2023 - Greenhills - Airton 2023 Without Development																		
Arm A	D3	6.2	?	21.85	0.77	C	21.37	C	-3 % [Arm C - Traffic Stream 2]	D4	3.8	?	19.67	0.65	B	16.71	B	25 % [Arm C - Traffic Stream 2]
Arm B		3.6	?	25.91	0.56	C					3.3	?	22.91	0.52	C			
Arm C		5.2	?	18.55	0.74	B					4.6	?	12.19	0.63	B			
2028 - Greenhills - Airton 2028 without Development																		
Arm A	D5	7.8	?	27.63	0.84	C	24.94	C	-5 % [Arm C - Traffic Stream 2]	D6	4.9	?	25.77	0.74	C	19.66	B	6 % [Arm C - Traffic Stream 2]
Arm B		4.4	?	30.22	0.64	C					3.4	?	20.01	0.47	C			
Arm C		5.9	?	19.34	0.77	B					5.9	?	15.85	0.73	B			
2038 - Greenhills - Airton 2038 Without Development																		
Arm A	D7	10.6	?	37.37	0.90	D	32.24	C	-16 % [Arm B - Traffic Stream 1]	D8	5.4	?	25.16	0.75	C	21.61	C	1 % [Arm C - Traffic Stream 2]
Arm B		5.8	?	39.58	0.76	D					4.5	?	27.09	0.61	C			
Arm C		7.2	?	22.94	0.83	C					6.8	?	17.07	0.77	B			

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. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

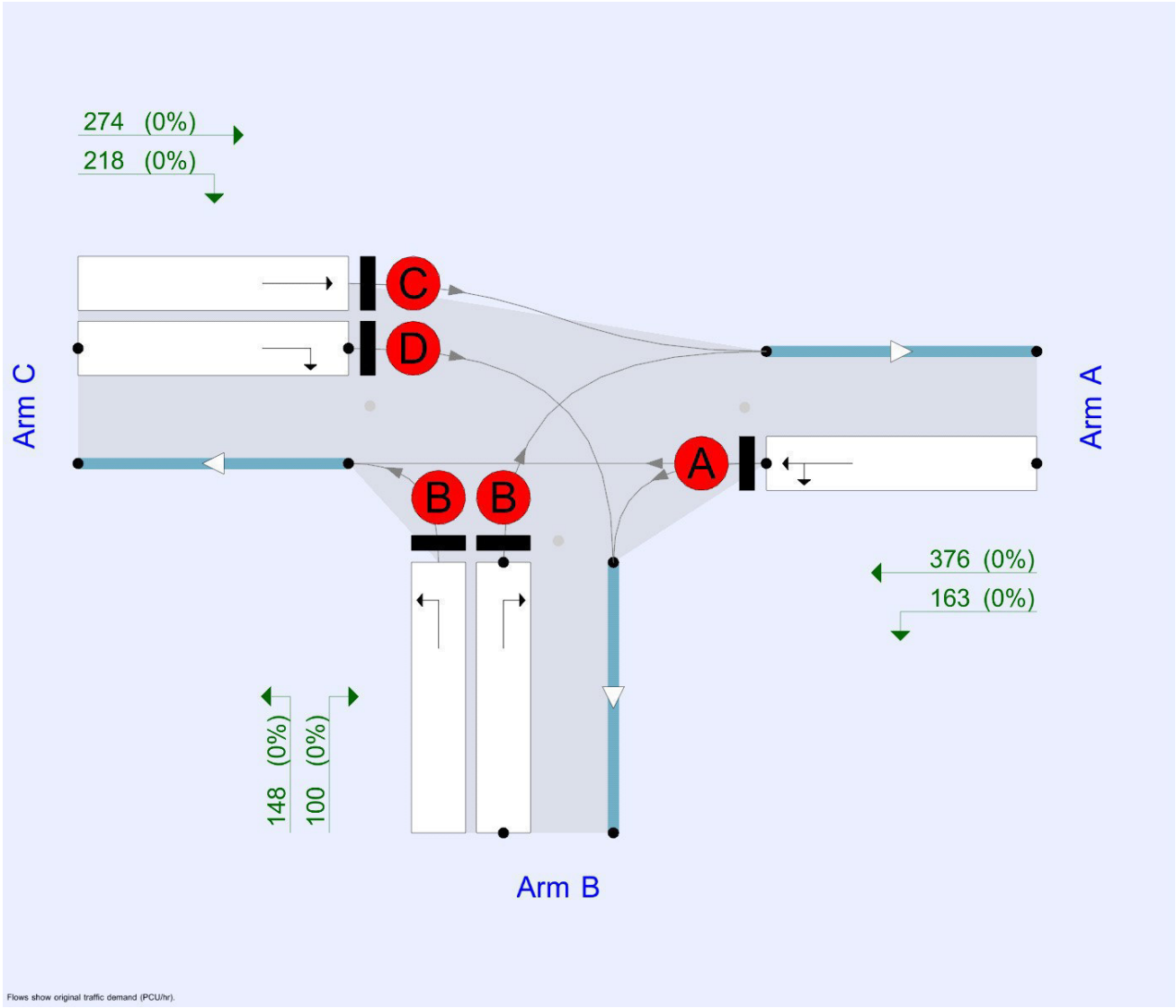
File summary

File Description

Title	
Location	
Site number	
Date	19/04/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	JODIRELAND\jdoogan
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	-Hour	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	DOS Threshold	Average Delay threshold (s)	Queue threshold (PCU)
✓	✓	Delay	0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2022 - Greenhills - Airton Existing Traffic Flows 2022	AM	ONE HOUR	08:30	10:00	15
D2	2022 - Greenhills - Airton Existing Traffic Flows 2022	PM	ONE HOUR	16:00	17:30	15
D3	2023 - Greenhills - Airton 2023 Without Development	AM	ONE HOUR	08:30	10:00	15
D4	2023 - Greenhills - Airton 2023 Without Development	PM	ONE HOUR	16:00	17:30	15
D5	2028 - Greenhills - Airton 2028 without Development	AM	ONE HOUR	08:30	10:00	15
D6	2028 - Greenhills - Airton 2028 without Development	PM	ONE HOUR	16:00	17:30	15
D7	2038 - Greenhills - Airton 2038 Without Development	AM	ONE HOUR	08:30	10:00	15
D8	2038 - Greenhills - Airton 2038 Without Development	PM	ONE HOUR	16:00	17:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2022 - Greenhills - Airton Existing Traffic Flows 2022, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		20.92	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	2	Arm C - Traffic Stream 2

Arms

Arms

Arm	Name	Description
A	Greenhills Road South	
B	Airton Road	
C	Greenhills Road North	

OSCADY Traffic Streams

Arm	Traffic Stream	Phase	Destination arms	Straight move
A	1	A	B, C	C
B	1	B	C	
	2	B	A	
C	1	C	A	A
	2	D	B	A

OSCADY Lanes

Arm	Traffic Stream	Destination arms	Gradient (%)	Width (m)	Turning radius (m)	Nearside lane	Has bay
A	1	B, C	0	3.00	10.00	✓	
B	1	C	0	3.00	10.00	✓	
	2	A	0	3.00	10.00	✓	
C	1	A	0	3.00		✓	
	2	B	0	3.00	10.00	✓	

Signal Timings

Junction 1

Junction	Sequence to use	Cycle time (s)	Maximum cycle time (s)	Start displacement (s)	End displacement (s)
1	1	48	300	1.40	2.90

Optimisation options

Junction	Optimise stage lengths	Optimise cycle time	Optimiser demand source	Optimiser message
1	✓	✓	Average	Timings provide delay minimisation.

Phases

Junction	Phase	Name	Minimum green (s)
1	A		7
	B		7
	C		7
	D		7

Library Stages

Junction	Library Stage	Phases in stage	User stage minimum (s)	Run every N cycles	Probability of running (%)
1	1	A, C	1		
	2	C, D	1		
	3	B	1		

Stage Sequences

Junction	Sequence	Name	Stage IDs	Stage ends
1	1		1, 2, 3	23, 36, 0

Intergreen Matrix for Junction 1

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

Interstage Matrix for Junction 1

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

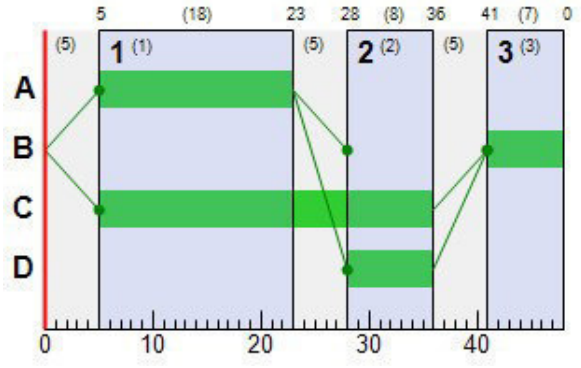
Resultant Stages

Junction	Resultant Stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	1	A,C	5	23	18	1	7
	2	2	C,D	28	36	8	1	7
	3	3	B	41	0	7	1	7

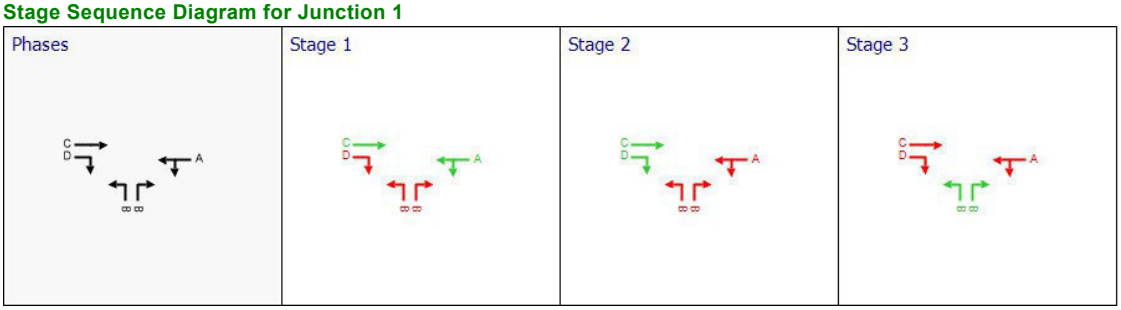
Resultant Phase Green Periods

Junction	Phase	Green period	Start time (s)	End time (s)	Duration (s)
1	A	1	5	23	18
	B	1	41	0	7
	C	1	5	36	31
	D	1	28	36	8

Phase Timings Diagram for Junction 1



Stage Sequence Diagram for Junction 1



Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2022 - Greenhills - Airton Existing Traffic Flows 2022	AM	ONE HOUR	08:30	10:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	529	100.000
B		✓	243	100.000
C		✓	483	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	160	369
	B	98	0	145
	C	269	214	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.78	22.75	6.3	?	C
B	0.54	24.59	3.4	?	C
C	0.71	17.07	4.9	?	B

2022 - Greenhills - Airton Existing Traffic Flows 2022, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		16.87	B

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	22	Arm A - Traffic Stream 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2022 - Greenhills - Airton Existing Traffic Flows 2022	PM	ONE HOUR	16:00	17:30	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	341	100.000
B		✓	250	100.000
C		✓	570	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	99	242
	B	113	0	137
	C	334	236	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.69	22.55	4.1	?	C
B	0.45	19.57	2.9	?	B
C	0.62	12.28	4.6	?	B

2023 - Greenhills - Airton 2023 Without Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		21.37	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-3	Arm C - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2023 - Greenhills - Airton 2023 Without Development	AM	ONE HOUR	08:30	10:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	539	100.000
B		✓	248	100.000
C		✓	492	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	163	376
	B	100	0	148
	C	274	218	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.77	21.85	6.2	?	C
B	0.56	25.91	3.6	?	C
C	0.74	18.55	5.2	?	B

2023 - Greenhills - Airton 2023 Without Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Signals Warning	Signal Timings	Signals	Junction 1: Stage 3 minimum green of 7s violated. (This will be repaired automatically if doing an optimised run.)
Signals Warning	Signal Timings	Signals	Junction 1: Phase B minimum green of 7s violated (This will be repaired automatically if doing an optimised run.)
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		16.71	B

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	25	Arm C - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2023 - Greenhills - Airton 2023 Without Development	PM	ONE HOUR	16:00	17:30	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	348	100.000
B		✓	256	100.000
C		✓	580	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	101	247
	B	116	0	140
	C	340	240	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.65	19.67	3.8	?	B
B	0.52	22.91	3.3	?	C
C	0.63	12.19	4.6	?	B

2028 - Greenhills - Airton 2028 without Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		24.94	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-5	Arm C - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2028 - Greenhills - Airton 2028 without Development	AM	ONE HOUR	08:30	10:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	590	100.000
B		✓	271	100.000
C		✓	539	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	178	412
	B	109	0	162
	C	300	239	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.84	27.63	7.8	?	C
B	0.64	30.22	4.4	?	C
C	0.77	19.34	5.9	?	B

2028 - Greenhills - Airton 2028 without Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		19.66	B

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	6	Arm C - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2028 - Greenhills - Airton 2028 without Development	PM	ONE HOUR	16:00	17:30	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	380	100.000
B		✓	280	100.000
C		✓	636	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	110	270
	B	127	0	153
	C	373	263	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.74	25.77	4.9	?	C
B	0.47	20.01	3.4	?	C
C	0.73	15.85	5.9	?	B

2038 - Greenhills - Airton 2038 Without Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		32.24	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-16	Arm B - Traffic Stream 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2038 - Greenhills - Airton 2038 Without Development	AM	ONE HOUR	08:30	10:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	655	100.000
B		✓	301	100.000
C		✓	599	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	198	457
	B	121	0	180
	C	333	266	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.90	37.37	10.6	?	D
B	0.76	39.58	5.8	?	D
C	0.83	22.94	7.2	?	C

2038 - Greenhills - Airton 2038 Without Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		21.61	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	1	Arm C - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	2038 - Greenhills - Airton 2038 Without Development	PM	ONE HOUR	16:00	17:30	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	423	100.000
B		✓	310	100.000
C		✓	706	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	123	300
	B	140	0	170
	C	414	292	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.75	25.16	5.4	?	C
B	0.61	27.09	4.5	?	C
C	0.77	17.07	6.8	?	B

Appendix B

Traffic Analysis – Future Traffic Flows with Development in Place

Junctions 9

OSCADY 9 - Signalised Intersection Module

Version: 9.5.1.7462

Filename: 2022 to 2038 Greenhills - Hibernian With Development.j9
Path: P:\Jod-jobs\6196 Greenhills Tallaght\400 Planning\403 Planning Application\1 Submissions\Greenhills Road\2022 Development - Greenhills Road\2022 Updated TTA
Report generation date: 04/05/2022 09:50:50

Summary of junction performance

	AM									PM								
	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
2023 - Greenhills - Hibernian 2023 With Development																		
Arm A	D3	9.2	?	20.66	0.58	C	22.15	C	-82 % [Arm A - Traffic Stream 2]	D6	9.8	?	23.65	0.72	C	28.89	C	-64 % [Arm B - Traffic Stream 1]
Arm B		2.8	?	42.63	0.38	D					5.9	?	56.47	0.72	E			
Arm C		8.0	?	18.52	0.55	B					6.7	?	18.68	0.49	B			
Arm D		1.1	?	37.36	0.19	D					3.8	?	45.06	0.57	D			
2028 - Greenhills - Hibernian 2028 With Development																		
Arm A	D4	10.0	?	21.83	0.61	C	22.96	C	-89 % [Arm A - Traffic Stream 2]	D7	10.6	?	25.58	0.76	C	30.44	C	-65 % [Arm B - Traffic Stream 1]
Arm B		2.9	?	43.58	0.39	D					6.3	?	59.42	0.75	E			
Arm C		8.6	?	19.03	0.58	B					7.1	?	19.17	0.52	B			
Arm D		1.3	?	38.31	0.21	D					4.1	?	46.87	0.61	D			
2038 - Greenhills - Hibernian 2038 With Development																		
Arm A	D5	11.8	?	23.51	0.70	C	24.72	C	-100 % [Arm A - Traffic Stream 2]	D8	12.6	?	29.52	0.82	C	33.72	C	-75 % [Arm D - Traffic Stream 1]
Arm B		3.7	?	55.42	0.48	E					7.0	?	60.60	0.76	E			
Arm C		9.7	?	18.74	0.57	B					8.1	?	20.33	0.56	C			
Arm D		1.6	?	46.86	0.26	D					5.2	?	57.43	0.71	E			

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. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

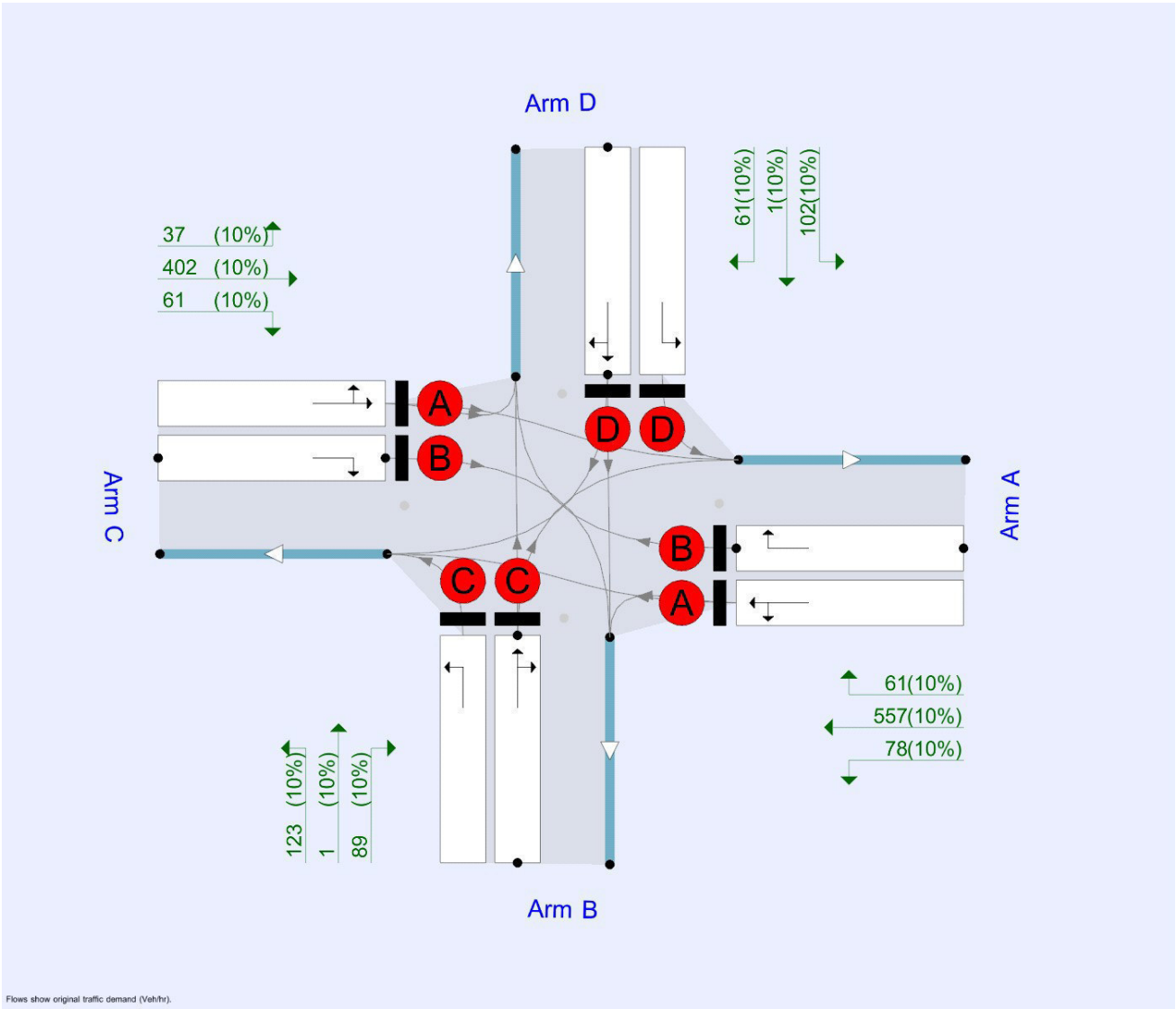
File summary

File Description

Title	Greenhi8lls Road - Harvey Norman - Hibernian
Location	Tallaght
Site number	
Date	23/04/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	JODIRELAND\jdoogan
Description	

Units

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



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	DOS Threshold	Average Delay threshold (s)	Queue threshold (PCU)
✓	✓	Delay	0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2023 - Greenhills - Hibernian 2023 With Development	AM	ONE HOUR	08:30	10:00	15
D4	2028 - Greenhills - Hibernian 2028 With Development	AM	ONE HOUR	08:30	10:00	15
D5	2038 - Greenhills - Hibernian 2038 With Development	AM	ONE HOUR	08:30	10:00	15
D6	2023 - Greenhills - Hibernian 2023 With Development	PM	ONE HOUR	16:00	17:30	15
D7	2028 - Greenhills - Hibernian 2028 With Development	PM	ONE HOUR	16:00	17:30	15
D8	2038 - Greenhills - Hibernian 2038 With Development	PM	ONE HOUR	16:00	17:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2023 - Greenhills - Hibernian 2023 With Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		22.15	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-82	Arm A - Traffic Stream 2

Arms

Arms

Arm	Name	Description
A	Greenhills Road North	
B	Hibernian Estate Road	
C	Greenhills Road South	
D	harvey Norman access road	

OSCADY Traffic Streams

Arm	Traffic Stream	Phase	Destination arms	Straight move
A	1	A	B, C	C
	2	B	D	C
B	1	C	C	D
	2	C	A, D	D
C	1	A	A, D	A
	2	B	B	A
D	1	D	A	B
	2	D	B, C	B

OSCADY Lanes

Arm	Traffic Stream	Destination arms	Gradient (%)	Width (m)	Turning radius (m)	Nearside lane	Has bay
A	1	B, C	0	3.00	10.00	✓	
	2	D	0	3.00	10.00		
B	1	C	0	3.00	10.00	✓	
	2	A, D	0	3.00	10.00		
C	1	A, D	0	3.00	10.00	✓	
	2	B	0	3.00	10.00		
D	1	A	0	3.00	10.00	✓	
	2	B, C	0	3.00	10.00		

Signal Timings

Junction 1

Junction	Sequence to use	Cycle time (s)	Maximum cycle time (s)	Start displacement (s)	End displacement (s)
1	1	85	300	1.40	2.90

Optimisation options

Junction	Optimise stage lengths	Optimise cycle time	Optimiser demand source	Optimiser message
1	✓	✓	Average	Timings provide delay minimisation.

Phases

Junction	Phase	Name	Minimum green (s)
1	A		7
	B		7
	C		7
	D		7

Library Stages

Junction	Library Stage	Phases in stage	User stage minimum (s)	Run every N cycles	Probability of running (%)
1	1	A	1		
	2	B	1		
	3	C	1		
	4	D	1		

Stage Sequences

Junction	Sequence	Name	Stage IDs	Stage ends
1	1		1, 2, 3, 4	49, 61, 73, 0

Intergreen Matrix for Junction 1

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

Interstage Matrix for Junction 1

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

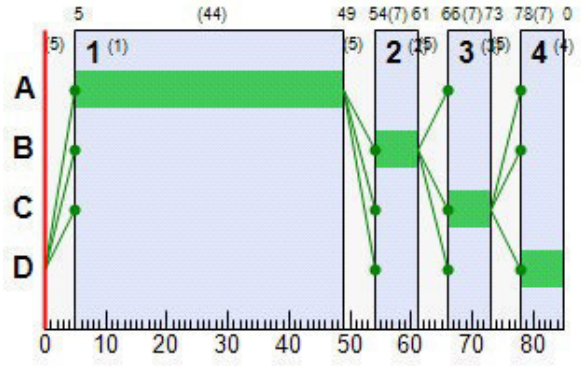
Resultant Stages

Junction	Resultant Stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	1	A	5	49	44	1	7
	2	2	B	54	61	7	1	7
	3	3	C	66	73	7	1	7
	4	4	D	78	0	7	1	7

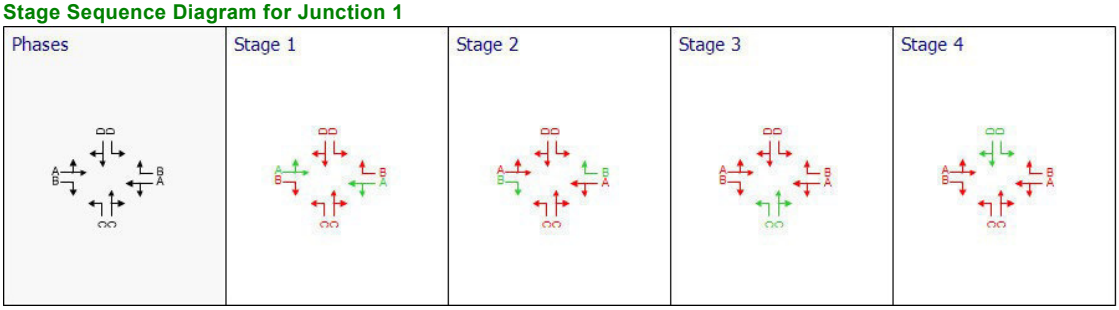
Resultant Phase Green Periods

Junction	Phase	Green period	Start time (s)	End time (s)	Duration (s)
1	A	1	5	49	44
	B	1	54	61	7
	C	1	66	73	7
	D	1	78	0	7

Phase Timings Diagram for Junction 1



Stage Sequence Diagram for Junction 1



Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2023 - Greenhills - Hibernian 2023 With Development	AM	ONE HOUR	08:30	10:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	616	100.000
B		✓	110	100.000
C		✓	561	100.000
D		✓	46	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	67	467	82
	B	52	0	58	0
	C	447	61	0	53
	D	28	0	18	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.58	20.66	9.2	?	C
B	0.38	42.63	2.8	?	D
C	0.55	18.52	8.0	?	B
D	0.19	37.36	1.1	?	D

2028 - Greenhills - Hibernian 2028 With Development , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		22.96	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-89	Arm A - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2028 - Greenhills - Hibernian 2028 With Development	AM	ONE HOUR	08:30	10:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	657	100.000
B		✓	112	100.000
C		✓	596	100.000
D		✓	51	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	70	497	90
	B	53	0	59	0
	C	475	63	0	58
	D	31	0	20	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.61	21.83	10.0	?	C
B	0.39	43.58	2.9	?	D
C	0.58	19.03	8.6	?	B
D	0.21	38.31	1.3	?	D

2038 - Greenhills - Hibernian 2038 With Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		24.72	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-100	Arm A - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2038 - Greenhills - Hibernian 2038 With Development	AM	ONE HOUR	08:30	10:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	724	100.000
B		✓	117	100.000
C		✓	656	100.000
D		✓	54	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	75	552	97
	B	55	0	62	0
	C	527	67	0	62
	D	33	0	21	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.70	23.51	11.8	?	C
B	0.48	55.42	3.7	?	E
C	0.57	18.74	9.7	?	B
D	0.26	46.86	1.6	?	D

2023 - Greenhills - Hibernian 2023 With Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		28.89	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-64	Arm B - Traffic Stream 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2023 - Greenhills - Hibernian 2023 With Development	PM	ONE HOUR	16:00	17:30	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	597	100.000
B		✓	190	100.000
C		✓	428	100.000
D		✓	140	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	73	472	52
	B	79	0	110	1
	C	341	56	0	31
	D	87	1	52	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	10	10	10	10
	B	10	10	10	10
	C	10	10	10	10
	D	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.72	23.65	9.8	?	C
B	0.72	56.47	5.9	?	E
C	0.49	18.68	6.7	?	B
D	0.57	45.06	3.8	?	D

2028 - Greenhills - Hibernian 2028 With Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		30.44	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-65	Arm B - Traffic Stream 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2028 - Greenhills - Hibernian 2028 With Development	PM	ONE HOUR	16:00	17:30	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	631	100.000
B		✓	198	100.000
C		✓	453	100.000
D		✓	148	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	75	501	55
	B	83	0	114	1
	C	362	58	0	33
	D	92	1	55	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	10	10	10	10
	B	10	10	10	10
	C	10	10	10	10
	D	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.76	25.58	10.6	?	C
B	0.75	59.42	6.3	?	E
C	0.52	19.17	7.1	?	B
D	0.61	46.87	4.1	?	D

2038 - Greenhills - Hibernian 2038 With Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		33.72	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-75	Arm D - Traffic Stream 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	2038 - Greenhills - Hibernian 2038 With Development	PM	ONE HOUR	16:00	17:30	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	696	100.000
B		✓	213	100.000
C		✓	500	100.000
D		✓	164	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	78	557	61
	B	89	0	123	1
	C	402	61	0	37
	D	102	1	61	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	10	10	10	10
	B	10	10	10	10
	C	10	10	10	10
	D	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.82	29.52	12.6	?	C
B	0.76	60.60	7.0	?	E
C	0.56	20.33	8.1	?	C
D	0.71	57.43	5.2	?	E

Junctions 9

OSCADY 9 - Signalised Intersection Module

Version: 9.5.1.7462

For sales and distribution information, program advice and maintenance, contact TRL:
+44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk

Filename: 2022 to 2038 Greenhills - Airton With Development.j9
Path: P:\Jod-jobs\6196 Greenhills Tallaght\400 Planning\403 Planning Application\1 Submissions\Greenhills Road\2022 Development - Greenhills Road\2022 Updated TTA
Report generation date: 04/05/2022 09:52:42

Summary of junction performance

	AM									PM								
	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
2023 - Greenhills - Airton 2023 With Development																		
Arm A	D3	7.1	?	25.41	0.81	C	22.70	C	1 % [Arm C - Traffic Stream 2]	D4	4.4	?	22.69	0.70	C	17.99	B	15 % [Arm C - Traffic Stream 2]
Arm B		3.9	?	27.94	0.61	C					3.3	?	21.22	0.50	C			
Arm C		5.4	?	17.29	0.73	B					5.3	?	13.78	0.68	B			
2028 - Greenhills - Airton 2028 with Development																		
Arm A	D5	8.0	?	27.30	0.84	C	26.90	C	-13 % [Arm C - Traffic Stream 2]	D6	5.1	?	25.20	0.74	C	19.78	B	11 % [Arm C - Traffic Stream 2]
Arm B		4.8	?	33.10	0.69	C					3.9	?	24.58	0.57	C			
Arm C		7.0	?	23.46	0.83	C					5.9	?	14.47	0.71	B			
2038 - Greenhills - Airton 2038 With Development																		
Arm A	D7	10.8	?	37.06	0.91	D	35.50	D	-22 % [Arm B - Traffic Stream 1]	D8	6.4	?	30.30	0.81	C	23.04	C	4 % [Arm C - Traffic Stream 2]
Arm B		6.5	?	45.20	0.80	D					4.9	?	29.59	0.65	C			
Arm C		8.9	?	29.11	0.89	C					6.9	?	15.86	0.76	B			

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. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

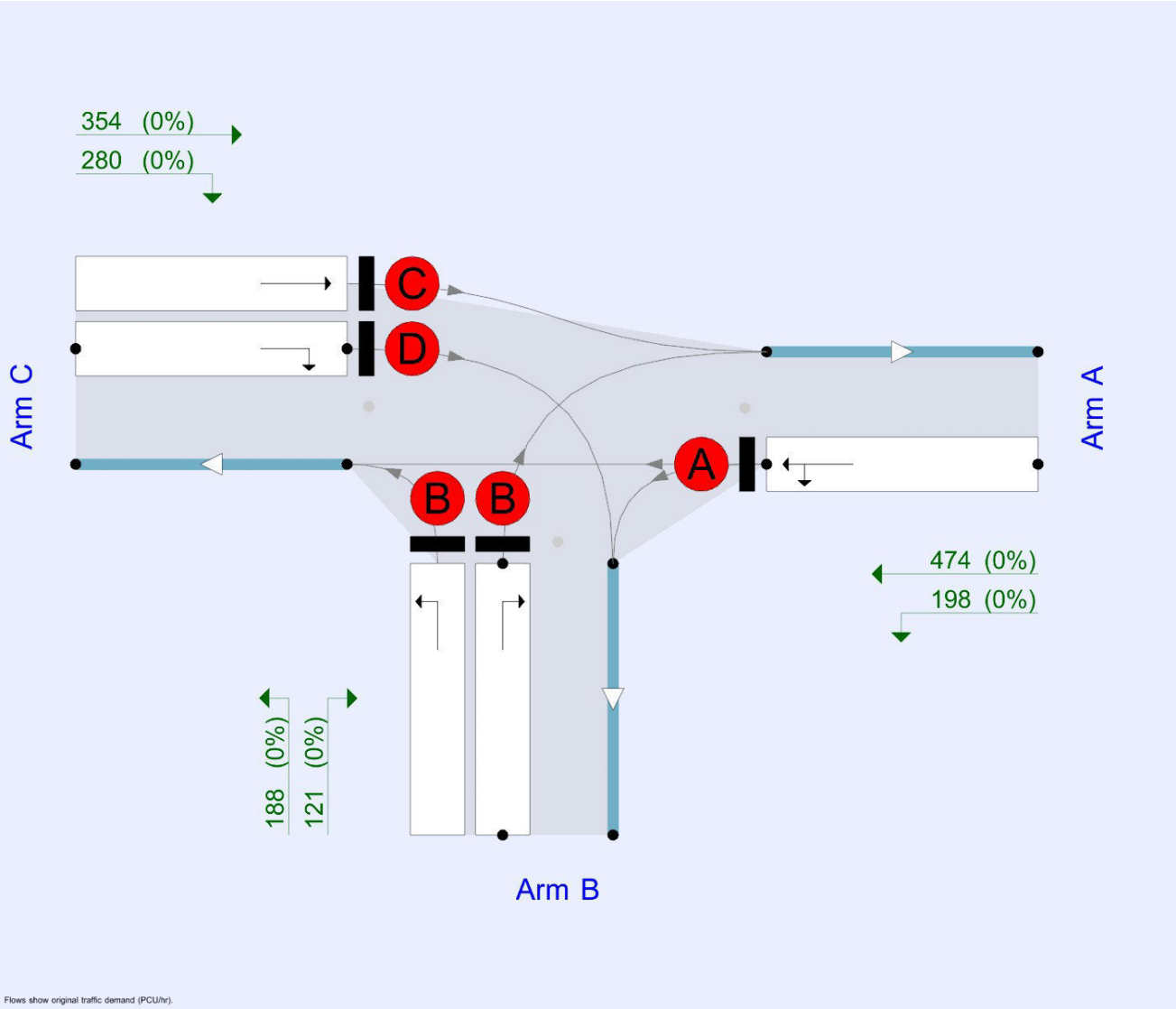
File summary

File Description

Title	
Location	
Site number	
Date	19/04/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	JODIRELAND\jdoogan
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	-Hour	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

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✓	✓	Delay	0.85	36.00	20.00

Demand Set Summary

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D5	2028 - Greenhills - Airton 2028 with Development	AM	ONE HOUR	08:30	10:00	15
D6	2028 - Greenhills - Airton 2028 with Development	PM	ONE HOUR	16:00	17:30	15
D7	2038 - Greenhills - Airton 2038 With Development	AM	ONE HOUR	08:30	10:00	15
D8	2038 - Greenhills - Airton 2038 With Development	PM	ONE HOUR	16:00	17:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2023 - Greenhills - Airton 2023 With Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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.
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Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		22.70	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	1	Arm C - Traffic Stream 2

Arms

Arms

Arm	Name	Description
A	Greenhills Road South	
B	Airton Road	
C	Greenhills Road North	

OSCADY Traffic Streams

Arm	Traffic Stream	Phase	Destination arms	Straight move
A	1	A	B, C	C
B	1	B	C	
	2	B	A	
C	1	C	A	A
	2	D	B	A

OSCADY Lanes

Arm	Traffic Stream	Destination arms	Gradient (%)	Width (m)	Turning radius (m)	Nearside lane	Has bay
A	1	B, C	0	3.00	10.00	✓	
B	1	C	0	3.00	10.00	✓	
	2	A	0	3.00	10.00	✓	
C	1	A	0	3.00		✓	
	2	B	0	3.00	10.00	✓	

Signal Timings

Junction 1

Junction	Sequence to use	Cycle time (s)	Maximum cycle time (s)	Start displacement (s)	End displacement (s)
1	1	50	300	1.40	2.90

Optimisation options

Junction	Optimise stage lengths	Optimise cycle time	Optimiser demand source	Optimiser message
1	✓	✓	Average	Timings provide delay minimisation.

Phases

Junction	Phase	Name	Minimum green (s)
1	A		7
	B		7
	C		7
	D		7

Library Stages

Junction	Library Stage	Phases in stage	User stage minimum (s)	Run every N cycles	Probability of running (%)
1	1	A, C	1		
	2	C, D	1		
	3	B	1		

Stage Sequences

Junction	Sequence	Name	Stage IDs	Stage ends
1	1		1, 2, 3	24, 38, 0

Intergreen Matrix for Junction 1

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

Interstage Matrix for Junction 1

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

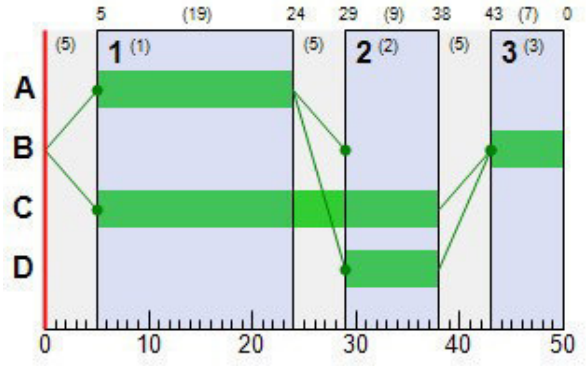
Resultant Stages

Junction	Resultant Stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	1	A,C	5	24	19	1	7
	2	2	C,D	29	38	9	1	7
	3	3	B	43	0	7	1	7

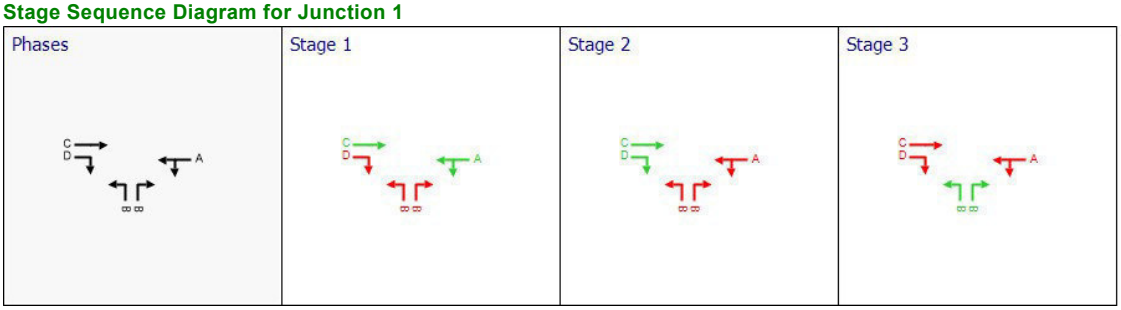
Resultant Phase Green Periods

Junction	Phase	Green period	Start time (s)	End time (s)	Duration (s)
1	A	1	5	24	19
	B	1	43	0	7
	C	1	5	38	33
	D	1	29	38	9

Phase Timings Diagram for Junction 1



Stage Sequence Diagram for Junction 1



Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2023 - Greenhills - Airton 2023 With Development	AM	ONE HOUR	08:30	10:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	556	100.000
B		✓	256	100.000
C		✓	527	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	163	393
	B	100	0	156
	C	295	232	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.81	25.41	7.1	?	C
B	0.61	27.94	3.9	?	C
C	0.73	17.29	5.4	?	B

2023 - Greenhills - Airton 2023 With Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		17.99	B

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	15	Arm C - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2023 - Greenhills - Airton 2023 With Development	PM	ONE HOUR	16:00	17:30	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	369	100.000
B		✓	265	100.000
C		✓	615	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	101	268
	B	116	0	149
	C	363	252	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.70	22.69	4.4	?	C
B	0.50	21.22	3.3	?	C
C	0.68	13.78	5.3	?	B

2028 - Greenhills - Airton 2028 with Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		26.90	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-13	Arm C - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2028 - Greenhills - Airton 2028 with Development	AM	ONE HOUR	08:30	10:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	607	100.000
B		✓	279	100.000
C		✓	574	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	178	429
	B	109	0	170
	C	321	253	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.84	27.30	8.0	?	C
B	0.69	33.10	4.8	?	C
C	0.83	23.46	7.0	?	C

2028 - Greenhills - Airton 2028 with Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		19.78	B

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	11	Arm C - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2028 - Greenhills - Airton 2028 with Development	PM	ONE HOUR	16:00	17:30	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	401	100.000
B		✓	289	100.000
C		✓	671	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	110	291
	B	127	0	162
	C	396	275	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.74	25.20	5.1	?	C
B	0.57	24.58	3.9	?	C
C	0.71	14.47	5.9	?	B

2038 - Greenhills - Airton 2038 With Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		35.50	D

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-22	Arm B - Traffic Stream 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2038 - Greenhills - Airton 2038 With Development	AM	ONE HOUR	08:30	10:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	672	100.000
B		✓	309	100.000
C		✓	634	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	198	474
	B	121	0	188
	C	354	280	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.91	37.06	10.8	?	D
B	0.80	45.20	6.5	?	D
C	0.89	29.11	8.9	?	C

2038 - Greenhills - Airton 2038 With Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		23.04	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	4	Arm C - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	2038 - Greenhills - Airton 2038 With Development	PM	ONE HOUR	16:00	17:30	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	444	100.000
B		✓	319	100.000
C		✓	741	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	123	321
	B	140	0	179
	C	437	304	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.81	30.30	6.4	?	C
B	0.65	29.59	4.9	?	C
C	0.76	15.86	6.9	?	B

Appendix C

Traffic Analysis – Traffic Flows with Committed Development

Junctions 9

OSCADY 9 - Signalised Intersection Module

Version: 9.5.1.7462

For sales and distribution information, program advice and maintenance, contact TRL:
+44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk

Filename: 2022 to 2038 Greenhills - Hibernian With Combined Developments.j9
Path: P:\Jod-jobs\6196 Greenhills Tallaght\400 Planning\403 Planning Application\1 Submissions\Greenhills Road\2022 Development - Greenhills Road\2022 Updated TTA
Report generation date: 04/05/2022 09:56:33

Summary of junction performance

	AM									PM								
	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
	2023 - Greenhills - Hibernian 2023 With Development																	
Arm A	D3	9.5	?	20.61	0.58	C	22.36	C	-99 % [Arm A - Traffic Stream 2]	D6	8.6	?	22.32	0.67	C	27.68	C	-54 % [Arm B - Traffic Stream 1]
Arm B		2.9	?	44.82	0.40	D					5.5	?	51.50	0.70	D			
Arm C		8.8	?	18.87	0.58	B					7.0	?	19.54	0.54	B			
Arm D		1.2	?	39.05	0.19	D					3.6	?	42.00	0.55	D			
	2028 - Greenhills - Hibernian 2028 With Development																	
Arm A	D4	10.8	?	21.21	0.61	C	23.62	C	-100 % [Arm A - Traffic Stream 2]	D7	11.5	?	26.20	0.78	C	31.97	C	-78 % [Arm B - Traffic Stream 1]
Arm B		3.7	?	57.73	0.48	E					7.0	?	68.00	0.79	E			
Arm C		9.6	?	18.22	0.56	B					7.4	?	18.89	0.52	B			
Arm D		1.6	?	48.88	0.25	D					4.5	?	51.68	0.64	D			
	2038 - Greenhills - Hibernian 2038 With Development																	
Arm A	D5	12.5	?	24.82	0.74	C	25.90	C	-100 % [Arm A - Traffic Stream 2]	D8	14.4	?	33.73	0.86	C	35.39	D	-86 % [Arm D - Traffic Stream 1]
Arm B		3.9	?	59.78	0.51	E					6.7	?	55.18	0.72	E			
Arm C		10.8	?	19.73	0.61	B					8.6	?	21.02	0.58	C			
Arm D		1.6	?	47.89	0.24	D					5.6	?	62.54	0.73	E			

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. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

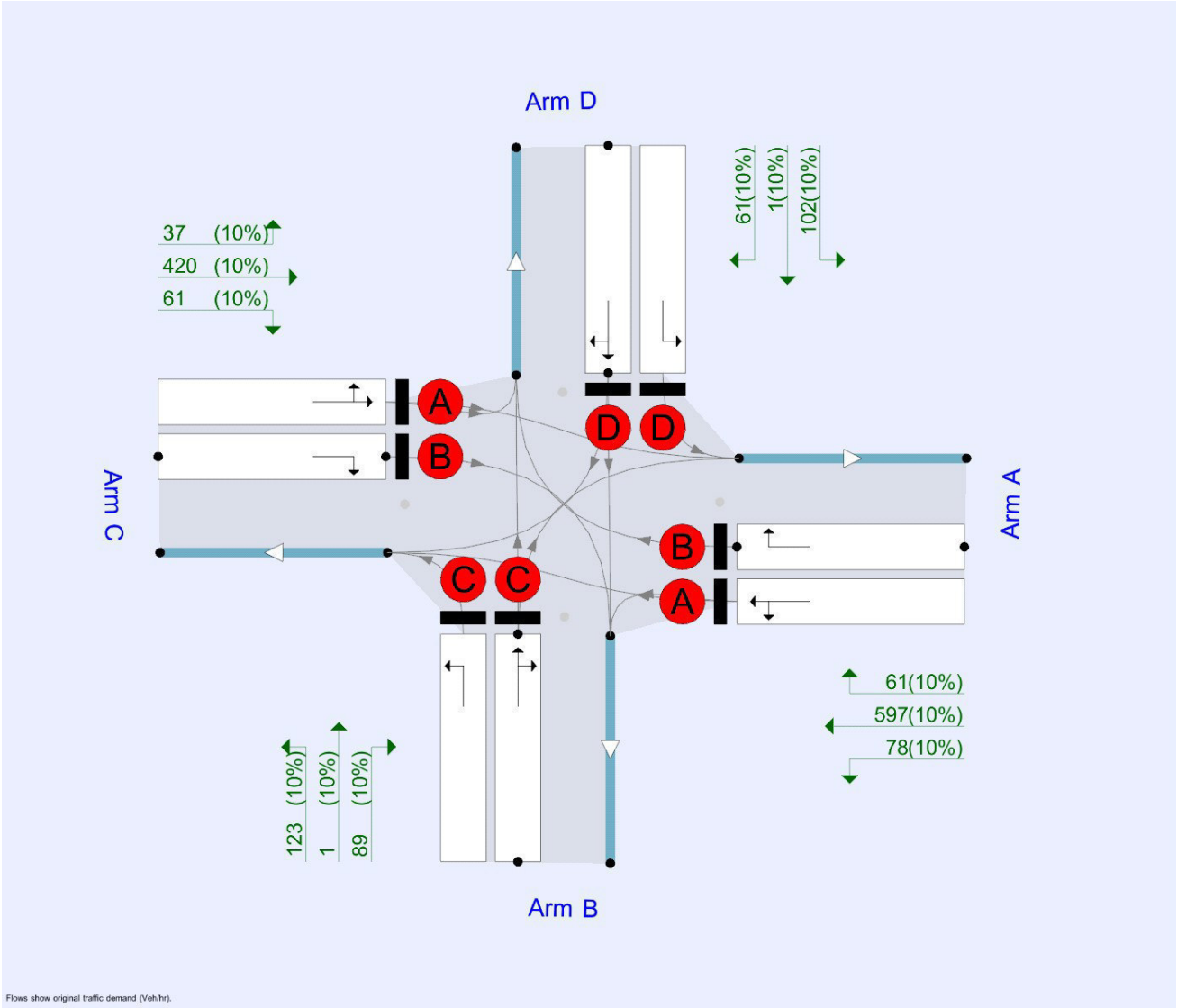
File summary

File Description

Title	Greenhi8lls Road - Harvey Norman - Hibernian
Location	Tallaght
Site number	
Date	23/04/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	JODIRELAND\jdoogan
Description	

Units

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



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	DOS Threshold	Average Delay threshold (s)	Queue threshold (PCU)
✓	✓	Delay	0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2023 - Greenhills - Hibernian 2023 With Development	AM	ONE HOUR	08:30	10:00	15
D4	2028 - Greenhills - Hibernian 2028 With Development	AM	ONE HOUR	08:30	10:00	15
D5	2038 - Greenhills - Hibernian 2038 With Development	AM	ONE HOUR	08:30	10:00	15
D6	2023 - Greenhills - Hibernian 2023 With Development	PM	ONE HOUR	16:00	17:30	15
D7	2028 - Greenhills - Hibernian 2028 With Development	PM	ONE HOUR	16:00	17:30	15
D8	2038 - Greenhills - Hibernian 2038 With Development	PM	ONE HOUR	16:00	17:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2023 - Greenhills - Hibernian 2023 With Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		22.36	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-99	Arm A - Traffic Stream 2

Arms

Arms

Arm	Name	Description
A	Greenhills Road North	
B	Hibernian Estate Road	
C	Greenhills Road South	
D	harvey Norman access road	

OSCADY Traffic Streams

Arm	Traffic Stream	Phase	Destination arms	Straight move
A	1	A	B, C	C
	2	B	D	C
B	1	C	C	D
	2	C	A, D	D
C	1	A	A, D	A
	2	B	B	A
D	1	D	A	B
	2	D	B, C	B

OSCADY Lanes

Arm	Traffic Stream	Destination arms	Gradient (%)	Width (m)	Turning radius (m)	Nearside lane	Has bay
A	1	B, C	0	3.00	10.00	✓	
	2	D	0	3.00	10.00		
B	1	C	0	3.00	10.00	✓	
	2	A, D	0	3.00	10.00		
C	1	A, D	0	3.00	10.00	✓	
	2	B	0	3.00	10.00		
D	1	A	0	3.00	10.00	✓	
	2	B, C	0	3.00	10.00		

Signal Timings

Junction 1

Junction	Sequence to use	Cycle time (s)	Maximum cycle time (s)	Start displacement (s)	End displacement (s)
1	1	88	300	1.40	2.90

Optimisation options

Junction	Optimise stage lengths	Optimise cycle time	Optimiser demand source	Optimiser message
1	✓	✓	Average	Timings provide delay minimisation.

Phases

Junction	Phase	Name	Minimum green (s)
1	A		7
	B		7
	C		7
	D		7

Library Stages

Junction	Library Stage	Phases in stage	User stage minimum (s)	Run every N cycles	Probability of running (%)
1	1	A	1		
	2	B	1		
	3	C	1		
	4	D	1		

Stage Sequences

Junction	Sequence	Name	Stage IDs	Stage ends
1	1		1, 2, 3, 4	52, 64, 76, 0

Intergreen Matrix for Junction 1

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

Interstage Matrix for Junction 1

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

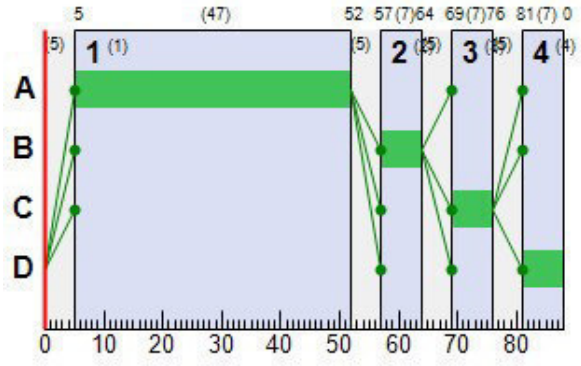
Resultant Stages

Junction	Resultant Stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	1	A	5	52	47	1	7
	2	2	B	57	64	7	1	7
	3	3	C	69	76	7	1	7
	4	4	D	81	0	7	1	7

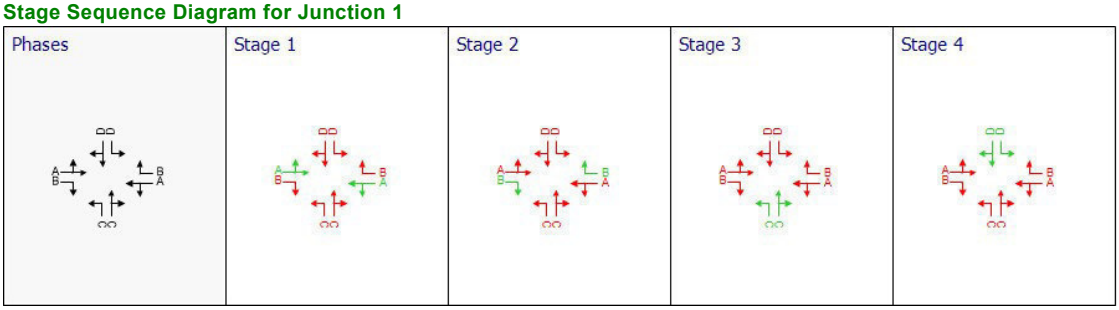
Resultant Phase Green Periods

Junction	Phase	Green period	Start time (s)	End time (s)	Duration (s)
1	A	1	5	52	47
	B	1	57	64	7
	C	1	69	76	7
	D	1	81	0	7

Phase Timings Diagram for Junction 1



Stage Sequence Diagram for Junction 1



Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2023 - Greenhills - Hibernian 2023 With Development	AM	ONE HOUR	08:30	10:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	632	100.000
B		✓	110	100.000
C		✓	611	100.000
D		✓	46	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	67	483	82
	B	52	0	58	0
	C	497	61	0	53
	D	28	0	18	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.58	20.61	9.5	?	C
B	0.40	44.82	2.9	?	D
C	0.58	18.87	8.8	?	B
D	0.19	39.05	1.2	?	D

2028 - Greenhills - Hibernian 2028 With Development , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		23.62	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-100	Arm A - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2028 - Greenhills - Hibernian 2028 With Development	AM	ONE HOUR	08:30	10:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	673	100.000
B		✓	112	100.000
C		✓	646	100.000
D		✓	51	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	70	513	90
	B	53	0	59	0
	C	525	63	0	58
	D	31	0	20	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.61	21.21	10.8	?	C
B	0.48	57.73	3.7	?	E
C	0.56	18.22	9.6	?	B
D	0.25	48.88	1.6	?	D

2038 - Greenhills - Hibernian 2038 With Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		25.90	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-100	Arm A - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2038 - Greenhills - Hibernian 2038 With Development	AM	ONE HOUR	08:30	10:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	740	100.000
B		✓	117	100.000
C		✓	706	100.000
D		✓	54	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	75	568	97
	B	55	0	62	0
	C	577	67	0	62
	D	33	0	21	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.74	24.82	12.5	?	C
B	0.51	59.78	3.9	?	E
C	0.61	19.73	10.8	?	B
D	0.24	47.89	1.6	?	D

2023 - Greenhills - Hibernian 2023 With Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		27.68	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-54	Arm B - Traffic Stream 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2023 - Greenhills - Hibernian 2023 With Development	PM	ONE HOUR	16:00	17:30	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	537	100.000
B		✓	190	100.000
C		✓	448	100.000
D		✓	140	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	73	412	52
	B	79	0	110	1
	C	361	56	0	31
	D	87	1	52	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	10	10	10	10
	B	10	10	10	10
	C	10	10	10	10
	D	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.67	22.32	8.6	?	C
B	0.70	51.50	5.5	?	D
C	0.54	19.54	7.0	?	B
D	0.55	42.00	3.6	?	D

2028 - Greenhills - Hibernian 2028 With Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		31.97	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-78	Arm B - Traffic Stream 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2028 - Greenhills - Hibernian 2028 With Development	PM	ONE HOUR	16:00	17:30	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	671	100.000
B		✓	198	100.000
C		✓	473	100.000
D		✓	148	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	115	501	55
	B	83	0	114	1
	C	382	58	0	33
	D	92	1	55	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	10	10	10	10
	B	10	10	10	10
	C	10	10	10	10
	D	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.78	26.20	11.5	?	C
B	0.79	68.00	7.0	?	E
C	0.52	18.89	7.4	?	B
D	0.64	51.68	4.5	?	D

2038 - Greenhills - Hibernian 2038 With Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		35.39	D

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-86	Arm D - Traffic Stream 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	2038 - Greenhills - Hibernian 2038 With Development	PM	ONE HOUR	16:00	17:30	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	736	100.000
B		✓	213	100.000
C		✓	518	100.000
D		✓	164	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	78	597	61
	B	89	0	123	1
	C	420	61	0	37
	D	102	1	61	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	10	10	10	10
	B	10	10	10	10
	C	10	10	10	10
	D	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.86	33.73	14.4	?	C
B	0.72	55.18	6.7	?	E
C	0.58	21.02	8.6	?	C
D	0.73	62.54	5.6	?	E

Junctions 9

OSCADY 9 - Signalised Intersection Module

Filename: 2022 to 2038 Greenhills - Airton With Combined Development.j9
Path: P:\Jod-jobs\6196 Greenhills Tallaght\400 Planning\403 Planning Application\1 Submissions\Greenhills Road\2022 Development - Greenhills Road\2022 Updated TTA
Report generation date: 04/05/2022 10:01:05

Summary of junction performance

	AM									PM								
	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Set ID	Queue (PCU)	95% Queue (PCU)	Delay (s)	DOS	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
2023 - Greenhills - Airton 2023 With Development																		
Arm A	D3	7.4	?	27.62	0.84	C	27.24	C	-12 % [Arm C - Traffic Stream 2]	D4	4.4	?	20.32	0.69	C	17.27	B	18 % [Arm C - Traffic Stream 2]
Arm B		4.8	?	32.69	0.73	C					3.8	?	22.20	0.55	C			
Arm C		6.5	?	23.88	0.83	C					4.5	?	12.38	0.63	B			
2028 - Greenhills - Airton 2028 with Development																		
Arm A	D5	10.0	?	37.26	0.90	D	34.80	C	-18 % [Arm C - Traffic Stream 2]	D6	6.0	?	28.50	0.79	C	23.50	C	1 % [Arm C - Traffic Stream 2]
Arm B		6.7	?	38.90	0.80	D					4.7	?	29.59	0.67	C			
Arm C		8.3	?	29.72	0.88	C					7.1	?	17.82	0.78	B			
2038 - Greenhills - Airton 2038 With Development																		
Arm A	D7	17.1	?	63.36	0.97	E	47.23	D	-22 % [Arm C - Traffic Stream 2]	D8	8.5	?	42.82	0.88	D	29.68	C	-8 % [Arm B - Traffic Stream 1]
Arm B		7.6	?	41.73	0.80	D					6.2	?	36.34	0.74	D			
Arm C		10.2	?	33.42	0.91	C					8.0	?	18.66	0.81	B			

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. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

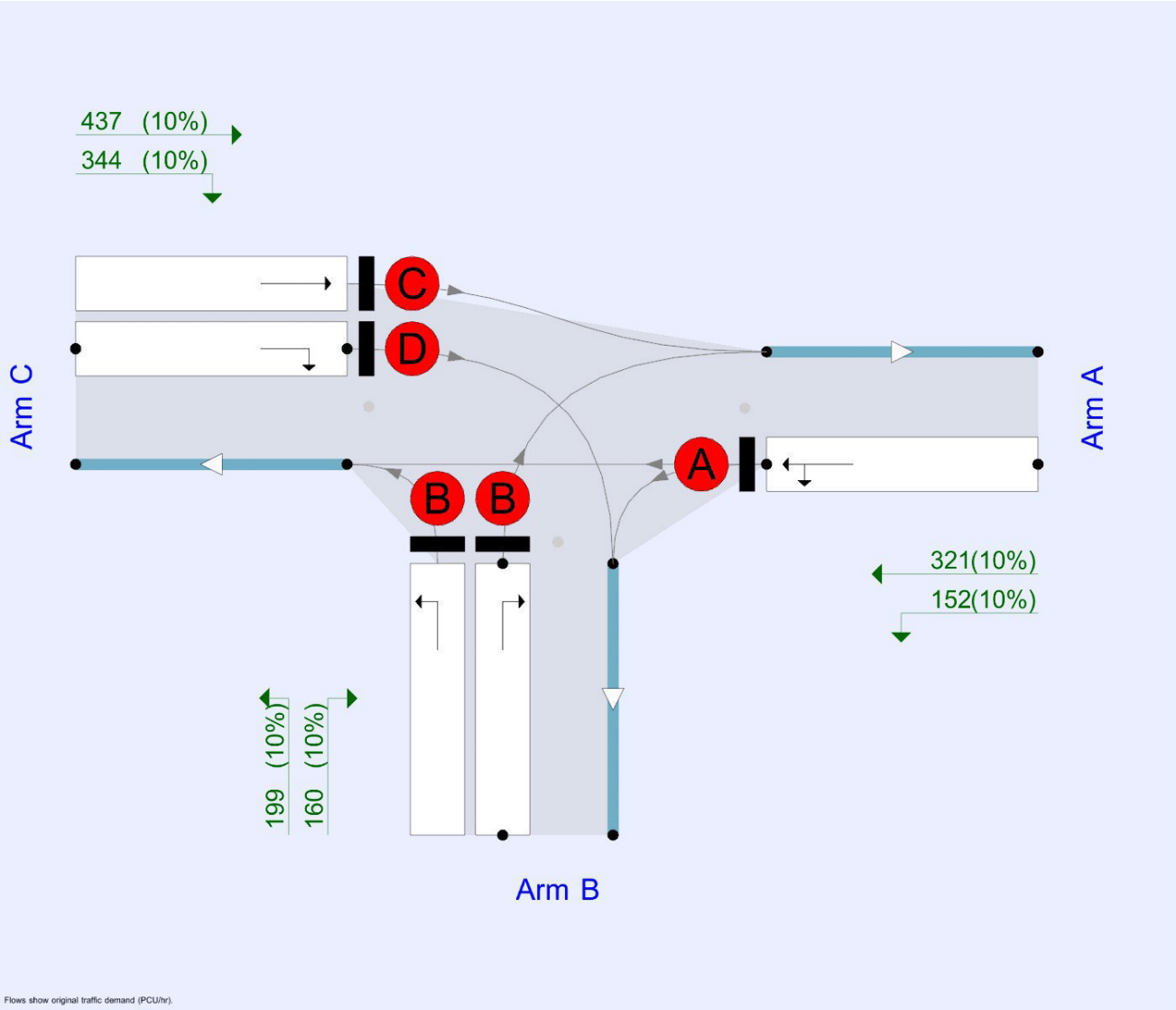
File summary

File Description

Title	
Location	
Site number	
Date	19/04/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	JODIRELAND\jdoogan
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	-Hour	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	DOS Threshold	Average Delay threshold (s)	Queue threshold (PCU)
✓	✓	Delay	0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2023 - Greenhills - Airton 2023 With Development	AM	ONE HOUR	08:30	10:00	15
D4	2023 - Greenhills - Airton 2023 With Development	PM	ONE HOUR	16:00	17:30	15
D5	2028 - Greenhills - Airton 2028 with Development	AM	ONE HOUR	08:30	10:00	15
D6	2028 - Greenhills - Airton 2028 with Development	PM	ONE HOUR	16:00	17:30	15
D7	2038 - Greenhills - Airton 2038 With Development	AM	ONE HOUR	08:30	10:00	15
D8	2038 - Greenhills - Airton 2038 With Development	PM	ONE HOUR	16:00	17:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2023 - Greenhills - Airton 2023 With Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		27.24	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-12	Arm C - Traffic Stream 2

Arms

Arms

Arm	Name	Description
A	Greenhills Road South	
B	Airton Road	
C	Greenhills Road North	

OSCADY Traffic Streams

Arm	Traffic Stream	Phase	Destination arms	Straight move
A	1	A	B, C	C
B	1	B	C	
	2	B	A	
C	1	C	A	A
	2	D	B	A

OSCADY Lanes

Arm	Traffic Stream	Destination arms	Gradient (%)	Width (m)	Turning radius (m)	Nearside lane	Has bay
A	1	B, C	0	3.00	10.00	✓	
B	1	C	0	3.00	10.00	✓	
	2	A	0	3.00	10.00	✓	
C	1	A	0	3.00		✓	
	2	B	0	3.00	10.00	✓	

Signal Timings

Junction 1

Junction	Sequence to use	Cycle time (s)	Maximum cycle time (s)	Start displacement (s)	End displacement (s)
1	1	48	300	1.40	2.90

Optimisation options

Junction	Optimise stage lengths	Optimise cycle time	Optimiser demand source	Optimiser message
1	✓	✓	Average	Timings provide delay minimisation.

Phases

Junction	Phase	Name	Minimum green (s)
1	A		7
	B		7
	C		7
	D		7

Library Stages

Junction	Library Stage	Phases in stage	User stage minimum (s)	Run every N cycles	Probability of running (%)
1	1	A, C	1		
	2	C, D	1		
	3	B	1		

Stage Sequences

Junction	Sequence	Name	Stage IDs	Stage ends
1	1		1, 2, 3	23, 36, 0

Intergreen Matrix for Junction 1

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

Interstage Matrix for Junction 1

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

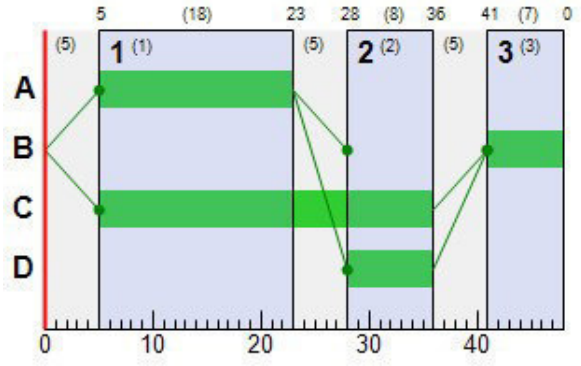
Resultant Stages

Junction	Resultant Stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	1	A,C	5	23	18	1	7
	2	2	C,D	28	36	8	1	7
	3	3	B	41	0	7	1	7

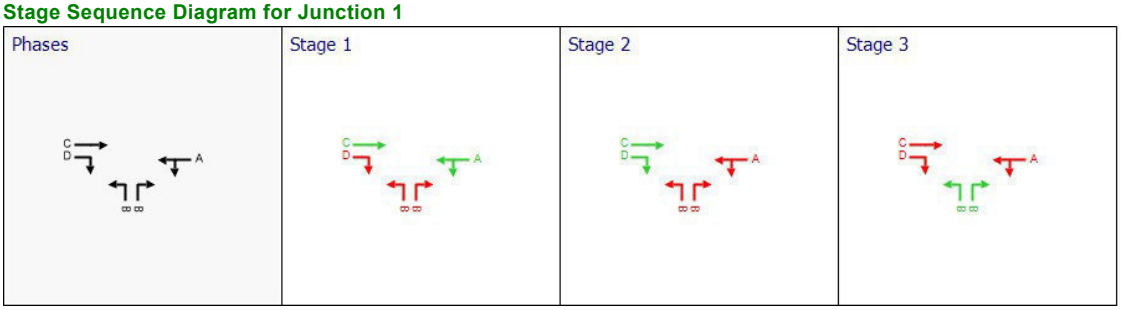
Resultant Phase Green Periods

Junction	Phase	Green period	Start time (s)	End time (s)	Duration (s)
1	A	1	5	23	18
	B	1	41	0	7
	C	1	5	36	31
	D	1	28	36	8

Phase Timings Diagram for Junction 1



Stage Sequence Diagram for Junction 1



Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2023 - Greenhills - Airton 2023 With Development	AM	ONE HOUR	08:30	10:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	567	100.000
B		✓	296	100.000
C		✓	543	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	174	393
	B	100	0	196
	C	295	248	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.84	27.62	7.4	?	C
B	0.73	32.69	4.8	?	C
C	0.83	23.88	6.5	?	C

2023 - Greenhills - Airton 2023 With Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		17.27	B

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	18	Arm C - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2023 - Greenhills - Airton 2023 With Development	PM	ONE HOUR	16:00	17:30	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	397	100.000
B		✓	305	100.000
C		✓	555	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	129	268
	B	136	0	169
	C	363	192	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.69	20.32	4.4	?	C
B	0.55	22.20	3.8	?	C
C	0.63	12.38	4.5	?	B

2028 - Greenhills - Airton 2028 with Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		34.80	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-18	Arm C - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2028 - Greenhills - Airton 2028 with Development	AM	ONE HOUR	08:30	10:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	618	100.000
B		✓	362	100.000
C		✓	590	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	189	429
	B	142	0	220
	C	321	269	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.90	37.26	10.0	?	D
B	0.80	38.90	6.7	?	D
C	0.88	29.72	8.3	?	C

2028 - Greenhills - Airton 2028 with Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		23.50	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	1	Arm C - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2028 - Greenhills - Airton 2028 with Development	PM	ONE HOUR	16:00	17:30	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	430	100.000
B		✓	309	100.000
C		✓	711	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	139	291
	B	127	0	182
	C	396	315	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.79	28.50	6.0	?	C
B	0.67	29.59	4.7	?	C
C	0.78	17.82	7.1	?	B

2038 - Greenhills - Airton 2038 With Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		47.23	D

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-22	Arm C - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2038 - Greenhills - Airton 2038 With Development	AM	ONE HOUR	08:30	10:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	683	100.000
B		✓	372	100.000
C		✓	650	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	209	474
	B	154	0	218
	C	354	296	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.97	63.36	17.1	?	E
B	0.80	41.73	7.6	?	D
C	0.91	33.42	10.2	?	C

2038 - Greenhills - Airton 2038 With Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue percentiles	Analysis Options	Queue percentiles cannot be calculated for signalised junction unless in Lane Simulation mode.
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	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		29.68	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-8	Arm B - Traffic Stream 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	2038 - Greenhills - Airton 2038 With Development	PM	ONE HOUR	16:00	17:30	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	473	100.000
B		✓	359	100.000
C		✓	781	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	152	321
	B	160	0	199
	C	437	344	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS
A	0.88	42.82	8.5	?	D
B	0.74	36.34	6.2	?	D
C	0.81	18.66	8.0	?	B